

The Hyperlinked World: A Look at How the Interactions of News Frames and Hyperlinks Influence News Credibility and Willingness to Seek Information

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Prior research has identified the influence of using hyperlinks in online information gathering. This study attempts to understand first, how hyperlinks can influence individuals' perceptions of news credibility and information-seeking behavior. Second, the paper extends previous research by examining the interaction of hyperlinks with the content of the story. In doing so, the paper examines the influence of hyperlinks on news frames. The data for the study were collected using 2 experiments embedded in web-based survey of participants. Findings show that hyperlinks in news stories can increase perceptions of credibility as well as information-seeking. Results reveal the interaction of news frames in the process; hyperlinks increase participants' perception of news credibility; but only in the value-framed condition. Implications are discussed.

Key words: Hyper-links, news frames, news credibility, information seeking

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An increasing number of citizens use the World Wide Web to access the news. A recent pew survey shows that 61% of Americans get their news online (Pew Internet Project Survey, 2010). More than a decade ago, Morris and Ogan (1996) pointed out the importance of taking the Internet seriously; "the Internet has become impossible to ignore" (Morris & Ogan, 1996, p. 39). The contemporary media landscape could influence how we have understood communication concepts and theories. Researchers have started examining several communication concepts in this contemporary media landscape (for example, Althaus & Tewksbury, 2002; Tewksbury, 2003). Althaus and Tewksbury (2002) tested the concept of agenda setting in the online environment by conducting an experiment where individuals read the newspaper version of the New York Times as opposed to the online version. Their overall pattern of findings show that print readers modify their agendas differently than the online readers. Continuing to examine the influence of online news consumption, Tewksbury (2003) investigates the information seeking behavior of individuals online. He finds that, in general, individuals in the online world tend to read "public affairs news less frequently" (p. 694).

The introduction of any new medium should make us rethink the basic theoretical assumptions in our field (Morris & Ogan, 1996). Prior research has already identified the influence of using hyperlinks

in online information gathering (Kovarick, 2002; Dimitrova, Connolly-Ahern, Williams, Kaid & Reid, 2003). The present study attempts to understand first, how hyperlinks can influence individuals' perceptions of news credibility and willingness to seek information. Second, the paper extends previous research by examining the interaction of hyperlinks with the content of the story. And in doing so, the paper examines the influence of hyperlinks on news frames. Thus using the theoretical background of framing, the paper examines how having hyperlinks in a news story could influence the perceptions of news credibility and the willingness to seek information. There is a large body of framing literature, which demonstrates the influence of different news frames on information processing and individuals' decision-making processes (Iyengar, 1991; Nelson, Clawson, & Oxley, 1997; Druckman, 2004). Testing the influence of these news frames in the hyperlinked world is pertinent to understanding framing theory in context of the contemporary media landscape. This study is part of a series of experiments that examined the influence of several factors of the contemporary media landscape on news frames. Findings show that news frames and factors of the new media landscape can interact in many complicated ways (Borah, 2012a).

News frames and framing effects

A large and growing body of literature in framing studies has emerged in recent years from a range of disciplines and academic domains (Shah, Domke, & Wackman, 1996; D'Angelo, 2002). The "frames in communication" (Chong & Druckman, 2007, p. 103) refers to the research that grew from sociological foundations. In general, this research focuses on the "words, images, phrases, and presentation styles" (Druckman, 2001, p. 227) that are used to construct news stories, and the processes that shape this construction. There are several "intertwined answers" (Simon, 2001, p.76) to the question of how framing is defined. Goffman (1974) calls frames the "schemata of interpretation," a framework that helps in making an otherwise meaningless succession of events into something meaningful (p. 21).

Gitlin (1980) defines frames as devices that facilitate how journalists organize enormous amounts of information and package them effectively for their audiences. To Entman (1993), framing involves selection and salience—"to frame is to select some aspects of perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation for the item described" (p. 52). Taking into consideration the journalistic routines, Price and Tewksbury (1997) and Price, Tewksbury, and Powers (1997) categorized frames in terms of "news values." Journalists employ these values to decide the "angle" of the story in determining which parts of the story are to be "emphasized." In other words, these news values are used for framing a story. Thus news frames have been defined and studied in different ways. In general, scholars content analyze media text to examine news media frames, using both qualitative (e.g. Fried, 2005; Hussain, 2007) and quantitative (e.g. Shah, Watts, Domke & Fan, 2002; Aday, Livingstone & Herbert, 2005; Bleich, 2007) methodologies.

On the other hand, scholars have also enthusiastically examined the influence of these news frames on the audience. Framing effects research grew from psychological foundations and examines the processes involved in the formation of the audience frame. The experimental work on risk-gains research were the first to demonstrate how different presentations of essentially the same information can have an impact on people's choices (Kahneman & Tversky, 1979). However, in the context of political communication maintaining the purity of "equivalency" (see Druckman, 2001) framing was debatable. Druckman (2004) aptly points out that in many cases, especially with political issues, there is not always a way to present a situation in different but equivalent ways. Instead, "emphasis" framing effects refer to situations when by "emphasizing a subset of potentially relevant considerations," individuals are led to focus on these considerations in the decision-making process (Druckman, 2004, p. 672). Scholars (Iyengar, 1991; Nelson, Clawson, & Oxley, 1997; Domke et al., 1998; McLeod & Detenber, 1999) in this

approach maintain that it is not always possible to manipulate a frame without changing some of the facts. It is within “emphasis” framing that scholars have again differentiated frames—episodic vs. thematic (Iyengar, 1991); strategy vs. issue (Cappella & Jamieson, 1997); or in terms of values (Shah et al., 1996; Brewer & Gross, 2005). The present study employs two of the most common frames—value vs. strategy.

Value vs. strategy frames

Previous research has demonstrated that individuals use values to form issue opinions (e.g. Rokeach, 1973, Feldman, 1988). Value frames or “value conflicts” usually depict policy debates as a clash of basic values. In framing effects studies, value conflict has been examined using many issues—civil liberties conflict (Nelson, Clawson, & Oxley, 1997), gay rights (Brewer, 2002), and health care (Shah, Domke, & Wackman, 1996). Value frames provide an interpretive framework to understand a political issue (Ball-Rokeach, Power, Guthrie, & Waring, 1990; Ball-Rokeach & Loges, 1996) and resonate with individuals’ preexisting schema. Shah et al. (1996) demonstrate that value frames prompt the spread of activation to related issue schemas, influencing individuals’ judgments about other issues, vote choice processes, or candidate character. Media frames easily activate core values since they are accessible to individuals (Price & Tewksbury, 1997).

On the other hand, strategy frames pay attention to the motives of political actors where coverage of issues are framed in terms of a “game” or “strategy.” Politics is “seen not as the byproduct of a desire to solve social ills, redirect national goals, or create a better future for our offspring but are instead viewed in terms of winning” (Cappella & Jamieson, 1997, p. 34). Strategic framing tends to incite cynical reactions in news consumers (Cappella & Jamieson, 1997), specifically when there was a higher-level of strategic news present in the coverage (de Vreese, 2005). Strategic frames decrease voter turnout, trust in government and civic duty (Patterson, 1994; Cappella & Jamieson, 1997), reduce learning (Valentino, Buhr & Beckmann, Valentino et al., 2001), and decrease intention to participate (Valentino, Beckmann & Buhr, 2001).

Moderators in framing effects

Scholars continue to demonstrate an increasing interest in the moderating processes (Borah, 2011a) involved in framing effects. The variables that “condition framing effects” are called moderators (Chong & Druckman, 2007b, p. 111). Several framing studies have started delving into conditions that might abate framing effects (e.g. Druckman, 2001; Druckman & Nelson, 2003). The extant literature on framing (Druckman, 2001; Druckman & Nelson, 2003; Druckman, 2004; and many others) has demonstrated that framing effects are not universal; varied characteristics can shape the influence of frames. For example, Druckman (2004) demonstrated that framing effects are conditioned by elite competition and deliberation. In a recent study, Borah (2011b) found that motivated processing could accentuate framing effects. In another study, examining value frames in the political blogosphere, Borah (forthcoming) demonstrates that news credibility is higher in the value frame but only in the uncivil condition.

Thus, over the years research on framing has shown that the accentuating of certain considerations in a message can influence individuals to focus on those particular considerations. Moreover, recent research has also highlighted the conditions that could influence framing effects. The present study attempts to examine how the contemporary media landscape might influence two of the most studied frames—value and strategy. To do so, the study employs the use of hyperlinks, which is a very common phenomenon in the online world.

The hyperlinked world

Hyperlinking allows a user to “click on a word, phrase, or graphic image in order to jump to another piece of information or website” (Dimitrova, et al., 2003, p. 403). Hyperlinking is a technological tool,

which makes it possible for one website to link directly to another (Park, 2002). News organizations are able to provide information from around the world and overcome political and financial barriers (Himmelboim, 2010). News organizations can create a network by hyperlinking to other websites on the World Wide Web. These networks can give an indication of information flow (Himmelboim, 2010). Communication structures on the web can be analyzed with the hyperlinks amongst websites (Park, 2003) and hyperlinks can be “promising” sources of data (Park & Thelwall, 2003, p. 2). Using hyperlinks to understand the World Wide Web, Barnett and Park (2005) examine the structure of the Internet as a global communication system. Scholars have also examined hyperlinks to interpret how politicians communicate through their websites (Kim, Barnett & Park, 2010).

On an individual level, hyperlinks can “help readers understand an issue in depth” (Kovarick, 2002); can provide an element of interactivity for the reader (Peng, Tham, Xiaoming, 1999) and can also increase “the user’s ability to control the information-seeking process” (Dimitrova et al., 2003, p. 403). Althaus and Tewksbury (2000) found that student participants using the Web had a sense of control over their information seeking. Hyperlinking also provided users with the ability to understand policies and debates with the help of additional information (Jacques & Ratzan, 1997). Moreover, in an experimental study, participants themselves showed interest in having more options to gather information (Vargo et al., 2000).

Another study relevant to the present project examines the influence of hyperlinks on cognitive processing (Wise, Bolls & Schaefer, 2008). In a within-subject experimental design, Wise et al., (2008) demonstrated that individuals allocated more cognitive resources to reading stories with a larger array of hyperlinks. Specifically, their findings reveal that individuals who were exposed to a larger array of hyperlinks experienced greater heart rates indicating increased mental effort. This increased mental effort also resulted in greater recognition of story details. Hence, it is possible that hyperlinks, commonly used in the online newsgathering process could influence how individuals understand a news story.

News Credibility

News credibility is one of the most important factors in media perceptions research. Media outlets have to be concerned about how their content is received, especially because ratings of credibility play an important role in viewership patterns (Gaziano, 1988; Flanagin & Metzger, 2000). The concept of media credibility is a multidimensional construct that has been studied from three different areas of research—source credibility (associated with the credibility of the message originator), message credibility (concerned with the characteristics of the message), and medium credibility (dealing with the channel through which the message is delivered) (Kioussis, 2001; Metzger, Flanagin, Eyal, Lemus, & McCann, 2003). Hence, media credibility is typically considered a multidimensional concept drawing from several different aspects of coverage, such as trustworthiness and expertise, fairness, balance, incompleteness, concern for community, separation of opinion and fact, bias, and accuracy (Meyer, 1988; Fico et al., 2004; Flanagin & Metzger, 2000; Gaziano & McGrath, 1986; Greer, 2003; Johnson & Kaye, 1998).

This study is concerned with the message credibility and employs Meyer’s (1988) news credibility scale, which uses five dimensions: fairness, completeness, bias, accuracy, and trustworthiness. Meyer’s scale has been used in many different studies and thus has been validated across a wide variety of sources (Fico et al., 2004; Greer, 2003). To Meyer’s scale, a sixth dimension was added to address the perceptions of balance in the news (Fico et al., 2004). In the online world, Johnson and Wiedenback (2009) found that hyperlinks in a news story increased the perceived news credibility. In an experimental study, the participants read a news story and rated the news credibility of the story. Findings show that hyperlinks increased perceived credibility of the story.

Hypothesis

With the help of literature from hyperlinks and framing effects, the present study takes a nuanced look at the influence of hyperlinks on individuals' perceptions and behavioral intentions. We know from prior research that in general hyperlinks in news stories can increase perceived news credibility (Johnson & Wiedenback, 2009). Does the content of the story influence these findings? As already mentioned strategy frames in general causes cynical reactions in news consumers (Cappella & Jamieson, 1997; de Vreese, 2005). In a study on value vs. strategy frames, Lee, McLeod and Shah (2008) found that news frames altered the importance of considerations employed in decision-making. More specifically, their study shows that participants shy away from using partisanship as a primary consideration in the strategy framed condition. When exposed to the strategy frame, participants perhaps become aware of the associations to partisanship. In a recent study on incivility in the political blogosphere, participants in the strategy-framed condition perceived a news story low on credibility. While in the uncivil and value-framed condition participants found the news story more credible (Borah, forthcoming). Hence, it is likely that individuals in the strategy frame condition would perceive the news story as less credible. On the other hand, value frames resonate with audiences' moral values, which could lead to more trust. With the help of literature from both framing theory and research on hyperlinks the following hypotheses are proposed:

H1: News credibility of a newspaper story would be higher when the news story uses hyperlinks such that:

H1a: Among participants who are in the hyperlink condition, those exposed to the value frame condition will regard the newspaper story as more credible than those exposed to the strategy framed condition.

H1b: Among participants who are in the hyperlink condition, those exposed to the value frame condition will regard the newspaper story as most credible.

Information seeking

Besides, examining the influence of hyperlinks on individuals' perceptions, this study wanted to investigate the actual behavior of participants. Prior studies have examined information-seeking in relation to the presence of hyperlinks, for instance participants' control over the information seeking process (Althaus & Tewksbury, 2000; Dimitrova et al., 2003). But scholars have not examined the influence of hyperlinks on information seeking behavior. We know that hyperlinks help individuals to seek information but does the presence of hyperlinks make individual willing to seek more information? Hence, willingness to seek information was added as a second dependent variable to the study.

Information seeking has been defined as the process by which individuals "purposefully make an effort to change their state of knowledge" (Cho & Lee, 2008, p. 549; Marchionini, 1995). The process of information seeking is related to the motivation of the individual to seek additional information. Wise et al., (2008) shows that participants in the hyperlinked-condition indicate increased mental effort. They allocated more cognitive resources in the hyperlinked condition. Another study relevant to this debate shows that motivated processing increases willingness to seek information (Borah, 2011b). It is possible that in the hyperlinked condition, when individuals allocate increased cognitive resources, they take part in motivated processing. As a result of motivated processing, individuals should show increased willingness to seek information. Hence, the last set of hypotheses are proposed:

H2: Participants exposed to news story with hyperlinks will show higher willingness to seek information than those exposed to a news story with no hyperlinks such that:

H2a: Among participants who are in the hyperlink condition, those exposed to the value framed newspaper story will show higher willingness to seek information than those exposed to the strategy framed newspaper story.

H2b: Among participants who are in the hyperlink condition those exposed to the value frame newspaper story will show least willingness to seek information.

Methods

The data for this study were collected using two experiments. Both experiments were embedded in web-based surveys. The experiments used two kinds of consistent frames—strategy and value frames (for a discussion on consistent vs. unique frames see Borah, 2011a). The two frames as well as the issues chosen; gay rights (e.g. Brewer, 2002) and immigration policy (e.g. Lee et al., 2008) have been well studied in previous framing effects research. Since the influence of these frames have already been established in the literature, it was considered appropriate to examine their influence in the context of the contemporary media landscape.

Participants

The participants were undergraduate students enrolled at a Midwestern U.S. university. Although student samples are often regarded weak for generalizability, Druckman and Kam (2011) argue that student samples do not always hinder causal inference. The authors use empirical evidence to demonstrate that a student sample could create problems only when the effect of an experimental manipulation depends on a particular characteristic on which the sample has no variance (for more on student samples in experiments see Druckman & Kam 2011). The first study (gay rights) was conducted in the spring of 2010 and the second study (immigration policy) was conducted in the fall of 2011. In both studies course instructors offered extra credit for participation in this study. All potential participants were contacted by e-mail and given the Web site link of the online experiment. A total of 312 participants (75.5% female; 73.9% Democrat; mean age = 20.41 years) completed the first experiment. Of the 312 participants, hyperlink-value condition consisted of 75 participants; hyperlink-strategy condition consisted of 78; nonhyperlink value had 77, and nonhyperlink strategy consisted of 82 participants. The second study consisted of 238 participants (74.5% female; 73.8% democrat; mean age = 20.44 years). Similar to the first study, of the 238 participants, hyperlink-value condition consisted of 59 participants; hyperlink-strategy condition consisted of 61; nonhyperlink value had 57, and nonhyperlink strategy consisted of 61 participants.

Design and Procedure (Study 1)

The first experiment dealt with the issue of gay rights and consisted of both pre- and postmanipulation survey items. After answering the pretest questions, the respondents were presented with manipulated stimuli in a news analysis story. The study used a 2 (hyperlink) x 2 (framed conditions) between-subjects randomized design. The randomization was achieved by using html coding such that participants are directed to the different experimental conditions automatically. Each news story had a hyperlink and a nonhyperlink condition. The two versions of the manipulated story portray the gay rights issue using a strategy frame and a value frame. After the respondents finished answering the pretest questions, they were told that they would be reading a news story from *The Star Tribune*.

Manipulations

The frame manipulations were developed with the help of prior studies (Brewer, 2003; Lee, et al., 2008) and a content analysis of newspaper stories. Two newspapers, one national (*New York Times*) and one local (*Wisconsin State Journal*), were chosen for the content analysis. The content analysis was part of a larger project, which was conducted between 1 October 2008 to 1 October 2009. The articles were collected using the online database called Lexis/Nexis. From the total number of 96 articles, value frame dominated the coverage with 46 articles (48%) followed by strategy frame with 32 articles (33.3%). Hence, the news stories used as manipulations in the study were developed with the help of actual news coverage of the gay rights issue in the national and the local media.

Further, to maintain consistency, the news stories were structured identically. They appeared to have been taken from *The Star Tribune*, a local Minnesota newspaper. The placement and length of the quotes remained the same in both versions; however, the content of the quotes differed according to the frame. The strategy frame presented the debates in the gay rights issue as a political gamesmanship. For example: “politics is at the heart of the debate over gay marriage. As politicians jockey for position around this contentious issue, accusations of political gamesmanship abound.” Direct quotes from politicians depicted the fights within the two political parties for political gains such as “democrats are using this clever tactic to win the gay community votes.” On the other hand, the value framed news story presented arguments about the gay rights issue in terms of moral value. For example: “moral values are at the heart of the debate over gay marriage. Critics of gay rights ordinances base their opposition on the argument that such laws undermine moral values.” One of the quotes in the value-framed condition was “how do people justify their moral responsibility when they discriminate fellow human beings?” Although the stories used different quotes and arguments to emphasize the manipulated frame, the stories used similar wording and phrasing as much as possible.

The second manipulation in the study is the presence of hyperlinks. The news story in the hyperlink condition had seven hyperlinks in the entire story. The hyperlinks were made to look like active links. If the participants clicked on a link, it would take them to the next page with the headline of the story. They could click on this page to resume the survey, however they could not read the entire story from the hyperlink. It was designed in such a way that participants could not read any extra news material during the survey. These stories were made available to them at the end of the survey. Every precaution was taken to make the webpage look real. The hyperlink manipulation was pretested. The number of hyperlinks, as well as other features of the page was determined with the help of the findings from the pretest. The nonhyperlink condition did not use any hyperlinks.

Design and Procedure (Study 2)

The second study duplicated the first study in all respects, except the issue of the news story. For the second study the news stories were developed with the help of Lee et al.'s (2008) study. Similar to the first study, the value framed news story consisted of arguments about the immigration issue in terms of moral values. And the strategy frame presented the debates as a political gamesmanship. Also, besides the “willingness to seek information” measure from the first study, the second study included an additional item of actual behavior attempting to capture online information seeking.

Dependent Variables

News credibility

Participants were asked to evaluate the credibility of the news story using a scale comprised of six semantic differentials on an eleven-point scale with the following anchors: fair/unfair, biased/unbiased,

accurate/inaccurate, doesn't tell the whole story/tells the whole story, cannot be trusted/can be trusted and balanced/imbalance (Meyer, 1988; Fico et al., 2004). Factor analyses revealed a single factor for the credibility of the news story. Items were averaged to create a credibility index for news credibility (study 1: $\alpha = .92$, $M = 5.04$, $SD = 2.02$; study 2: $\alpha = .93$, $M = 5.05$, $SD = 2.01$).

Willingness to seek information

The variable was constructed by averaging participants' scores on five items to create an index for likelihood of seeking information (study 1: $\alpha = .89$, $M = 3.59$, $SD = 1.54$; study 2: $\alpha = .90$, $M = 3.6$, $SD = 1.54$). The items contained in the index asked participants to rate their likelihood of seeking more information pertaining to the issue of gay rights (study 1) or immigration (study 2). The five items measured on a 7-point Likert scale (1 = *strongly disagree* to 7 = *strongly agree*) were: "Seek more information supporting your own side of the issue," "Seek more information supporting the other side of the issue," "Seek more information that offers a balanced view on the issue," "Seek more opinions supporting your own side of the issue," and "Seek more opinions supporting the other side of the issue."

Information seeking

Besides having the measure for willingness to seek information, the second study included an additional measure in an attempt to capture actual behavior. Participants were asked to click on a link if they were willing to seek more information about the issue ($M = 1.8$, $SD = .42$). The participants had to click "yes" or "no" on the page, and in either case it would lead them to the next page of the survey.

Control Variables

Even though the study used a randomized experimental design, three common control variables were used.

Issue opinion

To control for respondents' pretest opinion on the issue of gay rights, the first study used a single item ($M = 2.54$, $S.D. = 1.96$) which asked respondents to rate their agreement on a 7-point scale with the statement (1 = strongly disagree, 7 = strongly agree), "A marriage should only be between one man and one woman". Similarly in the second study, respondents' pretest opinion on the issue of immigration used a single item, ($M = 2.34$, $S.D. = 1.10$) which asked respondents to rate their agreement on "Policies toward illegal immigrants should be more restrictive."

Personal relevance

Participants' personal relevance of the issue of gay rights was measured with a single item ($M = .702$, $S.D. = .457$), asking respondents if they knew any friends who were gay or lesbian. The second study also measured participants' personal relevance with a single item ($M = .707$, $S.D. = .446$) asking respondents if anyone in their extended family was an immigrant to the US.

Party ID

To measure partisan identification, respondents were asked, "which of the following best describes your party loyalty?" They answered in a 6-point scale (ranging from strong Democrats coded 0 to strong Republicans coded 6) (study 1: 73.9% democratic; study 2: 73.8% Democratic).

Table 1 Estimated means from 2X2 ANCOVAs (study 1: Gay rights)

Manipulations		News Credibility	Willingness to Seek Information
Value Frame	Hyperlink	M = 5.85, SE = .29	M = 4.10, SE = .23
	Nonhyperlink	M = 4.69, SE = .27	M = 3.37, SE = .21
Strategy Frame	Hyperlink	M = 4.90, SE = .24	M = 4.02, SE = .19
	Nonhyperlink	M = 4.70, SE = .22	M = 3.42, SE = .18

Manipulation checks

Manipulation check measures indicated successful manipulation. In study 1, the news frames manipulation check was conducted by using the two items “the news story was about the moral values of the gay rights issue” ($t = -8.641, p < .001$) and “the news story was about the political struggle over the gay rights issue” ($t = 3.19, p < .001$). Similarly in study 2, the manipulation check was conducted by using the two items “the news story was about the moral values of the immigration issue” ($t = -8.505, p < .005$) and “the news story was about the political struggle over the immigration issue” ($t = 3.23, p < .001$).

Results

Study 1 (Gay rights)

To test the hypotheses and understand the interaction patterns, ANCOVA models were applied. Findings show that the first hypothesis of the study is supported as a news story with hyperlinks increases news credibility $F(1,312) = 3.17, p < .03, \eta^2 = .01$. The estimated marginal means for each cell are reported in table 1. The first set of hypotheses tested the effects of frames on news credibility as well as the interaction between frames and hyperlinked news story. Although news frames did not have a significant influence on news credibility, the ANCOVA model reveals a significant interaction pattern $F(1,312) = 7.02, p < .005, \eta^2 = .02$ supporting H1b (Table 2). The interaction effect shows that hyperlinks increases news credibility in the value-framed condition (Figure 1).

Next, another ANCOVA model tested the second set of hypotheses examining the influence of hyperlinks and news frames on information seeking. The ANCOVA model shows that hyperlinks have a significant effect on information seeking $F(1,312) = 10.59, p < .001, \eta^2 = .04$, supporting H2 (Table 2). The same ANCOVA model however reveals hypotheses H2a and H2b are not supported. The estimated marginal means for each cell are reported in table 1.

Study 2 (Immigration)

In the second study similar models of statistical analysis were conducted. Overall, the patterns of relationships in the immigration study were similar to the gay rights study. The first ANCOVA model shows that the presence of hyperlink increases news credibility $F(1,238) = 2.91, p < .05, \eta^2 = .02$ (table 4). The estimated marginal means for each cell are reported in table 3. Although news frames do not have a significant effect on news credibility, the ANCOVA model reveals that the interaction between hyperlink and frame

Table 2 ANCOVA for both dependent variables (study 1: Gay rights)

Dependent Variables	Independent Variables	<i>df</i>	<i>F</i>	<i>p</i>	η^2
News credibility	Hyperlink	1	3.17	.03	.01
	News Frames	1	1.38	n.s.	.00
	Hyperlink X Frames	1	7.02	.005	.03
Willingness to seek information	Hyperlink	1	10.59	.001	.04
	News Frames	1	.06	n.s.	.00
	Hyperlink X Frames	1	.10	n.s.	.00

Note: Issue opinion, and personal relevance and party ID were controlled.

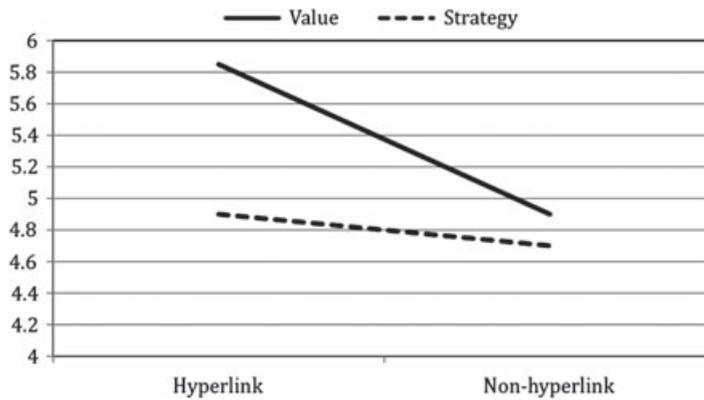


Figure 1 Interaction effects of hyperlink and value frame on news credibility

is also significant $F(1,238) = 6.65, p < .01, \eta^2 = .02$ (figure 2). The interaction specifically shows that participants perceive the news story as most credible in the hyperlinked and value framed condition.

Next, the second set of hypotheses examining the influence of hyperlinks and news frames on information seeking was tested. The ANCOVA model shows that hyperlinks have a significant effect on information seeking $F(1,238) = 10.37, p < .001, \eta^2 = .05$, supporting H2 (Table 4). The same ANCOVA model however reveals hypotheses H2a and H2b are not supported. The estimated marginal means for each cell are reported in table 3. Additionally, the second study included a measure of information seeking, to capture actual behavior. Results show significant effects of hyperlink $F(1,238) = 11.85, p < .001, \eta^2 = .05$ on information seeking (table 4).

Discussion

This paper uses research from two different streams, framing and the hyperlink literature, to examine influence of hyperlinks in the contemporary media landscape. Although prior studies have investigated the influence of hyperlink, this study takes a refined look at these relationships, by examining the interactions with news frames. The study also extends prior studies by examining actual behavior such as information seeking. Before discussing the implications of the results, it is important to point out some of the limitations of the project. This study attempts to understand the influence of one factor; the use hyperlinks, in the contemporary media landscape. However, there could be many other factors

Table 3 Estimated means from 2X2 ANCOVAs (study 2: Immigration)

Manipulations		News Credibility	Willingness to Seek Information	Information seeking
Value Frame	Hyperlink	M = 5.87, SE = .30	M = 4.11, SE = .23	M = 1.23, SE = .07
	Nonhyperlink	M = 4.74, SE = .27	M = 3.47, SE = .21	M = 1.88, SE = .06
Strategy Frame	Hyperlink	M = 4.84, SE = .24	M = 4.12, SE = .19	M = 1.20, SE = .05
	Nonhyperlink	M = 5.07, SE = .22	M = 3.52, SE = .18	M = 1.32, SE = .05

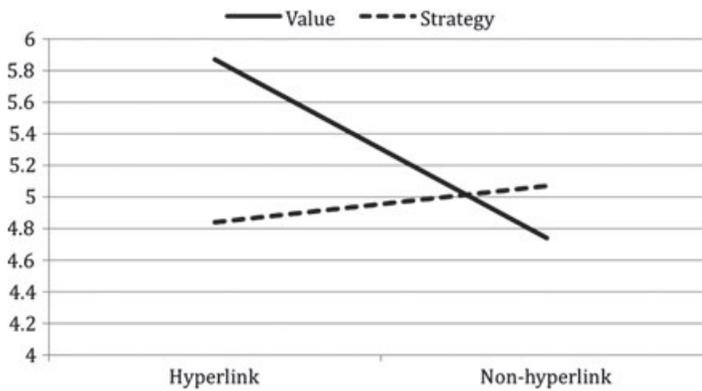


Figure 2 Interaction effects of hyperlink and value frame on news credibility (study 2)

such as using lists and “chunking” text (Carroll, 2010) that could influence users’ perceptions. There are also different types of hyperlinks, and this study uses only one of the many ways to hyperlink.

Despite some of these limitations, the results from this study are valuable in understanding the influence of hyperlinks and their interactions with news content. Findings from the first hypothesis replicate prior studies, where scholars found that hyperlinks in news stories increase news credibility (e.g. Johnson & Wiedenback, 2009). However, the findings from the present study extend this picture by demonstrating that news content could also play a role in this process. Specifically, results show that individuals in the value-framed condition perceived the news story as more credible. Value frames help individuals interpret political and social issues. They resonate with individuals’ pre-existing values and could reinforce these values (Ball-Rokeach, Power, Guthrie, & Waring, 1990; Ball-Rokeach & Loges, 1996). Hence, it is possible that individuals would perceive the story as more credible in the value-framed condition, especially when the story has numerous hyperlinks. This is exactly what the interaction pattern shows. In the strategy-framed condition on the other hand, individuals become aware of the associations to partisanship (Lee et al., 2008) and would perceive the news story as less credible. This is a crucial finding because prior research on hyperlinks shows that a hyperlinked story is perceived credible. However, the findings from the present study add new nuances to this relationship, demonstrating that the content of the story plays an important role in how hyperlinks might influence credibility. Hence,

Table 4 ANCOVA for both dependent variables (study 2: Immigration)

Dependent Variables	Independent Variables	<i>df</i>	<i>F</i>	<i>p</i>	η^2
News credibility	Hyperlink	1	2.91	.05	.02
	News Frames	1	1.71	n.s.	.00
	Hyperlink X Frames	1	6.65	.01	.02
Willingness to seek information	Hyperlink	1	10.37	.001	.04
	News Frames	1	.62	n.s.	.00
	Hyperlink X Frames	1	1.2	n.s.	.00
Information seeking	Hyperlink	1	11.85	.001	.05
	News Frames	1	1.48	n.s.	.00
	Hyperlink X Frames	1	.45	n.s.	.00

Note: Issue opinion, and personal relevance and party ID were controlled.

although hypelinks increase perceived news credibility in the value-framed condition, it is not the same for the strategy-framed condition. Prior research demonstrates that strategy frames lead to cynical reactions in news consumers (Cappella & Jamieson, 1997; de Vreese, 2005; Valentino, Buhr & Beckmann, 2001). Perhaps individuals in the strategy frame condition see the story as less credible because strategic coverage in general incite a cynical reaction to politicians as well as to the source that delivers this news.

This study was not only interested in finding the influence of hyperlinks on perceptions of the media, but also examined the actual behavior of the participants. The results from the second set of hypotheses show that individuals are willing to seek information when the news story is hyperlinked. Although examining psychological mechanisms are beyond the scope of this paper, it is likely that in the presence of hyperlinks individuals process the information with increased motivation. Prior research (Wise et al., 2008) shows that participants allocated greater cognitive resources while reading hyperlinked news stories. The participants experienced greater heart rates, which meant increased mental effort. And the findings from the second hypothesis echo these prior results. Individuals in the hyperlinked condition are willing to seek more information, possibly because they are more motivated in the processing of the story. Motivated processing can lead to increased willingness to seek information (Borah, 2011b). Besides the measures of willingness to seek information, the measure that captured information seeking behavior also replicated these patterns. It is also interesting to note that the two kinds of frames did not influence the willingness to seek information. Participants in the hyperlinked condition were willing to seek more information, irrespective of the kind of news frame.

The findings from this study add to the development of the existing hyperlink literature. Several scholars have demonstrated the positive effects of the use of hyperlinks (e.g. Jacques & Ratzan, 1997; Peng, et al., 1999; Kovarick, 2002; Wise et al., 2008). However, prior research has rarely examined the influence of hyperlinks on behavioral outcomes such as information seeking. Hence, the findings from the second set of hypotheses are significant to the advancement of the hyperlinks literature. The results from the study on news credibility are equally important. The interaction of hyperlinks and news frames demonstrate a complicated picture of the influence of hyperlinks.

The confidence in the findings from this project is increased as the hypotheses are tested with the help of two experiments using two different issues. The data analysis yielded consistent findings revealing meaningful relationships between hyperlinks and news content. Overall, the findings from this study help understand the complex world of the contemporary media landscape and its' influence on communication concepts such as news frames. This project took the preliminary steps

in understanding the influence of hyperlinks and interactions with news frames. The findings provide valuable insight for research in both hyperlinks and framing effects.

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