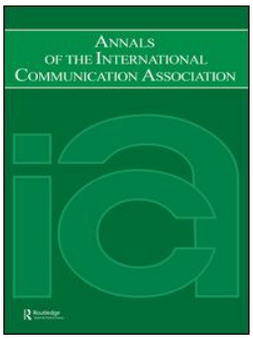

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10 Credibility for the 21st Century: Integrating Perspectives on Source, Message, and Media Credibility in the Contemporary Media Environment

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Technological capabilities and features of the Internet and World Wide Web have prompted concerns about the verity of online information, the credibility of new media, and the new responsibilities placed on media consumers. Reflecting these concerns, scholars have shown a renewed interest in the credibility of sources, their messages, and the media that carry them. Nonetheless, researchers who are currently reengaging the issue of information credibility have yet to take full advantage of the rich heritage left by credibility research conducted over the last half century. The primary aim of this chapter is to show how past research can inform present attempts to understand credibility in the new media environment, focusing particularly on Web-based information. Toward that end, this chapter reviews, synthesizes, and integrates the substantial literature on source, message, and media credibility; addresses issues of credibility conceptualization, operationalization, and measurement; suggests strategies to empower online users and information providers; and culminates with strategies for credibility research and an agenda for the study of credibility in the contemporary media environment.

New technologies have recathected an old area of interest in the field of communication. By connecting users in ways never before possible, technologies such as the Internet and World Wide Web have brought new attention to the issue of credibility across sources, messages, and media.[1] These technologies have changed human association by making point-to-point commu-

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nication increasingly feasible, resulting in greater availability of more diverse information sources and resources than at any time in the past. A consequence is that the filters and control mechanisms, which formerly served to validate and endorse a rather limited number of information outlets, may not be as effective in this new media environment. Absent such controls, information assessment and verification—core components of source, message, and medium credibility—now often become the responsibility of the media consumer.

Scholars have recognized this essential change in the information environment and have shown a renewed interest in the credibility of sources, messages, and the media that carry them (e.g., Flanagin & Metzger, 2000, 2002a; Johnson & Kaye, 1998, 2000, 2002; Kim, Weaver, & Willnat, 2001; Kiousis, 2001; Morris & Ogan, 1996; Schweiger, 2000; Sundar, 1998, 1999; Sundar & Nass, 2001). Within the field of communication few concepts have received more scholarly attention than the issue of credibility. However, researchers who are currently reengaging the issue of information credibility have not taken full advantage of the rich heritage left by credibility research conducted over the last half century. The primary aim of this chapter is to show how past research can inform present attempts to understand credibility in the new media environment, focusing particularly on Web-based information.

On a practical level, accurately assessing credibility has significant consequences for users. As the amount of information available via the Internet increases steadily, so too does the amount of fraud and misinformation online (Caruso, 1999; GomdaWeb, 1998; Null, 2000; Ward, 1997). A study by the National Consumers' League (2000) showed a 16-fold increase in Internet fraud complaints from 1996–1999. Agencies such as the Federal Trade Commission and the Securities and Exchange Commission have recently launched aggressive antifraud initiatives and public education programs to combat the growing problem of Internet-based commerce and investment scams (Chandrasekaran, 1999; Simons, 1999). Inaccurate news reports disseminated online are also a concern (GomdaWeb, 1998; Shaw, 1998; Sundar, 1998). Several heavily reported instances of unsubstantiated stories perpetuated via the Web serve to erode public confidence in the reliability of Internet-based information (Nadarajan & Ang, 1999).

Because of the danger of inaccurate or biased information available online, assessing online information quality should be a core concern of all Internet users. In addition to the issues already raised, research suggests that people are less likely to pay attention to media that they do not perceive as credible (Johnson & Kaye, 1998). Accordingly, credibility is a necessary condition for the Internet and Web to compete with other viable sources of information.

INFORMATION FEATURES OF THE CONTEMPORARY MEDIA ENVIRONMENT

Several characteristics of Web-based information prompt concerns about its credibility. One distinctive feature of the Internet is its relative lack of professional

gatekeepers. Whereas newspapers, books, magazines, and television all undergo certain levels of factual verification, analysis of content, and editorial review, Web-based information is not always subject to the same level of scrutiny. Of course, Web sites that parallel their print counterparts, such as major newspapers and periodicals, invoke the same editorial processes as their print forms, but these sites constitute a small portion of the information available over the Internet. More common on the Internet is less formal information generated by special interest groups, individuals, and organizations—material for which the level of editorial review is not explicit. Johnson and Kaye (1998) point out that the lack of editorial review processes in the online environment results in less social and professional pressure to ensure the overall accuracy of Web-based information.

Another distinctive feature of the Web is its convergence of genres of information, particularly the blending of advertising and informational content (Alexander & Tate, 1999; Flanagin & Metzger, 2000). Unlike traditional print publishing, it may be harder to discern between the two forms in the online environment because material is often presented seamlessly, without clear distinctions between advertising and other information. Alexander and Tate also note that it is sometimes difficult to know if the advertising and informational content on a Web site are produced by the same source. Not knowing the source of information or its intent makes it difficult to know whether to trust it.

Although some Web sites parallel their traditional media counterparts, the lack of established reputations for many sites prevents Internet users from applying prior knowledge of the medium or content genres to assess information veracity. For instance, although differences between the *New York Times* and *New York Post* may be widely understood, there are less familiar sites where consumers are not guided by such name recognition. Furthermore, because computers have an air of authority about them (Johnson & Kaye, 1998; Witmer, 1998), people may treat information found online as more credible. This is compounded by the fact that professional-looking Web sites are fairly easy to create and can appear to be credible, regardless of authorship (Flanagin & Metzger, 2000, 2002a; Johnson & Kaye, 1998). Indeed, there have been several well-publicized instances of fraudulent Web sites successfully mimicing legitimate ones (Alexander & Tate, 1999; GomdaWeb, 1998; Johnson & Kaye, 1998; Rieh & Belkin, 1998).

Lastly, Internet-based information differs from that delivered through more traditional channels in that it is prone to digital alteration, which is difficult to detect (Alexander & Tate, 1999). Online information may be altered intentionally or unintentionally, for example, when technical problems occur during the data conversion process when information is uploaded or transferred. In sum, there are several factors of the Internet and Web to suggest that those relying on online information should scrutinize it carefully.

CREDIBILITY RESEARCH HERITAGE

Research on credibility began with interest in its role in the persuasion process, with scholars studying the impact of *source credibility* on interpersonal influence. Researchers later recognized, however, that organizations also constitute sources that strive to influence human behavior through communication. *Message credibility* was also explored as part of this early research, focusing on characteristics of messages that could make them more or less credible. Also, scholars interested in mass communication looked at *media credibility* in determining the relative believability of particular forms of communication (e.g., newspapers versus television). Although the knowledge gained from these streams of research was substantial, its application to current research could be better realized.

The application of past research on credibility to the present media environment is especially appropriate because the Internet blends forms of communication traditionally viewed as distinct (Chaffee, 2001). For example, email and chat rooms allow for interpersonal communication, and Web sites are used by both individuals and organizations to communicate with audiences on either a modest or mass scale. The result of this media convergence is that credibility on the Internet is complex. It is logical to assess credibility of the Internet as a conduit or medium, as well as to assess the credibility of an entire Web site, a Web site sponsor, or information residing on a particular Web page. In view of this diversity, new research can profitably approach Web credibility from the traditional perspectives of source, message, and medium credibility and incorporate the lessons learned from past research in each of these domains. In addition, it is important for researchers to distinguish the locus of credibility in their work, and this chapter attempts to sort out this difficult issue.

Synthesizing past research also provides a better understanding of the important issues that researchers will need to devote their energies to when examining credibility in the new media environment. Researchers can take advantage of the multilevel perspective of credibility gained from past studies in interpersonal, organizational, and mass communication literature. Perhaps most important, scholars can learn from the missteps of the work that has come before. Significant criticisms of past conceptualizations and measurements of credibility (Cronkhite & Liska, 1976; Delia, 1976) are considered in this chapter as a means to help scholars avoid them in future research on the new media environment.

INFORMATION LITERACY, CREDIBILITY, AND EMPOWERMENT

The ability to effectively and accurately discern credible from unreliable information is fundamentally an issue of empowerment, inasmuch as attitudes and behaviors based on accurate information are superior to those founded on less secure premises. Several characteristics of Web-based information men-

tioned earlier make assessing information credibility particularly challenging in the online environment. As a consequence, empowerment and credibility are yoked in the new media environment.

Underlying empowerment in the contemporary media environment is the development of appropriate information literacy, or the ability to critically analyze and evaluate information from media sources (Cortes, 1992; Potter, 1998). The benefits of information literacy accrue to both information consumers and information providers in the new media environment. For information consumers, accurate assessments of online credibility help to avoid the negative consequences of mistakenly being guided by poor data, and provide the benefits of using reliable information. The importance of credibility is no less crucial for information providers, for whom an understanding of information literacy may translate to the ability to capture users' attention in the vast array of online information and engender trust from Internet consumers. These perspectives are considered in this chapter, along with recommendations for Internet users and providers to empower themselves in the new media environment.

SOURCE CREDIBILITY

Empirical research on source credibility began in the 20th century with studies that considered credibility to be an important characteristic of persuasive speakers. These researchers defined source credibility as "judgments made by a perceiver concerning the believability of a communicator" (O'Keefe, 1990, pp. 130–131; Wilson & Sherrell, 1993). According to Self (1996), academic interest in the concept of source credibility was stirred in the 1940s. World War II created new incentives for scholarly research on persuasion, as the U.S. sought ways to enhance public support for the war. Carl Hovland and his colleagues at Yale University launched an ambitious program to study communication and attitude change, with the goal of developing a systematic theory of persuasion (Lowery & DeFleur, 1995). Their approach to persuasion focused on attitude change but was also concerned with source credibility and its influence on attitude formation.

The Yale group defined credibility in terms of a speaker's *expertise* and *trustworthiness*. Expertise referred to a communicator's qualifications or ability to know the truth about a topic, whereas trustworthiness was conceptualized as perceptions of the communicator's motivation to tell the truth about a topic (Hovland, Janis, & Kelley, 1953). The Yale team suggested a deductive approach in which source credibility is a receiver-based construct, determined by the audience's acceptance of the speaker and message. Building on this notion, McCroskey (1966) investigated how message recipients perceived particular communicators (Perloff, 1993). This foundation led to hundreds of empirical studies that sought to determine the dimensions of source credibility from the perspective of message recipients.

Dimensions of Source Credibility

Research on source credibility during the 1960s and 1970s consisted of several factor analytic studies of audience member's credibility perceptions (Gass & Seiter, 1999). Most researchers found evidence for two primary dimensions of source credibility, trustworthiness and expertise, but also identified several secondary dimensions of source credibility such as dynamism, composure, and sociability (Berlo, Lemert, & Mertz, 1969; Gass & Seiter, 1999; Jurma, 1981; McCroskey, 1966; Perloff, 1993; Whitehead, 1968). Thus, more qualified, reliable, animated, poised, and good-natured speakers were judged to be higher in credibility. This research also identified two variables that may influence audience perceptions of trustworthiness and expertise: liking for and similarity to the source.

O'Keefe (1990) noted that liking tends to influence source trustworthiness perceptions, although it does not influence competence perceptions. Other studies indicated that items assessing liking for a source (e.g., friendliness, pleasantness, physical attractiveness) tend to load on the same factor as items denoting trustworthiness (e.g., McCroskey, 1966; Widgery & Webster, 1969). Similarity with a speaker may also impact credibility perceptions, through its influence on liking or by affecting perceptions of the speaker's competence or expertise (Aune & Kikuchi, 1993). However, this is more true for similarity in attitudes than similarity in traits, abilities, or demographic variables such as occupation, age, and social status (Atkinson, Brady, & Casas, 1981; Byrne, 1969; Worthington & Atkinson, 1996).[2]

Following attempts to identify the various factors that might influence source credibility perceptions, researchers next turned their efforts to determining the relative effectiveness of each dimension on attitude change. In a meta-analysis of 114 articles about this topic from 1950 to 1990, Wilson and Sherrell (1993) found that source expertise is a stronger influence on persuasion than other source characteristics (cf. Leathers, 1992). They suggested that because the expertise dimension of source credibility is more objective than other dimensions, it is easier for audience members to assess. In contrast, Lui and Standing (1989) found that sources manipulated to have higher trustworthiness are perceived as more credible than sources manipulated to have more expertise. Disagreements about the relative importance of the dimensions of source credibility led to the construction of various scales to measure this concept, each reflecting the priority of dimensions identified by particular researchers.

Measurement and Validation of Source Credibility Dimensions

Several scales have been developed to measure source credibility, most notably those by McCroskey (1966; McCroskey, Holdridge, & Toomb, 1974; McCroskey & Jenson, 1975), Berlo et al. (1969), and Leathers (1992). Although each scale uses a similar semantic differential question format, they measure slightly different dimensions of source credibility. McCroskey's scales assess five dimensions of source credibility (character, competence, sociability, extroversion, and compo-

sure), whereas the other scales include only three dimensions: Berlo et al. measure safety (i.e., friendliness, trustworthiness), qualification (i.e., expertise), and dynamism; Leathers measures competence, trustworthiness, and dynamism.

The fact that different researchers found different dimensions of source credibility prompted criticism of the factor analytic approach to studying source credibility (Cronkhite & Liska, 1976; Delia, 1976; A. M. Rubin, 1994). Cronkhite and Liska demonstrated that the factors identified in each study were merely the result of which items were selected for inclusion by the researcher. Delia asserted that the study of source credibility had been driven too much by measurement considerations and too little by theoretical explications of credibility. Attempts at validating the various standard source credibility scales exacerbated these concerns. Wanzenreid and Powell (1993; Powell & Wanzenreid, 1995) found four instead of the five dimensions they expected to see from the McCroskey and Jenson scale (character was not a stable factor). They also found that the Leathers scale produced only two, rather than the expected three dimensions (competence was not found to be a separate factor). Powell and Wanzenreid's results showed considerable inconsistency in the dimensions of source credibility, thereby undermining the validity of the standard source credibility scales.

Together, these studies suggest that credibility dimensions may differ depending upon the type of source being evaluated and the context in which the evaluation occurs (Cronkhite & Liska, 1976; Delia, 1976; Gass & Seiter, 1999; Gunther, 1988, 1992; Stamm & Dube, 1994). For the most part, only one type of source and context had been examined in source credibility research: individuals giving a speech in front of a live audience. Only recently has this narrow view broadened to include organizations and Web sites as sources.

Organizations as Sources

There is increasing understanding that institutions may also generate persuasive messages and that the credibility of organizational sources can be an important factor in influencing consumers' attitudes and behaviors (Gass & Seiter, 1999). The idea of organizations as sources has been advanced in the advertising and marketing literature as corporate credibility, institutional credibility, retailer credibility, or advertiser credibility. Goldsmith, Lafferty, and Newell (2000) define corporate credibility as the degree to which consumers, investors, and others believe in the organization's trustworthiness and expertise. The notion of organizational credibility suggests that the source of the message is not an individual person but is rather a complex institutional structure with a history of experience and information, to which the public has already been exposed.

Studies have focused on the effects of organizational credibility on consumer attitudes and behaviors and on identifying the dimensions of organizational credibility. In terms of effects, Goldsmith et al. (2000; Lafferty & Goldsmith, 1999) find that organizational credibility directly influences consumers' attitudes toward a brand and their purchase intentions. Researchers have also identified several di-

mensions of organizational credibility that resemble the dimensions found in earlier source credibility research (cf. Bobinski, Cox, & Cox, 1996; Hammond, 1987; MacKenzie & Lutz, 1989; O'Reilly & Roberts, 1976). For example, dimensions of organizational credibility consistently include expertise, trustworthiness, and attractiveness (Haley, 1996; Ohanian, 1990, 1991), although prestige, competitiveness, and familiarity have also been identified as organizational credibility factors (Vanden Bergh, Soley, & Reid, 1981).[3]

Overall, many similarities exist between source and organizational credibility. Both constructs seem to include the dimensions of trustworthiness and expertise. As Gass and Seiter (1999) suggest, whereas the same primary dimensions of source credibility might apply to organizations, the secondary dimensions will likely vary. Interestingly, both credibility constructs seem to include the notion of attractiveness, although in organizations this seems to be more appropriately viewed as likeability. Haley (1996) suggests that this might reflect a value congruency between the values held by consumers and those perceived as being endorsed by the organization.

Migrating Source Credibility Research to the Web

In some respects, Web sites may be considered to be analogous to individuals or organizations—that is, as information sources whose characteristics engender greater or lesser credibility. Although not all interpersonal traits identified in the source credibility literature translate to a Web environment, other important communicator dimensions become interesting in this context. For example, Web site expertise may be reflected in site informativeness, displaying appropriate credentials, the sponsor's reputation, or the type of site sponsor (i.e., institutional versus individual). Trustworthiness may be communicated through explicit policy statements or a lack of advertising and commercial content. Attractiveness or dynamism may be communicated through various dimensions of the Web site's appearance (e.g., layout, graphics, color, etc.). Although still in its formative stages, research has already begun to approach Web site credibility from this perspective.

For example, low reputable banner ads have been found to reduce the perceived expertise of a Web page's content, and the existence of a formal photograph of the author has led people to rate a Web article as more believable, trustworthy, competent, and expert (Fogg et al., 2001a). In addition, expertise may be communicated through information coverage or completeness (Alexander & Tate, 1999). Web site credibility may also be enhanced by authority such as listing authors' credentials (Fogg et al., 2001b), but displaying awards won by a Web site has been shown to have no significant effect on ratings of site believability (Shon, Marshall, & Musen, 2000).

Trustworthiness also factors into Web site credibility assessments. Web site credibility is decreased for sites with commercial implications, such as sites with one or more ad on each page, or by a feeling of amateurism, such as sites with broken links (Fogg et al., 2001b), both of which seem to suggest lower consumer trust.

Moreover, Web site credibility may be enhanced by a real-world feel (e.g., when a site lists a physical address), perceived integrity (e.g., states its policy on content and information disclosure), and tailoring (e.g., site sends emails confirming transactions; Fogg et al., 2001b). Trustworthiness may also be communicated through explicit policy statements (Alexander & Tate, 1999; Culnan & Armstrong, 1999), third party endorsements (Alexander & Tate, 1999; Palmer, Bailey, & Faraj, 2000), secure servers and encryption (Alexander & Tate, 1999), listed contact information (Fogg et al., 2001b), and the use of privacy seals (Palmer et al., 2000).

Dimensions of attractiveness and dynamism have been shown to be relevant in users' Web site evaluations as well. Using a series of adjectives describing Web sites, Chen and Wells (1999) developed a measure of "attitude toward the site" with three dimensions: organization (e.g., neat, easy to navigate), informativeness (e.g., informative, useful, helpful), and entertainment (e.g., fun, exciting, flashy). Similarly, users' first impressions of Web pages have been found to align along four dimensions: beauty, overview (i.e., lucidity, clearness, ease of understanding), structure, and pages with mostly illustrations versus mostly text (Schenkman & Jönsson, 2000). Among these, beauty was an important factor in determining users' assessments of Web sites. Accordingly, Bruner and Kumar (2000) and Stevenson, Bruner, and Kumar (2000) found negative attitudes associated with Web sites that use more complex backgrounds. Finally, Eastin (2001) suggests that dynamism, as reflected in Web site layout, color, and graphics, could also influence credibility perceptions (cf. Schweiger, 2000).

Beyond specific Web site features, Flanagin and Metzger (2002a) examined differences among Web site sponsors (i.e., media organization, electronic commerce, special interest organization, and individual) as well as the influence of branding on credibility assessments. They found that sponsorship was important: for the most part, media organization sites were perceived as more credible than other types and individual sites were found to be least credible. However, branding did not influence perceptions of message or site credibility, suggesting that factors communicated through Web site design may indeed be more important in Web site credibility assessments than name recognition.

The foregoing research demonstrates that it is possible to translate several components of source and organizational credibility to the Web environment. Synthesizing the findings described above, expertise may be communicated through the comprehensiveness of a Web site's information, professionalism, and sponsor credentials. Trustworthiness is associated with a Web site's integrity as demonstrated by displaying its policy statements, use of advertising, professionalism, and sponsor reliability or reputation. Attractiveness and dynamism may be reflected in a site's use of colorful graphics, interesting content, or interactive features. Finally, the likeability of a Web site may be enhanced by its perceived beauty (Schenkman & Jönsson, 2000). Overall, Web site design, features, and sponsorship combine to suggest many elements that parallel dimensions of face-to-face and organizational credibility.

MESSAGE CREDIBILITY

Although the emphasis in credibility research has been on the characteristics of the source, characteristics of the message have also received attention. Message credibility examines how message characteristics impact perceptions of believability, either of the source or of the source's message. In this way, source and message credibility are overlapping concepts (Cronkhite & Liska, 1976; Slater & Rouner, 1997; Smith, 1978; Stamm & Dube, 1994). In some cases, message factors may be even more important than source factors in credibility judgments (Austin & Dong, 1994; Eastin, 2001; Slater & Rouner, 1997). The elaboration likelihood model of persuasion predicts that message factors become more influential than source characteristics when issue involvement, knowledge, and personal relevance are high, because they increase motivation to scrutinize message content (Benoit, 1987; Eagly & Chaiken, 1993; O'Keefe, 1990; Petty & Cacioppo, 1981). Also, in situations where little information is available about the source of a message, recipients must turn to message cues to make credibility assessments (Eagly & Chaiken, 1993; Eastin, 2001; Petty & Cacioppo, 1988).

According to Carl Hovland and colleagues' message learning approach to persuasion, attitude change depends upon receivers' attention to and comprehension of some information, as well as their willingness to yield to and retain that information. This process is affected by source, message, recipient, and channel factors (Hovland et al., 1953; Petty & Cacioppo, 1981). In terms of message factors, researchers have examined the influence of message comprehensibility, number of arguments, incentives, fear appeals, one-sided versus two-sided messages, repetition, and presentation style on recipients' attitude change. Many of these message variables not only influence persuasion, but also affect people's credibility assessments (Slater & Rouner, 1997). Research on the dimensions of message credibility finds several factors that may be categorized according to message structure, message content, and message delivery or presentation style.

Dimensions of Message Credibility

Message structure. Research on message structure has focused on the organization of the message, and has demonstrated consistent results: unorganized messages are perceived as less credible than well-organized messages (Gass & Seiter, 1999; Sharp & McClung, 1966). Message organization has been shown to affect perceptions of source expertise but not source trustworthiness (McCroskey & Mehrley, 1969), although Hamilton and Hunter (1998a, 1998b) found positive correlations for perceived message clarity and ratings of all dimensions of source credibility, including expertise, trustworthiness, and dynamism.

Message content. Several variables have been studied pertaining to the actual content of messages. Research shows that credibility judgments are influenced by such message content factors as information quality, language intensity, and message discrepancy (e.g., Bacon, 1979; Hamilton, 1998; McCroskey, 1969).

Slater and Rouner (1997) found that as perceptions of message quality increased, so did assessments of source credibility. They defined message quality as how well-written and interesting readers perceived the message to be, but other aspects of message quality have been studied as well. For example, McCroskey demonstrated that the use of evidence significantly enhanced listeners' assessments of a speaker's credibility when the speaker's initial credibility was low to moderate (1967, 1969; cf. Fleshler, Ilardo, & Demoretcky, 1974; Reinard, 1988). Others have demonstrated that the positive relationship between the use of evidence and perceptions of source credibility is contingent on the speaker's use of high-quality and relevant evidence (Hamilton, 1998). Luchok and McCroskey (1978) found that irrelevant evidence from an unqualified source resulted in attitude change in the opposite direction from that advocated even when the speaker was judged to be highly credible.

But what counts as high-quality evidence? According to the information science literature, there are five dimensions people use to assess the quality of information: accuracy, comprehensiveness, currency, reliability, and validity (Rieh & Belkin, 1998). Error-free messages are considered to enhance message quality, as are comprehensive treatments of a topic and up-to-date, consistent, and logically sound information (Hamilton, 1998).

Language intensity. The use of opinionated language has also been studied for its impact on credibility perceptions (e.g., Bradac, Bowers, & Courtright, 1980; Hamilton, 1998; Hamilton & Hunter, 1998b). This research finds that communicators who use more opinionated language in their messages are rated as less credible than those who use less intense language. A meta-analysis by Hamilton (1998) showed that although message intensity had a positive effect on a speaker's dynamism ratings, it had a small negative effect on ratings of source expertise and a moderately negative effect on ratings of source trustworthiness. It is important to note that message discrepancy plays an important moderating role in this relationship.

Message discrepancy is defined as the distance between the perceived position of the source and the premessage position of the receiver (Hamilton, 1998). Evaluations of credibility are higher when message discrepancy is low (Hovland & Weiss, 1951). Stamm and Dube (1994) suggest that messages that support our views are seen as unbiased, and therefore trustworthy. Studies of Bradac et al.'s (1980) reinforcement expectancy theory and Hamilton's (1998) information processing theory show that message discrepancy is important to understanding the relationship between language intensity and credibility. They have found interaction effects such that sources with discrepant messages that use more intense language are rated most negatively in terms of credibility (Bradac et al., 1980; Hamilton & Hunter, 1998b).

Related to message discrepancy, there is evidence that receivers are likely to believe messages that reaffirm existing knowledge (Bacon, 1979). Some researchers call this the illusory-truth effect. Begg, Anas, and Farinacci (1992) argue that the effect is based on familiarity: "People believe statements that confirm remembered information and doubt statements that contradict it" (p. 456; Boehm, 1994). Familiarity may impact credibility ratings by increasing liking for the source, and

research on both message repetition and the use of humor corroborates this idea (e.g., Bacon, 1979; O'Keefe, 1990). Psychologists have long understood that familiarity with an object or person increases liking (Cialdini, 1984) and liking can influence credibility judgments.

Message delivery. The way in which the message is presented by a source may also impact recipients' credibility judgments. Studies examining nonfluencies in a speaker's language (e.g., vocalized pauses, slips of the tongue, and articulation difficulties) found that the more delivery flaws present in a message, the lower the source is rated in terms of credibility (McCroskey & Mehrley, 1969; Miller & Hewgill, 1964; Soreno & Hawkins, 1967). The use of powerful versus powerless communication style also impacts credibility perceptions. A powerless communication style is one that uses such devices as hedges and hesitations, qualifiers, polite forms, and tag questions, whereas powerful language is more assertive (Gass & Seiter, 1999). Burrell and Koper (1998) showed that powerful language enhances perceptions of source credibility (cf. Perloff, 1993).

Finally, speed of message delivery has been shown to affect credibility perceptions. Research finds a positive, but nonlinear relationship between rate of speech and credibility such that fast and moderately fast communicators are judged to be more credible than slow or extremely fast speakers (Perloff, 1993).

Measurement of Message Credibility

Because messages are rarely treated as dependent variables, there have been few attempts to measure the credibility of messages directly. Instead, researchers typically manipulate various message characteristics and then measure message recipients' credibility perceptions of the source who delivered the message. Rosenthal (1971) was among the first to point out the disparity between the study of source credibility and research on the credibility of messages. His position was that credibility assessments were a function of features of the source and of the message (cf. Cronkhite & Liska, 1976). He theorized that, absent any information about the source of the message, audiences determine the credibility of a message based on two factors: the specificity and verifiability of the message content. Thus, ambiguous information and information that was unable to be validated should be perceived as less credible. Although this was a fine starting point for a measure of message credibility, it lacked empirical traction in the research that was to follow.

Scholars seemed to be more influenced by the emerging factor analytic approaches that were being used to measure source credibility. For example, Smith's (1978) message measurement inventory (MMI) was developed to evaluate receivers' perceptions of messages, including message credibility, but instead of measuring people's reactions to various message elements, it predominantly assessed recipients' evaluations of message sources. The MMI includes items such as *confident*, *passive*, and *uncooperative*, which seem to apply to sources rather than to messages. Thus, the MMI confounded source and message credibility dimensions,

perhaps due to an over reliance on existing source credibility literature in the early phases of its development. Few studies have used the MMI since the early 1980s, but later research on message credibility has been no more successful at avoiding confounding source factors in their measures of message credibility.

The foregoing review suggests that scholars should be cautious when incorporating past measures of message credibility in their work. Communication researchers interested in measuring message credibility may instead want to turn to the information quality literature described earlier to develop scales assessing evaluations of a message's accuracy, comprehensiveness, currency, reliability, and validity (Rieh & Belkin, 1998). As will be seen next, researchers investigating the credibility of online messages have in fact begun to take this approach.

Message Credibility and Web Information

Although little research has directly addressed message credibility online, it is likely that message components shown to be important in other research contexts—such as message structure, content, and delivery—remain important when messages are conveyed across new media. For instance, message accuracy, comprehensiveness, currency, reliability, and validity are important in people's assessments of information quality offline, and Internet users report very similar criteria in judging information online (Rieh & Belkin, 1998). Furthermore, people invoke common cognitive elements when assessing news information in both print and online forms (Sundar, 1999). It would appear that elements of research on message credibility may be profitably applied to the contemporary media environment.

Although it is somewhat difficult to separate message structure from Web site structure, elements of message structure have been shown to affect the perceived credibility of messages on Web sites. Perceived amateurism of a Web message and inconsistencies in page design across a site have been demonstrated to decrease information quality perceptions and overall site credibility (Alexander & Tate, 1999; Fogg et al., 2001b). In addition, message or site organization are facilitated by features such as a site map or index as ways to enhance site navigability and, consequently, perceptions of information quality.

Aspects of message content have also been shown to affect perceptions of message credibility online (Rieh & Belkin, 1998). Among the most important factors for enhancing trustworthiness are information accuracy, comprehensiveness, and currency (Alexander & Tate, 1999; cf. Fogg et al., 2001b). Inaccurate news stories, such as rumors perpetuated via the Internet and Web, decrease perceptions of the reliability and credibility of online information—the willingness and ability of online sources to correct errors when they occur is an important buffer against this type of credibility challenge (GomdaWeb, 1998; Hess, 1998; Nadarajan & Ang, 1999). Relatedly, the use of evidence has been shown to be an important factor in online message credibility. For example, quotations in online stories have been shown to increase users' evaluations of both the credibility and quality of news stories (Sundar, 1998). Finally, analogous to perceived interpersonal credibility,

language intensity and opinion are also important dimensions of Web message credibility. Alexander and Tate (1999) discuss how the objectivity of information affects site and message evaluations of trustworthiness. Commercial aspects associated with messages can reduce their perceived credibility, apparently due to vested interests of message sources (Fogg et al., 2001b).

Presentation style also influences perceived Web message credibility. The degree to which a site looks to be professionally designed has been demonstrated to increase a Web site's credibility (Fogg et al., 2001b). Rieh and Belkin (1998) suggest that message format and presentation (i.e., how Web pages are presented and the writing style of messages) are important dimensions of perceived credibility as well. Alexander and Tate (1999) argue that Web message nonfluencies such as technical glitches may negatively impact site evaluations and Fogg et al. (2001b) showed that typographical errors (inasmuch as they represent site amateurism) and nonworking links also negatively impact credibility assessments. Finally, speed also seems to matter: a longer wait time for Web site loading can have negative effects on site evaluations (Dellaert & Kahn, 1999; Fogg et al., 2001b).

Evidence also suggests that research considering messages on the Web should explicitly consider information type in message evaluation. Flanagin and Metzger (2000) found that Web-based reference, news, and entertainment information were perceived as more credible than commercial information and that reference information was perceived to be more credible than entertainment information. This suggests the importance of expanding omnibus considerations of information in order to delve into differences across specific information types. Nonetheless, this component of messages is often neglected, particularly in cross-media comparisons of information credibility.

MEDIA CREDIBILITY

Mass communication scholars have a longstanding interest in the relative credibility of various media channels through which a source sends a message. The impetus for research on media credibility dates back to the late 1930s, when the newspaper industry became concerned that increasing numbers of people were turning to the radio for news. During the 1950s, competition from television again prompted the industry to examine the relative market position of the various news media vis à vis their credibility in the eyes of the public (Erskine, 1970; Self, 1996).

In the late 1950s, the Roper Organization began regularly asking respondents which medium they would believe if they got conflicting reports of the same news story from radio, television, magazines, and newspapers. At first, newspapers were judged to be more believable than television, but in 1961 television became the most-believed medium and has remained so ever since (see Roper, 1991, for the actual data; Jacobson, 1969; Self, 1996). The decline of newspaper credibility corresponded closely with the diffusion of television in the United States.

The Roper findings were puzzling to many, but especially to the intellectual elite who considered television a vast wasteland of lowbrow entertainment (Mulder, 1980). Many felt that newspapers should have the advantage due to more in-depth coverage and time to check facts, as well as the ability for news audiences to read and digest stories at their own pace (e.g., Williams, 1975). Consequently, the first phase of academic research consisted of replicating the Roper finding (e.g., Carter & Greenberg, 1965; Jacobson, 1969; Westley & Severin, 1964). Next, researchers explored why television was superior to newspapers (Mulder, 1980). Many arguments were advanced about how the media differed, including technological and structural differences that might contribute to news consumers' greater belief in television over newspaper news.

Factors Affecting Media Credibility

Technological features. Researchers initially thought that television's ability to bring live coverage of news events was a disadvantage compared to newspapers because it was assumed to come at the expense of accuracy. However, in studies of news accuracy, audiences viewed newspapers as less accurate and more biased (e.g., Carter & Greenberg, 1965; Wilson & Howard, 1978). People felt that live reports of breaking news stories gave television news a greater sense of importance and authority compared to newspapers (Chang & Lemert, 1968), perhaps due in part to television's ability to engage and involve viewers without requiring too much of their attention (Andreoli & Worchel, 1978; Worchel, Andreoli, & Eason, 1975). The ease of television seems to translate to higher favorability for television overall, including credibility ratings (American Society of Newspaper Editors, 1985).

The visual nature of television also contributes to its sense of authority. Unlike newspapers, television allows news consumers to see what is happening, which enhances television's trustworthiness in the minds of viewers (Carter & Greenberg, 1965; Gaziano & McGrath, 1986; Westley & Severin, 1964). Gunther (1988) argues that the visual nature of television news makes it appear more objective than newspaper news, because "with greater apparent mediation comes a greater opportunity to impute motives and intentions of the communicator" (p. 287). The idea that seeing is believing when it comes to news is apparently quite powerful: it is the most frequently cited reason for television's superior believability among television news consumers (American Society of Newspaper Editors, 1985; Carter & Greenberg, 1965; Chang & Lemert, 1968; Wilson & Howard, 1978). The visual aspect of television also makes the news seem more personal, resulting in ratings of television as more accurate, sincere, responsible, impartial, and higher in quality than newspapers (Chang & Lemert, 1968; Sargent, 1965). Newhagen and Nass (1989) demonstrate that when assessing the credibility of various media, people use different judgment criteria: people evaluate the credibility of television news by the newscasters who present the news, whereas they evaluate the credibility of the newspaper as an institution.

Structural features. Other researchers proposed that television's high perceived believability might be explained by differences in the structure of the newspaper and television industries. Until 2000, the political editorializing rule precluded broadcasters from stating editorial positions on issues or candidates, whereas newspapers were free to make their political leanings explicit. Some scholars suggested that if these leanings differed from readers' own positions, they would cause readers to feel the newspaper was biased (Carter & Greenberg, 1965; Edelstein, 1978; Westley & Severin, 1964). Research finds that when people do not hear what they want to hear from the news, it is perceived as less credible (Stamm & Dube, 1994; Zanna & Del Vecchio, 1973). However, although public perceptions of the media formed during periods of heavy government regulation may linger for some time, recent deregulatory efforts have lead television and cable to air their political views openly, making this explanation of the credibility gap less plausible today.

The economics of television have also been cited as an explanation for its greater believability over newspapers. Because television is accountable to larger and more diverse audiences and advertisers than are newspapers, it cannot afford to be biased in its news coverage (Carter & Greenberg, 1965; Chang & Lemert, 1968). Another constraint stemming from its economic structure is television's brevity of reporting due to the limited time it can devote to news. Newspapers have more space and are able to provide greater coverage of issues. Although newspapers' greater quantity of coverage would seem to favor them as the more believable medium, newspapers are apt to be judged as inaccurate more frequently than television news due to the sheer volume of reporting (Wilson & Howard, 1978). Also, Chang and Lemert found that the very meaning of the completeness of news stories can be problematic. They discovered that people judge completeness of news coverage by factors such as the ability to access a comprehensive range of topics and to the provision of greater sensory information.

In sum, structural, economic, and legal constraints acting on television combine to make users perceive it as more believable and less political than newspapers, which positively impacts perceptions of its credibility. Coupled with television's technological features (i.e., its visual nature), this may explain its advantage over newspapers in audience credibility ratings. Other explanations include audience factors and issues in the measures used to assess media credibility.

Measurement of Media Credibility

Much of the literature on media credibility has been devoted to its measurement, resulting in multiple measures of the concept, which have been blamed for inconsistent and confusing research results (Gantz, 1981; Gaziano, 1988; Greenberg & Roloff, 1974; Rimmer & Weaver, 1987). The credibility of various media has been measured by comparing perceptions of the believability, accuracy, fairness, bias, trustworthiness, ease of use, completeness, reliability, or attractiveness of the

media themselves, of news reporters, or of the coverage of specific news issues. As with the source credibility literature, this intense focus on measurement has perhaps come at the cost of developing clear conceptual definitions of media credibility that could be used to form consistent operationalizations of the concept.

The origins of most media credibility measures come from source credibility and studies of newspaper accuracy (Gaziano & McGrath, 1986). In 1959, Roper began asking respondents which medium (e.g., television, newspapers, magazines, or radio) they got "most of their news" from and, second, which medium they would believe if they received conflicting reports. Although these questions have been used in many studies of media credibility, both inside and outside of academe, they were criticized on several grounds.

Carter and Greenberg (1965) and Rimmer and Weaver (1987) pointed out problems in the wording of the Roper questions that led to a bias against newspapers in people's usage and credibility responses. Carter and Greenberg demonstrated that when asking about the believability of each medium separately, rather than in comparison to one another, the difference between newspaper and television credibility ratings narrowed. They also argued that in the special case of receiving conflicting news reports, the visual nature of television gave that medium an edge in believability assessments. They suggested a better measure of credibility would be to assess the believability of each medium in isolation. Rimmer and Weaver argued that measures of media use can be *affective* (asking which medium respondents prefer to use for news, as in the Roper question) or *behavioral* (asking how often respondents actually use each medium for news). Because credibility is in part an affective judgment, they say that it is not surprising that studies found it to be correlated to affective measures of media use. However, they showed that this correlation did not hold up when behavioral measures of media use were used. Their findings imply that television news may be rated as the most credible medium over newspapers simply because it is cheaper or takes less time and effort than reading a newspaper rather than because it is truly thought to be of higher quality.[4]

A potentially devastating criticism of the Roper credibility questions came from Greenberg and Roloff (1974) who suggested that people might use different points of reference when evaluating various media. They claimed that when asked to assess the credibility of television news, people probably thought of national network news, whereas when asked to evaluate newspaper news, they likely did so on the basis of the local newspaper serving their area. Greenberg and Roloff argued that this creates a comparison that favors television as more credible overall, particularly in communities with smaller newspapers. Since their critique, a number of studies have confirmed their suspicions, by specifying both the type of news (e.g., local, national, international) and the type of issue (e.g., sports, entertainment) to be compared across media channels (Abel & Wirth, 1977; Gantz, 1981; Gaziano & McGrath, 1986; Lee, 1978; Newhagen & Nass, 1989; Reagan & Zenalty, 1979). Nonetheless,

despite refinements in the measure, and after providing a consistent frame of reference, television was still rated as more believable than newspapers, although the margin of difference was smaller compared to the Roper findings.[5]

Because of problems with the Roper measures, researchers sought alternative ways to assess media credibility. This research is characterized by increasing precision in measurement over time, with two evident trends: a movement from unidimensional to multidimensional measures, and a movement from measures derived from source credibility to measures developed specifically to address media credibility.

By the late 1960s, scholars began to realize the complexity of the concept they were studying and moved away from unidimensional measures of media credibility (e.g., Jacobson, 1969; McCroskey & Jenson, 1975; Meyer, 1974). This resulted in a series of factor analytic studies of the dimensions of media credibility, parallel to those in the source credibility literature. McCroskey and Jenson relied on several existing (interpersonal) source credibility scales to generate items for their study of mass media sources. Not surprisingly, their study found that the dimensions of media credibility were very similar to those found for source credibility. Researchers employing items from other research, such as that on media image or accuracy, found different dimensions (e.g., Sargent, 1965).

The result was that the concept of media credibility became confusing, confounded, and open to criticism. Several scholars noted the inadequacy of using items derived from interpersonal settings to measure mass communication concepts, as well as the need to have separate measures of the credibility of the source originating a message and the credibility of the medium through which the message is transmitted (e.g., Edelstein, 1978). Others pointed out that scale items should be generated by media users according to their own notions of media credibility rather than relying on items used in past research on other types of credibility (e.g., Lee, 1978; Singletary, 1976).

Some clarity came in the 1980s, as researchers began to conduct more wide-ranging assessments of mass media credibility (American Society of Newspaper Editors, 1985; Times Mirror Company, 1986; Gannett Center for Media Studies, 1985). One particularly massive and comprehensive effort was funded by the American Society of Newspaper Editors. Out of this research, Gaziano and McGrath (1986) developed a 12-item credibility scale assessing how respectful of the public's interest and privacy a medium is, how concerned the news organization is about community well-being, the quality of the news organization's staff, and perceptions of the extent to which the medium is fair, biased, complete, trustworthy, factual, opinionated, and profiteering. Their scale was refined by Meyer (1988), who suggested including only the fair, biased, complete, accurate, and trust items. By the late 1980s, these two scales became the most widely used standard measures of media credibility. In a head-to-head comparison of the two scales, West (1994) established the Meyer scale to be more reliable and valid.

Finally, television and newspapers were not the only channels to be compared in the media credibility literature. Radio, newsmagazines, face-to-face, and other

channels of communication were included in some studies, including the original Roper studies (see Cline & Engel, 1991). A few studies have explored media credibility for other types of information besides news (e.g., Flanagin & Metzger, 2000). Overwhelmingly, however, attention has been on newspapers and television, although the introduction of the Web is now causing researchers to shift their attention to this new medium. As this shift occurs, researchers must be careful in using prior findings on traditional media credibility—which are based exclusively on assessments of news information—to new media that carry a much broader array of information.

Credibility of the Web as a Medium

Past research on media credibility may help to understand the relative credibility of the Web as a conduit of information compared to more traditional channels. Indeed, cross-media comparisons have sought to assess the credibility of the Web relative to other communication channels. The majority of studies in this area focus on political (Johnson & Kaye, 1998, 2000; Mashek, 1997) or news information (Kim et al., 2001; Kiousis, 2001; Pew Research Center, 1999; Sundar, 1999; Sundar & Nass, 2001), although a diversity of information types has also been examined (Flanagin & Metzger, 2000). The technological and structural features that have been identified as important in studies of traditional media credibility may also impact perceptions of the Web as a medium of communication. The technological features of the Internet that are likely to impact credibility ratings include the ease of publishing professionally-appearing content, the vast amount of information and information producers online, the convergence of genres, and the malleability of digital information.

Other features may be significant in influencing the credibility of the Web as well. Many Web sites use ample visual information, which may impart the same kind of "seeing is believing" effect enjoyed by television. Like television, the Web offers currency by giving audiences up-to-the-minute coverage of issues and events. However, at the same time, Web sites' heavy reliance on text and their ability to cover issues in-depth, without the time and space constraints of television, make the Web more similar to newspapers. These features imply that Web credibility ratings should be higher than either television or newspapers. However, Nadarajan and Ang (1999) point out that the chance for error in news is magnified on the Web due to unlimited capacity, high speed, and use of hyperlinking from source to source. In the Web environment there may be increased pressure to report breaking news and update stories constantly, leaving little time to verify the information either on news organizations' own Web sites or on other sites to which they are linked.

Structural features too may influence credibility judgments. The Web is more allied with newspapers than television in terms of regulation, which may detract from people's perceptions of its objectivity or trustworthiness, at least in the United States. Nadarajan and Ang (1999) argue that the free and unregulated flow of information over the Web might detract from credibility ratings "because not every

piece of inaccurate information can be uncovered or even corrected" (p. 22; cf. Eastin, 2001). The economics of the Web are similar to both newspapers and television in its reliance on advertising, yet different in that many Web sites profit from using personal information collected from site visitors. These data-collection practices may negatively impact the credibility of the medium. Together, these perspectives suggest that the Web may be perceived as more, less, or equally credible to traditional media. Existing research supports all of these views.

Some studies indicate that Web information is perceived to be more credible than information obtained via other channels. In the delivery of political information, online newspapers and candidate literature have been judged to be more credible than their traditional counterparts (Johnson & Kaye, 1998). However, this finding was demonstrated among a sample of politically interested Web users only. Johnson and Kaye (2000) note that a user's general reliance on the Web predicts perceived credibility of a number of online sources of political information. However, reliance on traditional media was an even stronger predictor of credibility of online media (cf. Johnson & Kaye, 2002). It should be noted that people tend not to judge either online or traditionally delivered sources of information as particularly credible overall (Flanagin & Metzger, 2000; Johnson & Kaye, 1998; Kiousis, 2001).

Other research finds that Web-based news sources were not rated as different from traditional sources in terms of credibility (Online News Association, 2001; Pew Research Center, 1999). However, Mashek (1997) found that traditional media sources were rated by users as more fair and unbiased than their online equivalents for obtaining political information. In Germany, although the Web was viewed as a credible source of information, it was judged less credible than newspapers and television (Schweiger, 2000). Two other studies found that newspapers were rated as significantly more credible than other media, including the Internet, magazines, radio, and television (Flanagin & Metzger, 2000; Kiousis, 2001). The Flanagin and Metzger finding held across a diversity of information types, including news, reference, entertainment, and commercial information.

Overall, research indicates that although the Web may be considered an equally credible source of information as compared to most traditional venues, it is not perceived as more credible than traditional information sources, except among those who may be particularly motivated to seek out specific types of information and who may rely on the Web to a large extent. This result may be due to the fact that people use the same criteria to judge the credibility of news stories across both print and online formats. Sundar (1999) demonstrated that individuals assess both print and online news stories in terms of their representativeness, quality, liking, and credibility, suggesting that people process news information consistently regardless of the medium through which it is presented. However, it should be noted that accuracy and believability—traditionally core dimensions of credibility—are notably absent from Sundar's credibility factor, suggesting that perhaps objectivity (rather than credibility) is a common feature of news information processing across traditional and online venues.

To this point, we have considered the substantial body of literature on credibility in communication research, focusing on the three main currents in this tradition: source, message, and media credibility. We have applied relevant conceptualizations of credibility from each area to the contemporary media environment, with a particular emphasis on Web-based information. Despite the value of this application, there remain several open issues in Web credibility research. We turn to such issues next by considering the measurement of Web credibility, potential conflation among source, message, and media credibility in the new media environment, audience factors that impact these views, and finally, we propose several directions that future research must consider in order to maximize knowledge from past research and take full advantage of the considerable lessons available from existing scholarship.

FURTHER CONSIDERATIONS IN WEB CREDIBILITY

The studies reviewed thus far share an assumption that credibility resides in the source, message, or medium of transmission. However, several scholars have suggested that these concepts of credibility overlap (e.g., Chaffee, 1982; Kiousis, 2001). Chaffee argues that many receivers do not distinguish between the source of a message and the channel through which they receive it. Nowhere is this more evident than in the new media environment, specifically the Web, which offers a mind-boggling array of information from a melange of providers. Nevertheless, most contemporary studies of credibility rely on these traditional distinctions and thus conflate source, message, and channel in measuring the credibility of Web-based information. To assess the nature and severity of this issue, this section first reviews measures of Web credibility used in prior research and then argues that assessing credibility across Web sites, messages, and media can be difficult, due to overlap among these concepts, the complexity of the Web environment, and research designs that do not always enable clear distinctions among these factors.

Measurement of Web Credibility

Web site credibility. The credibility of individual Web sites has been assessed by having web page visitors rate aspects thought to contribute to the site's overall credibility or by assessing common Web site content across different site conditions, such that differences in the assessment of the content could be traced to the Web site on which it resides. Interestingly, items used to assess Web site credibility draw mainly from the interpersonal source credibility literature, but also include items from the traditional media credibility literature. Common terms include the extent to which sites or information on them are believable, trustworthy, (un)biased, competent, credible, and expert. Other dimensions include assessment of the accuracy, relevance, and the comprehensiveness or completeness of the Web site or its

content. Typical single item scales measure the believability of Web sites (e.g., Pew Research Center, 1999; Shon et al., 2000) or site credibility by agreement with the item, "I know the sponsor is reliable" (Eighmey & McCord, 1998).

In order to bring some clarity to the measurement of Web site credibility, Flanagin and Metzger (2002a) had respondents rate a variety of Web sites on a series of semantic differential items derived from previous studies of Web site credibility and from interpersonal source credibility scales (R. B. Rubin, 1994) adapted for the Web environment. Analyses showed that users' Web site credibility ratings included perceptions of site trustworthiness and expertise, as well as attractiveness and dynamism. The correspondence between the dimensions found in this study and those from traditional source and media credibility speaks to the relevance of previous credibility research to the Web environment.

Web site message credibility. The few studies that have endeavored to assess the credibility of messages delivered on Web pages do so in a roughly parallel manner to earlier message credibility research, although the greatest emphasis is placed on information content, as opposed to structure or delivery. Credibility scales in this domain typically ask readers of online stories to assess the degree to which the information is accurate, biased, believable, fair, objective, and sensationalistic (Sundar, 1998, 1999; Sundar & Nass, 2001). Perceptions of the credibility of commercial information online have been assessed by individuals' ratings of information fairness, bias, completeness, accuracy, and trustworthiness (Ha, 2001). Similarly, the credibility of health-related information has been measured by asking respondents to rate its accuracy, believability, and factualness (Eastin, 2001).

In developing their measures, these approaches have relied upon media credibility literature. A better strategy is that taken by Rieh and Belkin (1998) who used the information quality literature to assess users' reactions to Web-based information and found that the credibility of online messages is indicated by perceived authority, which is increased by connection to other authorities, such as authentication by some well-regarded third party.

Internet/Web credibility. Across the research on traditional media, the most consistent dimension of media credibility is believability, but accuracy, trustworthiness, bias, and completeness of information are other dimensions commonly used by researchers (e.g., American Society of Newspaper Editors, 1985; Austin & Dong, 1994; Carter & Greenberg, 1965; Gaziano, 1988; Greenberg, 1966; Gunther, 1988; Jacobson, 1969; Meyer, 1988; Mulder, 1980; Rimmer & Weaver, 1987; Robinson & Kohut, 1988; Shaw, 1973; Wanta & Hu, 1994; West, 1994; Westley & Severin, 1964; Zanna & Del Vecchio, 1973). Comparisons of the Internet and Web to more traditional media have largely invoked these same dimensions.

For example, studies have assessed the relative credibility of multiple media, including the Internet, by asking the degree to which individuals found information on each medium to be believable, accurate, trustworthy, biased, and complete (Flanagin & Metzger, 2000). Johnson and Kaye (1998, 2000) used a similar mea-

sure of credibility for both online and traditional sources of political information (see also Sundar, 1999). Working from the source credibility literature, Tseng and Fogg (1999) define computer credibility as believability, which is made up of trustworthiness and expertise. Schweiger (2000) used the following semantic differential items to measure Web credibility in comparison to other media: contradictory-clear, nonserious-serious, unthoroughly researched-thoroughly researched, cursory-detailed, noncritical-critical, incredible-credible, partial-neutral, unbalanced-balanced, incompetent-competent, amateurish-professional, cautious-fresh. Several of these items clearly come from research on source and message credibility.

Other studies have asked respondents to rate the credibility of Internet journalists in comparison to journalists working in traditional media as well as to assess the relative credibility of online versus print information by asking which medium people trust in cases when there is conflicting coverage (Schweiger, 2000). Absolute credibility has been measured by rating media channels on an objectivity scale and by asking which among several media "report truly, and show facts the way they really are" (Schweiger, 2000, p. 43).

Conflation of Web Sites as Source, Message, and Medium

Precise measures of Web credibility are important, as research in other contexts clearly shows that that the way in which the concept is operationalized can make a difference in credibility ratings (Gaziano & McGrath, 1986; Newhagen & Nass, 1989; Rimmer & Weaver, 1987; Shaw, 1973; West, 1994). Yet, most research on new media relies rather indiscriminately on past measures of source, message, and medium credibility to measure various aspects of Web credibility. Part of the problem is that the very concept of source is problematic in the new media environment because the source of an online message may be attributed to the author of the material on a particular Web site, the operator or sponsor of the site, the medium itself, or perhaps even the site programmer (Eastin, 2001; Kiousis, 2001; Sundar, 1998; Sundar & Nass, 2000, 2001). Further, different source attributions are shown to result in different evaluations of content (Newhagen & Nass, 1989; Sundar & Nass, 2000, 2001).[6]

Source attribution research is just beginning to sort out this issue. Sundar and Nass (2001), for example, propose a typology for online news sources. They argue that there are at least three distinct sources of online news information. Visible sources are the people or entities who present the information, technological sources consist of the channel or medium through which the information is delivered, and because receivers of online news may themselves select the information they read, or because other receivers may select information for each other, receivers may be considered sources too.

Schweiger (2000) has proposed six levels of reference objects, which serve to distinguish the several potential sources or targets of credibility attributions. These levels comprise a rough hierarchy of sources, which are not necessarily mutually exclusive, and apply to many types of information, not just news. *Presenters* are

the author or presenter of Web information. *Actors* of messages represent the person whose actions or statements are reported. *Editorial units* consist of such things as a specific program or Web article. *Media products* are the specific networks, newspapers, or Web sites upon which credibility attributions can be made. *Subsystems* of a media type refer to the genre of the media product (e.g., quality versus tabloid newspapers). Finally, *media types* refer to the medium or channel of communication.

Credibility attributions may occur at each of these levels independently or across multiple levels simultaneously. For example, it makes sense to consider the editorial unit of a Web article, the media product (the Web site), and the subsystem (the type of Web site) at the same time. In addition, *credibility transfer* may occur when "recipients use the credibility of a medium or media product as a (heuristic) indicator for the credibility of a single news story or programme" (Schweiger, 2000, p. 41). This type of transfer is possible both vertically (between levels) and horizontally (across different media types). As a result, Schweiger points out that research on media credibility merits criticism because cross-media comparisons may hide important within-media differences, and potentially lead to unusable results. He says, "future studies on credibility should not only examine the credibility of the Web as a whole, but also its single subsystems" (p. 56). This is but one example of the importance and difficulty of taking multiple levels into account.

For this reason, source attribution research recognizes that the source is a psychological construct (i.e., the source of Internet-based information is what or who the receiver believes it to be), and that source attributions matter in evaluating online information (Sundar & Nass, 2000, 2001). Sundar and Nass (2001) demonstrated experimentally that different levels of source attribution (visible, technological, and receiver) affect receivers' reactions to online news stories, as well as their perceptions of story quality and representativeness, although not perceptions of credibility. Thus, it is necessary to differentiate between various sources or source levels because information receivers find them to be psychologically distinct. This research also suggests that sourcing may occur at many levels simultaneously, an idea labeled source layering (Sundar & Nass, 2001), whereby combinations of source attributes may interact to influence credibility perceptions of online information. As a result, credibility assessments may vary depending upon which source attributes are salient in the receiver's mind at the time of evaluation.

Confusion among message, source, and medium credibility also occurs when research crosses definitions of concepts or measurements of variables without due regard for the phenomenon of interest. When cross-media comparisons either fail to cue respondents to the medium level, or measure message factors rather than medium factors, credibility assessments may be invalid (Newhagen & Nass, 1989). Due to conflation of source, message, and medium credibility as well as the multiple levels of reference objects for credibility attributions, the assessment of credibility in the contemporary media environment can be extremely complex. Researchers must be clear in pinpointing the psychological locus of credibility that receivers use to evaluate online information.

Audience Factors in Web Credibility

Critics of credibility research on interpersonal communication and traditional media have argued for years that credibility is highly situational and depends on the receiver's relationship to the medium, the source of the message, and the message itself (Chaffee, 1982; Cronkhite & Liska, 1976; Edelstein, 1978; Gunther, 1992). This appears to be true for new media as well, as certain audience factors such as demographics, Internet use and reliance, and issue involvement have been found to influence perceptions of the credibility of Web-based information.

Demographics. Early studies of media credibility examined demographic characteristics of audiences to see if these factors impacted receivers' relative rankings of the believability of newspapers and television. Several studies examined the demographic correlates of age, education, and sex on media credibility rankings (Abel & Wirth, 1977; Greenberg, 1966; Gunther, 1992; Mulder 1980, 1981; Reagan & Zenaty, 1979; Westley & Severin, 1964). These studies generally found that women, as well as younger and less educated people, were more likely to find television to be more credible than newspapers.

Studies of the credibility of Web-based information similarly find some differences in credibility perceptions among different types of users. There is some evidence that females assess news and political Web sites as more credible than males do (GomdaWeb, 1998; Johnson & Kaye, 1998), although more recent studies have found conflicting results (Johnson & Kaye, 2000, 2002). Flanagin and Metzger (2002b) found that male participants rated personal Web sites as more credible overall and that women found a female site to be less credible than a parallel male site. For the most part, younger Internet users rate online news to be more credible and trustworthy than older users (GomdaWeb, 1998; Johnson & Kaye, 2002; Online News Association, 2001). Age may be a proxy for media skepticism, a variable that has been empirically linked to media credibility in past research (Gunther, 1992), with older users being more skeptical of the Internet as a whole than younger users. The GomdaWeb survey found education and income to be negatively related to credibility of online news, but Johnson and Kaye (1998, 2000, 2002) found no significant relationship.

Internet use and reliance. Scholars have recently investigated reliance on the Internet/Web as a potential influence on credibility perceptions. Several studies have found a positive association between Web use and credibility ratings of online news and political information (Johnson & Kaye, 2000; Kiousis, 2001; Pew Research Center, 1999; cf. Johnson & Kaye, 2002).[7] Moreover, amount of Internet experience has been shown to be positively related to assessments of the credibility of Web-based information (Flanagin & Metzger, 2000; Ha, 2001). These results imply that credibility is a function of a person's preference for and familiarity with a medium.

Involvement. In addition to whether people rely on a medium for information, the degree to which they know and care about specific topics also influences their credibility judgments. This connection was initially made in studies of source and

media credibility (Abel & Wirth, 1977; Gass & Seiter, 1999; Gunther, 1988, 1992; O'Keefe, 1990; Reagan & Zenalty, 1979). Similar results are now emerging in the new media environment (Eastin, 2001; Flanagin & Metzger, 2002a). The explanation for the link between audience members' involvement with a message (defined as personal relevance and knowledge of a topic) and their credibility perceptions has centered on the elaboration likelihood model (ELM), which says that people have greater trust for consonant messages and greater suspicion of dissonant messages when issue involvement is high.

Along these lines, Eastin (2001) examined how knowledge of AIDS impacted the perceived credibility of messages on a health-related Web site. Results showed that knowledge of the issue positively influenced message credibility ratings, regardless of the expertise of the putative site author. In another study of online information, greater issue salience was associated with greater credibility ratings of Web-based information (Flanagin & Metzger, 2002a).

In summary, conceptualizing Web credibility in terms of source, message, and media credibility research can be helpful in thinking about the various factors that may combine to impact credibility perceptions in the new media environment, although these categories are not simple to apply to this context. Measurement of the credibility of Web sites, Web-based messages, and the Web itself can be problematic. Future research can benefit from considering more carefully the nominal definitions that form the core phenomena of interest, selecting the appropriate operationalization of those concepts, and selecting measures accordingly. In addition, analyses of Web users or study participants, including their demographic characteristics, usage patterns, and attitudes toward specific messages on the Web, are important for a full understanding of credibility perceptions in the new media environment.

AN AGENDA FOR THE FUTURE OF WEB CREDIBILITY RESEARCH

Reviewing past research on credibility in traditional interpersonal and mediated contexts brings into focus several avenues for future research on perceptions of the credibility of online information. Highlighted is the need to study more variables that may be particularly influential on credibility assessments of online information, as well as more channels and types of information available over the Internet. Researchers are challenged to increase their precision in defining and measuring credibility as a dependent variable. Previous research also suggests how perceptions of credibility may change over time. Thus, this review provides researchers an agenda to pursue in theorizing about credibility in the new media environment.

Unexplored Variables in Web Credibility Research

It is clear from the review that researchers have already migrated the expertise and trustworthiness dimensions discovered in earlier credibility research to their

explorations of Web credibility. Yet, other dimensions of credibility have not received adequate attention, even though findings from offline contexts suggest several variables that Internet researchers might study. For example, the dynamism of a Web site, as reflected in site design elements or degree of interactivity, may influence credibility assessments but has rarely been explored in scholarly research. Yet, it is both theoretically and empirically warranted in studies of Web credibility to date (Burgoon et al., 2000; Eastin, 2001; Flanagin & Metzger, 2002a; Schweiger, 2000). Site attractiveness and, therefore, liking may also be conveyed in the graphical interface of online information (e.g., layout, graphics, organization, navigability of a site, or other features such as downloading speed or the functionality of hyperlinks). As mentioned earlier, it seems reasonable too that the perceived trustworthiness of a Web site may hinge in part on the presence of privacy seals, trusted third party endorsements and recommendations, or specific privacy practices and policies (e.g., the use or nonuse of "cookies"). Research on these issues and how they impact perceptions of the credibility of Web-based information is only just beginning.

Expanded Considerations of Internet Technologies and Information Types

Researchers must begin to examine a broader array of Internet-based communication technologies and a greater diversity of Web sites. The versatility of the Internet suggests that rather than being viewed unidimensionally, it may properly be conceived in terms of its many communication and information functions, such as information retrieval, information giving, and its capacity to support conversational uses (Flanagin & Metzger, 2001). Most researchers have looked at the credibility of the Web only, rather than other forms of Internet-based communication, such as chat rooms, email, Usenet, or listservs, to name a few examples. The credibility of each of these channels must be evaluated independently because it is likely that they vary greatly in terms of receivers' assessments (see Newhagen & Nass, 1989). For example, perceptions of the credibility of email probably depend on personal knowledge of the communicator, whereas the credibility of chat rooms is more likely based on the content of the communication or the subject matter for the venue.

Several studies of the relative credibility of the Internet and Web compared to more traditional media are further limited by the fact that they only consider news and political Web sites. However, both the type of site (e.g., news, commercial, personal) and type of information within a Web site (i.e., news, advertising, entertainment) have been shown to impact credibility ratings (Flanagin & Metzger, 2000, 2002a). This suggests the importance of expanding omnibus considerations of sites and information in order to understand credibility in the new media environment, particularly in studies of the relative credibility of new media compared to more traditional channels.

It is also important to consider site and information type because credibility perceptions vary depending upon users' motivation and orientation toward specific media and media content. Greenberg and Roloff (1974) argued that whereas most people approach newspapers for their informational content, television is

used primarily to gratify entertainment needs, and media consumers in an entertainment processing mode are likely to be less critical than those in an information-processing mode (cf. Reagan & Zenalty, 1979). Mulder (1980) found that people with a more active orientation toward news rated newspapers to be significantly more credible than passive news consumers. Thus, an avenue for research is to examine motives for using different types of online information to see if and how audience orientations impact credibility assessments.

Toward Greater Precision in Web Credibility Research

Prior research also highlights the importance of developing different measures of credibility for specific Internet-based technologies and specific sources of information within those technologies. One way to do this is for researchers to specify the type of source they are investigating, as discussed earlier (cf. Sundar & Nass, 2001). Schweiger's (2000) proposal that there are six levels of reference objects for Web credibility assessments goes a step further in explicating the notion of source in the new media environment and helping researchers to establish the locus of online users' credibility attributions.

Tseng and Fogg (1999) propose measuring several different types of credibility of Web-based information. Presumed credibility is based on general assumptions and stereotypes of the source or presenter of the information; reputed credibility is founded on reports about the source from third parties such as awards and titles; surface credibility is derived from simple inspection, such as a Web site that appears credible by virtue of its visual design; and experienced credibility is based on firsthand experience such as that gained from interacting with entities over time. These types of credibility imply a temporal dimension to credibility studies that is as yet unexplored.

Tracking Changes in Credibility Perceptions

Credibility perceptions of the Internet as a medium may change over time. As more people come to rely on the Web for news, it may increase in its relative credibility ratings. Evidence that credibility ratings are impacted by Web use is beginning to accumulate, for example, the credibility of online political information increased from the 1996 to 2000 election seasons (e.g., Johnson & Kaye, 2000, 2002). Researchers could examine changes in relative credibility perceptions as the composition of the Web audience changes over time. Although once dominated by middle-class White males, the demographics of Internet users have recently changed to include people of all backgrounds as well as nearly equal numbers of both sexes (e.g., Pew Research Center, 1999; U.S. Department of Commerce, 2000). Based on past research, demographics and experience with the Web could contribute to changes over time in users' judgments of the credibility of online information or of the Web relative to other media.

Changes in Web content could also result in changes in the relative credibility

of the medium. As the economic potential of the Web forces it to lose its roots as an unregulated bastion for individual expression in favor of its use as a tool for corporate communication, ratings of the credibility of the medium may shift. Flanagin and Metzger (2000) found commercial information to be the lowest in credibility of several types of information. If Internet users begin to associate the Web with primarily commercial information, then overall ratings of credibility may decline. Future research might also consider the notion of credibility transfer, the process whereby the reputation of an established media outlet crosses over to the Web environment (Schweiger, 2000), which may, for example, occur when the Web sites of well-regarded print newspapers are also considered credible (Saul, 1999; Schweiger, 2000) or when the branding of well-known media and commercial organizations translates across channels (Flanagin & Metzger, 2002a). Early evidence suggests that the credibility of online news outlets is a function of users' reliance on the traditional form of that medium (Johnson & Kaye, 2002).

Synthesizing past work on source, message, and media credibility in traditional contexts places research on credibility in the new media environment in proper perspective and suggests several important new variables and issues for this research to explore. Prior credibility research also alerts researchers to the fact that variations in the variables studied, media examined, motivations for using each medium, measures used, and audience members studied can make a difference in credibility results. Specifically, research is needed to explore other Internet-based communication technologies besides Web sites because prior studies have found that people use different technologies for different ends and apply different criteria to evaluate the credibility of different media. Reviewing the credibility literature also makes clear that further development of credibility scales and items is needed to reduce confusion surrounding the measurement of Web sites, particular messages on those sites, and the medium that carries both. Finally, past research highlights that credibility perceptions of the Internet and Web relative to other media may change over time, as users become more experienced with, or more reliant on, the new media and as these media continue to evolve.

Theoretical Development

Historically, source and message credibility were examined primarily as independent variables in theories of persuasion. In media research, credibility was used to explain the public's use of various news media outlets. Thus, applied concerns have been stressed over more theoretical development on credibility, although there has been some work in this respect as well (e.g., Gunther, 1992). With regard to Internet and Web credibility, only recently have researchers begun to propose theoretical mechanisms to explain the evidence that necessarily must precede theory development (Flanagin & Metzger, 2002a; Johnson & Kaye, 2002). Given the novelty of credibility research in the new media environment, this development is still in its very early stages. Nonetheless, some directions toward theory construction

are developing, as evidence and explanations mutually evolve. Many of these directions stem from the rich heritage of credibility research that has come before, while also drawing on current research in the contemporary media environment.

Any theory of online credibility must consider the appropriate level of emphasis (source, message, or medium) in order to arrive at a clear definition of the core concept. Research is inching toward consistent definitions of Internet and Web credibility, although conflation across levels makes this extremely challenging. Credibility in the online environment appears to be consistent in key ways with credibility in other contexts. Specifically, source credibility on the Web can be conceptualized by the main dimensions of expertise, trustworthiness, and dynamism. For messages on the Web, expertise and trustworthiness appear to constitute the main dimensions of credibility. Internet (medium) credibility seems largely to encompass believability of the medium itself, as evidenced through its technical features and capabilities.

To facilitate theory development, the locus of credibility assessment must be identified as well: Is credibility a relational, situational, or dispositional response on the part of audience members (Chaffee, 1982; Gunther, 1992), or is it an attribute of the medium? Most likely, Web credibility consists of assessments made at several levels. Audience factors are extremely important, as discussed earlier in the chapter. In addition, credibility can be intentionally communicated by online information providers both through their offline reputation and in the messages that those sources create (e.g., through the use of accurate and current information). Further, characteristics of the medium can trickle down to affect perceptions of Web sites and of online messages when the Internet's relative novelty or lack of gatekeepers influences people's trust of the medium as a whole and information or sources within the medium.

The few studies that have examined predictors of credibility may be a starting point for theory construction. Gunther (1992) considered various explanations for the perceived credibility of newspaper and television news coverage of social groups, including media attributes (e.g., ownership structure), audience involvement with social issues, and audience demographics and disposition (e.g., skepticism). He found that audience involvement with particular groups explained the most variance in perceptions of credibility (defined as the fairness of news coverage of specific social groups) and that age and skepticism were significant but much less important predictors. This research suggests that in the Web environment, involvement or salience of information content are important components of ratings of Web site and message credibility.

Johnson and Kaye (2002) examined consumers' credibility judgments of online news sources. Based on prior research, they expected to find reliance on the Web for political information to predict Web credibility ratings. Interestingly, reliance on traditional news media and perceived convenience of the Web as a source of political information predicted judgments regarding the credibility of online versions of traditional media outlets, but Web reliance did not, contradicting re-

sults of a 1996 study that found Web reliance to be an important predictor of Web credibility (Johnson & Kaye, 2000). This is perhaps due to shifts in the characteristics of users as diffusion of the Web spreads. These studies suggest that reliance on and convenience of using traditional and new media may emerge as important predictors of credibility assessments but need further study as the Internet and its users change over time.

Whereas Gunther (1992) and Johnson and Kaye (2002) sought to discover theoretical mechanisms driving news credibility perceptions, Flanagin and Metzger (2002a) considered the role of Internet experience, information salience, and demographics in perceived credibility across a variety of online sources, including news, commercial, personal, and public interest advocacy Web sites. They found differences across sources and evidence that site credibility depends to a degree on design features. In addition, salience was positively related to site, message, and sponsor credibility. Coupled with Gunther's (1992) findings for audience involvement described earlier, this suggests that audience factors such as personal relevance, source identification, and site design features may all play key roles in future theories of Internet and Web credibility.

Although recent research provides some helpful starting points, there remains much to be done toward building a theoretical model of Internet and Web credibility. Along the way, the applied concerns that have served as the traditional focus of credibility research will continue to warrant researchers' attention. Among particularly timely concerns, given the current development of the Internet and Web, is the issue of empowering users of this global communication and information tool.

COMMUNICATION, EMPOWERMENT, AND THE CONTEMPORARY MEDIA ENVIRONMENT

The idea that information is a resource, leading to knowledge that results in increased power has a long history in communication research (e.g., Tichenor, Donohue, & Olien, 1970). However, the role that contemporary communication technologies play in this aphorism and their function in the empowerment process remains relatively unexplored. There is no doubt that the Internet and Web have the potential to inform users. But Gilster (1997) cautions that although contemporary media technologies offer access to an unprecedented amount of information, that information is only as valuable as it is credible. For users of these technologies, this suggests that learning to discern credible from unreliable information is a requisite skill for harnessing the power of new media.[8]

Several challenges exist, however, for Internet users attempting to determine the quality of online information. The relatively low cost of disseminating digital information has resulted in a plethora of information providers on the Internet, many of whom operate without much oversight. Moreover, the Internet may create a psychological leveling effect whereby the technology places all information on

the same level of accessibility, which in turn puts all authors on the same level of credibility (Burbules, 1998). For this reason, Eastin (2001) and others have argued that the Internet makes information evaluation more important than ever before, and that "perceptions of information found online should be framed within the digital literacy literature" (p. 10).

As more people have ventured into cyberspace, the meaning of digital or Internet literacy has evolved from the acquisition of basic connection and search skills to the ability to critically analyze and evaluate online information (Hobbs, 1998; Snyder, 1998). This new conception of Internet literacy involves higher-level processing of information and implies being selective about information, making informed judgments about content, and evaluating the impact of that information (Gurak, 2001; Hobbs, 1998; Kubey, 1997; Snyder, 1998). Several guidelines have been developed to help Internet users judge the quality of online information (Alexander & Tate, 1999; Jadad & Gagliardi, 1998; Silberg, Lundberg, & Musacchio, 1997; Smith, 1997). Additionally, consumer groups are being formed to evaluate Web sites' credibility on this basis. Despite these strides, questions remain about the extent to which these efforts have been successful and to what degree users exercise this critical aspect of Internet literacy. Moreover, there remain questions about what else can be done to instill media literacy competencies in users and online information providers.

Empowering Online Information Consumers

Methods for judging the quality of information obtained through newspapers, magazines, and television are well established, relatively clear, and socially derived and spread. Validation of information in these contexts is often achieved by referring to sources with credible reputations, seeking the advice of trusted others, and by relying on personal experiences to determine the characteristics of trustworthy sources. However, with information obtained from the Internet and Web, these strategies are not always effective or available, although they may be more necessary (e.g., Gilster, 1997). Recommendations for evaluating online information have appeared from such agencies as the American Library Association (Kapoun, 1998), the National Institute for Literacy (Rosen, 1998), and many colleges and universities around the world (Smith, 1997).

These recommendations generally suggest that Internet users should take steps to verify the accuracy, authority, objectivity, currency, and coverage of online information (Alexander & Tate, 1999; Brandt, 1996; Gilster, 1997; Harris, 1996; Jones, 1998; Kapoun, 1998; Smith, 1997). Steps include such efforts as verifying online information offline, noting who authored the site, whether contact information is provided, whether the Web site is recommended by a trusted source, and whether the information is up-to-date. These recommendations require a range of activities on the part of users, from simple visual inspection of a Web site to more laborious information verification and triangulation efforts.

In the first study of online verification behavior, Flanagin and Metzger (2000)

found that respondents verified the information they obtained via the Internet only rarely to occasionally. People scored highest on the actions that were easiest to perform and that required their opinion. Lowest scores were recorded on the recommendations that were difficult to perform and that required action. This suggests that few users are rigorously verifying the quality of the information they obtain via the Internet. Interestingly, this study also found a negative relation between user experience with the Internet and reported verification behaviors, indicating that users who might benefit the most from verifying online information (because they may lack experience that helps to discern valid from bogus material) are doing so the least. As new users discover the Internet as a source of information, they may not invoke the tools that will help them become appropriately cyberliterate.

These findings reinforce the call for Internet literacy as a means by which to empower media consumers. Toward that end, specific recommendations should include refocusing efforts on teaching the verification strategies already outlined. Other simple verification techniques, such as noting if a Web site has a .org or .edu domain name (Lubans, 1999), are easily adopted as well. Periodic assessments of the frequency with which people verify online information will help in this effort by providing direction for literacy educators who hope to encourage people to assess the value of the information they find on the Internet and Web.

Empowering Online Information Providers

In addition to empowering Web site users, there is a need to empower those who create and sponsor online information so that they can better communicate with target audiences. The need for information producers to establish credibility among audiences is certainly not new. However, due to differences between traditional and new media, establishing credibility in the Internet environment might not be as simple as in the past.[9] Many companies are starting to recognize this fact: a survey of 150 company executives found that over 75% believed that digital literacy was important in order to keep up with businesses that are using the Web to target diverse audiences (Frazee, 1996). Furthermore, learning how to communicate credibly is a necessity for anyone trying to command attention in the increasingly competitive new media environment.

Attention has recently focused on identifying strategies to enhance the perceived credibility of Web-based information. The notion of empowering Web site sponsors and the importance of establishing trust has been addressed in commercial, educational, and health applications (Chadwick, 2001). Trust may be even more important for electronic commerce than for face-to-face business transactions because the impersonal nature of computer-mediated communication magnifies consumers' perceived risk of engaging in commercial transactions online (Kasper-Fuehrer & Ashkanasy, 2001). Browne, Freeman, and Williamson (2000) note the increasing use of the Internet by students for academic purposes and the resulting need for reliable online information. Christensen and Griffiths (2000)

argue that the accessibility, attractiveness, and wide range of information available online have made the Internet a growing source of medical information, although the quality of online health information is often dubious.

Cutting across these domains, researchers have recently offered several recommendations for Web site sponsors interested in enhancing the credibility of the information they provide (e.g., Fogg et al., 2001b). Chadwick (2001) suggests that site sponsors focus on two aspects: Web site design, including several technical aspects, and trust building behaviors, which include the use of both technical and interpersonal mechanisms.

Technical design elements that may enhance Web site operators' credibility include: (a) logical organization of information that is functional for users and takes advantage of the hypertextual nature of the Web (Agency for Health Care Policy and Research [AHCPR], 1999; December & Randall, 1994; Fogg et al., 2001b), (b) inclusion of navigation tools such as internal search capabilities and interface consistency from page-to-page (AHCPR, 1999; Alexander & Tate, 1999), (c) use of cool color tones and a balanced layout (Chadwick, 2001; Fogg et al., 2001b), (d) inclusion of simple tools to verify the currency and accuracy of the information, such as a date stamp or links to authoritative external sites (Flanagin & Metzger, 2000); and (e) maintaining links and other site features so that they are both functional and current (Alexander & Tate, 1999; Fogg et al., 2001b).

Regarding trust-building behaviors, strategies for online information providers include: (a) clearly identifying information sponsors and sources, providing options for verifying identities through real-world contact information or affiliations, and offering suggestions for audience feedback (Alexander & Tate, 1999; AHCPR, 1999; Fogg et al., 2001b); (b) disclosing sponsor intent or bias (e.g., commercial interests; AHCPR, 1999); (c) displaying credentials and third party recommendations (Fogg et al., 2001b; Palmer et al., 2000); (d) demonstrating concern for audiences' interests through explicit privacy protection policies, opt-in provisions, participation in privacy seal programs, and use of encryption and other security measures (Alexander & Tate, 1999; AHCPR, 1999; Chadwick, 2001; Fogg et al., 2001b); and (e) partaking in professional editorial board or review processes (Griffiths & Christensen, 2000; Huang & Alessi, 1996).

Credibility is also established when online information providers demonstrate their expertise. According to Fogg et al. (2001b), expertise may be communicated by listing authors' credentials and including citations or references for information provided on Web sites. The use of strong evidence from highly credible sources will increase perceptions of site expertise more when those sources are cited, as well as when they are linked to by other credible sources (Neilsen, 1999; Sundar, 1998). Offering comprehensive, current, and accurate product selection or content is also likely to increase Internet users' perceptions of a site's expertise (Neilsen, 1999).

In sum, several avenues exist for Web site operators to enhance their credibility in the new media environment. Recommendations cover (a) appearance and graphi-

cal design issues, (b) disclosure and security measures, (c) functionality and connectedness, and (d) accuracy and comprehensiveness of content. These strategies, together with online user awareness of information quality on the Web, would enhance Internet literacy programs and would serve to empower online information consumers and sponsors alike.

Credibility and the Future of New Media

Several characteristics of Web-based information stimulate concerns about its credibility. Given the newness and complexity of these concerns, information assessment and verification have now become largely the responsibility of the media consumer. Lessons from a rich research legacy provide some guidance by suggesting that crucial elements of credibility include aspects of the source, the message, and the medium of transmission. By applying knowledge from each of these domains, scholars are moving toward a clearer understanding of the factors that influence individuals' perceptions of credibility in the online environment. By recognizing connections between existing credibility scholarship and the new media environment, researchers stand to make important contributions in this pursuit. This knowledge is likely to have considerable practical consequence. Indeed, the long-term viability of the Internet/Web as a consequential information resource may hinge on individual perceptions of the credibility of the sources and messages carried by this communication medium.

NOTES

1. Terminology to describe the Internet, Web, and related technologies has often been used inaccurately or inconsistently. Internet refers to the physical infrastructure of interconnected computers, cables, and other devices that serve as the infrastructure for global communication. Web refers to a system of computers, utilizing graphical user interfaces and accessed via the Internet, that provides access to documents, multimedia files, and Web sites, that are connected by hyperlinks to other documents, multimedia files, and Web sites. Research often groups the Internet and Web together, particularly when addressing media credibility, because many users and respondents tend not to make the distinction noted above. In addition, although the Internet does encompass the Web and other resources (such as chat rooms), the Web typically refers only to hypertext linked sites and their content. In this chapter we strive to use the terms appropriately, although at times we do refer to the Internet and Web together, when the overlap is informative and relevant.

2. O'Keefe (1990) and others also note that similarities must be relevant to the topic being advocated by a speaker in order to influence audience's competence ratings (e.g., Miller & Hoppe, 1973). However, dissimilarity can also influence competence or expertise ratings when the source is seen to be more knowledgeable on a topic than the receiver.

3. Another characteristic of organizational credibility is the nature of the organization: that is, whether the organization is for profit or nonprofit. It seems that nonprofit and government organizations are perceived as more credible sources than commercial, for profit, organizations (e.g., Hammond, 1987; Lynn, Wyatt, Gaines, Pearce, & Vanden Bergh, 1978).

4. Shaw (1973) found problems not with the wording of the Roper measures but with the order in which the questions were posed to respondents. He suggested that asking respondents what medium

they rely on for news before asking which medium they find most believable sets up demand characteristics that favor television over newspapers because most people rely on television rather than newspapers for news.

5. This is not to say that Greenberg and Roloff's criticism is invalid. Newhagen and Nass (1989) found that people do indeed evaluate television and newspaper news according to different criteria.

6. For example, eBay might receive higher credibility ratings compared to other online auction sites, but is eBay a source, message, or medium? One could argue that the person who is putting an object up for auction is the source, that the content of his or her descriptions of the object constitutes the message, and that the Web is the medium. Others might say that eBay is also a source in this situation, although a different kind of source (cf. Sundar & Nass, 2001).

7. Unfortunately, these studies leave the question of causality unanswered. That is, does usage of a medium affect credibility assessments or do credibility assessments drive usage? For traditional media, there is some evidence for both. Shaw (1973) shows how reliance influences credibility assessments, whereas Wanta and Hu (1994) find evidence that the perceived credibility of a channel leads to reliance on and exposure to that medium. This suggests that credibility perceptions and media reliance may be mutually reinforcing.

8. Because our focus is on the credibility of the Internet and Web-based information, and thus on current users of these tools, we do not consider issues of empowerment that implicate nonusers. Consequently, we do not address the important issues of the digital divide or the knowledge gap, both of which consider discrepancies between those with access and those without access to new media.

9. Of course, Web sites of entities with established, positive reputations outside of the Internet environment enjoy substantial benefits in this regard. Web sites of well-regarded publications such as the *New York Times* might naturally be highly regarded as well, across both site and message credibility. Such distinctions are crucial to take into account in Web credibility research.

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