# Here's What You'll Learn From This News Story: Prior Framing and Learning Reasons From News

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### **Abstract**

In the online news environment, audience information processing may be influenced by the framing not only of a news story itself but also of other messages that introduce, link to, or accompany the news content. We test these mixed media framing effects on audience reason acquisition from news content with an experiment, in which we manipulate the frame—value or strategy—of a text introduction about the issue of stem cell research, followed by exposure, or no exposure, to a video news report about stem cell research. Value framing (as opposed to strategy framing) prior to a news story increased the number of reasons for one's own side of the issue

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acquired from the news report, but no effects were found on learning reasons for the other side.

### **Keywords**

mixed media effect, strategy frame, value frame, argument repertoire

Online news users frequently encounter content that is introduced or linked to by a separate message, sometimes from a different source. For example, one might read an online news story after clicking on a link posted by a friend on a social network site, who may have added an interpretive or evaluative comment framing the linked news content. Similarly, news users increasingly often encounter textual news stories that include a link to a multimedia feature that accompanies the text content. A third example of a related content is news commentary in a blog post that includes links to traditional news stories on separate websites. In short, our news media consumption increasingly occurs in a "mixed media" environment where messages other than the news story are encountered immediately before the actual news content. This study examines the interplay of message effects in a mixed media environment: specifically, the effects of framing of a prior message on how people process a video news report and whether they learn substantive reasons from it. Separating the frame from a subsequent media message in this way also allows distinguishing direct effects of frames from their effects on processing of subsequently received information.

We focus on two ways of framing political news—value and strategy framing that have received substantial but largely separate attention in news framing effects research (e.g., Capella & Jamieson, 1997; Jasperson, Shah, Watts, Faber, & Fan, 1998; Price, Tewksbury, & Powers, 1997). One major focus of news framing research is on how issue controversies can be presented as a collision of basic principles, including democratic values of life, liberty, equality, and justice (Ball-Rokeach & Loges, 1996). Powerful effects of such "value framing" have been found on candidate character perceptions and voting intentions (Schemer, Wirth, & Matthes, 2012; Shah, Domke, & Wackman, 1996). Along with value framing, another commonly studied news frame is strategy framing, in which the focus is on competition, electoral advantage, and strategic ulterior motives of political figures. This has been found to increase audience members' political cynicism (Capella & Jamieson, 1997, p. 34; see also Shah, Watts, Domke, & Fan, 2002). Research on strategy framing typically contrasts it with its conceptual opposite of policy framing, despite policy framing being relatively rare in modern news content (Patterson, 1994). As a result of treating value and strategy framing as separate research areas, few studies directly compared these two very common media frames against one another (however see Borah, 2014; Veenstra, Sayre, Shah, & McLeod, 2008).

This study tests whether frames from a prior message influence learning of policy reasons from a subsequent video news report. Policy reasons are an important subset

of political knowledge emphasized by theories of deliberative democracy (Benhabib, 1996; Cohen, 1989; Fearson, 1998). Our dependent variable is a measure of policy reason knowledge called argument repertoire (AR; Capella, Price, & Nir, 2002). AR can be increased by long-term political discussion interventions (Price, Cappella, & Nir, 2002) particularly for participants who take an active role in these discussions by expressing reasons not just receiving them (Price, Nir, & Cappella, 2006). Whether and how news use can play a role in increasing this important subset of political knowledge remains an open question. Research on political learning in general from news suggests that active processing will be much more important than mere exposure in any such reason learning effects (Eveland, 2001; Luskin, 1990). One recent study failed to find media framing effects on AR and concluded that AR taps long-term availability of reasons in memory and is therefore not sensitive to manipulations of their short-term accessibility (Pingree, Scholl, & Quenette, 2012). Note that in that study, the frame was received after more substantive media content (in a video segment of a presidential debate) and thus could only influence memory activation after receiving the content not the nature of cognitive processing while receiving it. In this study, we examine whether receiving a frame prior to news exposure can influence acquisition of AR by affecting cognitive processing of a subsequently received news story. Using the context of the debate over stem cell research, this study tests the effects of value framing or strategy framing in combination with exposure to a subsequent video news report concerning the science and medicine behind the issue.

#### Mixed Media Environment

By "mixed media," we mean a set of related messages from more than one source received consecutively. Whether from a friend on social media, a news source, or a blog, on the internet, we often encounter messages after they have been introduced or linked to by other messages. Such introductions can frame our expectations about and processing of the subsequent message they introduce and may in some cases create confusion in attempting to recall later which source provided information recalled from a set of mixed messages received together (Vraga, Edgerly, Wang, & Shah, 2011). Note that we use the term mixed media with a wholly different meaning from that of Kovach and Rosentiel (1999) who refer to the mixed roles of journalists. The consumption of mixed media is common today. Only 33% of the Americans rely solely on traditional (nononline) news (Pew Research Center's Project for Excellence in Journalism, 2012). Seventy-five percent of the online news consumers report exposure to news forwarded through e-mail or posts on social networking sites (Pew Research Center's Project for Excellence in Journalism, 2010). Fifty-one percent of the social networking site (e.g., Facebook) users who are also online news consumers say that on a typical day, they get news items from people they follow. Another 23% of this group follow news organizations or individual journalists on social networking sites (Pew Research Center's Project for Excellence in Journalism, 2010).

# Value and Strategy Framing

The language of rights and morals, a prominent feature of contemporary political discourse, is often used as a way to frame political conflicts (Glendon, 1991). Such value frames have been found to resonate with audiences, activate related cognitions, and provide judgment heuristics (Brewer & Gross, 2005), all effects that reflect a reliance on and adoption of the frame. Value framing is often conceptualized as involving the presence or absence of value language or as one value versus another (e.g., Schemer et al., 2012). When individuals are exposed to value frames, their value predispositions are influential in providing a context for interpreting and receiving information (Ball-Rokeach & Loges, 1996). By highlighting how an issue connects with underlying values, value framing may facilitate as well as motivate substantive policy reasoning about the issue.

Strategy frames, on the other hand, deflect attention from substantive information about policy alternatives to solve real problems and focus instead on the strategic ulterior motives of political actors. Strategy framing is a part of a broader "game frame" that treats politics as a game by emphasizing electoral competition, the "horse race" of the latest poll results, and campaign strategies (Fallows, 1997; Lawrence, 2000; Patterson, 1980). This game frame has increased dramatically in its prevalence in news content since 1960 (Patterson, 1994). The defining feature of strategy framing is a shift in attribution from policy reasons to strategy reasons (Capella & Jamieson, 1997). In other words, instead of attributing the actions or policy positions of politicians to policy reasons, which are the substantive justifications they explicitly give for their actions, strategy framing replaces these policy reasons with strategic ulterior motives to explain the same actions. Strategy framed news has been found to increase audience members' political cynicism (Capella & Jamieson, 1997; de Vreese & Elenbaas, 2008; Valentino, Beckman, & Buhr, 2001), which is explained as a consequence of strategic ulterior motives being conceptually central to both strategy framing and political cynicism.

For the purposes of the present study, what is important about strategy framing is not its potential to draw attention toward strategic ulterior motives but rather its potential to draw attention away from more substantive policy reasons. Research has largely neglected this possibility. One recent experiment (Pingree et al., 2012) tested for and did not find any such effects of strategy framing on AR. However, like most other strategy framing research, this study contrasted strategy framing to its conceptual opposite of policy framing instead of to the much more common alternative of value framing, and subjects in this study were given strategy frames only after receiving the media message containing substantive policy reasons (a presidential debate), so the received frames could not shape processing while receiving reasons and could only operate in retrospect.

# Mechanisms of Framing Effects

Frames in received messages can influence people either via an immediate and automatic activation of frame-applicable knowledge (Price & Tewksbury, 1997) or by providing an organizing framework for further information processing (Kahneman,

2003). In the former process, existing constructs in memory that are applicable to the frame are automatically activated in memory when the framed message is received. This could then lead these same constructs to be more temporarily accessible in memory when reading a later stimulus, even if they are not made particularly applicable by that later stimulus. Note that applicability is a frequently misunderstood concept that is often confused with the conscious process of relevance judgment that follows knowledge activation. Applicability is a very rough and simplistic matching process between the stimulus and the constructs in memory, whereas relevance judgment is more careful and conscious. For example, consider the question, "What do cows drink?" Applicability is what makes most people want to answer "milk" because of the associative connections in memory between milk and two different words in the stimulus. However, most people manage to inhibit the response milk because of relevance judgment, a stage of processing occurring immediately after automatic knowledge activation in which constructs that come to mind are assessed for their actual relevance to the cognitive task at hand (Price & Tewksbury, 1997). In this relevance judgment phase, frames may operate in more powerful and lasting ways by providing a framework for assessing whether and how the information is relevant for information being received in a stimulus message as well as for information activated from prior memory. This is the sense in which Kahneman (2003) refers to frames as providing "problem formulations" that organize and simplify decision tasks.

Typical media framing studies include the frame in the news story itself and thus can't distinguish the effects of the frame itself from its effects on subsequent processing of news content. By studying the frame as a separate prior message and manipulating not only the frame but also whether or not it is followed by news exposure, we can distinguish the direct effects of the frame from its effects on processing of subsequent news content. In the condition where participants do not receive a news report and instead proceed immediately from the frame to the dependent measures, any framing effects can be explained as automatic knowledge activation of frame-applicable constructs in memory. However, when a video news report about the issue is received between the frame and the response, the initial automatic activation caused by the frame is unlikely to persist in and of itself and instead will have its effects, if any, by shaping the nature of processing of the video news report. Such framing effects have been referred to as "primed encoding" (Hwang, Gotlieb, Nah, & McLeod, 2007), suggesting that prior frames can operate by affecting how information in the subsequent message is encoded into memory.

#### AR

AR (Capella et al., 2002) has been proposed as a measure of opinion quality and is measured as a count of the number of reasons one can list for and against a particular policy opinion. AR has been found to predict willingness to participate in diverse political discussion while also being increased by long-term involvement in such discussions (Capella et al., 2002). In a reanalysis of this same discussion experiment

examining which discussion behaviors predicted increases over time in AR, the benefits of exposure to policy reasons from others were fully mediated by the expression of policy reasons (Price et al., 2006). This suggests that reason learning requires active processing of reasons, not mere reception of them, which is consistent with research on factual learning from the news media (Eveland, 2001; Luskin, 1990).

Although diverse political discussion is clearly valuable for the development of AR, exposure to dissimilar views is more common via mass media than via interpersonal discussion (Mutz & Martin, 2001). Thus, research should also examine whether media can contribute to this important form of political knowledge. We are aware of only one past study that has tested for media effects on AR (Pingree et al., 2012). As discussed above, that study did not find effects of strategy framing on AR, but it involved framing after exposure to a message containing substantive policy reasons instead of before exposure. Thus, that study did not allow for framing to lead to active processing of reasons while receiving them from the media.

Although AR includes knowledge of reasons both for and against one's opinions, reasons for one's own and the other side may have different antecedents and consequences. Reasons for the other side could lead to ambivalence, reducing feelings of conviction that would otherwise lead to political participation (Mutz, 2006). Further, our own recent research has found that reasons for one's own side appear far more open to message effects including framing (Pingree, Scholl, & Quenette, 2012). Thus, it is important to test for media effects on the two kinds of AR separately, namely, own side and other side. The standard measure of AR (Capella et al., 2002) involves human coders counting participants' responses to an open-ended query. Our measure is a slight variation on AR, in which the respondents themselves are asked to differentiate one reason from the next, much as they might do in a discussion or during reflection. This measure is less resource intensive than computer coding (e.g., Baek, Cappella, & Bindman, 2011).

# **Hypotheses**

First, we expect that a value frame will increase AR, including the total number of reasons, number of reasons for the respondents' own position, and number of reasons for the opposing position, compared to a strategically framed message.

**Hypothesis 1:** Individuals who are exposed to a value frame will have a larger AR than those who are exposed to a strategic frame.

Second, as the video itself contains a great deal of substantive information about the issue, we expect that the video news report will also increase AR.

**Hypothesis 2:** Individuals who are exposed to a video news report will express a larger AR than those who do not watch the video news report.

Third, above and beyond the main effects hypothesized above, we also expect that the framing of the prior message will influence subsequent processing of the video

news report. We hypothesize that exposure to both the value frame and the video news report will interact to increase AR, including both the number of arguments for the respondents' own position and the number for the opposing position.

**Hypothesis 3:** Individuals who are exposed to a value frame prior to a video news report will have a larger AR above and beyond the main effects of the frame or the video alone.

We will test all three hypotheses for both effects on own-side AR and also effects on other-side AR.

### Method

The data in this study were collected with an experiment embedded in a web-based survey of respondents enrolled in undergraduate courses at a Midwestern university. Instructors offered extra credit for participating in this research experience. All potential participants were contacted by e-mail and given the website of the online survey. Two hundred and eighty-one respondents in the randomized groups used in this study produced completed responses. This data set was collected as a part of a larger experiment with more experimental conditions than were used in this study. Respondents who received these additional treatments are not included in the results reported here.

## Design

We employed a  $2 \times 2$  experimental design, in which respondents were exposed to two experimentally manipulated factors, which each had two possible conditions: a quote from a fictional expert on stem cells, manipulated to put one of the two different frames on the stem cell debate, and the presence or absence of a video sequence edited together from portions of CNN coverage of the stem cell controversy. Respondents were randomly assigned to conditions using a stratified random assignment algorithm. The four possible treatments in this design were strategically framed text followed by news coverage, value-framed text followed by news coverage, strategically framed text without news coverage, and value frame text without news coverage.

We chose the topic of stem cells for the media stimulus in this experiment because arguments for and against stem cell research can be framed in either values or strategic terms. It is also salient in the news media and religiously and politically charged, so we expected that some respondents would be able to offer a variety of responses to open-ended questions.

The first manipulation was a quote from a fictional "expert" on stem cells, purportedly the author of a book titled *Stem Cells and Society*. Respondents read this quote prior to seeing (or not seeing) the news coverage. This quote offered a non-valenced perspective on the nature of the debate over stem cells. In one condition, respondents saw a quote claiming that the debate is about values or, more specifically, ethics. It read,

Ethics is at the heart of the debate over stem cells. On the one hand, some people think that government has an ethical imperative to restrict funding for researchers who pursue science at the expense of human embryos. They say society is obligated to protect these embryos, which they believe are human life. On the other hand, other people think that government has an ethical imperative to fund stem cell researchers who pursue science to find cures for debilitating diseases. They believe that society is obligated to use these cells to save human lives.

There are several ways we could have operationalized the concept of values, including religion, rights, and charity. As an example of value framing, ethics was chosen for the stimulus because it is common in the national debate over stem cell research and because it is equally relevant to both sides of the issue.

In the other condition of the frame manipulation, respondents read a quote framing the stem cell issue as strategic. This quote claimed that the debate is about playing politics. It read,

Politics is at the heart of the debate over stem cells. On the one hand, opponents of embryonic stem cell research think that supporters are using two proposed bills in Congress to play party politics. The White House believes that advocates are using this issue as a political football. On the other hand, supporters of increased funding for embryonic stem cell research think that opponents are simply pursuing political gains. They believe that the Bush administration is merely using this issue to curry favor among its base.

We varied the order of the presentation of valenced arguments within each quote and found no order effects on a variety of outcome variables.

In the second manipulation, some respondents saw a video news report about stem cell research, and others did not. The video clips comprising the video report were chosen from several hours of coverage on CNN on the same day as a speech given by the sitting U.S. president about stem cell research funding policy. The running time of the edited video sequence was 3 min and 13 s, and the video was composed so that the segments flowed smoothly together as a single video news report. The clips were chosen to convey scientific information without political or ethical content. Although no media coverage is unframed, content for the video was designed to not repeat the frames of our first manipulation, focusing instead on scientific findings and medical applications. Respondents who viewed the video had encountered one of the textual framing messages immediately prior to the video.

# Measures of AR

Following exposure to the experimental stimuli, respondents were asked to share reasons for and against embryonic stem cell research in a series of boxes. These boxes were arranged in two columns, labeled pro- and anti-stem cell. The prompt read,

Please list the reasons on both sides of the issue of embryonic stem cell research. People have a variety of reasons for their opinions on the stem cell issue. Try to think of as many of these reasons as you can, and feel free to list more reasons on one side than on the other. If you fill up the boxes, more will appear.

This prompt was followed by two columns of fill-in boxes, headed "Pro-stem cell reasons" and "Anti-stem cell reasons." Respondents were able to list up to 10 reasons for each side of the issue. A dynamically updating web page allowed additional boxes to appear when the first three in each column have been used. Although we call the contents of these boxes "reasons" in this article, we did not evaluate whether respondents actually gave reasons or merely opinions, questions, or other nonreason content. Because this is a measure of latent ideas that we expect to be activated by our manipulations, it is appropriate to allow respondents' own definitions of a reason to prevail. In this way, we were able to allow the respondents themselves to differentiate one reason from another and determine which side of the issue each reason supports.

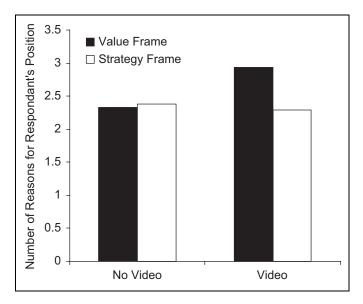
In order to transform pro- and anti-stem cell reasons to a measure of AR, we used an item that read, "How strongly do you oppose or support embryonic stem cell research?" Responses were on a 0-10 scale anchored at  $strongly \ oppose$  and  $strongly \ support \ (minimum = 0, maximum = 10, mean = 7.71, standard deviation <math>[SD] = 2.11$ ). If respondents were on the "oppose" side of the neutral point on this question, then own-side AR was computed as equal to the number of reasons in the anti-stem cell research column. On the other hand, if respondents supported embryonic stem cell research then other-side AR was equal to the number of boxes used in the pro-stem cell research column. Those respondents whose attitudes were neutral toward the issue were excluded from the analysis. Own-side  $AR \ (M = 2.49, SD = 1.27)$  was on average larger than other-side  $AR \ (M = 2.00, SD = 1.20)$ . Unsurprisingly, respondents gave more reasons to support their own position, but (perhaps surprisingly) they gave on average only one half a reason fewer arguments for the other side.

#### Results

All hypotheses were tested using analysis of variance in a full factorial model for two main effects—the value frame and the video report—and their interaction.

# Effects on Own-Side AR

Exposure to the value frame increased own-side AR, F(1, 281) = 4.04, one tailed p = .023, providing support for Hypothesis 1. Exposure to the video also increased own-side AR, F(1, 281) = 3.01, one tailed p = .042, providing support for Hypothesis 2. The interaction between values and video further boosted own-side AR, F(1, 281) = 5.50, one tailed p = .01, supporting Hypothesis 3. The relationship between these two



**Figure 1.** Framed processing of mixed media increased own-side argument repertoire (AR). The data support a significant main effect of value (vs. strategy) framing, a marginal main effect of an informative video, and a significant interaction between these experimental treatments on own-side AR. Post hoc tests show the video and value condition group had a significantly larger own-side AR than any other group.

factors is charted in Figure 1. This plot indicates that the observed differences are driven by the combination of the value frame and the video report, which is the direction of effects that were hypothesized. Mean values for the other three groups are nearly identical, with the video and value group giving additional reasons for their own side's issue position. Indeed, post hoc tests showed that only the respondents who received both the value frame and the video had a larger own-side AR, in comparison to the other three experimental groups, a comparison that was supported at the 99% level in all three cases. None of the other conditions produced outcomes that are statistically different from each other.

# Effects on Other-Side AR

None of our hypotheses were supported when it comes to AR for the other side's position. Only exposure to the value frame approached but failed to achieve statistical significance, F(1, 281) = 2.71, one tailed p = .051. Exposure to the video, F(1, 281) = 0.48, not statistically significant (ns), and the interaction, F(1, 281) = 0.62, ns, were not statistically significant. In post hoc tests, each experimental group failed to differ from the others at the 90% level.

### **Discussion**

The findings presented here have meaningful implications for research on framing effects, video processing, mixed media environments, and AR. We found that message framing, video processing, and particularly the interaction of these two factors affect own-side AR. The interaction was the most strongly supported effect. This is consistent with our expectation that these effects reflect a spread of activation from core values to related constructs that is spurred by the value framing of controversial issues and by the processing resulting from exposure to video information. None of these differences were observed for respondents' other-side AR.

## Implications for Value Framing

First, our findings indicate that value frames may be more effective than strategic frames at increasing AR, although this effect is concentrated on repertoire for peoples' own side of the controversy. The potency of value frames is further established by its effect when combined with video processing. Under these conditions, the ability to generate reasons increased dramatically, approximately 20% more, relative to other experimental conditions, including the strategically framed video processing condition. This finding indicates that textual framing effects might be amplified when combined with the demands of video processing, especially if these frames are relevant for processing the video news report. Our design allowed us to distinguish the influence of message frames from the processing of video news reports and as such yielded these unique insights about the power of value framing when combined with further news processing.

# Implications for Mixed Media Environments

A value frame alone can contextualize a controversial issue, but when that frame is followed by a video on the topic, the issue frame transfers to the cognitive task of processing information, and the potency of the frame is channeled into that processing task. We suggest that this is evidence for primed encoding (Hwang et al., 2007). Given the changing nature of the media environment in a digital age, mixed modality media environments in which text and video are combined are encountered by an evergrowing number of news consumers. We clearly need to understand how people process news in these sorts of mixed media environments such as newspaper sites, video blogs, online magazines, and social network sites. Past research has compared the relative strengths of traditional broadcast video news and text-based online news for learning, finding that more attention is paid to TV news than online news, but that online news is superior for structuring political knowledge (Eveland, Seo, & Marton, 2002). But today's media increasingly transcends these distinctions.

For example, the online edition of the *New York Times* regularly contains video content on its main page preceded by textual introductions. Likewise, the most

popular videos on YouTube often include news either directly uploaded by citizens or reported by broadcast reporters; in both cases, the video is accompanied by a text headline and commentary written by the uploader. A third example of mixed media environments in our daily lives is social media. A user's friend provides a link to a video, but before the user clicks on it, he or she reads the friend's comment or Tweet. In all these cases, textual content may be framing our expectations about and processing of the subsequently received video news content. Most media effects research looks at the effects of a message's characteristics on outcomes that come from that same message's content, but we argue the way people consume media today merits a different approach (see Bennett & Iyengar, 2008).

## Implications for AR

These findings indicate that the framing of messages can influence the acquisition of resources for deliberative processing or deliberative discussion. The fact that exposure to the value-framed message, the video news report, and especially their combination increased the number of reasons respondents listed speaks directly to the ability of media messages to affect learning of policy reasons, a particularly important subset of political knowledge. Notably, our manipulations do not yield balanced effects on both sides of the controversy, meaning that these effects may accumulate into a potentially harmful imbalance in reason knowledge.

#### **Future Directions**

A few design limitations could be addressed with future research. Whether the same effects would be observed with a general population or outside an artificial experimental setting remains to be seen. Second, the topic of our study, embryonic stem cell research, is not as widely discussed as other value-laden and politically divisive issues such as abortion or same-sex marriage. It may be that the framing of stem cell research is particularly powerful because people do not have established attitudes or highly integrated existing knowledge about this topic. Future research should examine whether these findings generalize beyond this issue.

Our measurement of AR was as effective and less resource intensive than other measures. AR was assessed through dynamic text boxes, which allowed respondents to differentiate reasons for themselves. This technique also fostered an accurate assessment of reason giving by automatically adding another text box below each entered reason, reducing pressure to provide a certain number of reasons while permitting people with a large number of reasons to have the space available to list all of the ideas that occurred to them. This measurement took place outside a laboratory setting in the location where each respondent normally prefers to access online mixed media content.

Another contribution is examining the effects of values and strategy framing in opposition to one another rather than each in isolation or in comparison to a

conceptual opposite rare in modern media content (i.e., policy framing). Instead of testing for the effects of two different types of values, we used a more ecologically valid comparison between value and strategy framing, both frequent frames in political journalism. Because value frames—no matter the value, so long as it is central to some people's minds—increase AR in combination with other news coverage, this comparison should be especially troubling during political campaign seasons, when every issue is portrayed as a political football. Future research should compare different categories of politics frames in addition to different examples within one category.

Finally, these results suggest that media effects research should not ignore the effects of characteristics of one media message on people's reactions to a separate message consumed in conjunction. Online news sources are increasingly combining text and video when they cover the news, but little is known about how textual framing influences processing of subsequently received video news reports. Since Iyengar's (1991) seminal work on framing TV news stories, too few scholars have considered this question even though online news sources now routinely rely on video clips as a way of elaborating on written news stories and even though social network users increasingly rely on friends to introduce video content. The dynamic interplay between characteristics of one message and content of a subsequently received message is a research frontier that becomes more important daily as news consumers move away from the newspaper's front page.

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