E-Commerce and Health Care Web Site Quality: Comparing and Contrasting End-User Perspectives

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ABSTRACT

In this study, we explore and compare the importance of various quality dimensions for health care and e-commerce web sites and to identify drivers (e.g. features) of health care web sites that managers can use as levers to improve their web sites. The results show that the importance of various quality drivers for all except two of ten quality dimensions studied differ between health care and e-commerce web sites and that in general, the call for quality among the dimensions studies is higher in health care web sites. On-going work will identify feature and operational drivers associated with customer ratings of e-commerce and health care site quality ratings and illuminate difference in identified drivers between each type of web site.

INTRODUCTION

Eysenbach and Kohler (2003) estimated that approximately 4.5% of all search queries submitted to Web search engines are health-related, which is equivalent to a global minimum of 6.75 million health-related searches on the Web every day. With medical professionals referring patients to health care web sites and health organizations initiating the development and management of these sites, some understanding of consumer perceptions of how consumers evaluate the overall quality of such sites is relevant and necessary. Web site designers are traditionally grown from technology fields, such as information systems and are often seasoned in e-commerce environments. Such developers may miss potential nuances in consumer quality perceptions in transporting their skills to new contexts.

Health care site sponsors and developers are increasingly challenged to ensure high quality and good design in their electronic services with tangible guidelines and processes. Research does not seem to provide needed guidance. Piccoli, et al. (Piccoli, et al., 2004 p. 423) lamented the "dearth of research-based insights and guidelines concerning the roles, functionalities, and effective design of Web sites". Zeithaml, Parasuraman, and Malhotra (2002) suggested future research in e-service quality should focus on "… investigat[ing] questions about the importance of different dimensions and perceptual attributes to overall electronic service quality and its consequences" and "… understand[ing] which dimensions are most responsible for driving electronic service quality". Though many researchers have studied how perceptions of individual quality dimensions (e.g., ease of navigation) relate to perceptions of higher order evaluations of overall web site quality (e.g., customer satisfaction), few have studied which features of a web site drive these common quality dimensions (see Figure 1).

Wolfinbarger and Gilly (2003 p. 21) recognize the need to consider site context when they state, "future research should investigate how characteristics of various product categories may affect the importance of the four factors [in their eTail Quality measure] in predicting quality." Research in marketing and information systems (IS) literature on web site quality (e.g. WebQual) does address consumer preferences, but has not typically included application to health care web sites. Existing studies of web site design and quality in the medical literature do focus on health care web sites, but rarely use end-consumers to investigate health care web site quality and often rely on the perceptions of seasoned medical professionals. In summary, current literature does not seem to provide insight on the perceptions of consumers in specifying health care web site quality and attempts to reconcile, bridge, and extend the two literatures is needed.

Figure 1. Web site quality hierarchical model
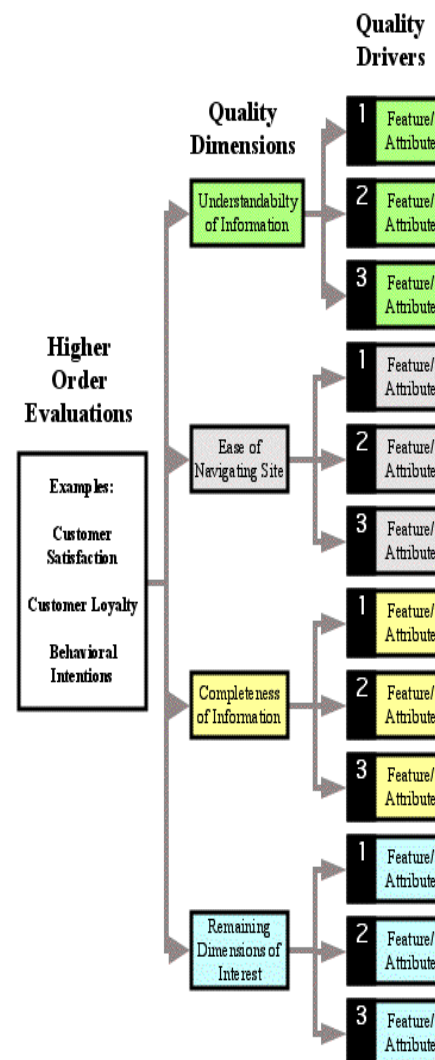
The overall goal of this study is to understand and improve the design and acceptance of health care web sites based upon consumer perceptions of quality. The study uses e-commerce web sites as a point of comparison. To address this goal, we attempt to (i) determine the priority of various quality dimensions of web site quality for e-commerce and health care web sites (ii) identify specific attributes (drivers) that affect e-service quality dimensions, thereby identifying potential levers for improving web site quality and (iii) examine significant differences between e-commerce and health care sites both in terms of quality dimension ratings and quality attributes identified for each quality dimension.

METHODOLOGY

This study employs quantitative and qualitative methods. Attributes of interest were determined through three group interviews (approximately ten students per interview) with upper division and graduate students in response to the question, "What quality dimensions a health care or e-commerce web site would lead to (visitor satisfaction/promoting desired behaviors by the site sponsors/ consumer site loyalty)." Interviewees were then asked to comment on potential attributes found in the literature that were not included in their responses. The final attribute list was a cross section of the attributes identified by all three groups (see Table 2).

A quality assessment exercise was developed with a focus on the attributes identified. 116 upper division and graduate students in colleges of business, allied health, and public health at two universities completed the exercise. Participants rated the general importance of the ten quality attributes for health care and e-commerce web sites on a low importance to high importance scale of 1 to 5 with 5 anchored as, *"This characteristic is very important to my assessment of this type of web site"*. Participants then visited two web sites of each genre and rated the respective web sites according to the ten importance dimensions to provide a focus on context. After rating a quality dimension, participants answered the question, "What would cause you to rate an *e-commerce/health care* site with a high score of 5 for *name of quality dimension* (may be either something present or missing from the site)?

The research team used basic statistics (e.g., means and standard deviations to compare importance ratings of quality dimension) for each type of web site and ANOVA to compare ratings of importance criteria among the web site types. Qualitative open-ended coding procedures to identify drivers (e.g., specific features) that support the quality attributes under study for each type of web site through participant's open-ended commentary is underway. In addition, the team plans to use basic statistical procedures (i.e., means, percentages) to report responses within each group and overall responses evaluating each web site visited and for general insight.

RESULTS AND DISCUSSION

We first identify, compare, and contrast the importance of nine common quality dimensions consumers use to evaluate the quality of web sites applied to both health care and e-commerce sites. An assessment of consumer rankings of these attributes for each type of site is provided in Tables 1 and 2.

The most important dimensions noted for the health care web sites were content related, namely participants want complete, understandable, and relevant information with sufficient detail. On the e-commerce side, consumers seem to want complete and understandable information, but also look to ease of navigation and site reputation as key indicators of site quality. It is interesting that aesthetic aspects of the site (e.g., visual appeal) were among the lower scoring of our ten key attributes, though sensitivity to consumer feelings was more important for the health care site as demonstrated by the .80 statistically significant difference in mean scores.

The range of means across dimensions for health care web sites was generally higher than that of e-commerce web sites perhaps indicating that designers may have a greater call to quality for such sites. Ease of navigating the site and visual appeal of the site showed no significant differences between the genres. However, the mean importance scores for the health care sites were statistically higher than the e-commerce site for all other quality dimensions.

Qualitative analysis is in process. Early results indicate unique aspects of feature drivers for each type of site. For example, for completeness of information, links (to product information, other parts of the site, other items in the general category of goods) was frequently mentioned as a driver for e-commerce sites. In contrast, links were not mentioned as a quality attribute for completeness of information for health care sites. Instead, participants indicated they look for comprehensive, topical article that included information from many sources. Completeness was defined by one participant as, "all a person should know without going to a doctor" which may include the following content mentioned by participants: symptoms, procedures, diagnosis, prevention and treatment content.

In looking at the sensitivity to consumer feelings dimension, e-commerce site drivers included comments such as "geared to all levels of customers", whereas health care site comments indicated they should be "direct, simple to understand term, geared to nonprofessional visitor" and include message boards and live events. With respect to graphics, multiple comments for sensitivity in e-commerce sites indicated e-commerce designers should include pictures of "real members" of the target audience using products. Comments about health care site graphic content, with respect to sensitivity, indicated sites should show photos should represent a target audience, but also be "non-offensive, non-discriminating, non-personal, and non-judgmental." Our final results will further identify feature drivers associated with consumer ratings of e-commerce and health care site quality ratings.

Table 1. Importance ratings of e-commerce and health care quality dimensions in order of highest rating

E-Commerce	Mean	Std. Deviation	Health	Mean	Std. Deviation
Understandability of Information	4.57	±0.514	Completeness of Information	4.90	±0.295
Ease of navigating Site	4.50	±0.640	Understandability of Information	4.85	±0.380
Completeness of Information	4.37	±0.655	Relevancy of Information	4.59	±0.661
Site Reputation	4.04	±0.921	Level of Information Detail	4.51	±0.691
Relevancy of Information	4.03	±0.811	Reputation of Authority Sponsoring Site	4.35	±0.946
Reputation of Authority Sponsoring Site	3.87	±1.022	Ease of navigating Site	4.30	±0.700
Level of Information Detail	3.87	±0.770	Site Reputation	4.27	±0.744
Visual Appeal of Site	3.70	±0.944	Adequacy of References provided by Site	4.25	±0.771
Adequacy of References provided by Site	3.26	±1.085	Sensitivity to consumer feelings	3.97	±0.941
Sensitivity to consumer feelings	3.17	±1.084	Visual Appeal of Site	3.40	±1.019

Table 2. Comparison of importance ratings of e-commerce and health care quality dimensions

One-Way Anova Comparing Importance Ratings Between Health Care and E-commerce Sites	
Quality of Attributes	**Sig**
Completeness of Information	**0.000
Sensitivity to consumer feelings	**0.000
Adequacy of Reference provided by Site	**0.000
Relevancy of Information	**0.000
Understandability of Information	**0.000
Level of Information Detail	**0.000
Reputation of Authority Sponsoring Site	**0.000
Site Reputation	*0.046
Ease of Navigating Site	0.022
Visual Appeal of Site	0.024
***Significant at p<.01 *Significant at p<.05*	

CONCLUSION

The overall goal of this study is to understand and improve the design and acceptance of health care web sites based upon consumer perceptions of quality.

We provide guidance for the development and assessment of quality e-commerce and health care web sites by highlighting differences in the importance of key quality dimensions for each type of site showing. In fact, results show that there are statistically significant differences in mean score ratings of the importance of eight of the ten quality dimensions studied, with health care web sites having a higher call to quality for all dimensions except site reputation. In addition, on-going analysis of qualitative data indicates difference in the feature set (i.e., attribute) leading to these quality drivers.

Contributions from this study will help decision-makers design and evaluate health care (and e-commerce) web sites with a better understanding of the ultimate consumer and context. On-going work to expand this study will identify features (attributes) that drive each of these dimensions of interest in both health care and e-commerce contexts that can be used as levers to improve web site quality in both contexts to complete the theoretical model.

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