Switching Trains of Thought : The Impact of News Frames on Readers' Cognitive Responses

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This study investigated how journalistic story frames can affect the thoughts and feelings of readers. Two hundred and seventy-eight students participated in two studies, reading and responding to a fictitious story about possible reductions in state funding of their university. Stories were presented in one of four randomly assigned versions, all containing the same information, but varying in their opening and closing paragraphs according to the frame employed: human interest, conflict, or personal consequences. A control version contained the common body only. In Study 1, thoughts listed by participants indicated that the news frames—although they had no influence on the volume of cognitive responses—significantly affected the topical focus and evaluative implications of thoughts generated. In Study 2, evaluations and opinions offered by participants indicated that the news frames also subtly could affect audience decision making about matters of public policy. Implications for shaping public opinion are discussed.

It is widely understood that news editors and reporters have developed distinctive procedures, values, and workways to aid them in their challenging task of producing news quickly and on a regular basis (McLeod, Kosicki, & McLeod, 1994). News values—beliefs about what makes a "good" story—enter not only into editorial decisions to select some stories over others but also into reporters' choices in presenting their stories. As a result, particular perspectives, journalistic themes, and story angles can come to dominate the flow of news (see, e.g., Bennett, 1988; Gans, 1979; Gitlin, 1980).

Recently, scholars of journalism, political science, and mass communication have devoted much attention to news production practices and journal-

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istic values and the ways these might influence public opinion. The influence of news values on public opinion may follow two routes (Price & Tewskbury, 1997). By the first route, news values may guide the selection of particular stories—issues, events, and people deemed newsworthy and thus deserving of media attention. The inevitable selection of newsworthy issues and events out of the universe of possible incidents and developments can lead audiences to develop a media-induced, and perhaps distorted, view of the greater political environment. This effect has generally been referred to as the *agenda setting effect* in mass communication and political science literature (Iyengar & Kinder, 1987; McCombs & Shaw, 1972; Weaver, Graber, McCombs, & Eyal, 1981). Closely linked to the notion of agenda setting is the idea that issues receiving heavy news coverage may be used by citizens as a basis for judging the performance of political leaders. For example, when a state's economy is especially prominent in the news stream, then public evaluations of the governor may be based mainly on perceptions of the governor's economic record. This tendency has been called the *priming effect* in the mass communication literature. It has been documented in a variety of laboratory studies and surveys that have focused mainly on evaluations of the American president (Iyengar & Kinder, 1987; Iyengar & Simon, 1993; Krosnick & Kinder, 1990; Pan & Kosicki, 1997).

The second route by which news values might influence public opinion has to do with which elements receive the most journalistic attention within a particular news story itself. Gamson (1992) argues that journalists present public issues within certain story *frames*. These frames often reflect broader cultural themes and narratives, and they supply citizens with a basic tool kit of ideas they use in thinking about and talking about politics. How events and issues are packaged and presented by journalists can in this way fundamentally affect how readers and viewers understand those events and issues. This has come to be known as the *framing effect* (e.g., Iyengar, 1991; Pan & Kosicki, 1993) and is the subject of an important and growing body of research. It is also the main concern of the present study.

Recent studies of media issue framing draw, at least in general terms, on psychological research dealing with the impact of the way problems are structured in decision making (e.g., Kahneman & Tversky, 1984). Among the most notable of these studies is a series of experiments by Iyengar (1991), who examined the impact of news framing on the ways people ascribe responsibility for social, political, and economic conditions. Iyengar observes that news organizations, responding to various structural and normative pressures, more often than not produce stories taking an *episodic* rather than a *thematic* perspective toward the events they cover. Instead of explaining

the general background and implications of issues, news reports emphasize only the most recent and attention-getting developments—for example, covering unemployment by focusing on vivid examples of people who have lost their jobs, while failing to link unemployment to any broader social, economic, or political processes. Social issues are thus treated mainly as discreet and isolated events. This sort of episodic news, Iyengar contends, imparts a highly topical and disorganized rather than general understanding of public affairs. And, with so much readily accessible event- and person-related information, audiences will tend to make personal attributions (e.g., people are responsible for their poverty) rather than systemic attributions (e.g., poverty is due to institutional conditions).

Along similar lines, other recent studies in mass communication have examined the extent to which the media are capable of *value-framing* issues (e.g., Ball-Rokeach, Power, Guthrie, & Waring, 1990; Shah, Domke, & Wackman, 1996). These studies contend, with some empirical support, that media messages emphasize particular values—for example, honesty, equality, or competence—in treating issues and public figures and that this form of media emphasis can powerfully shape public understanding. As Ball-Rokeach and Rokeach (1987) put it, "the value-framing concept points to the criteria that determine what is relevant to issue formation and resolution" (p. S184). The general conceptual approach adopted in this work is quite similar to other research on framing, although it focuses specifically on values because these are conceptualized as forming the hub of individual belief systems (Ball-Rokeach, Rokeach, & Grube, 1984). They are consequently theorized to have particular use to audience evaluations.

By activating some ideas, feelings, and values rather than others, then, the news can encourage particular trains of thought about political phenomena and lead audience members to arrive at more or less predictable conclusions. That is the principal claim of this line of work. To date, the framing literature has examined general outcomes that may be attributable to news story frames. Research has studied politically relevant outcomes—like the attribution of social problems to individuals or systemic factors—predicated on the ability of different story frames to evoke different kinds of thoughts and feelings. Studies have not, however, examined directly the more immediate influence of story frames on readers' cognitive responses. The present study attempts to address this gap by investigating, through experimental manipulation of news story frames, the ways in which different frames for a single issue can alter the pattern of thoughts and feelings activated in response to the news. We explore empirically the theoretical link between distinctive news frames, applied to a particular issue, and corresponding patterns in audience cognitions and feelings about that issue.

News Values and News Frames

Journalists and editors employ many considerations in selecting and presenting the news. However, researchers and journalists alike (e.g., Bennett, 1988; Gamson, 1992; Graber, 1993; MacDougall, 1982; Patterson, 1993) have arrived at more or less the same basic list of values that undergird journalism in America. Most of these news values can be traced to a general concern with capturing audience attention and holding onto it. Analysts vary somewhat in the precise enumeration of news values, but virtually all agree on the three of primary interest to the present study: conflict, human interest, and consequence.

Conflict or contest is a staple of news, and especially news about public affairs and politics (Graber, 1993; MacDougall, 1982; Patterson, 1993). Patterson (1993) has argued that the news media frame electoral politics as a game, favoring events that clearly pit candidates against each other, emphasizing conflict regardless of whether events themselves clearly suggest it. Coverage of politics and election campaigns is not the only arena in which journalists find conflict to be a useful storytelling angle. In his primer on reporting, MacDougall (1982) argues that combat is one of the most significant and reliable contributors to reader interest. There is, he submits, "no single other element of reader interest that is present more frequently. Americans, it must be, like a good fight and consider life as a whole to be a struggle" (p. 119). News reporters naturally look for good fights.

Second is the related tendency of journalists to value the *human interest* or personal angle. Analysts interested in political news, such as Patterson (1993) and Bennett (1988), argue that the news often focuses on candidates and other political figures as personalities, in place of the impersonal institutions or institutional forces that more profoundly affect collective life. Personalizing issues or processes that might otherwise be abstract is a time-honored approach to storytelling. There may be some fundamental interest in stories of fires, wrecks, accidents, and other catastrophes, notes MacDougall (1982), but a good journalist also can arouse sympathetic interest by describing the individuals caught up in such unfortunate events (p. 118). It is thus widely assumed that audiences are naturally interested in learning about other people.

Consequence is a third central news value (Graber, 1993; MacDougall, 1982). Graber (1993) says that one of the basic criteria a news story should meet is that it deal with issues having a strong impact on the audience. Underlying journalistic preferences for local events may be assumptions that they are generally of greater consequence and interest to audiences. Mac-

Dougall (1982) notes that a fire in one's local community will often get bigger play in community papers than a fire inflicting twice the damage in some more distant region. Gamson (1992) suggests that news producers often feel they must make issues and events relevant to their audiences, and as a result, they localize stories by relating the issues to concerns presumably held by ordinary people (p. 163). Typically, he posits, this takes the form of framing issues in terms of their economic impact on the average consumer and (in the case of local outlets) in terms of likely effects on people and places nearby.

These values offer editors and reporters a repertoire of story slants or news hooks they can employ in presenting any particular issue or event to readers or viewers (MacDougall, 1982). In the present study, we have selected a single issue and distilled each of these three general values—conflict, human interest, and consequence—into an accompanying news frame. The result is three differently framed articles, three different journalistic takes as it were, on the same issue.

News Frames and Knowledge Activation

Our theoretical interest is in better understanding how the application of a particular journalistic frame might affect the ways in which audience members construe the matter at hand. Price and Tewksbury (1997) have argued that the common theoretical concern linking research on media agenda setting, priming, and framing is the notion that news reports can alter patterns of knowledge activation. Agenda setting and priming research stipulate that story selection can alter audience judgments by shifting the odds that particular issues will come to mind easily. Consequently, audience estimates of issue importance (in the case of agenda setting) and approval of public actors (in the case of priming) are affected. Framing research proposes that media messages, by emphasizing some aspects of a problem rather than others, can put people in mind of very different considerations when they contemplate the matter and form opinions about it. Fundamentally, these approaches all suggest that the news can help determine what knowledge is activated when people are called to make politically relevant judgments.

Price and Tewksbury (1997) develop a fairly elaborate model of the knowledge activation process as it pertains to media priming and framing. Although a complete review of the model is not possible here, its general thrust can be described as follows. At any particular point in time, the mix of particular items of knowledge that are subject to processing (or activated) depends on characteristics of a person's established knowledge store. For

example, readily accessible information and feelings already on one's mind are more likely to be activated. But knowledge activation also depends on salient attributes of the current situation, which can render other ideas and feelings available to a person applicable in a given situation, even if these ideas and feelings are not already in mind. Of the various accessible and/or applicable ideas and feelings that are activated, those with the highest excitation levels—that are the subject of the most focused attention—are the ideas and feelings most likely to be used in making evaluations. Not all activated ideas enter into evaluations because they may be subject to a conscious judgment about their relevance to the situation at hand (although such a review of relevance requires particularly effortful processing). Political evaluations may include, for example, deciding opinions on various issues, forming new or revised appraisals of candidates for office, or voting. As each of these activities occurs, the knowledge store itself changes because new ideas and evaluations are being formed and stored.

In distinguishing the applicability of ideas and feelings from their accessibility, the Price and Tewksbury (1997) model distinguishes between the immediate influence of a particular message on evaluations made during (or immediately following) message processing and those occurring at some later point in time. During message processing, salient attributes of a message activate certain ideas, which are thus more likely to be used in evaluations made in response to the message. Price and Tewksbury term these *applicability effects*. But once activated, ideas and feelings retain some residual activation potential, making them more likely to be activated and used in making subsequent evaluations—these are called *accessibility effects*. Applicability effects are conceptualized as first-order effects of stimuli (in this case, media messages), whereas accessibility effects are secondary or second-order effects of messages. Accessibility effects are the product of either temporary residual excitation or of high baseline levels of excitation (i.e., regular or chronic accessibility of certain ideas or feelings).

News story framing is conceptualized by Price and Tewksbury (1997) as an applicability effect that occurs during message processing. A framing effect is one in which salient attributes of a message (its organization, selection of content, or thematic structure) render particular thoughts applicable, resulting in their activation and use in evaluations. Thoughts and feelings made applicable by a given message are not, however, the only ones with some likelihood of activation. In any single situation, applicable ideas compete for activation with other temporarily accessible and chronically accessible ideas. There are limits on what can be activated at any point in time. Although an author tries, in creating a message, to evoke particular thoughts and feelings, those will inevitably compete for attention with

whatever is already on the minds of readers or viewers (including but not limited to those ideas already in general circulation in the media). Audiences may thus summon to mind other ideas, previous evaluations, and the like, well beyond those stimulated by a particular frame. So a message can serve to direct in various ways, but not completely control, a message recipient's train of thought.

Guided by this conceptualization of the news framing process, the present studies were undertaken as an exploratory effort to examine empirically the knowledge activation process, in particular the effect of news frames on the applicability of ideas and feelings. Three sets of research questions are of primary interest.

Research Question 1: To what extent do alternative journalistic news frames, when applied to the same issue, alter the nature of the thoughts generated by readers? In the terms of the Price and Tewksbury (1997) model, what is the potential of news frames to render applicable—and thus activate—distinctive elements of readers' knowledge stores?

Research Question 2: To what extent do recipients of a news report activate thoughts *not* rendered directly applicable by a news report? That is, owing to temporary or chronic accessibility, or to the spreading activation of knowledge in a reader's mind, what original ideas and implications are contributed by readers themselves?

Research Question 3: What difference will alternative news frames hold, not only for cognitive activities on the part of readers but also for the kinds of affective reactions they experience, and evaluations they form, in connection with the issue at hand?

Study 1

Method

To answer these basic questions, an experimental study was conducted. Participants were asked to read news articles that were experimentally prepared to manipulate alternative news frames. They then engaged in a thought-listing procedure (Cacioppo & Petty, 1981; Petty, Ostrom, & Brock, 1981) designed to assess which particular cognitive responses were evoked by various frames. Thought listing is the principal and indeed one of the only means available for gathering observations of the knowledge activated by people during message processing. Participants were *not* asked to introspect about or to explain their own thought processes—procedures that could be quite problematic (Nisbett & Wilson, 1977). Rather, the study solicited simple listings of everything that came to participants' minds while reading the article. So as not to interfere with the act of reading itself, the procedures

employed a nondirective probe soliciting reports immediately after the reading was completed (Shapiro, 1994).

Participants. One hundred and thirty-five students from undergraduate communication courses at the University of Michigan were recruited to participate in the study. Students were informed that their participation was voluntary and would involve completing a short questionnaire about media and public affairs. Fifty-four percent of the participants were male, and the great majority (91 percent) were upper-level undergraduates. Tests were conducted to determine whether gender or class standing contributed significantly to explaining the dependent variables. No significant effects were detected.

Design and procedure. The study involved a between-subjects experimental design. A paper-and-pencil questionnaire was presented as a Media and Public Affairs Study. It included four filler questions, eight questions about attention to political news, a battery of knowledge questions, evaluations of various government officials, and then the experimental stimulus—a news article—followed by a thought-listing exercise. A series of demographic questions came last. The experimental stimulus was a specially prepared news story about possible cuts in state funding to the university. Participants were randomly assigned to four conditions, depending on the particular news frame employed in presenting the stimulus article.

Stimulus materials. The news article presented to all four experimental groups included an identical core section of five paragraphs describing state funding of public universities in Michigan. The story dealt mainly with the possibility that, in response to the latest projections of state income in the forthcoming fiscal year, new state allocations for higher education might not be increased over current levels. This topic was chosen because it was likely to be of interest to student participants and because it lent itself to the ready construction of plausible alternative news frames. A control group contained only the common core, whereas three treatment groups added introductory and concluding paragraphs designed to establish a unique journalistic frame. These additional paragraphs contained material exclusive to that frame but were otherwise similar in length, writing style, and number of quotations included.

The stimulus article for the control group (n = 33) was composed only of the common core paragraphs and carried the headline, "State faces budget woes in 1995." It noted that state legislators would soon have to "tackle the difficult task of amending the state budget so that it corresponds to revised

projections of state income for the 1995 fiscal year." The article indicated that legislators were expected to "trim anticipated 1995 higher education allocations back to their 1994 levels." The core also made specific reference to the fact that, were funding to be held at current levels, the participants' own university stood to "lose" $6 million in operating funds—the increase that had been originally proposed by state legislators. The story cited officials at the respondents' university who contended that if funding remained at current levels, it would amount to a net loss of $6 million for the university because the inflation rate was expected to add more than 3% to general operating costs.

In the conflict frame condition (n = 33), the headline read "Groups clash over budget woes." The introduction described conflict between two citizen groups, Citizens for Higher Education (CHE) and Fiscal Responsibility in Michigan (FRM), who were "squaring off against each other" in the "battle" over university funding. Following the core material, the article in this condition quoted the conflicting opinions from representatives of each of the combative citizen groups. An FRM spokesperson argued that the state simply could not afford "an inflated budget that provides outrageous salaries and benefits packages for a glut of university administrators." A representative of CHE countered that in making their charges, his opponents "aren't looking to the future of Michigan. What they are really advocating," he argued, "is slashing university funding to the bone."

The human interest frame condition (n = 34) carried the headline, "State to lose valuable 'gem.'" Opening paragraphs introduced John Simon, one of the state's "most experienced advisors," who had just retired as deputy state budget director, tired of struggling to provide equitable funding for all Michigan universities. Following the core material, the article quoted colleagues praising Simon's work in helping resolve state budget problems. It indicated that Simon was already making plans for retirement, and closed by noting his intentions to retreat with his wife and dog to the "peace and quiet" of Michigan's upper peninsula.

In the consequence frame condition (n = 35), the headline read "Major tuition hikes likely in '95." The introductory paragraphs suggested that tuition increases could make students feel "a pain in the wallet." A university financial affairs representative suggested that tuition could increase by as much as $650 on average. After the common core material, the conclusion quoted a university official opining that the funding losses might require not only tuition increases but also cuts in some university programs. Although cuts are always the university's last resort, he noted, "with state funding being cut, nothing is sacred."

Measurement of Variables

Immediately after reading the news story, participants were asked to "write down all thoughts and feelings you had while reading the preceding article, including those thoughts and feelings that are not necessarily relevant to the article." Students were instructed not to worry about punctuation, spelling, grammar, or use of complete sentences. All dependent variables were measured through a content analysis of participants' responses to this thought-listing exercise.

The thought-listing responses were coded in three basic steps. First, two coders divided the responses into individual thought units based on standard subject/verb units. Based on a subset of 40% of the responses, intercoder agreement was 87% for this stage of the coding. All disagreements were resolved by discussion. Next, these thoughts were carefully analyzed to identify recurring foci or thought topics. This analysis identified 22 general and 79 subcategories and included all topics relevant to the content of the core and treatment paragraphs. Each thought was then coded into the most appropriate general and specific topic categories. Because thoughts could sometimes focus on more than a single topic (e.g., university administrators, policies, and financial aid), more than one topic code per thought was allowed. Finally, coders recorded the affective valence—positive, neutral, or negative — of each thought.

A chance-corrected measure of intercoder agreement (Scott's pi) was used to assess the reliability of content-analytic measures, unless the variables were sufficiently continuous to warrant calculation of intercoder Pearson correlations. The analysis employed as dependent variables a variety of counts based on the coded thought-listing data.

Thoughts about state funding decreases. This variable was constructed by counting the total number of thoughts that made any reference at all to the possibility of decreases in state funding of public universities (intercoder r = .87). Because possible funding decreases were mentioned in the core material, this topic was explicitly brought to the attention of participants in every news story condition, including the control condition.

Thoughts about tuition increases. Also counted were the total number of thoughts that made any reference at all to the possibility of increases in the university's tuition charges (intercoder r = 1.00). Tuition increases were mentioned explicitly only in the consequence version of the news article, but the idea was assumed to be readily accessible to all participants and somewhat likely to be rendered applicable by all versions of the story.

Thoughts related to conflict. This variable was constructed by counting the number of times participants' generated thought about the following topics: politics or the political process, system, or parties; interest groups; conflict; salaries or administrators (pi = .65). These topical themes were only mentioned explicitly in the conflict version of the article, but they were assumed to be generally accessible to participants in all conditions.

Thoughts related to human interest. This variable was constructed by counting the number of times respondents generated thoughts related in any way to the state deputy budget director, John Simon, who had been featured only in the human interest version of the article (pi = .68). Unlike other frame-relevant thoughts (i.e., those related to conflict or to consequences), which were presumed to be a priori accessible to participants in all conditions, these very specific thoughts were expected to occur *only* among participants in the human interest condition.

Thoughts related to consequences. This variable was constructed by counting the number of thoughts, aside from those dealing specifically with tuition increases, that were coded as one of the following themes: student residency status, university academic programs, and families or parents (pi = .66). These topical themes were only mentioned explicitly in the consequence version of the article but were assumed to be generally accessible to participants in every condition.

Affective valence. The valence of each thought was coded as either positive, negative, or neutral, based on the affective import of nouns and verbs. Separate totals for the number of positive thoughts (intercoder r = .56) and negative thoughts (intercoder r = .87) were calculated. A third variable was constructed to indicate the total of all valenced, that is, nonneutral, thoughts (intercoder r = .88).

Other variables. In addition to the experimental manipulations, several other variables were expected to influence the nature of participants' cognitive responses, either directly or in interaction with the news-frame manipulations. Because the experimental news story carried potential monetary implications for participants, student's economic situations would likely become an important factor. Because the university's tuition charges are approximately twice as high for out-of-state as for in-state students, it is reasonable to expect that participants' residency status might well play a role in determining the substantive focus and valence of thoughts generated. Additionally, given that both the core story and experimental news frames involve political actors, institutions, and issues, participants' political orien-

tations and levels of knowledge might influence responses. Consequently, each of these variables was also measured.

Participants' general political knowledge was measured using a scale of 16 factual questions ($\alpha = .84$). The scale included five fill-in-the-blank, three multiple-choice, and eight matching questions. Preliminary analyses showed that knowledge of city, state, national, and international affairs constituted highly correlated dimensions, so a single composite knowledge measure was formed.

A measure of participants' political orientation was constructed using three items: each subject's evaluation of President Clinton (a Democrat), evaluation of Michigan Governor John Engler (a Republican), and the subject's political party identification. All three items were recoded to an interval from +2 to –2, with higher scores indicating a response favorable to the Democrats, and then combined into a composite evaluation measure ($\alpha = .78$).

Respondents also indicated, at the end of the questionnaire, both their state residency status (in-state versus out-of-state) and their self-perceived socioeconomic status (upper class, middle class or working class).

Results

Most respondents listed more than four codable thoughts ($M = 4.10$).[1] Approximately half of these thoughts were in one way or another money-related. Specific considerations of the state's threat to reduce higher education funding ($M = .66$) and of university tuition rates ($M = .81$) accounted for the majority of such thoughts. Another frequently occurring topic was higher education in general ($M = 1.23$), with more than half of those thoughts dealing with the university itself ($M = .82$). Responses in which the participants included themselves as topics appeared relatively frequently, accounting for more than one third of all reported thoughts ($M = 1.52$) and suggesting a relatively high level of personal involvement overall in the issue under consideration. More than one third of the responses coded were also affectively valenced ($M = 1.61$).

Total thoughts. Analyses of the number of thoughts reported suggest that participants generated a relatively constant number of cognitive responses, regardless of experimental condition. A one-way ANOVA found no significant difference in the mean number of total thoughts across conditions. Even the control version of the news article—which was much shorter than the three treatment versions by virtue of the fact that it contained only the core paragraphs—produced about the same number of responses ($M = 4.00$) as

Table 1
Thought Topic Mean Counts Across Experimental Conditions

	Control	Conflict	Human Interest	Consequence
State funding decrease	$.82_a$	.33	.47	$.23_b$
	(1.04)	(.65)	(.75)	(.60)
Possible tuition increase	.67	$.30_a$	$.21_a$	$.86_b$
	(1.14)	(.59)	(.41)	(.88)
Related to conflict	$.03_a$	$.67_b$	$.09_a$	$.11_a$
	(.17)	(1.36)	(.29)	(.40)
Related to human interest	.00	.00	1.09	.00
	(.00)	(.00)	(1.42)	(.00)
Related to consequences	$.15_a$	$.24_a$	$.12_a$	$.83_b$
	(.51)	(.61)	(.41)	(1.38)

Note. Means represent the number of listed thoughts coded as relevant to each topic. Standard deviations are in parentheses. Cells with different subscripts differ at $p < .05$ by Scheffe post hoc tests.

the human interest ($M = 3.71$), conflict ($M = 4.39$), and consequence ($M = 4.29$) versions.

Topical focus of thoughts. Even though the story frames did not appear to have affected the total number of thoughts participants reported, they did influence the substantive focus of the thoughts. Table 1 displays means for various thought-topic counts by experimental condition. The table entries represent the mean number of thoughts in which a given topic appeared. The primary idea contained in the core story—the possibility of a decrease in state funding of higher education—appeared in the cognitive responses to all versions of the article. But it did not appear with equal frequency in each condition. An ANOVA revealed a significant difference among the group means, $F(3, 131) = 3.68$, $\eta = .28$, $p = .01$. Although participants in all three of the treatment conditions produced notably fewer thoughts dealing with the funding decrease than did participants in the control condition, post hoc tests indicated only that the mean for the control condition ($M = .82$) was significantly greater than the mean for the consequence condition ($M = .23$). Thus, although thoughts focused on cuts in funding were default responses to the issue, the story frames altered the likelihood of those responses.

Possible tuition increases, although mentioned explicitly only in the consequence version of the article, seemed to be an implication of funding cuts that students were ready to draw. Tuition increases were the focus of thoughts listed by participants in every condition. But again, the likelihood that participants would draw out this implication of the news clearly varied by experimental condition, $F(3,131) = 4.97$, $\eta = .32$, $p < .01$. As expected, participants in the consequence condition ($M = .86$) reported significantly

more tuition-related thoughts than did those in either the human interest (M = .21) or conflict (M = .30) conditions. Apparently, the conflict and human interest frames suppressed these responses; in the control condition, for example, participants did generate a substantial number of thoughts related to possible increases in tuition (M = .67).

Analyses of thoughts related to each of the three experimental story frames—conflict, human interest, and consequences—similarly suggest that in each case, the cognitive responses of participants were directed *away* from core story elements and toward ideas related to the frame in question. Not surprisingly, the number of thoughts about state deputy budget director Simon, mentioned only in the human interest frame and unknown to other participants, were generated frequently in response to the human interest story (m = 1.09) but not at all in any other condition. Conflict-related ideas were produced in every condition, although their frequency was appreciable only in response to the article framed in terms of conflict (M = .67) and differed significantly across conditions, $F(3, 131) = 5.57, \eta = .33, p < .01$. Much more accessible to participants generally were thoughts related to consequences. Here again, however, the greatest number of thoughts related to consequences was listed by participants who read the article framed in terms of consequences, $F(3, 131) = 5.54, \eta = .34, p < .01$.

Thought valence. Not only was the content of participants' thoughts affected by the story frames, but the tendency of participants to react affectively also was influenced by the frame condition. Table 2 reports the valence—positive, negative, and total valence—of the thoughts participants reported in each of the conditions. The number of positive thoughts was marginally associated with story frame, $F(3,131) = 2.14, \eta = .22, p < .10$. The thoughts reported in the human interest condition were slightly, albeit not significantly, more likely to be positive in tone (M = .24) than those in the control (M = .15), conflict (M = .03), or consequence conditions (M = 09). The frequency of negatively valenced thoughts, on the other hand, was significantly affected by the story frame, $F(3,131) = 3.65, \eta = .28, p = .01$. Post hoc tests indicated that thoughts reported by participants in the consequence condition were significantly more negatively valenced (M = 2.20) than those in the human interest condition (M = .97), whereas the number of negative thoughts reported in the control (M = 1.61) and conflict (M = 1.18) conditions fell somewhere between these levels. Not surprisingly, the total number of nonneutral thoughts is also significantly influenced by the story frame, $F(3, 131) = 3.37, \eta = .27, p = .02$. In sum, the frame appears to have significantly affected the likelihood that participants would react to the story with va-

Table 2
Thought Valence Means Across Experimental Conditions

	Control	Conflict	Human Interest	Consequence
Positive valence	.15	.03	.24	.09
	(.36)	(.17)	(.49)	(.28)
Negative valence	1.61	1.18	$.97_a$	2.20_b
	(2.38)	(1.04)	(1.08)	(1.78)
Total valenced	1.75	1.21	1.21	2.29
	(2.34)	(1.08)	(1.09)	(1.74)

Note. Means represent the number of thoughts coded as affectively valenced. Standard deviations are in parentheses. Cells with different subscripts differ at $p < .05$ by Scheffe post hoc tests.

lenced responses. Overall, the affective balance of responses had a decidedly negative cast. This default pattern, illustrated by the control condition, was apparently exacerbated by the consequence frame and, to some extent, minimized by the conflict and human interest frames.

Influences of other variables. Introducing participants' levels of background knowledge of public affairs as a covariate did not substantially affect observed impact of the experimental frame conditions. Knowledge did interact with experimental condition in predicting the total number of thoughts listed by participants, $F(3, 125) = 2.66$, partial $\eta = .28$, $p = .05$, such that more knowledgeable students produced more responses than less knowledgeable students in the human interest condition.

Introducing students' political orientations as a covariate in analyses of variance did not substantially alter the experimental results. Main effects of the frame manipulation were not affected, and political orientations produced no significant main or interactive effects on any of the dependent variables.

Similarly, repeating the ANOVA tests with participants' student residency status (in-state or out-of-state) as an added factor did not substantially alter the observed effects of story frames. However, residency status was involved in two significant relationships. First, it exerted a main effect on the number of consequence-relevant thoughts, $F(1, 125) = 13.06$, partial $\eta = .31$, $p < .01$. Across all conditions, out-of-state participants reported significantly more consequence-related thoughts ($M = .65$) than did in-state students ($M = .14$). This was in part because thoughts about out-of-state students suffering higher tuition increases were themselves coded as consequence related. Second, although residency did not exert a main effect on the total number of thoughts, it did interact with the story condition, $F(3, 125) = 2.693$, partial

$\eta = .25$, $p = .05$. In reacting to the control version of the article, but not in other conditions, out-of-state students reported a substantially larger number of thoughts ($M = 5.63$) than in-state students ($M = 3.48$).

Inclusion of participants' self-reported socioeconomic status also failed to alter substantially the observed effects of story frames. Like residency status, this variable did seem to identify students (those who indicated they were upper class) who were particularly sensitive to potential consequences of the news story, although ANOVA testing was rendered problematic owing to small cell sizes and several cells in which no frame-related thoughts at all were reported. The pattern of cell means indicated that participants placing themselves in the upper social class generally listed more consequence-related thoughts ($M = .67$) than those who reported belonging to the middle ($M = .26$) or working ($M = .00$) classes. Social class also interacted with story frame, such that upper-class students in the consequence frame reported more than three times the number of consequence-related thoughts ($M = 3.25$) than did middle-class ($M = .48$) or working-class ($M = .00$) participants.[2] Lack of financial aid among students of higher socioeconomic status probably made them especially sensitive to potentially adverse effects of the reported cuts in state funding. For reasons that are less clear, socioeconomic status also appeared to have influenced participants' reactions to the human interest story. It interacted with the story condition, such that upper-class participants in the human interest condition reported substantially more of these thoughts ($M = 2.14$) than did middle-class ($M = .90$) and working-class ($M = .00$) participants in this condition.[3]

Discussion

The experimental news frames constructed and tested in Study 1 clearly did evoke distinctive patterns in the activation of thoughts. Not all thoughts generated by participants, however, were explicitly directed by the articles. Participants demonstrated a capacity to introduce their own thoughts, going beyond the information provided and drawing out some basic implications on their own. Finally, although the present study did not seek any particular evaluative effects (e.g., changes in student opinions about limits on tuition, their views of state legislators or of university administrators), the cognitive response data did reveal frame-induced differences in the affective tone of responses. Prior research on cognitive responses in persuasion suggests that the affective valence of thoughts is often predictive of attitude change (see, e.g., Cacioppo & Petty, 1981). Still, whether and exactly how the thoughts evoked in participants would be used in making evaluations cannot be examined with

the data provided by Study 1. For this reason, a follow-up study was conducted to determine the evaluative implications of alternative frames.

Study 2

Method

Participants. One hundred and fifty-three students, again from undergraduate communication courses at the University of Michigan, participated in the study. Fifty-six percent were male, and 62% were upper-level undergraduates.

Design and procedure. Procedures and stimulus materials similar to those used in Study 1 were again employed. Participants were again randomly assigned to a conflict frame (n = 37), human interest frame, (n = 38), or consequence frame (n = 37) condition or to a control group (n = 41) that read only of the common core paragraphs of the stimulus article.

Measurement of variables. Measures were gathered as in Study 1, with one set of modifications. On completing the thought-listing procedures, participants were asked to indicate their feelings toward a series of individuals and groups on "feeling thermometers" anchored at one end by 0 = *very cold* and at the other end by 100 = *very warm*. They then were asked to report their opinion concerning a proposal that state universities be prohibited from raising tuition at a rate exceeding the national inflation rate, using a scale from 1 = *very strongly oppose tuition caps* to 7 = *very strongly support tuition caps*. Participants also reported, again on 7-point scales, their overall satisfaction with the education they had so far received at the university.

Results

Table 3 displays means for various student evaluations by experimental condition. Analyses of variance were conducted for each evaluation variable, incorporating planned comparisons between each of the experimental news frames and the control condition. On the central question of capping university tuition increases, participants exposed to news framed in terms of personal consequences, and to a lesser extent those who read news framed in terms of conflict, reported higher mean levels of support for the proposed limits on tuition (M = 5.75 and 5.41 respectively, on a 7-point scale) than did participants reading either the control materials (M = 5.15) or the human interest story (M = 5.19). The differences of opinion, although consistent with

Table 3
Mean Evaluations Across Experimental Conditions

	Control	Conflict	Human Interest	Consequence
Opinion questions				
(1 to 7 Likert-type scale)				
Support for tuition caps	5.15	5.41	5.19	5.75
	(1.63)	(1.57)	(1.65)	(1.00)
Satisfaction with university	4.97	4.89	5.25	5.35
	(1.16)	(1.34)	(1.02)	(1.00)
Feeling thermometers				
(0 to 100 Likert-type scale)				
University administration	47.25_a	37.40_b	45.14	46.91
	(17.61)	(18.26)	(20.09)	(18.36)
University president	47.43	53.97	53.48	54.86
	(18.57)	(18.17)	(17.70)	(15.26)
State legislature	46.40	48.26	47.12	45.57
	(15.43)	(10.64)	(14.47)	(14.08)
State governor	47.02	49.52	40.51	45.14
	(24.25)	(21.75)	(20.71)	(21.75)

Note. Opinion means represent ratings on a scale from 1 = *strongly oppose tuition caps* to 7 = *strongly support tuition caps*. Thermometer means represent ratings on a scale from 0 = *very cold* to 100 = *very warm*. Standard deviations are in parentheses. Means with different subscripts differ at $p < .05$ by planned comparisons.

the pattern of cognitive responses obtained in Study 1, are modest in size. Planned comparisons indicated only that support for capping university tuition was higher in the consequence condition than in the control group, mean difference = .60, $t(74) = 1.93$, $p = .06$, and a one-way ANOVA did not indicate significant omnibus experimental effects.

Generally, the experimental conditions did not produce pronounced differences in other evaluations, with one noticeable exception. Students in the conflict condition gave the university administration markedly lower ratings on the feeling thermometer (a chilly 37 degrees) than other students (whose average ratings fell between 45 and 48 degrees). Planned comparisons indicated that participants in the conflict condition produced significantly lower thermometer ratings for the administration than did control participants, mean difference = –9.84, $t(74) = 2.41$, $p < .05$, and the ANOVA obtained a marginally significant omnibus effect, $F(3, 148) = 2.31$, $\eta = .21$, $p = .08$. This finding is again consistent with the results of Study 1. There, we found that cognitive responses to the conflict version of the article—which reported a citizen's group's charges that "a glut" of university administrators received inflated salaries and benefits—contained a large proportion of thoughts about politics, salaries, and administrators.

Table 4
Regression Equations Predicting Support for Tuition Caps

	Equation 1	Equation 2	Equation 3
Background variables			
Conservatism (standardized)	.31**	.31**	.49*
Out-of-state residency (0-1)	.10	.14	1.12**
Self-designated social class (standardized)	−.33**	−.31**	−.73***
Experimental conditions			
Conflict frame (0-1)		.19	1.42***
Human interest frame (0-1)		.20	.97*
Consequence frame (0-1)		.56*	1.13**
Interaction terms			
Conflict × Conservatism			−.67
Human interest × Conservatism			−.02
Consequences × Conservatism			−.14
Conflict × Residency			−1.98***
Human interest × Residency			−1.40**
Consequences × Residency			−.73
Conflict × Social Class			.49
Human interest × Social Class			.60
Consequences × Social Class			.77**
Model fit			
R^2	.07**	.09**	.20**
Change in R^2		.02	.11**

Note. Entries are unstandardized coefficients from OLS regressions. $N = 143$. Dependent variable is scored from 1 = *strongly oppose tuition caps* to 7 = *strongly support tuition caps*.
*$p < .10$. **$p < .05$. ***$p < .01$.

Multivariate analyses. Although the means in Table 3 suggest only weak overall effects of the frame manipulations on evaluations, there is other evidence that the frame manipulations did significantly, albeit subtly, alter student's evaluations of the issue at hand. Introducing other variables into the analysis—especially students' political leanings, residency status, and self-designated social class—gives us a clearer sense of the full implications of news framing. Table 4 presents a series of three regression equations predicting students' views of the proposal to cap university tuition. Equation 1 includes only the relevant background variables. Results indicate that conservative students and students identifying themselves as middle class or working class were significantly more likely to support the proposal. These variables together accounted for 7% of the variance in student's opinions. Equation 2 adds to the regression model the experimental manipulations. In agreement with the means presented in Table 3 above, coefficients indicate

that participants reading news framed in terms of personal consequences were, *ceteris paribus*, somewhat more likely than others to support tuition caps (b = .56, p = .09). On the whole, however, addition of the experimental conditions to the model did not significantly improve the prediction (ΔR^2 = .02, *ns*).

Equation 3 adds multiplicative interaction terms to the model, allowing us to account for the possibility that the manipulations alter the impact of background variables on opinions. The results are fairly striking.[4] In this respecified model, which in essence estimates different coefficients for each experimental condition, all three frame manipulations are estimated to have had significant, positive main effects on support for tuition caps, especially so the conflict frame (b = 1.42, p < .01) and personal consequences frame (b = 1.13, p < .01). Each frame manipulation also interacted significantly with other variables. Perhaps the most notable impact of respecifying the model is the estimated impact of out-of-state residency. In the control group, the unstandardized coefficient is 1.12 (p < .05), indicating much greater support for tuition caps among out-of-state students in this default condition. But the large and negative interaction terms for the conflict and human interest conditions indicate that out-of-state residency actually had a modest negative impact in those particular conditions (b = 1.12 – 1.98 = –.86 in the conflict condition, and 1.12 – 1.40 = –.28 in the human interest condition). Similarly, the negative impact of higher perceived social class in the control condition (b = –.73, p < .01) was mitigated in the personal consequences condition (b = –.73 – .77 = .04). Altogether, adding interactions to the regression equation enables it to account for 20% of the variance in students' opinions, a significant doubling of the predictive power of the model (ΔR^2 = .11, p < .05).

General Discussion

The combined results of both experiments, then, illustrate the knowledge activation potential of news story frames. Findings from Study 1 indicate that although all versions of the experimental news article produced a comparable number of codable thoughts, issue frames exerted a significant impact on the focus and evaluative implications of participants' cognitive responses. Some story frames (the human interest and conflict frames) seemingly operated to suppress the default reactions generated by the story, whereas another (the consequence frame) increased them. Participants in the control and consequence conditions often made the logical connection between state funding cuts and potential tuition increases—the former group having drawn that implicit implication themselves and the latter having

been directed by the story itself. In contrast, participants in the conflict and human interest frames produced fewer thoughts focused on tuition increases and more thoughts relevant to their corresponding news frame. Here, readers' attention was apparently deflected away from consideration of potential personal consequences, occupied instead with the circumstances of a state deputy budget director or with political battles in the state capital. Taken together, the results illustrate a kind of hydraulic pattern, with thoughts of one kind, stimulated by the frame, driving out other possible responses.

Because the logical implications of the news to which students were exposed were negative, default affective reactions (i.e., those generated in the control condition) tended to be negative. Thus, as Study 2 confirmed, most students were concerned enough about tuition increases to support a proposal that would place legal limits on tuition charges. Once again, the frame manipulations demonstrated an ability to exacerbate or mitigate these responses. Study 1 found that negative reactions among participants reading the consequence version of the news article were roughly twice as frequent as they were among readers of either the human interest or conflict versions. Consistent with this knowledge-activation effect, Study 2 indicated that students reading the article framing the state budget cuts in terms of personal consequences consequently produced the highest mean levels of support for tuition caps. And the conflict version of the article, in which university administrators were charged with being overabundant and overpaid, not only produced high levels of support for legal limits on tuition but also lowered student evaluations of the university administration.

Although these experiments did not explore news framing of causal attributions (Iyengar, 1991) or media value-framing (Ball-Rokeach et al., 1990; Shah et al., 1996), the findings help to illustrate some of the knowledge-activation mechanisms by which such effects could occur. These results should not be interpreted as any sort of direct confirmation of the Price and Tewksbury (1997) knowledge activation model, which is more an organizing theoretical framework than a set of specific hypotheses. Nonetheless, the present findings do illustrate the potential value of conceptualizing framing in terms of knowledge activation effects experienced during the interpretation and reaction to specific stories. The news frames manipulated in these experiments did apparently render applicable, and consequently activate in the minds of readers, a distinctive mix of thoughts and feelings.

Ideas activated by a particular frame are clearly not, however, the only ones brought to mind. Results of these experiments illustrated that certain kinds of ideas and feelings—about rising school costs and tuition increases, in this specific instance—tended to be generated by students even when the story did not directly stimulate them. These were already on students' minds,

or at least very easily brought to mind. In the parlance of the Price and Tewksbury (1997) model, ideas that are either recently or frequently activated (and are thus temporarily accessible) or those that have a high baseline probability of activation (or are chronically accessible) will have a high likelihood of activation, framing effects aside.

According to the model posited by Price and Tewksbury (1997), the mere activation of ideas and feelings need not necessarily result in their use while forming evaluations. Higgins (1996) notes that people are able to suppress activated knowledge if they judge it irrelevant to an evaluation or decision. Devine (1989) found, for example, that both high- and low-prejudice Whites held and activated pejorative Black stereotypes, but that Whites who were less prejudiced were less likely to vocalize those beliefs when they were made conscious of a person's race. Other studies (e.g., Higgins & King, 1981; Sedikides, 1990) also suggest that activated knowledge can be filtered out of the evaluation process when certain kinds of goals are operative (e.g., when people are trying to follow decision or communication rules that make use of a certain construct inappropriate or undesirable). So we must bear in mind important contingent conditions affecting the ability of any single message to guide audience evaluations. When people are motivated to form an evaluation carefully, they can consciously review and reject activated knowledge as irrelevant to the judgment they are called on to make. Price and Tewksbury suggest that some voters, even those exposed to large amounts of news focused on personal characteristics of candidates, may well decide that other considerations—for instance, candidates' published platforms and their consistency with one's own views and opinions—are more germane to their voting decision.

Consequently, Price and Tewskbury (1997) submit, it would be quite interesting to learn how experimental decision-making or information-processing *goals* might affect the kinds of activated knowledge that become used in forming an evaluation. There is considerable debate within the political behavior literature over the extent to which voter's choices are driven by self-interest (e.g., pocketbook voting) or by concerns about the general, collective welfare (see Kinder & Sears, 1985, for a review). Different decision-making goals—maximizing either personal or collective economic conditions—are themselves subject to manipulation through framing, and if activated, these different goals might have much to do with the selection of constructs deemed relevant to a particular evaluation.

Notwithstanding limits on the power of any one message to guide audience evaluations, framing can indeed have evaluative effects. Study 2 results

suggested that frame-induced knowledge activation can significantly influence decision making by altering the mix of considerations brought to mind. Thus, for example, out-of-state participants in the control and consequence conditions tended to be more supportive than in-state students of placing legal limits on tuition increases; but exposure to news framed in terms of conflict or human interest conditions—which in Study 1 tended to produce fewer thoughts about personal financial consequences—mitigated this difference.

Although the present study has focused only on immediate effects at the point of initial contact with a news report, this should not be taken to mean that the *total* influence of message framing is only produced immediately. As Price and Tewksbury (1997) note, there are at least two ways that message framing can theoretically produce longer-term effects. First, framing effects (or knowledge applicability effects) can be maintained over time via subsequent priming of evaluations (that is, through later accessibility effects). Second, Hastie and Park (1986) have proposed that people often make evaluations "on-line," at the point of initial message processing, and store these in memory for later updating. If so, then whatever evaluations are made during or immediately following message processing can be stored and subsequently activated, either because of residual accessibility or because they are rendered applicable by some other stimulus.

Although the present results are intriguing and suggest a variety of theoretical implications, there are a number of limitations to the study that are worthy of careful consideration. Among these, perhaps the most critical is the fact that the experimental procedures employed were rather artificial. Participants in a group setting were asked to read a single news article, out of its normal context, and then to write down their thoughts and reactions. Thought-listing measures like those employed in this study are one of the most commonly used ways of observing cognitive responses, but they are not without their drawbacks (Shapiro, 1994). One major problem is that participants may not have the ability to report accurately on their own mental processes, even regarding so basic a matter as listing the kinds of ideas they hold in mind at a particular point in time. Shapiro (1994) concludes that, even with its limitations, the approach remains a tested and valuable one for communication research. Unfortunately, recording subject's cognitive processes is almost unavoidably obtrusive and dependent on self-reports.

Our sample also consisted entirely of college undergraduates. College students are atypical of the general population, both in terms of their news media use and their knowledge of political affairs. Although an issue was

selected that was "real" and of direct import to students, the homogeneity and unique character of the sample clearly limits the generalizability of our findings. Finally, the fact that only one exemplar of each frame condition was employed in these experiments leaves us without any clear sense of the extent to which the present results will generalize across messages (Jackson, 1992).

Despite these various limitations, our findings provide useful insights into the ways news frames can affect perceptions of issues and people in the news. By prompting the activation of certain constructs at the expense of others, frames can directly influence what enters the minds of audience members. Although reporters and editors may not be driving the engines of audience decision making, they may nonetheless have some capacity to guide those engines by switching tracks.

Notes

1. Inspection of the distributions of the thought counts revealed that several of these measures failed to meet accepted standards of normality and homogeneity-of-variance assumptions underlying use of ANOVA testing. To determine what effect this might have on the ANOVA results, questionable items were recoded into two- or three-level variables. These items were then examined via chi-square and log-linear analyses. Results of these tests confirmed those obtained through analysis of variance. Because ANOVA is generally robust against violations of normality assumptions, and against violations of heterogeneity of variance when cell *n*s are equal (as in this case), we have presented those results here.

2. The fact that the small number of participants identifying themselves as working class failed to produce any consequence-related thoughts violates basic assumptions of ANOVA. However, with working-class participants omitted from the analysis, the main effect of social class remained significant, $F(1, 100) = 9.00$, $\eta = .29$, $p < .01$, as did interaction of social class and frame condition, $F(3, 100) = 14.34$, $\eta = .56$, $p < .001$.

3. The interaction is significant, $F(3, 100) = 1.98$, $\eta = .32$, $p < .05$, with working-class participants omitted from the analysis.

4. Equation 3 introduces all possible two-way interactions between each background variable and experimental manipulation and thus adds nine additional independent variables to the model. In light of the relatively small sample size and the large set of independent (and multiplicative) variables, we must be concerned about collinearity adversely affecting estimated coefficients. The smallest tolerance—the proportion of variance not accounted for by other predictors—of any variable in the full model was .23 (for conservatism), and most variables had a tolerance of .29 or greater. A series of reduced equations were calculated, each with fewer than the full set of interaction terms, to test the pattern of significant coefficients and coefficient estimates. These analyses suggest that the overall pattern of significant interactions is robust. If a backward elimination algorithm is employed to seek an optimal equation, the final solution retains each of the significant interaction terms presented in Table 4.

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