

Prominence-Interpretation Theory: Explaining How People Assess Credibility Online

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ABSTRACT

Four years of research has led to a theory that describes how people assess the credibility of Web sites. This theory proposes that users notice and interpret various Web site elements to arrive at an overall credibility assessment. Although preliminary, this theory explains previous research results and suggests directions for future studies.

Keywords

Online credibility, user trust, HCI theory, Web site design, involvement, cultural differences, Web credibility.

INTRODUCTION

The success of most Web sites today depends on whether users perceive the site to be credible. If users think a site lacks credibility—that the information and services cannot be trusted—they will abandon the site and seek to fill their needs in other ways. Because fraud and low-quality information is perceived to be a growing problem in the online world [5], creating a usable Web site is no longer sufficient. HCI professionals must design Web sites for credibility as well. A key step in this process is to develop a principled understanding—i.e., a relevant theory, informed by quantitative research—of how people assess the credibility of online content.

This short paper presents a theory about online credibility evaluations: Prominence-Interpretation Theory. Although this theory is new and the concepts are preliminary, the early responses and critiques have been positive and constructive. In four early presentations of this work (three at Stanford University and one at the U.S. National Cancer Institute) academics and HCI professionals have found value in the theory. The time has come to share Prominence-Interpretation Theory with a wider audience to generate additional feedback and critiques that will ultimately improve our HCI community's collective understanding about how users assess credibility online

ORIGIN OF PROMINENCE-INTERPRETATION THEORY

Prominence-Interpretation Theory grew out of four years of quantitative research on Web credibility by Stanford's Persuasive Technology Lab [1]. The research included over 6,500 participants in a variety of studies. This theory also draws on the results of related research by other groups, both academic and industrial [1].

WHAT IS PROMINENCE-INTERPRETATION THEORY?

Prominence-Interpretation Theory posits that two things happen when people assess credibility online (see Figure 1):

1. The user notices something (Prominence), and
2. The user makes a judgment about it (Interpretation).

If one or the other does not happen, then there is no credibility assessment. The process of noticing a prominent element and making an interpretation happens more than once when a person evaluates a Web site, with new aspects of the site being noticed and interpreted as the user makes an overall assessment of credibility.

Prominence-Interpretation Theory may seem apparent – organized common sense. However, one could argue that much like an answer to a riddle, this theory seems obvious only after it is revealed.

Prominence Explained

The first component in the theory is Prominence. In this context “Prominence” is the likelihood that a Web site element will be noticed or perceived.

It stands to reason that before a Web site element can affect a user's credibility assessment of the site, the user must first notice the element. If the element is not noticed, it will have no impact on the credibility assessment of the site. For example, a user may not notice a Web site's privacy policy. As a result, the privacy policy will have no impact on how the user assesses the credibility of the site. In contrast, other elements on a Web site may be highly prominent. For example, a large image of person in the center of a Web page is likely to be noticed. This image will then play a role in the credibility assessment of the site.

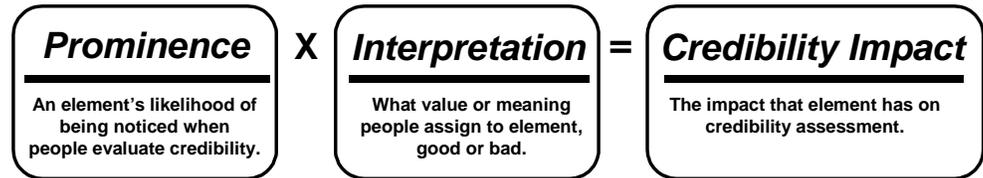
At least five factors affect Prominence:

1. **Involvement** of the user (i.e., the motivation and ability to scrutinize Web site content) [3]
2. **Topic** of the Web site (e.g., news, entertainment) [2]
3. **Task** of the user (e.g., seeking information, seeking amusement, making a transaction) [6]
4. **Experience** of the user (e.g., novice vs. expert in regard to subject matter or Web conventions) [6]
5. **Individual differences** (e.g., a person's need for cognition, learning style, or literacy level)

The most dominant factor affecting Prominence may be user involvement. When a user goes to a Web site with a high level of motivation (e.g., seeking an answer to a critical health problem), he or she will notice more things about the Web site. When user motivation and ability are both high [4]

Figure 1:

Core components in Prominence-Interpretation Theory



more Web site elements will cross the cognitive threshold of being unnoticed to being noticed.

In addition to the five factors listed previously, other factors are likely to play a role in Prominence. Further research and analysis will help illuminate how these factors affect the Prominence component of this theory.

Interpretation Explained

The second component of the theory is Interpretation. In this context "Interpretation" is a person's judgment about an element under examination. In other words, the Interpretation component is the user's evaluation of a Web site element, good or bad. For example, a user may interpret a broken link on a Web page as a sign that the site has been neglected – or that the site was not carefully created in the first place. In either case, the broken link will contribute to a lower credibility perception of the site.

Various factors affect Interpretation:

1. **Assumptions** in a user's mind (i.e., culture, past experiences, heuristics, and so on) [2]
2. **Skill/knowledge** of a user (e.g., user's level of competency in the site's subject matter) [6]
3. **Context** (e.g., the user's environment, user expectations, situational norms, and so on)

As the Interpretation component suggests, users do not interpret identical Web site elements in the same way. Culture plays a role in making these judgments. For example, a news Web site that has a passage from the Bible will affect people differently. Some people will interpret this Bible verse positively and assign more credibility to the Web site; others will interpret the Bible passage negatively.

In addition to user culture and expectations, the context of Interpretation matters – the user context, the task context, and more. For example, if a person is hurriedly looking for the best airfares online while at work, she will likely interpret all popup ads negatively. However, if the same user is relaxing at home and leisurely browsing travel sites for vacation ideas, a relevant popup ad might offer her welcome information.

Future work can expand and refine understanding of the factors that affect Interpretation.

Repeating the Process of Noticing and Evaluating

In most cases a user will quickly notice Web site elements and evaluate them, usually an iterative and subconscious process, all the while compiling an overall assessment about the site's credibility. People apparently repeat this process, focusing on different Web site elements, until they are satisfied with their credibility conclusion or until other constraints stop them, such as a lack of time or skill.

A THEORY WITH EXPLANATORY & PREDICTIVE POWER

A good theory will have the power to explain past research results and to predict profitable directions for future inquiry. Prominence-Interpretation Theory does both. For example, the theory explains a puzzling result from a study completed in 1999 [3]. This experiment showed that the more critical

the user's information need, the greater the negative credibility impact of typographical errors on a Web page. Prominence-Interpretation Theory can provide a parsimonious explanation: Increased user involvement led to increased prominence of the site's typographical errors.

This theory also resolves what seemed to be a discrepancy in recent research findings. A study in early 2002 suggested that a site's privacy policy was a key element in establishing credibility [5]; in contrast, a later 2002 study showed that privacy policies had virtually no impact on credibility [2]. These findings can live together in harmony when viewed from the perspective of Prominence-Interpretation Theory. It's now clear that the first study focused solely on Interpretation. In the first study researchers called people on the telephone and asked them to evaluate the impact a site's privacy policy would have on perceived credibility. In contrast, the second study focused on Prominence. Study participants visited actual Web sites to evaluate credibility. In the second situation users almost never noticed a site's privacy policy. These two studies reached different conclusions because they examined different components of credibility assessment.

Prominence-Interpretation Theory also has predictive value. The theory suggests that future credibility studies could profitably examine the role of user involvement, site topic, user task, and so on. In addition, to better understand what affects Interpretation, future research could examine (or manipulate) user assumptions, knowledge, or context.

CONCLUSION

Prominence-Interpretation Theory breaks new theoretical ground and creates a foundation for enhanced understanding of online credibility. Not only can this theory help HCI researchers, but increased theoretical understanding can also translate into practical insights that will benefit HCI professionals who seek to design Web sites for credibility.

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