Consumers' Evaluation of Online Health Information: A Mixed Method Study

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Introduction

- **72%** of web users in the U.S. and **71%** in Europe have looked online for health information (Pew Internet & American Life Project, 2013; Andreassen et al., 2007).
- **60%** of respondents reported that online information affected a treatment decision (Pew Internet & American Life Project, 2013); Information seeking is significantly associated with preventative behaviors, such as healthy eating (McKinley & Wright, 2014).
- However, the quality of online health information varied greatly. A recent systematic review that reviewed 165 articles in which healthcare professionals evaluated the quality of consumer-oriented online health information found that 55.2% of the articles reported online information quality to be problematic, 37.0% of the articles reported varied quality, and only 7.8% found reasonable quality (Zhang, Sun, & Xie, 2015).

Research Questions and Hypotheses

- Do consumers indeed evaluate the quality of online health information?
- If so, how do they evaluate? Which quality indicators do they use?
- Do individual differences, such as age and eHealth literacy, have an impact on the evaluation?
  - *Hypothesis 1*. Older adults are:
    a) less likely to evaluate the quality of health information online, and
    b) if they do, they make use of fewer interface and content elements, than young adults.
  - *Hypothesis 2*. Those with high eHealth literacy are:
    a) more likely to evaluate the quality of health information online than those with low eHealth literacy, and
    b) able to make more effective use of interface and content elements in the evaluation.

Research Design

Data Collection

- Mixed-2x2 design (between-subjects); *2 independent* variables, at 2-levels each:
  - participant age (younger and older)
  - participant level of eHealth literacy (low and high; measured using eHEALS)
- 48 participants
- Each participant will be presented with 6 health information seeking scenarios and asked to review 3 relevant webpages for each scenario, one from government sites, one from commercial sites, and one social media sites. The task was set up in a way to prompt them to evaluate the quality of the information presented on the pages. A sample scenario is:

Imagine that one of your friends is struggling with whether to have her teenage son receive an influenza vaccine. So you conducted an online search, these three sources are among the sites that show up in your search results. Now you want to determine whether you want to share any or all of the sources to your friend.

- Participants' behavior of viewing of the pages will be video-recorded and at the same time, the eye movement will be tracked using eye-tracking device (Example shown in Figure 1). A play-back interview where participants can view their recorded eye movements will be conducted to elicit participants' verbal accounts of their quality evaluation behavior.
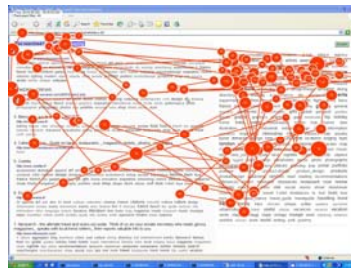

Fig. 1. *Example of participants' eye movements when viewing a page*

Data Analysis Framework: Layered Model of Information Evaluation

- **Usability level** → page elements
  - do people see the elements that they should consider in evaluating information
    - evidence: eye fixations on page elements + interview

- **Readability level** → text/images inside page elements
  - do people read and understand different elements that affect information evaluation
    - evidence: eye movement patterns within elements + interview

- **Cognitive level** → relations between elements
  - do people know how to relate and make sense of page elements in evaluating information
    - evidence: eye movement patterns between elements + interview

Usability   Readability   Cognitive
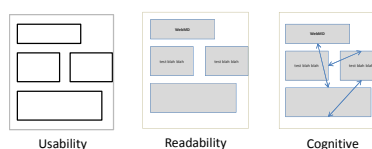
Expected Project Outcomes

- Learn if consumers actually evaluate quality of online health information
- If they do evaluate it, how they do it
- Learn about differences in online health information evaluation
  - between younger and older adults
  - between people low and high on eHealth literacy
- Inform design of online health sites to promote information evaluation
- Tailor training materials to users in different age groups and with different levels of eHealth literacy

Future Research

Designing tools and educational tutorials to improve consumers' ability to evaluate the quality of online health information.

Acknowledgements

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