A New Framework for Web Credibility Assessment

Wonchan Choi, Florida State University
Besiki Stvilia, Florida State University

Abstract
This poster reports on a study that used a literature analysis to develop a new, extended conceptual framework for Web credibility assessment. The proposed framework conceptualizes the relationship among the key dimensions of credibility (i.e., trustworthiness and expertise), related measures, and objects of those measures (i.e., source, message, and media) that have been identified in the literature. The framework will be tested through empirical data. In particular, an online survey questionnaire will be developed in accordance with the new framework and distributed to college students for data collection. The outcomes of this study will include the new framework and survey questionnaire that could be used as reusable knowledge resources in development of credibility assessment models in different online contexts.
Contact: wc10d@my.fsu.edu, bstvilia@fsu.edu

1   Introduction

1.1   Definition of Credibility

The literature identifies trustworthiness and expertise as the two key dimensions of credibility (Fogg, 2003; Hovland, Janis, & Kelley, 1953; Rieh, 2010). *Trustworthiness* captures the perceived goodness and morality of the source (Fogg, 2003). Thus, the perception that a source is fair, unbiased, and truthful contributes to the trustworthiness of information (Rieh, 2010). Hovland et al. (1953) say that the degree of confidence in the communicator's intent to communicate valid assertion is considered as the communicator's trustworthiness.

Expertise is defined as the perceived knowledge, skill, and experience of the source (Fogg, 2003). From the perspective of source credibility in the interpersonal communication, expertise is considered as the extent to which a communicator is perceived to be a source of valid assertion (Hovland et al., 1953). Rieh (2010) mentions that expertise is an important factor given its close relationship to people's perceptions of a source's ability to provide information that is both accurate and valid.

1.2   Typologies of Credibility Assessment: Source, Message, and Media Credibility

In the literature, credibility has been characterized by three main objects of assessment: *source, message*, and *media* credibility (Metzger, Flanagin, Eyal, Lemus, & McCann, 2003). In the Web context, in particular, Fogg's (2003) *Web Credibility Framework* labels these three categories as operator (source), content (message), and design (design). Fogg (2003) defines *operator* as "the organization or person offering the site" (p. 173), which can be interpreted as source in the interpersonal communication setting. As credibility of a speaker (i.e., source) was considerably important evidence for people to judge the credibility of the message from him or her in interpersonal communication, credibility of an operator, who runs a website, is an important object of assessment for judging the credibility of the website.

Content is the second category of the Web credibility framework. Fogg (2003) defines content as "what the site provides in terms of information and functionality" (p. 173). He says that currency, accuracy, relevance of content, and endorsement by a respected outside agency (e.g., the Health on the Net foundation: HON) are the message-related markers/cues that boost Web credibility. In addition, he considers functionalities that a website can provide for users as the other aspect of content. Examples include the archive function that allows users to search past content on the website and customizability that allows tailoring pages to individual users.

Design is the third category of the framework, which is largely about the structural attributes of websites. He specifies that four key design elements come into play for Web credibility assessment: *information design* (the structure of information on each page and throughout the site – e.g., organization of information); *technical design* (how the site works from a technical standpoint – e.g., search function is powered by a respected search engine); *aesthetic design* (how things look, feel, or sound – e.g., whether

or not the site is professionally designed); and *interaction design* (moment-by-moment experience of users as they go through the steps to accomplish their goals – e.g., easy to use, navigability).

1.3   Development of a New Framework for Web Credibility Assessment

As mentioned above, Web credibility has been defined and measured largely based on the three main objects of assessment: operator (source), content (message), and design (media). Several underlying dimensions have been identified to address each type of credibility, such as trustworthiness, expertise, dynamism, and attractiveness for *operator* (source) credibility; accuracy, comprehensiveness, currency, reliability, and validity for *content* (message) credibility; and stability, consistency, and easiness of use for *design* (media) credibility. Even though each type of credibility and associated dimensions seemed to focus on different objects of assessments, ultimately, the root or overarching concept under investigation has been credibility. Therefore, logically, the root concept, credibility, has to be conceptualized first, and the conceptualization should be applied to all types of credibility operationalizations. However, based on our literature analysis, discussions of credibility in both interpersonal and Web contexts seem to have been shaped more by the sources and/or objects of credibility assessment rather than guided by a systematic conceptualization. This may lead to a conflation and confusion of the conceptual structure, with measurements, and objects of measurements of the concept of credibility.

In the proposed study, based on a literature analysis we outline a new framework for Web credibility assessment that conceptualizes the relationship among the key dimensions of credibility, related measures, and objects of those measures. In particular, we cross-map the three categories of Web credibility framework by (Fogg, 2003) and the two key dimensions of credibility – trustworthiness and expertise (Hovland et al., 1953). Table 1 provides definitions of each of the six categories in the new framework and lists sub-dimensions of each. The proposed framework can be also understood as a re-organization of the concept (i.e., credibility), its key dimensions, and sub-dimensions of each key dimension, which all have been identified and examined in the literature over the decades. The main purpose of the study is to test the new framework of Web credibility assessment, as to whether it is supported by empirical data.

	Trustworthiness	Expertise
Operator	How trustworthy is the operator? – Whether or not the operator's character is: ▪ Ethical ▪ Honest/Sincere ▪ Fair ▪ Believable ▪ Well-respected ▪ Trusted	How expert is the operator? – Whether or not the operator (source) of the Web resources is: ▪ Reputable ▪ Famous ▪ Authoritative ▪ Competent
Content	How trustworthy is the content? – Whether or not the message/information being provided in the website is: ▪ Neutral ▪ Unbiased ▪ Even-handed ▪ Consistent ▪ Current	How expert is the content? – Whether or not the message/information being provided in the website is: ▪ Informative ▪ Complete ▪ Comprehensive ▪ In-depth ▪ Accurate ▪ Correct ▪ Clear
Design	How trustworthy is the design? – Whether or not the structure, functionality, aesthetic design, and interactivity of information and/or the website as a whole is: ▪ Stable ▪ Consistent ▪ Reliable	How expert is the design? – Whether or not the structure, functionality, aesthetic design, and interactivity of information and/or the website as a whole is: ▪ Well-organized ▪ Easy to use ▪ Aesthetically put together

Table 1. A New Framework of Web Credibility Assessment

2   Research Questions & Hypotheses

We have developed research questions and associated hypotheses that will be examined in the proposed study:

- Q1: Does the conceptual relationships in the framework hold (see Table 1 above)?
    - o H1: Operator's trustworthiness positively predicts perceived credibility of online information.
    - o H2: Operator's expertise positively predicts perceived credibility of online information.
    - o H3: Content's trustworthiness positively predicts perceived credibility of online information.
    - o H4: Content's expertise positively predicts perceived credibility online information.
    - o H5: Design trustworthiness positively predicts perceived credibility of online information.
    - o H6: Design expertise positively predicts perceived credibility of online information
- Q2: Which categories of the new framework are most influential in predicting the perceived credibility of online information?

3   Method

3.1   Instrument Development

An online survey questionnaire will be developed in accordance with the new framework for Web credibility assessment proposed in this study (Table 1). In particular, items will be developed based on the six constructs (i.e., six categories) in the framework.

3.2   Data Collection

The process of assessing information credibility relies on users' perceptions, which are highly influenced by users' demographic characteristics (i.e., audience factors), such as age, gender, and education levels, as well as by topics, such as news, entertainment, and health (Flanagin & Metzger, 2013; Hovland et al., 1953; Lucassen, Muilwijk, Noordzij, & Schraagen, 2013). In the proposed study, we focus on college students' perceptions of credibility of online health information, as credibility is a particularly crucial factor when it comes to selecting and using online health information (Eysenbach, 2008; Gustafson & Wyatt, 2004). Thus, we define our research population as college students who have sought for and/or consumed health information on the Web. A purposive sampling will be employed to recruit subjects. As recruitment sites, we plan to attend large lecture courses, in addition to others, within the College of Communication and Information at Florida State University to inform prospective participants about the study and guide them to the online survey site. The target sample size is 300.

3.3   Data Analysis

Confirmatory factor analysis (CFA) will be used to test the framework, considering that it is based on existing frameworks and most of the items used in the questionnaire have been examined in the literature.

4   Conclusion

This study attempts to reorganize underlying dimensions and associated measures of credibility that have been identified in the literature based in the new framework for Web credibility assessment. This new framework and related survey instrument will help researchers operationalize Web credibility assessment in different contexts, as well as provide system developers with cues/markers to design 'credible' systems. Once the framework and instrument are validated through the study, they can be used as knowledge tools to understand how people assess the credibility of various online information topics (e.g., health, education, politics, entertainment, etc.), as well as media types (e.g., websites in general, social networking sites, social Q&A sites, blogs, etc.).

5   References

Eysenbach, G. (2008). Credibility of health information and digital media: New perspectives and implications for youth. *Digital Media, Youth, and Credibility*, 123-154.

Flanagin, A. J., & Metzger, M. J. (2013). Trusting expert-versus user-generated ratings online: The role of information volume, valence, and consumer characteristics. *Computers in Human Behavior, 29*(4), 1626-1634.

Fogg, B. J. (2003). *Persuasive technology: Using computers to change what we think and do*. San Francisco, CA: Morgan Kaufmann Publishers.

Gustafson, D. H., & Wyatt, J. C. (2004). Evaluation of ehealth systems and services. *BMJ, 328*, 1150. doi:10.1136/bmj.328.7449.1150

Hovland, C. I., Janis, I. L., & Kelley, H. H. (1953). *Communication and persuasion: Psychological studies of opinion change*. New Haven, CT: Yale University Press.

Lucassen, T., Muilwijk, R., Noordzij, M. L., & Schraagen, J. M. (2013). Topic familiarity and information skills in online credibility evaluation. *Journal of the American Society for Information Science and Technology, 64*(2), 254-264. doi:10.1002/asi.22743

Metzger, M. J., Flanagin, A. J., Eyal, K., Lemus, D. R., & McCann, R. M. (2003). Credibility for the 21st century: Integrating perspectives on source, message, and media credibility in the contemporary media environment. In P. J. Kalbfleisch (Ed.), *Communication yearbook* (Vol. 27, pp. 293-336). Mahwah, NJ: Lawrence Erlbaum Associates, Inc., Publishers.

Rieh, S. Y. (2010). Credibility and cognitive authority of information. In M. Bates & M. N. Maack, (Eds.), *Encyclopedia of Library and Information Sciences.* 3rd Ed. (pp. 1337-1344). New York: Taylor and Francis Group, LLC.

6   Table of Tables