Conceptualizing Sources in Online News

By S. Shyam Sundar and Clifford Nass

This study attempts a new conceptualization of communication “sources” by proposing a typology of sources that would apply not only to traditional media but also to new online media. Ontological rationale for the distinctions in the typology is supplemented by psychological evidence via an experiment that investigated the effects of different types of source attributions upon receivers’ perception of online news content. Participants (N = 48) in a 4-condition, between-participants experiment read 6 identical news stories each through an online service. Participants were told that the stories were selected by 1 of 4 sources: news editors, the computer terminal on which they were accessing the stories, other audience members (or users) of the online news service, or (using a pseudo-selection task) the individual user (self). After reading each online news story, all participants filled out a paper-and-pencil questionnaire indicating their perceptions of the story they had just read. In confirmation of the distinctions made in the typology, attribution of identical content to 4 different types of online sources was associated with significant variation in news story perception. Theoretical implications of the results as well as the typology are discussed.

The concept of “source” is an important fundamental aspect of the academic study of communication. Over the years, this concept has served as the building block for numerous models, theories, and variables in the communication literature. Despite its obvious importance, however, source remains a seriously underexplicated concept. This lack of conceptualization has always been a limitation in the study of traditional media (Newhagen & Nass, 1989); the recent growth of new media has served to magnify and highlight the issue.

The absence of a clear-cut conceptualization of source profoundly hinders our ability to understand communication processes with new media. For example, in the online news environment, it is uncertain who or what the source of a piece of information is. Certain online news services like The New York Times on America Online have the Times’s editorial staff as the source of all news. Other services like the News Hound of the San Jose Mercury News allow computer interfaces to do the selection of daily news. In this case, the technology of the medium or channel

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becomes the source of online news. Still others, like the Internet news groups, make it possible for users to collectively choose the material for consumption. Here, audience members (or other users) constitute the source of online news. Finally, there are online news services on the World Wide Web, such as EntryPoint, that let individual receivers choose the content they want and customize their daily menu of news. In this case, the receiver himself or herself becomes, in a way, the source of online news.

In the online news environment then, there are at least four different types of sources—news editors, computers, other users, and the user himself or herself—that correspond to different elements of traditional linear communication process models. That is to say, not only the sender but also the medium and the receiver of the traditional communication model can be construed as a source of online news (Morris & Ogan, 1996).

In an effort to resolve this ambiguity, this article will attempt a fresh conceptualization of source. It will first explicate the concept of source as used in past communication research. It will identify key conceptions of source in the literature and use them to create a typology. The strength of the resulting typology will be evaluated along three criteria: (a) It should apply to all media, particularly new online media; (b) the distinctions in the typology should have ontological rationale; and (c) they should engender psychological differences among media audiences.

**Source Explicated**

Almost all classical models of communication assume a source as the originator of communication (e.g., Rogers & Kincaid, 1981, pp. 34–35; Severin & Tankard, 1988, pp. 30–41; Shannon & Weaver, 1949), but none seem to specify the characteristics of sources. This is perhaps because the commonsense understanding of the term *source* has sufficed for most researchers. The Oxford American Dictionary defines source as “the point of origin” or “the place from which something comes or is obtained.” It also offers a more media-centric meaning of source: “a person or book, etc., supplying information.” As these definitions imply, source need not necessarily refer to the sender in the SMCR and engineering flow models (Berlo, 1960; Schramm, 1954; Shannon & Weaver, 1949); it could even refer to the message or the channel, depending upon who or what is perceived by the receiver to be the source of the communication. As Chaffee (1982) points out, receivers do not differentiate clearly between a person who generates a message (source) and one who relays a message that was created elsewhere (channel). This problem is compounded when some researchers (e.g., Abel & Wirth, 1977; Carter & Greenberg, 1965) treat media channels (newspapers and television) as competing sources of information and influence.

The source credibility literature is equally broad in its interpretation of the term “source.” A message source may be a person (e.g., Walter Cronkite), a group (e.g., a random sample of the U.S. population), an institution (e.g., the Supreme Court), an organization (e.g., American Medical Association), or even a label (e.g., conser-
vative) that has a favorable or unfavorable connotation for the message recipient (Hass, 1988). In fact, the first study in this tradition, by Hovland and Weiss (1951), confounded source with media channel by comparing well-known publications with well-known individuals on a credibility dimension.¹

Other studies have conceptualized source as the image of the communicator (Sargent, 1965), as encoder and decoder (Papa & Tracy, 1988), as vocal attributes of the speaker (Addington, 1971), as social representations (Moscovici, 1984), and as anything other than self (e.g., Ackerman, 1992).

With the arrival of new communication technologies, there is yet another contender for the title of source—namely the physical manifestation of the technology itself. As Reeves & Nass (1996) demonstrate, receivers sometimes treat the medium itself (i.e., computer box or television set) as an autonomous source worthy of human social attributions. Even ontologically, certain new technological contrivances could be considered sources. The agent interface, for example, is a distinct source in human–computer interaction. Interface agents communicate in complex technical terms with low-level machine parts while maintaining a human face on the screen with their use of language and other attributes of human-human communication (e.g., Riecken, 1994). Moreover, in this age of interactivity, even the receiver can be considered a communication source.

All this leads to a very basic question: Who or what is a source, and how do we know? This question can be answered in two ways: Psychologically and ontologically.²

From a psychological point of view, source is what the receiver imagines the source to be. For example, in the experiments by Nass and colleagues, individuals are shown to react socially to computers (Reeves & Nass, 1996). That is, psychologically, they seem to be treating computers as if they were sources with their own intentions and motivations.

From an ontological point of view, source is what the source does. Lasswell (1948) attempted perhaps the first ontological distinction of sources by distinguishing between message handlers (e.g., printers, radio engineers) and message controllers (e.g., editors, censors). More recently, researchers have distinguished between source (e.g., a communication campaign) and “channel communicator” (e.g., reporter or editor), and between an “internal” source referring to the person

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¹ This is because the experimenters did not distinguish along the humanness dimension of source. Rather, they conceptualized communicator as being either high or low in credibility. Credibility was the independent variable of interest, and persuasion was their dependent variable. In general, the source-effects literature operationalizes source characteristics in three ways: credible versus not credible, physically attractive versus unattractive, ideologically similar versus dissimilar (Wilson & Sherrell, 1993). This is done regardless of the fact that one of the values in a given dichotomy is a human being whereas the other is a mass media channel.

² The distinction between ontology and psychology is made not just because they sometimes differ but because they can differ. Historically, philosophers since Kant have sought to distinguish the two because they argue for the existence of an external reality that is quite different from our psychological conception of reality. This is the difference between “what is” (noumenal world) and “what we think is” (phenomenal world).
originating a message, and an “external” source referring to the medium transmitting the message (e.g., Chaffee, 1982; Gaziano & McGrath, 1986). In the present technological age, where not only editors but also media technologies and receivers themselves choose content, we find that each one of the three elements in the following communication chain is a source:

Sender/Presenter —> Medium/Channel —> Receiver/Audience

In the case of news transmission, the sender or presenter is the media gatekeeper who gathers information needed for the news, packages it, and presents it for mass dissemination. The technological medium or channel (e.g., TV, radio, newspaper, magazine) transmits this packaged news to the masses. The receiving pool of humans who read, hear, or watch the news completes the communication chain.

In preparing a typology of sources in online news communications, we used these three elements in the communication chain to synthesize the various conceptions of source in the literature. They are presented in order below. (For each of the three elements, the ontological rationale for considering it a source is presented first, followed by the available psychological evidence).

Gatekeeper as Source
Although the gatekeeping metaphor (White, 1950) was derived from the channel metaphor used by Lewin (1947) to describe the process of selection and rejection that results in only certain foods ending up at the family table from the grocery store, the journalistic gatekeeping process is far from being a mere conduit between sources and receivers. Rather, it is a process whereby journalists not only perform an important filtering function (Rosten, 1937; Schramm, 1949), but also take on the role of directly interacting with the receiver (Pool & Shulman, 1959), thus displacing the original source of communication. To the receiver, they appear as the source of communication.

Although, ontologically, gatekeepers are the conduits between news sources and news consumers, all the research on effects of gatekeepers upon receiver judgments essentially treat gatekeepers as sources. Even studies in source credibility (e.g., Hovland & Weiss, 1951) that do not make an explicit mention of gatekeeping typically operationalize high-credibility and low-credibility sources either at the level of a media channel (e.g., Fortune magazine) or of the writer (e.g., gossip columnist), but not at the within-story level (i.e., the level of the person being quoted in the story). Other studies (e.g., Newhagen & Nass, 1989) have shown that receivers make significant evaluations of news credibility based on their perceptions of gatekeepers. Therefore, source credibility researchers are mostly investigating the credibility effects of gatekeepers, not actual sources as the term is understood by journalists. All this suggests that gatekeepers are more than an invisible medium of transmission; they are the visible sources for receivers.

Technology as Source
Technological determinists believe that the medium or channel, not the sender (of the linear engineering flow model), is the key (McLuhan, 1964). They also main-
tain that media technologies dictate the nature of content delivered through them (e.g., Beniger, 1986, 1987; Bolter, 1984; Czitrom, 1982; Gouldner, 1976; Innis, 1951). Under this view, the real source of messages is the technology qua medium itself. When McLuhan (1964) proclaimed that the medium is the message, it was considered a particularly controversial view because it challenged the traditional effects view that the medium was just an uninteresting channel between the source and receiver. McLuhan claimed that technologies in general and media technologies in particular were transmitting their own messages, which are much more powerful and all-encompassing than the direct effects of “content” on the masses.

Through a series of experiments, Nass and colleagues (see Reeves & Nass, 1996, for a review) have shown that individuals apply social rules when they interact not only with other individuals but also with computers (Nass & Steuer, 1993). These researchers argue that technologies like computers invite ethopœia because of advanced features such as the use of language and voice, interactivity, and filling of roles traditionally held by humans (Nass & Moon, 2000; Nass, Steuer, Henriksen, & Dryer, 1994). This results in individuals exhibiting a direct, unmediated, and automatically social response to computers. That is, individuals respond to computers as a source in much the same way they respond to other human beings as sources (Reeves & Nass, 1996). Although ontologically computers are not independent sources (because they are programmed to behave the way they do by human programmers), psychologically they are treated as autonomous sources.

With the advent of interface agents, computers are rendered all the more anthropomorphic, thus extending the illusion that they are independent sources (Cassells, in press). Agents constitute the computer analogue of the journalistic concept of gatekeepers; in that sense, they are the visible sources. Ontologically, they are neither the source nor the medium in the communication process. Rather, they are a part of the technological interface between the medium and the user. If anything, they are a built-in part of the media technology hardware. Psychologically, however, they are seen as autonomous sources, partly because they fulfill roles traditionally held by humans (Latour & Johnson, 1988) and perform functions formerly performed by humans (Laurel, 1990) and partly because they are designed to be metaphorical representations of human beings (Laurel, 1993).

**Receiver as Source**

To the extent previous research on communication sources (most notably source credibility research) encourages us to conceptualize sources primarily as entities responsible for gatekeeping, receivers could also be viewed as a source of communication in today’s computer-networked environment. Receivers tend to choose what they consume on the Net with the help of “user models” built into the computer interface for the express purpose of allowing them to customize their selection of a restricted number of items from a mass of competing items (Allen, 1990). In the World Wide Web, for example, users collectively manufacture as well as choose content. The WWW is literally a web created and updated simultaneously by the receivers themselves. Users share news and other information on the Web without intervention from governmental agencies, gatekeeping institu-
Online News Sources

tions, and technological limitations. Increasing interactivity and customization built into modern media systems are making it possible for receivers to perform their own gatekeeping and hence serve as sources of communication.³

In making this argument, some conceptual clarifications are in order: Performing one’s own gatekeeping with the aid of user models and other interface features is NOT the same as selective consumption that we all engage in while attending to news in traditional media. The experience of selecting news in an online interface is different from the experience of choosing to consume some stories over others in a newspaper for the following reasons:

1. Often, the selection criteria are preset by the user (for example, a specification such as cricket+Zimbabwe will give the user all stories involving the African nation of Zimbabwe and the game of cricket), and therefore the choice of news is not restricted to what’s already printed in the newspaper (which, more than likely, will not carry any stories pertaining to cricket if it is an American publication).

2. Even when the selection criteria are not preset by the user, as in the case of websites of many news organizations (cnn.com, abcnews.com, etc.), the receiver is faced with a combination of a search engine inviting users to input keywords and a series of hyperlinks to full-text stories. These hyperlinks offer minimal information about the relative importance of a given news story, typically revealing only the teaser or a portion of the headline. (Often these headlines are arranged according to their recency rather than their newsworthiness).

The consequence of these two differences between selection of news on the Net vs. traditional media is that, in online news, users can potentially perform the selection in a contextual vacuum. Unlike in traditional news, they are not given clear cues about the relative importance of certain news stories over others, by way of story size, placement prominence, etc. In the extreme case of a news consumer who gets all his or her news from the Net, this relative deficiency of external cues by professional gatekeepers could lead to the consumption of only those news items pertaining to his or her narrow set of interest areas, and the user may remain largely ignorant of current-day social and political events. This theoretical possibility encourages us to consider the receiver as a potentially independent source of communication.

At the psychological level, the growing acceptance of the idea of an active audience has spawned a great deal of research that looks at communication as a dependent variable as opposed to an independent variable (Rubin, 1993; Zillmann & Bryant, 1985). Communication is sought to be studied as a function of audience activity, such as the purposive selection of communication (Levy & Windahl, 1984, 1985). The receiver (or his or her characteristics) constitutes the source of communication in this paradigm.

This suggests that the last link in the communication chain, the receiver, could indeed be considered the first link, that is, the sender, of the communication process.

³ We fully realize that selection alone does not make a source. However, it is the selection function (as opposed to origination) that fundamentally characterizes the metaphor as well as the role of gatekeepers, who have historically been treated as communication sources by researchers. Therefore, the receiver-as-source argument is valid only to the extent source is conceptualized somewhat narrowly as selector of content rather than its originator.
Toward a Typology of Communication Sources

From the preceding discussion, three different conceptions of source emerge:
1. Source as the visible gatekeeper-presenter of content.
2. Source as the media technology that delivers the content.
3. Source as the receiver or audience choosing content for consumption.

These three conceptions of sources and their functions can be used to formulate a typology of sources described below. The typology has three basic categories: visible sources, technological sources, and receiver sources. The last mentioned has two types: self as source and audience as source. Figure 1 is a visual representation of this typology.

Visible Sources
Visible sources are the sources seen by the receiver to be delivering the message or content. Gatekeepers are a prime example of visible sources. In the case of newspapers, the visible source could be either the reporter (in the form of a byline) or the collective editing staff of the newspaper (in the form of the masthead). On TV, the news anchors are visible sources. Much of the source credibility literature looks at visible sources, because the psychological effect of who presents the content is considered more powerful than that of who actually originates the content.

Technological Sources
Technological sources are the media or channels of content presentation that are presumed by receivers to be the originators of content. A technological source is psychologically processed by the receiver as being autonomous, but in fact it is not independent. Source attributions are sometimes made to the front-end box that delivers media content, like the TV set or the computer terminal (e.g., Nass, Reeves, & Leshner, 1996; Reeves & Nass, 1996), although we all know that the box is not the originator of content but merely a technical conduit that is programmed for transmission of content.
In this age of information overload, increasingly many content choices are made by the receivers. Traditional media like newspaper and television suffer either from space scarcity or spectrum scarcity, and hence the selection of content is done by content providers rather than by content receivers. In the present computer age, however, there is no paucity of space or spectrum in the media channel of transmission. The only restriction comes by way of the attention span and interest of the receiver. The onus is now upon the receiver to actively sift through content and select a portion of it for consumption. That is, the receiver becomes the source, albeit only a selecting one. There are two types of receiver sources, depending upon the level of analysis at which one considers receivers:

**Self as source.** This is the receiver at the individual level. As in selective exposure experiments, each receiver, one individual at a time, is responsible for the content he or she consumes. This is because he or she selects the particular content from among a mass of competing content. That is, each individual receiver of communication performs his or her own gatekeeping.

**Audience as source.** This is receiver at the collective level. Just as public opinion polls express the collective opinion of a mass of people, the audience of new media, not one at a time but as a whole, is responsible for the content floating around in any given media vehicle. Audience as a collective influences the content of talk shows on traditional media like television. In new media, the audience not only influences but also selects what content is worth consuming. In Internet news groups, for example, the audience as a collective not only selects material fit for dissemination but also makes key decisions about such things as advertising policies, level of obscenity, and access to children. In modern media systems, built-in learning rules make it possible for content categories to be ranked automatically by the frequency of audience usage. This is akin to radio stations ranking songs based on how often their listeners, as a collective, requested airplay of those songs in the past week. This typology can be mapped onto the traditional engineering flow model of communication and is represented in Figure 2.
Ontologically, the various types of sources described above are different because they occupy different positions in classical communication models. However, it remains to be seen if these types of sources are psychologically distinct. In other words, are there psychological differences in the way people perceive content attributed to these sources? Depending upon who or what is considered by the receiver to be the source of communication in the above linear chain, do user perceptions of the communication content vary?

Are Sources Psychologically Distinct?

The experiment reported here investigated whether the different types of communication sources identified in the typology elicit different psychological reactions from communication receivers. Specifically, the study kept content constant and looked for differences in receivers' ratings of credibility, liking, quality, and representativeness of online news stories as a function of the type of communication source, manipulated in one of four ways: news editors (visible sources), computers (technological sources), other users (audience as source), and the user himself or herself (self as source).

Participants

Forty-eight undergraduate and graduate students enrolled in communication classes participated in the experiment, with 12 participants in each condition. Each subject was paid $10 for participation. The experiment was administered to participants in groups ranging in size from 3 to 12 persons. However, all participants in a given group were in the same condition. The assignment of participants to the four conditions was random.

All participants were asked to sign an informed consent form before commencing the experiment. They were then instructed, as a group, to read six news stories through an online service and answer a paper-and-pencil questionnaire after every story. As promised in the consent form, all sessions of the experiment lasted a little under 45 minutes.

Design Overview

In a between-participants experiment, all participants were exposed to identical content, but with different source attributions. After their consumption of content, their evaluation of the content was elicited.

Operationally, the design may be summarized as follows: All participants read six news stories each on an online service. A fourth of the participants were told that the six news stories were selected by news editors. Another one fourth were told that the stories were selected by the computer terminal on which they were accessing the stories. Yet another one fourth were told that the stories were selected by other audience members (or users) of the online news service. The final fourth were given a pseudoselection task leading them to believe that the stories were chosen by the individual user (self). After reading each story, participants
filled out a paper-and-pencil questionnaire evaluating their liking for—and the credibility, quality, and representativeness of—the news story they had just read.

**Experimental Treatment Conditions**

All participants in the experiment read six news stories—one each in the following common categories of news: national, international, local, business, sports, and entertainment—that we created especially for this study by rewriting articles that had already appeared in mainstream newspapers. We chose these stories because they were routine and would not evoke particularly strong negative or positive reactions.  

We administered the source manipulation by constantly reminding participants, both orally and via online and textual materials, about the source that selected the online news stories they were reading. The source manipulation was administered in three different ways:

*Through the online interface.* Below the masthead on the first screen of the site was the first online instantiation of the manipulation. It read, in 24-point bold letters, “News Editors’ Selection,” “The Computer’s Selection,” “Other Users’ Selection,” or “Your Selection” depending upon the condition. Below this was an explanatory note that read, “News Editors [The Computer, Users of this online service, You get to] pick a selected sample of stories to meet your daily news needs. They have chosen [It has chosen, They have chosen, You may choose] one story in each of the following categories: National, International, Local, Sports, Business, Entertainment.”

The screen for each news category featured 10 headlines of news stories. One of the 10 headlines was underlined, and it was accompanied by parenthetical text that said either “News Editors’ selection,” “Computer’s selection,” or “Other Users’ selection” depending upon whether the subject was in the news editors condition, the computer condition, or the other users condition. Participants were told to click on the underlined headline to see the story. The next screen contained the actual news story, which was identical for all four conditions.

This part of the online interface was slightly different for the self condition. For participants in the self condition, the second screen had the same 10 headlines, but all of them were underlined and none of them had any accompanying parenthetical text. This was because participants were instructed to select one of those 10 stories for reading during the experimental session by clicking on the headline of their choice. Unbeknownst to the participants, all headlines were hyperlinked to the exact same story. Furthermore, this was the same story read by participants in the other three conditions.

*Through textual material.* Textual instantiation of the manipulation began even as participants read the informed consent form prior to commencing the experi-

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4 For an unrelated study, a within-participants manipulation was included in the experiment, whereby three of the six stories read by each subject had direct quotations in them whereas the other three had paraphrased quotations. Because the quotation manipulation did not interact with the source manipulation, it is not discussed in this article.
ment. The second paragraph of the form read, “In this study, all participants will be asked to read six news stories selected by professional news editors through [the computer through, the users of, themselves through] an online news service.”

However, the most important part of the manipulation was embedded in the cover story printed on page 4 of the questionnaire booklet and read aloud by the experimenter as the participants followed along. Participants were told that unlike traditional media, digital media did not suffer from time and spectrum scarcity. That is why, “[n]o technological boundaries limit the number or type of news stories in the online world.” However, they were told, people do not have the time to read all the news while being logged into an online service. Past research was cited to state that the average American spends about 20 minutes a day on news. This makes selection of news very important. Keeping the 20-minute daily news time in mind, they were told, professional editors have chosen [the computer has chosen, other users of the news service have collectively chosen, you get to choose] one story each in six news categories.

Textual instantiations of the manipulation occurred throughout the questionnaire booklet, including the wait-for-further-instructions separation pages as well as pages featuring the list of dependent measures for each story. Wherever possible, the source was highlighted by placing the key words (news editors, computer, other users, you) either on a separate line or bigger than the rest of the text or both. Through oral instructions. Oral instructions reminded participants about the source throughout the experiment. For example, when participants arrived at the screen with 10 headlines of international news stories, they were told the following: “You are now in the international section. Now, click on the underlined headline to see the International story of the day selected by news editors [the computer, other users].” For participants in the Self condition, the corresponding instructions were as follows: “You are now in the international section. Now, click on one of the 10 headlines to see the international story of your choice.”

After they clicked on a headline and the next screen with the international story appeared on the screen, they were told the following: “Within the next 3 minutes, please read the international story for the day selected by news editors [the computer, other users, you].” Except for what was told to participants about who or what selected the stories (and frequent instantiations of this manipulation), the content of the entire interaction was identical across all four conditions.

**Dependent Measures**

Content perception, the main dependent variable in this study, was operationalized in terms of participants’ ratings in four broad categories of news perception identified by Sundar (1999), namely credibility, liking, quality, and representativeness of the online news stories they read. All measures were in the form of adjectives so that participants could easily rate characteristics of news stories on a Likert-type scale. The following six measures comprised the credibility variable in this study: accurate, believable, biased, fair, objective, and sensationalistic. The following five adjectival measures were used to measure participants’ liking for a news
story: boring, lively, enjoyable, interesting, and pleasing. The following battery of five measures was used for assessing news story quality: clear, coherent, comprehensive, concise, and well-written. The following five measures comprised the representativeness variable in this study: disturbing, important, informative, relevant, and timely. These measures were in the form of adjectives placed at the left-hand side of a 10-point scale anchored between describes very poorly and describes very well.

Procedure
The experiment was conducted in a journalism laboratory that had 18 Macintosh computers with access to the Internet. When participants arrived at the lab, all monitors displayed the first screen of “Online News.” They were first seated around a center table away from the computers. They were welcomed and told that they would be “reading news stories online and responding to questions in the booklet” given to them.

Because the experiment was administered in groups, the experimenter directed participants through the procedure one segment at a time. That is, participants were instructed to work at their own pace, but were asked to read one story only or fill out one questionnaire only, then turn to the separation page and wait for further instructions to continue. After all participants had completed a particular assignment, they together were guided to either the online screen or to obtrusively numbered pages in the booklet for the next task.

After participants finished answering questions about the last (sixth) news story, they were asked to fill out a final questionnaire that had questions about the entire interaction, not individual news stories. Embedded in these questions was the manipulation check, which read as follows: “The news stories you read today were selected by: ____________.” After they completed this questionnaire, participants were asked to furnish some personal information for the purpose of making payments. Questionnaire booklets were then collected and participants were debriefed, thanked for their participation, and dismissed.

Data Analysis
The measures comprising each of the four areas of news perception were correlated and checked for internal consistency (multiple-item reliability). Additive indexes of the four sets of measures were computed for each of the six stories separately. In order to control for differences among the six story types, the mean score of all participants for each of the six story types on a given index was subtracted from every subject’s score for the corresponding story types on that index.\(^5\)

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\(^5\) For example, if the overall mean score (all participants combined) on the credibility index was \(x\) for the national story, \(y\) for the international story, \(z\) for the local story, \(p\) for the sports story, \(q\) for the business story, and \(r\) for the entertainment story, and a subject’s score on the credibility of national story was \(n\), the credibility of international story was \(i\); of the local story, \(l\); of the sports story, \(s\); of the business story, \(b\); and of the entertainment story, \(e\), then that subject’s rating of the national story on the credibility index was given by \((n - x)\). Similarly, the subject’s credibility rating for the international, local, sports, business, and entertainment stories were given by \((i - y)\), \((l - z)\), \((s - p)\), \((b - q)\), and \((e - r)\), respectively.
The four indexes capturing the four dependent variables were first entered together in a repeated-measures multivariate analysis of variance. They were then used as dependent variables, one at a time, in a series of one-way analyses of variance. Results of these analyses were examined for significant differences as a function of the type of source that selected the news stories.

Source Effects on Content Perceptions

An examination of the manipulation-check item revealed that all 48 participants correctly identified the source of the condition to which they were assigned. Furthermore, all four sets of dependent measures had acceptable levels of multiple-item reliability. Cronbach’s $\alpha$ for credibility, liking, quality, and representativeness indexes were 0.84, 0.83, 0.86, and 0.78, respectively.

The multivariate analysis of variance, using all four algorithms (Wilks, Pillai, Hotelling, and Roy), showed a significant effect for the source manipulation, $F(3, 44) = 3.5, p < .05$.

In the univariate analyses of variance, significant mean differentiations as a function of sources were obtained with the liking $F(3, 44) = 2.89, p < .05, \eta^2 = 0.16$; quality $F(3, 44) = 3.99, p < .05, \eta^2 = 0.21$; and representativeness $F(3, 44) = 2.91, p < .05, \eta^2 = 0.16$ indexes, but not with the credibility index $F(3, 44) = 0.61, p > .10$ (see Table 1).

Post hoc mean comparisons showed that participants in the other users condition liked the news stories more than participants in the self condition as well as
the news editors condition. However, the liking ratings of participants in the computer condition were not significantly different from the ratings of participants in any of the other three conditions. This suggests that when other users choose the news stories, receivers like the stories more than when news editors or the receivers themselves select the stories.

Mean comparisons among the four conditions on the quality index yielded the following results: (a) Participants in the other users condition rated the quality of news stories higher than participants in the news editors and self conditions, and (b) participants in the computer condition assigned higher quality ratings than their counterparts in the self condition. This suggests that when computers and other users select news stories, receivers rate the stories higher in quality than when the same stories are selected by news editors or by the receivers themselves.

When the means for the four source conditions were compared on the representativeness index, it was found that participants in the other users condition rated the news stories as being more representative of news than participants in the self condition. This suggests that when other users choose the news stories, receivers think that the stories are more newsworthy than when the receivers themselves select the stories.

The effects of the source manipulation on the four dependent variables may be summarized as follows: When other users or audience members are perceived to be the source of online news, the stories are liked more and perceived to be higher in quality than when news editors or receivers themselves are perceived as the source. Furthermore, when other users are perceived to be the source of online news, the stories are considered more representative of news than when the receivers themselves are perceived as the source. When the computer terminal is perceived as the source of online news, the news stories are rated by receivers as being higher in quality than when news editors or receivers themselves are perceived to be the news source.

**Psychological Relevance of the Source Typology**

In confirmation of the distinctions made in the typology, attribution to four different types of sources in online media was associated with variation in news story perception. Although perceived credibility of news stories was unaffected by the sources, there were significant differences in the ratings of liking, quality, and representativeness given to news stories attributed to visible (news editors), technological (computer), and receiver (other users, self) sources.

In particular, there was a consistent difference in participants’ ratings of liking, quality, and representativeness between the two types of receiver sources. Of the four types of sources, other users seems to be the psychological favorite with the receivers, and participants in the self condition were the least positive in their story ratings. This runs counter to most research on self–other bias, which shows that individuals make ego-defensive ratings (see Mason, 1990, for a review of this literature). One explanation for this counterintuitive finding is that participants’
expectations of sources played a role in their evaluation of content. That is, participants may have had high expectations of news stories selected by themselves and low expectations of the stories selected by other users. However, when they were faced with mediocre stories in the experiment, self may have been penalized for not meeting expectations while other users may have been rewarded for surpassing receivers’ expectations. The idea of expectations leading to communication consequences is echoed in the social learning literature (e.g., Bandura, 1965, 1971) as well as uses and gratifications research (e.g., Palmgreen & Rayburn, 1982; Babrow, 1989; Babrow & Swanson, 1988). Future research with new media might ascertain receivers’ expectations of various sources, especially the four broad types of sources discussed in this article, in order to verify a systematic effect of source-related expectations upon receiver perceptions of content attributed to those sources.

Apart from the difference between the two types of receiver sources, the present investigation found a consistent difference between visible source and one of the receiver sources. Participants gave lower liking and quality ratings to stories selected by news editors than to identical stories selected by other users of the online service. There were, however, no significant differences in ratings between stories selected by news editors and those selected by participants themselves. This implies that, despite their huge ontological differences, there is something psychologically similar between news editors and self. This could also imply a confusion in the minds of receivers about the identity of news editors in the context of online news. Because the manipulation did not specify anything more than “professional news editors,” it is unclear if participants understood news editors to be traditional gatekeepers in a newsroom or bulletin-board managers who resemble online users more than they do media gatekeepers. Another possibility is that the relative novelty of computer and other users selection may have contributed to the observed differences. This implies that, over time, with increasing diffusion of online media into our society, there would be a corresponding decrease in the magnitude of these differences among conditions.

Future investigations may also consider the possibility that the differences noticed in this study could be a function of certain inherent characteristics of the four sources. Specifically, we wonder whether stories selected by news editors were rated low on positive news story characteristics because the editors were perceived as being homogeneous and insufficiently diverse for the task of gatekeeping on behalf of the entire reading community. Also, are other users rated high because they represent a certain desirable quality of democracy in the news selection process? Is the self condition rated low because it engenders subjectivity in the selection task? Because our experiment did not systematically specify the selection criteria employed by the various sources, future research should examine how audience perceptions of a given source’s news routines (as well as motivations) affect their ratings of content attributed to that source.

In addition to the visible and receiver sources, the technological source made a difference to the quality ratings in the present experiment. Participants gave higher quality ratings to news stories selected by the computer terminal than to the same stories selected by themselves. This could again reflect participants’ perception of
heightened subjectivity in the self condition and of heightened objectivity in the
computer condition. There were no significant differences in ratings of stories
attributed to computers and other users. Taken together, the findings with the
computer condition suggest that the technological source occupies an intermedi-
ate position between audience and visible sources on liking, quality, and repre-
sentativeness.

In sum, the four layers of sourcing identified by the typology seem to be psy-
chologically relevant. However, this is only a modest first step in demonstrating
support for the typology. Among other weaknesses, the experiment reported here
used only 12 participants per condition, thus undermining the external validity of
the study’s findings. Clearly, further research is needed to clarify the relative posi-
tions of the sources on the four psychological scales used here as well as other
criterion variables that may predict information processing more directly. The
typology offered here may also be applied to other communication content and
media. The experiment could be replicated with entertainment instead of news and
with interactive television instead of online computer-based media, for example.

Future research could also cue receivers to specific sources instead of broad
classes of sources. For example, instead of operationalizing visible sources as
news editors, future studies might use specific visible sources like a New York
Times columnist, Dan Rather, or ABC News. This may help us determine the
significance of sourcing at various levels of analysis. In this study, only the re-
ceiver source was considered at the collective level (audience) as well as the
individual level (self).

Similarly, one can imagine the visible source at various
levels, ranging from the individual reporter to a media conglomerate. The techno-
logical source could also be considered at different levels, ranging from the com-
puter box to a suite of servers.

These explorations should further clarify the psychological reality of communi-
cation sources by identifying precisely which sources, at what level, belong to
which one (or combination) of the four types. The typology represents a first step
toward reconceptualizing source in an effort to capture the complexity of sourc-
ing in online media. After a sizable number of communication sources have been
placed in different parts of the typology, robust theories can be generated about
effects of communication sources. These theories would facilitate predictions about
specific source attributions eliciting specific responses from the receivers.

For example, theories relating to the heuristic value of different source attribu-
tions may be generated to predict perceptual consequences of source layering in
online news communications. As Chaiken (1980) argues, when faced with a low-
involvement message, people tend to process the message heuristically rather
than systematically. That is, they use simple cues and decision rules to determine
veridicality and other attributes of the message (e.g., “if this statement was made

Because the role of level-of-analysis was not the focus of this study, we did not attempt to define all
possible levels of all sources in our typology. Moreover, the essence of being a visible source
(gatekeeping) or a technological source (mediation) would not change based on levels. With receiver
sources, however, the mechanism of sourcing itself is different at different levels, as explained in our
typology.
by an expert, then it must be true”) rather than expend their cognitive energy for effortfully analyzing issue-relevant information embedded in the message. Given that our experiment used routine news stories that are unlikely to generate a high level of involvement among college-aged students, it may be posited that our participants were relying on simple heuristic cues in making their perceptual judgments about the news stories. Because the only cue that systematically varied between conditions was the attribution of those stories to different sources, our experiment provides preliminary evidence for the relative heuristic values of the four sources identified in the typology: It appears that, when it comes to online news stories, the bandwagon heuristic (“if everyone thinks these stories are interesting and newsworthy, they must be”) is more powerful than the expert heuristic (“if professional editors selected the stories, they must be good”), the computer heuristic (“if a machine chose a story, it must be truly random and hence representative of news”), and the self heuristic (“if I selected the story, it must be good”). This central finding is consistent with prior research on so-called bandwagon effects, particularly psychological research that shows that, when available, information about how others react to a message is used as a heuristic by individuals judging the same message (e.g., Axsom, Yates, & Chaiken, 1987).

This particular hierarchy of heuristic values of the four types of source attributions may change, depending on a variety of message factors (e.g., degree of sensationalism) as well as receiver factors (e.g., one's level of self-monitoring). It is conceivable, for example, that a story of a sensational nature is likely to be more trusted coming from a computer (“if a machine chose the story, it must be newsworthy”) than if it is attributed to other receivers (“if it appeals to everyone, this story must signify the lowest common denominator of taste”). This tendency may be more pronounced among high self-monitors (SMs) than among low SMs. Prior experimental evidence indicates that high SMs are especially reactive to opinions of others and, when presented a message that includes poll data, they tend to process it more systematically rather than heuristically (DeBono, 1987).

Outside of such message and receiver factors, source attribution may have global effects on evaluation of online news communications, as demonstrated by the experiment reported in this article. Theories concerning the processes underlying such effects may also be proposed. For example, different source attributions may be theorized to contribute differentially (e.g., visible sources more than receiver sources) to media skepticism, the tendency among individuals to disbelieve or discount the picture of reality presented in the media (Cozzens & Contractor, 1987). This skepticism may, in turn, be said to influence evaluations of news stories, particularly evaluations pertaining to believability, accuracy, and related attributes.

In addition to such theorizing about the relative heuristic value of different source attributions, the typology proposed in this article may be developed further to stimulate theory development relating to source layering (which is more prevalent in online than in traditional media) and the resultant combinatorial effects of multiple source attributions upon perceptions of news stimuli. This could help advance knowledge about the growing psychological importance of particular source manipulations on the Internet, such as “frames” and “portals.” It also
Online News Sources

could have implications in the legal arena, especially in cases where assigning culpability for distributing defamatory or obscene content is at issue.\(^7\)

An important practical implication of this study is that different source combinations may result in different perceptual consequences. For example, news content attributed to a visible source like CNN may be perceived and evaluated differently depending on whether or not users are cued about the technological source (e.g., the computer, Web-TV). The salience of the medium as a source of news in the minds of receivers may generate effects in addition to the medium effects already claimed by the determinists. Furthermore, identical content on the CNN website may be perceived differently depending upon whether the user independently chose the site or was led to it by other Internet users, clipping services, and search engines.

The directions of perceptions recorded in this study are less important than the overall theoretical implication that at least a portion of the variance in source effects in online communications is attributable to sources other than programmers of content. Source-effects studies with traditional media have long emphasized the importance of gatekeepers and other visible sources. However, in the realm of online media, it is also important to consider the media channel as well as the audience as sources that may independently affect users’ perceptions of content.

\(^7\) A case in point is the recent legal confusion about the status of internet service providers. When a White House aide sued the online *Drudge Report* for defamation, he also named America Online in the suit because it acted as the “publisher” of the false report. Lawyers for the service provider argued that a more accurate analogue for its role would be “newsstand.” They contended that America Online is not a source of information in the same sense as a magazine publisher. Rather, it acts merely as a “distributor.”

References


