Interface Effects on Digital Library Credibility Judgments

Paul R. Aumer-Ryan
School of Information
University of Texas at Austin
1 University Station D7000
Austin, TX 78712-0390
(512) 471-3821
paul@ischool.utexas.edu

ABSTRACT
In digital library search engines, "no results found" is a misleading phrase because it masquerades as a definitive answer; in reality, the collection being searched may in fact contain content that matches a user's query. This research examines the effect of null result sets on search behavior and on the perception of contents in digital libraries. In particular, this research supports the hypothesis that interface and design flaws have an effect on the perceived authority and credibility (here defined in terms of being authentic, factual, trustworthy, scholarly, and accurate) of the information being communicated by the interface in question. In short, interface design and the "form" of information (or, alternatively, the messenger) can negatively impact the perception of the quality of the "content" of information (the message).

Categories and Subject Descriptors
H.3.3 [**Information Storage and Retrieval**]: Information Search and Retrieval – *Selection process*; H.3.7 [**Information Storage and Retrieval**]: Digital Libraries – *User issues*; H.5.2 [**Information Interfaces and Presentation**]: User Interfaces – *User-centered design*.

General Terms
Measurement, Design, Experimentation, Human Factors, Theory.

Keywords
Digital libraries, credibility judgments, authority, interface design, no results found, null result sets, usability, message, messenger.

1. INTRODUCTION
Ninety-one participants interacted with a mock digital library via a simple search engine interface. All participants were asked to complete a research-oriented search task and examine a set of article results. However, half of the participants (randomly assigned) were frequently told that their search query had returned no results, prompting them to refine their query (ultimately, all participants viewed the same set of articles—some just found them with fewer interface difficulties). After completing their search task, participants completed a short usability evaluation and were then asked to rate the credibility of the articles returned as a result of their search query. Significant differences were found between the two groups: participants who encountered null result sets were more likely to judge the articles as less credible and less authoritative ($F(1,90)=12.45$, $p<.01$).

We might assume that users browsing a poorly designed digital library may in turn perceive the materials they retrieve from this library as amateur, unscientific, and irrelevant to their search topic. Chesney [1] found that domain novices were more likely than domain experts to conclude that Wikipedia entries were not credible, implying that Wikipedia's design and reputation negatively impacted the perception of what was (according to experts) highly credible information. In a sense, this basic act of information triage by domain novices illuminates one of the methods by which we evaluate new or poorly understood information: by examining its distribution mechanism (and by judging the credibility of its source and presentation) [2,3]. Generally speaking, this research is an indication of how individuals are prone to confound messages and messengers, in this case allowing features of the messenger (the interface) to affect the reception of the message (the digital library content).

The purpose of this study was twofold. First, by further understanding the affective response to elements of digital library interfaces, we can design future digital libraries to be more in line with the emotional responses of users. Second, by demonstrating a perceived link between the digital library interface and the contents within the library, future efforts into digital library design and development will be more grounded by their actual effect on users; in other words, if the interfaces have a strong effect on productivity, and (even more importantly) on the interpretation and trustworthiness of the items in the collection, then it is further proof of the vast importance of appropriate and beneficial design for the end users of digital libraries.

JCDL'08, June 16–20, 2008, Pittsburgh, Pennsylvania, USA.
ACM 978-1-59593-998-2/08/06.

2. ACKNOWLEDGMENTS
This research was supported in part by a grant from the Institute of Museum and Library Services (IMLS).

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