Effects of News Frames and Schemas on Individuals' Issue Interpretations and Attitudes

By Fuyuan Shen

This study investigated the effects of news frames and schemas on audiences' issue interpretations and attitudes. An experiment was conducted whereby two political issues, systematically manipulated by value or consequence frames, were presented to participants in a controlled issue-framing environment. Results indicated that, while news frames could activate frame-related issue interpretations and affect attitudes, such effects were moderated by individuals' issue schemas. Individuals were more likely to activate frame-relevant thoughts and change attitudes when news frames resonated with their issue schemas. These findings suggested that individuals' existing issue schemas and predispositions are important factors to consider in framing research.

The mass media are the conduits whereby politicians, journalists, lobbyists, and commentators all jockey to promote their ideas and advance their positions on a variety of political issues and events. One way that the media elites define and give meanings to issues and shape messages is through framing. By selecting and highlighting certain facts while excluding other information, they can create frames that can have a powerful impact on public opinions and audience interpretations of issues and events.[1] According to Gamson and Modigliani, a frame is "a central organizing idea or story line that provides meaning to an unfolding strip of events, weaving a connection among them....The frame suggests what the controversy is, about the essence of the issue."[2] Framing is thus a process by which media and political elites define and construct issues or events.[3]

The potential for framing abounds, as many of today's political issues are inherently complex, multifaceted, and open to different interpretations.[4] In addition, citizens often hold different views, values, or interests, thus making public opinions on many issues quite fluid.[5] Recent scholarship has offered evidence indicating that news media emphasis on certain aspects of issues will make these aspects more accessible or salient to the audiences, and therefore more likely to be used in audience decision making or their subsequent evaluations of issues

J&MC Quarterly
Vol. 81, No. 2
Summer 2004
400-416

Fuyuan Shen is an assistant professor in the College of Communications at Pennsylvania State University. *This study was supported by research grants from the College of Communications and the Jimirro Center for the Study of Media Influence, Pennsylvania State University. The author would like to thank Brooke Pilszak, Hope White, Lauren Kirk and Sangki Lee for their assistance, and Paul D'Angelo for his helpful comments.*

and political candidates.[6] For example, Kinder and Sanders have shown that alterations in survey question wording led to different opinions on affirmative action.[7] Similarly, Price, Tewksbury, and Powers concluded from their study that news frames could lead to a "hydraulic pattern" of audience responses, with thoughts activated by one frame driving out those related to other frames.[8]

However, the finding that news frames or even question wording can manipulate citizens' issue interpretations and opinions has raised considerable concern among researchers about citizens' competence to make rational choices and to discharge the responsibilities expected of them in modern democratic politics.[9] According to Entman, framing effects "raise radical doubts about democracy itself.... How can even sincere democratic representatives respond correctly to public opinion when empirical evidence of it appears to be so malleable, so vulnerable to framing effects?"[10] Such sentiments were echoed by Kinder and Herzog, who expressed concerns about the "nefarious possibilities" that framing could become "freewheeling exercises in pure manipulation."[11] If people's attitudes on issues are so malleable and easily influenced by media or political elites, it indeed calls into question the trustworthiness of public opinions. As Druckman explained, if citizens' opinions and choices reflect nothing more than the frames generated by media and political elites, the public then should "put little stock in public opinions as assessed through polls, voting, and referenda."[12]

But do news frames have the same manipulative impact on everyone? Are all citizens so susceptible and unable to make rational choices when confronted by frames in elite discourse? This research contributes to our understanding of how news frames affect individuals' attitudes and cognitions by presenting a different perspective. It takes the position that, while news framing can indeed cause subtle shifts in message interpretations and attitudes, such influences may be partially due to individual differences in schemas or predispositions. This argument is based on cumulative research evidence across the fields of cognitive psychology and political communication on the roles of schemas and cognitive responses in information processing.[13] It is theorized here that, in response to news discourses, individuals will engage in active thinking and bring their own mental frames or schemas to the interpretative process. As such, framing effects can be limited or enhanced by individual schemas regarding political issues. To test this theory, this research manipulated the media frames of two political issues—stem cell research and Arctic drilling—by emphasizing the values or consequences involved. Subjects' issue schemas were measured in a survey prior to the experiment. The subjects were then exposed to the manipulated issue frames, and their issue interpretations and attitudes were subsequently measured.

Literature Review

Effects of News Framing. Framing effects occur when, in the course of describing an issue or event, the media's emphasis on the subset of potentially relevant considerations causes individuals to focus on these considerations when constructing their opinions. Viewed this way, media frames can have significant consequences on how audiences

perceive and understand issues and can alter public opinions on ambivalent and controversial issues.[14] For example, researchers have found that individuals expressed greater tolerance for the Ku Klux Klan when the group's rally was framed as an exercise of free speech rights rather than a disruption of social order.[15] Similarly, when affirmative action was framed in terms of reverse discrimination against whites or in terms of unfair advantage to blacks, public support for affirmative action shifted accordingly.[16]

Various theories have been offered to account for such framing effects. One is the availability heuristic theory of information processing, which postulates that people have the inclination to use cognitively economic shortcuts or heuristics in information processing.[17] The theory holds that individuals rarely use all the information that is relevant, truncating the retrieval process as soon as enough information is available to render a judgment. As a result, they often make decisions or judgments on what is most accessible.[18] The other theory is the nonattitude argument, which posits that citizens lack organized and internally coherent attitudes on many political issues.[19] As a result, most people can and will flip-flop on most issues, taking first one side and then the other as a result of even minor changes in media frames or in the wording of a survey question. Therefore, when faced with multiple considerations on political issues, individuals have the tendency to oversample those thoughts that have been brought into conscious awareness by external sources.[20]

However, in forming issue opinions, not all individuals will automatically use whatever consideration is made available through media frames. The impact of any given frame will likely depend on how the media message interacts with individuals' own predispositions or knowledge structure.[21] A framing effect is more likely to occur when the media frames interact with the viewer's existing cognitive elements, rendering related concepts more salient and more cognitively accessible than others. In fact, researchers have argued that knowledge activation depends on an individual's knowledge structure, goals, and feelings.[22] Brewer, for example, found that politically knowledgeable citizens were more likely than the less knowledgeable to base their opinions regarding gay rights on the dominant media frame.[23]

In studying framing effects, it is therefore important to differentiate media frames from individual frames or schemas.[24] While news frames are aspects and attributes of issues carried in the media, individual frames are schemas or knowledge structures that guide individuals' information processing.[25] Psychologists described the term "schema" as a cognitive structure that represents knowledge about a concept or type of stimulus.[26] Once activated, schemas can affect the interpretation of related information, and therefore influence the evaluations and other judgments of an object.[27] They can influence what people take into account and what they ignore when choosing products, viewpoints, and political candidates.[28] Schemas can also affect memory and judgment facilitating the retrieval and reconstruction of schema-consistent information. It is therefore plausible that the effects of news frames will be different for individuals with different schemas on issues.

News Framing of Issues. Frames may originate within or outside of news organizations. The media often frame social and political issues and events because of journalists' individual values, ideological constraints, and market forces.[29] Scholars have identified at least five different ways the news media can frame issues or events: (a) conflict, (b) personalization, (c) values, (d) consequences, (e) responsibility.[30] This study will examine the effect of value framing and consequence framing of two issues: stem cell research and oil drilling in the Arctic National Wildlife Refuge (ANWR). Both issues have been the subject of recent media discourses.

Value framing occurs when media and political elites use people's deeply held values such as morality, ethics, individual rights, and equality to define issues.[31] Several studies have examined how the media value-frame issues such as gay rights, affirmative action, and welfare reform.[32] The general finding is that, by emphasizing certain values, media messages can be very effective in shaping audience issue interpretations and attitudes. This study extends the research on value framing by examining how framing stem cell research in terms of values might affect attitudes toward federal funding for such research. An examination of the recent media coverage of the issue indicated that two frames dominated the media discourse, pitting the moral and ethical values of those who opposed federal subsidizing of stem cell research against those who championed stem cell research because of its potential material or medical benefits.[33]

Consequence framing presents an event or issue in terms of the potential consequences it is likely to have upon individuals and communities at large. The media often frame many of today's issues and events in terms of consequences, and, in doing so, the news media can increase the relevance and newsworthiness of issues or events to the audiences.[34] In recent years, scholars have studied the impact of issues framed in terms of economic consequences,[35] personal consequences,[36] and environmental consequences.[37] Cumulated research evidence has shown that consequence framing of issues can significantly affect the audiences' cognitive responses and attitudes toward issues.[38] This study examines how framing oil drilling in ANWR in terms of the economic and environmental consequences might affect audience responses. These two rival frames have been used recently by both politicians and commentators in debating whether drilling should be allowed in ANWR.[39] By examining the impact of both value- and consequence- framing of issues, the present study therefore seeks to strengthen the external validity of the research and thus to minimize the possible confounding by any potentially idiosyncratic features of a single issue or frame.

Hypotheses

Previous research on news framing has found that news frames can activate related cognitive responses among audiences and therefore cause shifts in audience judgments and attitudes toward both issues and political candidates.[40] Based on that information, it is posited here that individuals exposed to different frames of the two issues in this study will also activate frame-relevant interpretations of the issues and change

attitudes. In other words, when the issue of stem cell research is framed in terms of ethics and morality, or medical benefits, audiences exposed to the media frames are likely to use them in interpreting the issue. Furthermore, those exposed to the ethical frame will be more likely to oppose funding for stem cell research than will those exposed to the benefit frame. Similarly, when the issue of Arctic drilling is framed in terms of the economic or environmental consequences, the frames are likely to activate related concepts among the audiences. Those exposed to the economic frame will be more likely to support Arctic drilling than will those exposed to the environmental frame. Therefore H1 and H2 can be summarized as follows:

> H1: News framing of stem cell research in either ethical or benefit terms will have a significant impact on individuals' issue interpretations and attitudes.

> H2: News framing of oil drilling in either economic or environmental terms will have a significant impact on individuals' issue interpretations and attitudes.

Although no studies have explored the role of issue schemas in framing research, support for their potential effects can be found in several related studies examining individual differences in message interpretations. For example, researchers examined how value framing of issues affected audience cognitions.[41] There was evidence that media framing of issues in moral or ethical terms activated relevant thoughts and motivated voters to make judgments in related terms. However, such framing effects differed among evangelical Christians and university students, two groups with different value schemas.[42] In studying how news frames of campaign coverage affect individual interpretations of campaigns, Rhee also found that individuals with strong campaign knowledge were more likely to be affected by exposure to news frames than those with little knowledge.[43] These findings are consistent with the general consensus in cognitive social psychology that schemas serve as an organized framework for individuals to interpret new information.[44] According to this perspective, rarely do individuals take in and process new information in a neutral, unbiased fashion. Instead, schemas, along with variants such as scripts and stereotypes, have been shown to affect the attention given to information as well as the encoding and judgment of this information.[45]

Guided by the above rationale, the researcher here posits that issue schemas are likely to interact with message frames in affecting both issue interpretations and attitudes. Specifically, it is hypothesized that on the issue of stem cell research, those who are schematic on the ethical dimensions of the issue are more likely to interpret it in ethical terms than those who are schematic on the benefits of the issue. Ethical schematics are more likely to oppose stem cell research than are benefit schematics. Likewise, when encountering the news frames of Artic drilling, those who are schematic on the economic aspect of drilling are more likely to interpret the issue in economic terms than those who are

schematic on the environmental aspect of the issue. In addition, economy schematics are also expected to be more supportive of Artic drilling than environment schematics. Accordingly, the effects of individual issue schemas can be stated in the following two hypotheses:

> H3: For the issue of stem cell research, (a) when exposed to the ethical frame, individuals with ethical schemas will be more likely to interpret it in ethical terms and oppose federal funding for it; (b) when exposed to the benefit frame, individuals with benefit schemas will be more likely to interpret it in benefit terms and support federal funding for it.

> H4: For the issue of oil drilling in ANWR, (a) when exposed to the economic frame, individuals with economic schemas will be more likely to interpret it in economic terms and support drilling; (b) when exposed to the environmental frame, individuals with environmental schemas will be more likely to interpret it in environmental terms and oppose drilling.

Method

Subjects and Design. Students in communication classes at a major public university were recruited to participate in the study in exchange for extra credit. As part of the recruitment, students were given a survey to fill out under the guise of a separate research project one week prior to the experiment. The survey questionnaire contained a series of questions probing subjects' attitudes on a variety of current events and issues. Embedded in the questionnaire were questions regarding individuals' schemas on the two issues used in the study.

A total of 193 subjects took part in the experiment with a 2X2 factorial design. Frames were varied between subjects, and issue was the within-subject factor. The order of the articles was counterbalanced, and subjects were told that the news articles were collected from a major newspaper. They were instructed to read the stimuli at their normal speed and then complete the post-test instrument. At the end of the experiment, the instruments were collected and the participants were debriefed. Each session took about thirty minutes.

Stimulus Material. Newspaper articles used in the study were constructed on the basis of news coverage of stem cell research and drilling in ANWR. Both issues have received considerable public attention and have been the subjects of elite media and political discourses. The articles provided some background information on stem cells and discussed the main arguments for and against further funding. In the ethical frame condition, the headline read "Expanding Stem Cell Research Raises Serious Moral Questions." In the medical benefit framing condition, the headline read "Expanding Stem Cell Research Brings Medical Benefits." The drilling articles described ANWR and discussed the controversies surrounding drilling. In the economic framing condition, the headline read "Arctic Drilling Good for U.S. Economy, Say

Supporters." In the environmental frame condition, the headline read "Arctic Drilling Bad for Environment, Say Critics."

Following previous research,[46] all news articles contained a core section of two paragraphs with background information and opposing views on the issues. For each of the experimental conditions, the introduction and the concluding paragraphs were designed to establish one of the four frames (i.e., ethical, benefit, economic, and environmental). Both the introduction and concluding paragraphs were similar in length and in writing style, but they contained information emphasizing a particular frame.

Issue Schemas. Participants' issue schemas were measured by asking subjects to indicate their thoughts regarding stem cell research and Arctic drilling on a 7-point scale. On the issue of stem cell research, respondents were asked to indicate whether stem cell research raised serious moral and ethical questions or would lead to the cure of many illnesses. On the questions of Arctic drilling, they were asked to indicate if drilling would harm the environment and ecosystem in ANWR or be good for jobs and the economy. The specific wordings of the questions were adopted from the American National Election Studies.[47]

Issue Thoughts. After being exposed to newspaper articles, participants were asked to write down thoughts or ideas that were on their minds. Subjects were instructed not to be concerned with punctuation, spelling, grammar, or use of complete sentences. Following previous research, the thought-listing responses were coded in three steps.[48] Two pairs of trained coders, unaware of the experimental conditions and design, first divided the responses into individual thought units based on standard subject/verb units. They then analyzed the thoughts to identify their foci and valence. Frame-relevant thoughts were constructed by counting the total number of thoughts that were consistent with the news frames. The average intercoder agreement was 90%. All disagreements were resolved by discussion.

Issue Attitudes. Individuals' attitudes toward issues were measured by two questions asking subjects whether they oppose or favor: (1) increasing federal funding for stem cell research; (2) drilling for oil in ANWR. The questions were anchored by 1 for "strongly opposed" and 7 for "strongly in favor."

Control Variables. To ensure that individuals' responses toward political issues were not due to their socioeconomic background, the post-test instrument contained several control variables including age, ethnicity, income, and gender. In addition, because individuals' political orientation would often influence how they think about issues, subjects' political ideology was assessed by asking respondents to indicate on a 7-point scale their liberalism and conservatism. Scholars found that knowledge levels could also affect how individuals interpret media messages and frames,[49] so respondents' self-reported issue knowledge was also assessed.

Results

Subjects' responses to the pre-exposure survey questions were split at the median to create two schema-based groups for each issue. Based on this, 75 subjects were found to be schematic on the

TABLE 1

Two-way ANOVA of Main and Interaction Effects

Source		Issue One: Stem Cell			Issue Two: Arctic Drilling		
		Ethical Thoughts	Benefit Thoughts	Issue Attitude	Economic Thoughts	Environmental Thoughts	Issue Attitude
Main Effects	*d.f.*	*F*	*F*	*F*	*F*	*F*	*F*
Frames	1	50.00***	66.24***	5.06*	51.53***	121.27***	27.19***
Schemas	1	16.46***	26.40***	71.28***	14.48***	15.11***	53.26***
Interaction							
Frames by Schemas	1	27.47***	9.23**	3.68	12.46***	10.33**	0.81
Error	189	(1.72)	(1.50)	(2.01)	(1.57)	(2.17)	(1.87)

Note: Values in parentheses represent mean square errors, $^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$.

moral and ethical aspects of stem cell research ($M = 3.45$), and 118 were found to be schematic on the material and medical benefits of stem cell research ($M = 5.85$). They were coded as ethics schematics and benefit schematics respectively. On the issue of Arctic drilling, 94 subjects were schematic on the environmental aspect of the issues ($M = 1.63$), and 99 were schematic on the economic dimension of the issue ($M = 4.06$).

To test the hypotheses, a two-way MANOVA, using Wilks' λ, was first conducted for each issue with the number of frame-related thoughts and issue attitude as the dependent variables, and news frame and issue schemas as the independent variables. For the issue of stem cell research, there were significant main effects for news frames ($F = 36.60$, $p < .001$) and issue schemas ($F = 25.13$, $p < .001$), and a significant interaction effect ($F = 15.29$, $p < .001$). For the issue of Arctic drilling, there were also significant main effects for news frames ($F = 53.96$, $p < .001$), issue schemas ($F = 18.47$, $p < .001$), and the interaction term was also significant ($F = 8.19$, $p < .001$).

Further two-way ANOVA test results are presented in Table 1. As can be seen, the effect of news frames on ethical thoughts was significant ($F = 50.00$, $p < .001$). Those exposed to the ethical frame listed more ethically relevant thoughts ($M = 1.54$) than those in the benefit frame condition ($M = .41$). Similarly, the main effect of news frames on benefit thoughts was significant ($F = 66.24$, $p < .001$). Individuals who read the benefit frame article listed more benefit thoughts ($M = 2.00$) than those who read the ethical frame article ($M = .42$). The main effect of news frames on attitude toward stem cell research was also significant ($F = 5.06$, $p < .05$) with those exposed to the benefit frame ($M = 4.68$) expressing more support for stem cell research than those exposed to the ethical frame ($M = 4.32$).

TABLE 2

Means of Frame Relevant Thoughts and Issue Attitudes for Issue One

Dependent Variables	Ethical Frame		Benefit Frame	
	Ethics Schematics	Benefit Schematics	Ethics Schematics	Benefit Schematics
Ethical Thoughts	2.66	0.85_{ab}	0.27_{bc}	0.50_{ac}
Medical Benefit Thoughts	0.18_{a}	0.56_{ab}	1.11_{b}	2.59
Attitude toward Stem Cell Funding	2.95	5.16_{a}	3.84	5.23_{a}

Note: Means represent the number of listed thoughts coded as relevant to each frame, and attitude toward the issue. Means in the same row that do ***not*** share the same subscripts differ at $p < .05$ in Tukey post hoc comparisons.

Table 1 also indicates that the news frames had a significant main effect on economic thoughts ($F = 51.53, p < .001$), environmental thoughts ($F = 121.26, p < .01$), and attitudes toward drilling ($F = 27.19, p < .01$). Those in the economic frame condition listed more frame-related thoughts ($M = 1.67$) than those in the environmental condition ($M = 0.32$), who in turn listed more environmental thoughts ($M = 2.87$) than those in the economic frame condition ($M = .52$). Those exposed to the economic frame expressed more support ($M = 3.75$) for oil drilling than those exposed to the environmental frame ($M = 2.67$). Taken together, these results provided strong support for H1 and H2.

H3 and H4 posited that individuals with different issue schemas would respond differently toward news frames. ANOVA results (see Table 1) indicated that, for the issue of stem cell research, issue schemas had a significant main effect on ethical thoughts ($F = 16.46$, $p < .001$), benefit thoughts ($F = 26.40$, $p < .001$), and issue attitudes ($F = 71.28$, $p < .001$). The interaction between issue schema and news frame also had some significant effects (see Table 1). Post hoc test results indicated that, in response to the ethical frame, those with ethical schemas generated more ethical thoughts than did those with benefit schemas (M: 2.66 versus .85, $p < .001$, see Table 2). In response to the benefit frame, those schematic on the benefit aspect of the issue listed more benefit thoughts than ethics schematics (M: 2.59 versus 1.11, $p < .001$). These results indicated that framing stem cell research in ethical or benefit frames had greater impact on those whose schemas were consistent with the news frames. Schemas had a significant effect on attitudes toward the issue regardless of news frames. Results indicated that benefit schematics expressed more support for federal funding of stem cell research after they were exposed to both ethical and benefit frames (see Table 2). These findings provided strong support for H3.

For the issue of drilling, issue schema had a significant main effect on economic thoughts ($F = 14.48, p < .001$), environmental thoughts

TABLE 3

Means of Frame Relevant Thoughts and Issue Attitudes for Issue Two

Dependent Variables	Economic Frame		Environmental Frame	
	Economy Schematics	Environment Schematics	Economy Schematics	Environment Schematics
Economic Consequence Thoughts	2.28	0.96_{a}	0.35_{ab}	0.30_{b}
Environmental Consequence Thoughts	0.45_{a}	0.60_{a}	2.11	3.62
Attitude toward Drilling	4.51	2.89_{a}	3.30_{a}	2.04_{a}

Note: Means represent the number of listed thoughts coded as relevant to each frame, and attitude toward the issue. Means in the same row that do ***not*** share the same subscripts differ at $p < .05$ in Tukey post hoc comparisons.

($F = 15.11$, $p < .001$), and attitudes toward Arctic drilling ($F = 53.26$, $p < .001$, see Table 1). The interaction between news frames and schemas also had significant impact on economic thoughts ($F = 12.46$, $p < .001$) and environmental thoughts ($F = 10.33$, $p < .001$). Post hoc test results indicated that, in responses to the economic frame, economy schematics listed significantly more economic thoughts than environment schematics (*M*: 2.28 versus .96, $p < .001$, also see Table 3). After exposure to the environmental news frame, environment schematics listed more environmental thoughts than did economy schematics (*M*: 3.62 versus 2.11, $p < .001$) Respondents' attitudes toward the issue of Arctic drilling also varied among individuals with different schemas. Economy schematics were generally more supportive of drilling than others regardless of the news frames. These results provided strong support for H4.

To gain further insight into the relationships between frames and schemas, hierarchical regression analyses were used to see how well they predicted issue attitudes after controlling for some background variables. The control variables consisted of respondents' demographic background including gender, household income, age, and race. Also used in the control block were respondents' political orientation and issue knowledge. As Equation 1 in Table 4 indicates, older subjects were less likely to support stem cell research, and those identifying themselves as more liberal and more knowledgeable were more likely to support it. Equation 2 included the frame manipulation variable, and it indicated that frame was not a significant predictor of issue attitude, other variables being equal. However, when schema was entered in Equation 3, it accounted for a significant increase in the total variance explained ($\Delta R^2 = .27$, $p < .001$). Individuals with benefit schemas were more likely to support stem cell research ($\beta = .55$, $p < .001$) than those with ethics schemas. The interaction term entered in Equation 4 was significant ($\beta = -.46$, $p < .01$) after controlling for the background variables.

TABLE 4

Regression Equations Predicting Support for Stem Cell Funding

	Equation 1	Equation 2	Equation 3	Equation 4
Age	-.11*	-.11	-.03	-.03
Gender	.04	.04	.03	.02
Ethnicity	.09	.10	.06	.06
Income	-.07	-.08	-.09	-.08
Political Ideology	.34***	.33***	.19***	.18**
Issue Knowledge	.21**	.21**	.11**	.11*
Frame		.11	.11*	.55**
Schema			.55***	.53***
Frame x Schema				-.46*
R^2	.18***	.19***	.46***	.48***
R^2 Change		.01	.27***	.02*

Note: Entries are standardized regression coefficients. Gender was coded such that 1 = male and 2 = female. Ethnicity was coded such that 1 = white and 2 = others. Frame was coded such that 0 = ethical frame and 1 = medical benefit frame. *p <.05, **p <.01, or *** p < .001. N=187.

Table 5 lists the regression analyses predicting attitude toward drilling. As Equation 1 indicates, age, political ideology, and issue knowledge were all significant predictors of attitudes toward stem cell research. Those who were older, ideologically more conservative, and had less self-reported knowledge were less likely to support it. Equation 2 indicates that after controlling for the background variables, frames had significant impact on attitudes toward oil drilling. The addition of schema in Equation 3 significantly improved the prediction (ΔR^2 = .18, p < .001). Individuals schematic on the economic dimension of the issue were more likely to support drilling (β = .47, p < .001) than those schematic on the environmental consequences. The interaction term in Equation 4 was also significant (β = -.25, p < .05), indicating that the way people responded to frames depended on their existing schemas on the issue. Taken together, the results provided additional evidence supporting both H3 and H4.

Discussion

Results of the experiment showed that news frames had a significant impact on audiences' issue interpretations and attitudes. These results are largely consistent with previous research findings regarding framing effects.[50] In addition, this research contributed to the existing research on framing effects by finding that the impact of news frames could be moderated by individual differences. Specifically, it was found that individuals with different issue schemas varied significantly in issue interpretations and attitudes. In other words, framing did not have the same effect on all individuals. Relative to news frames, issue schemas

TABLE 5

Regression Equations Predicting Support for Oil Drilling

	Equation 1	Equation 2	Equation 3	Equation 4
Age	-.16*	-.16*	-.10	-.08
Gender	-.10	-.12	-.13*	-.13*
Ethnicity	-.02	-.05	-.05	-.04
Income	-.15*	-.12	-.07	-.07
Political Ideology	-.18**	-.16*	.03	.02
Issue Knowledge	-.26***	-.23***	-.24***	-.26***
Frame		-.31***	-.31***	-.08
Schema			.47***	.46***
Frame x Schema				-.25*
R^2	.17***	.26***	.45***	.46***
R^2 Change		.09***	.19***	0.1*

Note: Entries are standardized regression coefficients. Gender was coded such that 1 = male and 2 = female. Ethnicity was coded such that 1 = white and 2 = others. Frame condition was coded such that 0 = economic frame and 1 = environmental frame. *p <.05, **p <.01, or *** p < .001. N=187.

turned out to be a more robust predictor of issue attitudes. To the extent that news frames were consistent with their issue schemas, audiences generated more frame-related thoughts and displayed stronger frame-consistent attitudes than when frames were inconsistent with individual schemas. By extension, it can be argued that individual issue schemas could enhance or limit framing effects as news frames become consistent or inconsistent with issue schemas.

These results can be explicated by the cognitive functions of schemas in information processing. As cognitive structures that represent organized knowledge about a given concept or stimulus, schema can influence the encoding, selection, abstraction, and storage of information, and can also help the retrieval and interpretation of information.[51] A schema can be activated by explicit thought about its topics or by an encounter with relevant information. Once activated, schemas can affect the interpretation of information and direct attention to schema-consistent information.[52] Generally, schemas are kept in individuals' mental "storage bins," from which they can be retrieved, activated, and searched.[53] Schemas that are recently or frequently activated usually remain on the top of the "storage bin." Therefore, when news media emphasize certain values or consequences of issues, they are likely to result in distinctly different cognitive and attitudinal reactions for individuals with different dispositions. As demonstrated in this study, those who were schematic on the ethical dimension of stem cell research were more likely to respond to ethical framing of the issue. Those who were schematic on the benefits were more likely to evoke related thoughts in response to benefit framing of the issue. Similarly, those schematic on the

economic impact of Arctic drilling were more likely to be affected by news emphasizing the economic impact of drilling. Environment schematics were more likely to be affected when media messages emphasized how drilling might affect the ecosystem and environment in ANWR.

Taken together, the above findings signify that the impact of news framing of political issues may not be as powerful as has been assumed. Indeed, elites' attempts to frame issues and sway public opinions may hinge on the dispositional states of individuals. Instead of relying on the media for whatever considerations are available, individuals may be selective in receiving and interpreting incoming news messages. Accordingly, framing and audience interpretations may not always be a result of individuals' lack of attitudes or their need for cognitive economy as have been argued.[54] Instead, framing is a deliberate process whereby audiences interpret messages with their own schemas, values, or knowledge structure. As Zaller stated, the contour of public opinion is often jointly determined by information carried in elite discourse, individual differences in values, and other predispositions.[55] In using media to make sense of the world, people are not always passive or dumb. Individuals do not necessarily flip-flop their attitudes because of the accessibility of media cues or frames when they are called upon to make judgments. Instead, they draw on individual sources as well as media messages in constructing meanings from media.[56] By examining the role played by schemas, this study provides an important link in understanding the dynamics of news framing and audience responses. It underscores the importance of individual differences in explaining the limits as well as the power of framing effects.

Future research should extend the study of media framing and individual differences by using other political issues. Furthermore, researchers in the future should consider strengthening external validity by examining news framing effects within representative populations in more naturalistic media-use environments than the laboratory experiment used in the present study. Researchers should also explore whether other individual differences such as cognitive styles and issue involvement will lead to different cognitive and attitudinal responses to news frames.

NOTES

1. Vincent Price and David Tewksbury, "News Values and Public Opinion: A Theoretical Account of Media Priming and Framing," in *Progress in Communication Sciences: Advances in Persuasion*, ed. George A. Barnett and Franklin J. Boster, vol. 3 (Greenwich, CT: Ablex, 1997), 173-212; Vincent Price, David Tewksbury, and Elizabeth Powers, "Switching Trains of Thought: The Impact of News Frames on Readers' Cognitive Responses," *Communication Research* 24 (October 1997): 481- 506.

2. William A. Gamson and Andre Modigliani, "The Changing Culture of Affirmative Action," in *Research in Political Psychology*, ed. Richard G. Braungart and Margaret M. Braungart (Greenwich, CT: JAI, 1987),

137-77, 143.

3. William A. Gamson, *Talking Politics* (NY: Cambridge University Press, 1992).

4. Donald R. Kinder, "Opinion and Action in the Realm of Politics," in *The Handbook of Social Psychology*, ed. Daniel T. Gilbert, Susan T. Fiske, and Gardner Lindsey, vol. 2 (NY: McGraw-Hill, 1998), 778-867.

5. Kinder, "Opinion and Action"; John R. Zaller, *The Nature and Origins of Mass Opinion* (NY: Cambridge University Press, 1992).

6. Joseph N. Cappella and Kathleen H. Jamieson, *Spiral of Cynicism: The Press and the Public Good* (NY: Oxford University Press, 1997); Thomas E. Nelson, Zoe M. Oxley, and Rosalee A. Clawson, "Toward a Psychology of Framing Effects," *Political Behavior* 19 (3, 1997): 221-46; Price, Tewksbury, and Powers, "Switching Trains of Thoughts"; Dhavan V. Shah, David Domke, and Daniel B. Wackman, "The Effects of Value-framing on Political Judgment and Reasoning," in *Framing Public Life: Perspectives on Media and Our Understanding of the Social World*, ed. Stephen D. Reese, Oscar H. Gandy, Jr., and August E. Grant (Mahwah, NJ: Lawrence Erlbaum Associates, 2001), 227-43.

7. Donald R. Kinder and Lynn M. Sanders, "Mimicking Political Debate With Survey Questions: The Case of White Opinion on Affirmative Action for Blacks," *Social Cognition* 8 (1, 1990): 73-103.

8. Price, Tewksbury, and Powers, "Switching Trains of Thoughts," 501.

9. Dennis Chong, *Rational Lives: Norms and Values in Politics and Society* (Chicago, IL: University of Chicago Press, 2000); James N. Druckman, "The Implications of Framing Effects for Citizen Competence," *Political Behavior* 23 (3, 2001): 225-56; Robert M. Entman, "Framing: Toward Clarification of a Fractured Paradigm," *Journal of Communication* 43 (autumn 1993): 51-58.

10. Entman, "Framing: Towards Clarification," 57.

11. Donald R. Kinder and Don Herzog, "Democratic Discussion," in *Reconsidering the Democratic Public*, ed. George E. Marcus and Russell L. Hanson (University Park, PA: Pennsylvania State University Press, 1993), 347-77, 363.

12. James N. Druckman, "Using Credible Advice to Overcome Framing Effects," *The Journal of Law, Economics, & Organization* 17 (1, 2001): 62-82, 63.

13. Susan T. Fiske and Shelley E. Taylor, *Social Cognition* (NY: McGraw-Hill, 1991); Kimberly Gross, "The Limits of Framing: How Framing Effects May be Limited or Enhanced by Individual Level Predispositions" (paper presented at the annual conference of the American Political Science Association, Atlanta, GA, 2000); Eliot R. Smith, "Mental Representation and Memory," in *The Handbook of Social Psychology*, ed. Daniel T. Gilbert, Susan T. Fiske, and Gardner Lindsey, vol. 1 (NY: McGraw-Hill, 1998), 391-445.

14. David Domke, Dhavan V. Shah, and Daniel B. Wackman, "Media Priming Effects: Accessibility, Associations, and Activation," *International Journal of Public Opinion Research* 10 (1, 1998): 51-74; Shanto Iyengar, *Is Anyone Responsible? How Television Frames Political Issues* (Chicago: University of Chicago Press, 1991); Nelson, Oxley, and Clawson, "To-

ward a Psychology."

15. Nelson, Oxley, and Clawson, "Toward a Psychology."

16. Kinder and Sanders, "Mimicking Political Debate."

17. Fiske and Taylor, *Social Cognition*; Price and Tewksbury, "News Values"; Norbert Schwarz, Herbert Bless, Michaela Wanke, and Piotr Winkielman, "Accessibility Revisited," in *Foundations of Social Cognition*, ed. Galen V. Bodenhausen and Alan J. Lambert (Mahwah, NJ: Lawrence Erlbaum Associates, 2003), 51-77.

18. Schwarz et al., "Accessibility Revisited."

19. Paul M. Sniderman, Philip E. Tetlock, and Laurel Elms, "Public Opinions and Democratic Politics: The Problem of Nonattitudes and Social Construction of Political Judgment," in *Citizens and Politics: Perspectives from Political Psychology*, ed. James H. Kuklinski (NY: Cambridge University Press, 2001), 254-88; Zaller, *The Nature and Origins*.

20. John R. Zaller and Stanley Feldman, "A Simple Theory of the Survey Response: Answering Questions Versus Revealing Preferences," *American Journal of Political Science* 36 (3, 1992): 579-616.

21. Sniderman, Tetlock, and Elms, "Public Opinions."

22. Paul R. Brewer, "Values, Political Knowledge, and Public Opinion about Gay Rights: A Framing-based Account," *Public Opinion Quarterly* 67 (summer 2003): 173-201; Price and Tewksbury, "News Values."

23. Brewer, "Values, Political Knowledge."

24. Robert M. Entman, "Framing U.S. Coverage of International News: Contrasts in Narratives of the KAL and Iran Air Incidents," *Journal of Communication* 10 (4, 1991): 155-73; Dietram A. Scheufele, "Framing as a Theory of Media Effects," *Journal of Communication* 49 (winter 1999): 103-123.

25. Entman, "Framing: Towards Clarification."

26. Fiske and Taylor, *Social Cognition*.

27. Smith, "Mental Representation and Memory."

28. Shanto Iyengar, "Shortcut to Political Knowledge: The Role of Selective Attention and Accessibility," in *Information and Democratic Processes*, ed. John A. Ferejohn and James H. Kuklinski (Urbana, IL: University of Illinois Press, 1990), 160-85.

29. Jack M. McLeod, Gerald Kosicki, and Douglas M. McLeod, "Resurveying the Boundaries of Political Communications Effects," in *Media Effects: Advances in Theories and Research*, ed. Jennings Bryant and Dolf Zillman (Mahwah, NJ: Lawrence Erlbaum Associates, 2002), 215-67; Scheufele, "Framing as a Theory of Media Effects."

30. Price and Tewksbury, "News Values"; Patti M. Valkenburg, Holli A. Semetko, and Claes H. de Vreese, "The Effects of News Frames on Readers' Thoughts and Recall," *Communication Research* 26 (October 1999): 550-69.

31. Paul R. Brewer, "Framing, Value Words, and Citizens' Explanations of Their Issue Opinions," *Political Communication* 19 (3, 2002): 303-316; Chong, *Rational Lives;* Shah, Domke, and Wackman, "The Effects of Value-framing."

32. Brewer, "Framing, Value Words"; Kinder and Sanders, "Mimicking Political Debate"; Shah, Domke, and Wackman, "The Effects of Value-framing."

33. Mary Leonard, "Cloning Foes to Launch Campaign," *Boston Globe*, 14 January 2002, sec. A, p. 1; Neil Munro, "Changing the Cloning Debate," *National Journal*, 26 January 2002, 250; Sheryl Gay Stolberg, "Controversy Re-ignites over Stem Cells and Clones," *The New York Times*, 18 December 2001, sec. F, p. 1.

34. Gamson, *Talking Politics*; Doris Graber, *Mass Media and American Politics* (Washington, DC: Congressional Quarterly Press, 1993).

35. Valkenburg, Semetko, and de Vreese, "The Effects of News Frames."

36 . Price, Tewksbury, and Powers, "Switching Trains of Thoughts."

37. Thomas E. Nelson and Zoe M. Oxley, "Issue Framing Effects on Belief Importance and Opinion," *The Journal of Politics* 61 (November 1999), 1040-1067.

38. Nelson and Oxley, "Issue Framing Effects"; Valkenburg, Semetko, and de Vreese, "The Effects of News Frames."

39. Patricia King and Sharon Begley, "An Arctic Battlefield," *Newsweek*, 10 July 2000, 46-48; Terry McCarthy and Adam Zagorin, "War over Artic Oil," *Time*, 19 February 2001, 24-29; John Ritter, "To Drill or Not to Drill? Drilling Opponents Fight to Keep Alaska Refuge Pristine, But for Oil Industry, It May Be Only a Matter of Time and Patience," *USA Today*, 6 August 2001, sec. A, p. 4.

40. Price, Tewksbury, and Powers, "Switching Trains of Thoughts"; Shah, Domke, and Wackman, "The Effects of Value-framing."

41. Domke, Shah, and Wackman, "Media Priming Effects"; Shah, Domke, and Wackman, "The Effects of Value-framing."

42. Domke, Shah, and Wackman, "Media Priming Effects."

43. June Woong Rhee, "Strategy and Issue Frames in Election Campaign Coverage: A Social Cognitive Account of Framing Effects," *Journal of Communication* 47 (summer 1997): 26-48.

44. Fiske and Taylor, *Social Cognition*.

45. Alice H. Eagly and Shelly Chaiken, *The Psychology of Attitudes* (Fort Worth, TX: Harcourt, Brace, Jovanovich, 1993); Smith, "Mental Representation and Memory."

46. Nelson and Oxley, "Issue Framing Effects"; Valkenburg, Semetko, and de Vreese, "The Effects of News Frames."

47. The specific wordings are as follows:

a. The public is divided on whether the government should increase or limit funding for stem cell research. Those who oppose increased funding say that stem cell research raises serious moral and ethical questions. Supporters of funding say stem cell research could lead to the cure of many illnesses. And of course, some people have opinions in between, at points 2, 3, 4, 5, or 6. Where would you place yourself on this scale?

b. Recently, the issue of whether to allow oil companies to drill in the Arctic National Wildlife Refuge (ANWR) has received a lot of public attention. Some people say that Arctic drilling would be good for jobs and the U.S. economy. Others say that Arctic drilling would harm the ecosystem and the environment in ANWR. And of course, some people have opinions in between, at points 2, 3, 4, 5, or 6. Where would you place yourself on this scale?

48. John T. Cacioppo and Richard E. Petty, "Social Psychological Procedures for Cognitive Response Assessment: The Thought-listing Technique," in *Cognitive Responses in Persuasion*, ed. Richard E. Petty, Thomas M. Ostrom, and Timothy C. Brock (Hillsdale, NJ: Lawrence Erlbaum Associates, 1981), 309-342.

49. Nelson, Oxley, and Clawson, "Toward a Psychology."

50. Price, Tewksbury, and Powers, "Switching Trains of Thoughts"; Shah, Domke, and Wackman, "The Effects of Value-framing."

51. Fiske and Taylor, *Social Cognition*.

52. Smith, "Mental Representation and Memory."

53. Robert S. Wyer Jr. and Thomas K. Srull, *Memory and Cognition in its Social Context* (Hillsdale, NJ: Lawrence Erlbaum Associates, 1989).

54. Nelson, Oxley, and Clawson, "Toward a Psychology"; Price and Tewksbury, "News Values."

55. Zaller, *The Nature and Origins*.

56. Gamson, *Talking Politics*.