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Designing effective health websites

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A model of consumer trust in online medical advice underpins new guidelines for creating credible, compelling Web resources.

Over the last few years, the number of people going online for health information has increased dramatically. Worldwide, about 4.5% of all Internet searches are based on health queries.[1] Yet much of the advice available on the Web is of dubious quality. Consumers are thus faced with confusing decisions about which websites to trust. Until very recently, evaluations of online health information reflected a medical perspective.[2] Most published studies assessed the quality of content in terms of medical accuracy, but said little or nothing about how real patients sought such information on the Internet. We know, however, that ordinary consumers evaluate Web content differently than experts do. For example, they pay much more attention to the visual design of the websites,[3] and they are also more likely to use general portals and search engines.[4] Such search strategies inevitably expose non-experts to poor-quality health information and advice.

We decided to conduct studies to help us model the ways ordinary consumers seek health advice online. We then used this information to generate a set of guidelines for designing effective health websites.[5–10] This work was conducted in three phases. In phase 1, three groups of users took part in 6-month longitudinal investigations studying how they selected and responded to Internet-based information and advice. The three groups were menopausal women concerned about the costs and benefits of hormone replacement therapy, people with hypertension interested in its causes and treatment, and a set of people with no specific health condition, all of whom wished to improve their general well-being.

The groups were invited to an Internet café for 2h a week, over a period of 4 weeks, to search for health-relevant information and to discuss their findings with others. Their search processes were logged, and group discussions were video-taped. Participants also received diaries to log their subsequent information and advice-seeking behaviours over a 6-month period. We conducted individual interviews with the people at the end of the 4-week session, and again at the end of the study.

Figure 1. *We use eye-tracking equipment to capture interesting 'hotspots' on health websites.*

Our findings supported a staged model of trust in e-health, in which participants initially engaged in a rapid search through the material. They rejected a number of valid sites simply because they were unattractive, contained advertisements or because the content wasn't readily accessible (for instance, because they were taken to a general health portal). In the second stage, people were influenced by the credibility and perceived impartiality of the material, but were also highly influenced by text from like-minded others. Over the 6-month follow-up, participants used Internet information to prepare for visits with their general practitioners, gaining confidence as a result. They also recommended material to friends and relatives.

In phase 2 we developed a questionnaire to better capture what influences trust in e-health material. The questionnaire was completed online by almost 2000 health consumers. They were asked to think about a website they had visited and answer questions about it, including whether they felt they could trust the information they found there and whether they acted on the advice they were given online. The results from this study showed that four factors primarily influence trust in e-health sites: ease

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of access to the information, personalisation and social identity, credibility through impartiality and credibility through design.

In phase 3, website features known to influence trust were manipulated to create trustworthy and untrustworthy versions of e-health sites on the risks associated with high alcohol consumption. They were shown to over 80 participants, including moderate-to-high drinkers. All of the participants were invited back a week later and asked questions about the original site and about attitudes and behaviour. For the at-risk alcohol users, the pages designed to be trustworthy had a greater influence on their attitude and reported drinking behaviour than those designed to be untrustworthy.

As a result of our findings, we have developed a number of guidelines that reflect the three different stages of evaluation people use for health websites. First, sites must create a good first impression with visual appeal and a likeable character (see Figure 1). The name, choice of language, and the presentation of facts such as risk information will affect the character of a website.

In the second stage, they must present credible content. One way to achieve this is to avoid surprising the viewer with overly commercial elements or advertising. When the motivations of the site were transparent, people were also far more willing to trust it. Finally, including markers of knowledge and expertise can increase a site's trustworthiness. These markers may be citations, references, cross-referencing or up-to-date information.

Finally, the website should build a longer-term relationship by creating a personalised, tailored experience. Most of the participants preferred personalised sites which offered interactive forms, discussion boards or the ability to ask an expert. Another way to build loyalty is to include markers of social identity. Participants were looking for sites that were written by people like themselves, who shared similar interests and experiences.

These guidelines reflect the daunting task facing health consumers. Ordinary individuals may begin their health queries with a general search engine that can return hundreds of relevant sites, and we found that many of them—some with useful content—were rejected immediately. Those with an appealing visual design and good, credible and personalised information attracted consumer attention and generated changes in health behavior. Future work will explore the development of online health communities to understand how patient versus professionally sourced material affects health and well-being decisions.

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References

1. J. Morahan-Martin, *How Internet users find, evaluate and use online health information: a cross-cultural review*, **CyberPsychol. Behav. 7** (5), pp. 497–510, 2004.
2. G. Eysenbach, J. Powell, O. Kuss, and E.-R. Sa, *Empirical studies assessing the quality of health information for consumers on the World Wide Web, a systematic review*, **J. Am. Med. Assoc. 287** (20), pp. 2691–2700, 2002.
3. J. Standford, E. Tauber, B. Fogg, and L. Marable, *Experts vs. online consumers: a comparative credibility study of health and finance web sites*, **Consum. Web Watch Res. Rep.**, 2002. http://www.consumerwebwatch.org Accessed 17 September 2008.
4. P. Briggs, B. Burford, A. De Angeli, and P. Lynch, *Trust in online advice*, **Soc. Sci. Comput. Rev. 20** (3), pp. 321–332, 2002.
5. E. Sillence, P. Briggs, P. Harris, and L. Fishwick, *A framework for understanding trust factors in web based health advice*, **Int'l J. Hum. Comput. Studies 64** (8), pp. 697–713, 2006.
6. E. Sillence, P. Briggs, P. Harris, and L. Fishwick, *Going online for health advice: changes in usage and trust practices over the last five years*, **Interact. Comput. 19** (3), pp. 397–403, 2007.
7. E. Sillence, P. Briggs, P. Harris, and L. Fishwick, *Health websites that people can trust: the case of hypertension*, **Interact. Comput. 19** (1), pp. 32–42, 2007.
8. E. Sillence, P. Briggs, L. Fishwick, and P. Harris, *Timeline analysis: a tool for understanding the selection and rejection of health websites*, A. Dearden and L. Watts (eds.), **Design for Life: Proc. Br. HCI Conf. 2**, pp. 113–116, 2004.
9. E. Sillence, P. Briggs, L. Fishwick, and P. Harris, *Trust and mistrust of online health sites*, **Proc. CHI'2004**, pp. 663–670, 2004.
10. E. Sillence, P. Briggs, P. Harris, and L. Fishwick, *How do patients evaluate and make use of online health information?*, **Soc. Sci. Med. 64** (9), pp. 1853–1862, 2007.