

On the Definition and Evaluation of Web Sites Quality

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Abstract: Concepts of “quality” and “information” are clarified, a model and a method to evaluate the quality of a Web site are proposed.

Index terms: information science, quality management, Web page, Web site

1. Introduction

The World Wide Web (WWW) is a complex information technology network. It consists today of several hundred million Web pages and over a hundred million users. Each day users are searching the myriad of accessible Web sites to find the most convenient, relevant and up to date information they need. On the Web, users search for information by navigating from page to page along Web links. But the content of pages accessed by these links is not always meeting user’s requirements. More often, it is presented to the user only in snippets of text or graphics.

2. Model of relationship between information provider and information user

Figure 1 provides a model on which a concept of the quality of a Web site can be obtained. Basically, the owner of the information (called “*information provider*”) provides information *products/ services* to the “*information user/ customer*”.

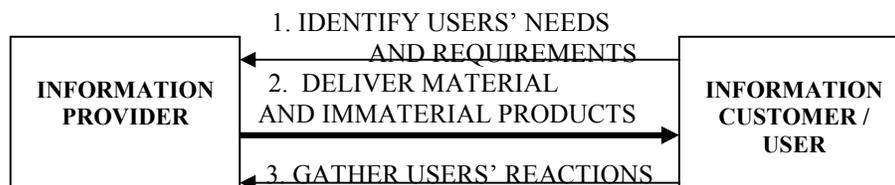


Fig.1 – The Provider – Customer / User Relationship

(Numbers 1, 2 and 3 represent the sequence of actions to be achieved in order **to obtain and improve continuously the quality** of both material and immaterial components of an information product)

The information product has two basic components: a *material* product (the electrical signals) and an *immaterial* product (implicit data and information). Both have to be regarded as relevant to the needs and requirements of the user [5].

The content of all that is offered or structured on a Web page is a combination of text and graphics. It contains both physical characteristics and ephemeral or implicit qualities that are presumably correlated to the needs and requirements of the individual.

The physical renditions can be considered to represent the physical requirements related to the user's task while the implicit qualities refer to the needs, or cognitive-affective properties of the task [4].

As part of the effort to determine how educational objectives could be measured, Bloom [1] and his colleagues established five *cognitive functions* as criteria for measuring teaching effectiveness. Bloom taxonomy of cognitive functions is represented as a hierarchical structure that includes several cognitive dimensions, i.e. **knowledge, comprehension, application, analysis, synthesis** and **evaluation** as *indicators* for which teaching accomplishment can be measured. Debons, visualizing an information system, as an educational system, theorizes that *these cognitive functions can be considered as representing human needs for information (awareness) and knowledge (meaning) and on which the quality of information system design can be measured.*

Evaluation is considered the most sophisticated of thinking skills. Studies in cognitive psychology, meta-cognition and critical thinking have established the possibility that the evaluative process may be influenced by several *factors* (listed as below in the order of importance) [2]. Each of these may directly influence and impact on the evaluative process:

1. *Prior Knowledge* (strongest influence)
2. *Format preferences* (i.e. scholarly books and journal articles hold importance to researchers in contrast to popular press books, magazines and web resources)
3. *Epistemology* (nature and origins of knowledge)
4. *Affect* (most common in the evaluative process)
5. *Beliefs*

3. The Quality of Information

Both notions of “information” and “quality” have become broader and broader over the years. “Information” - as a concept employed by various disciplines - has been a blend of ambiguous, polyvalent, unclear expressions despite its considerable heuristics value [3]. The term “information” is used in different context, i.e. “information” as energy, as communications, as facts, as data, as knowledge, etc. Information is considered as a commodity (i.e. text, sound, images) possessing economic value, i.e. it can be sold, purchased and exchanged, whether as product or service.

But, we have to be aware that “if an individual or organization has sole possession of a particular body of information, that information may enable whoever holds it to achieve objectives. *Information can thus provide control over objects and persons*”[4].

4. Characteristics of the Web Page

Web page provide a wide range of products ranging from marketing of products, services, texts, sound and/or images of mass-media productions, including electronic documents, journals, newspaper articles, etc. They may include also: personal Web

pages, e-mail messages, news-groups postings, etc. Basically, the Web page has three main components, namely, *the header, the body and the footer*. These three dimensions can be used to test the quality of the Web page by addressing the following questions:

- author identity
- origins and page review
- domain of URL
- organizational representation
- links to local home page and other provided links
- intended audience of the site/page
- purpose of information

These dimensions were given to my students in order to determine their utility in establishing the quality of a Web site in meeting their needs and requirements.

Table 1 presents the basic evaluation criteria and user's questions which were established for this exploratory study.

The students reported that **a Web site had to be instantaneously and simultaneously responsive, interactive, credible, current, objective, accurate, inclusive and comprehensive.**

Although it may not be possible to achieve this standard, it is possible to apply prevailing concepts in *Total Quality Management (TQM)*. These concepts include [5]:

1. Quality is the totality of characteristics of a product that bear on its ability *to satisfy stated and implied needs and requirements*
2. Quality is defined by the customer / user, through his / her *satisfaction*
3. Quality concerns the product to the degree that it *complies* with the specifications, to the adequacy of its usage, as well as to the number of its attributes aiming for excellence at a competitive price
4. Total Quality Management is a new strategic philosophy of company management, based on company-wide approach of quality management concepts and tools, on commitment of the managers and employees towards continuous improvement. This commitment has as **ultimate objective the customers'/users' satisfaction**, in all the phases of a product's life cycle and in all sectors of the company
5. Quality is related to a collection of *powerful concepts, tools, methods and techniques*. They are all applicable in every aspect of the business, as a very productive and profitable approach to business

Developers, designers and masters of Web sites may be interested to know how to meet users' requirements in order *to sell better their information products and services*.

Web Sites Evaluation Criteria and User's Questions

Table 1

EVALUATION CRITERIA	QUESTIONS TO BE ANSWERED BY USER
1. ACCURACY (<i>extent/ degree of information exactness and correctness</i>)	<ul style="list-style-type: none"> -Does the author mention his information sources? -Is it possible for you to check if these sources are legitimate? -Is the author's background related to the covered topics? -Did the author indicate clearly the research method and how he collected and processed data (<i>only for research-based data</i>)?
2. AUTHORITY (<i>extent/ degree to which the author could be considered an expert in his field</i>).	<ul style="list-style-type: none"> -Is the author known? -What do you know about the author (as for example: his background, position, affiliation, publications, etc)? -Is it possible, for you, to determine the author's expertise and credibility?
3. COVERAGE (<i>extent/ degree to which topics was observed, analyzed and reported</i>)	<ul style="list-style-type: none"> -Are all site's topics explored in depth? -Are all site's links relevant, appropriate, comprehensive and operational? -How relevant and comprehensive is, for you, the site's information?
4. CURRENTNESS (<i>extent/ degree to which the distributed information is belonging to the time now in progress</i>)	<ul style="list-style-type: none"> -When was created and reviewed (last time) the site? -Is the copyright date displayed? -Are all mentioned resources available? -Are all of site's links relating to correct INTERNET addresses?
5. DENSITY (<i>extent/ degree to which comprehensive and relevant information is displayed on each site's page</i>)	<ul style="list-style-type: none"> -Is text or graphic content predominant on each page? -Is enough comprehensive, for you, text/graphic information displayed on each page? -Is enough useful, for you, the displayed text/graphic? -How much advertising information is included on site's pages?
6. INTERACTIVITY (<i>extent/ degree to which is operating the bi-directional communication between user and author</i>)	<ul style="list-style-type: none"> -Is it possible, for you, to find at least one e-mail link to Web site author or to the webmaster? -Is this link active? -Is this link quickly operational? -Did you receive an answer to the message you sent to author/webmaster?
7. OBJECTIVITY (<i>extent/ degree of site's author objectivity versus his subjectivity</i>)	<ul style="list-style-type: none"> -What is the real goal of the site? -What is the real purpose of the site's author? -Are you enough confident in author's objectivity?
8. PROMPTNESS (<i>time delay needed for site finding and its pages displaying</i>)	<ul style="list-style-type: none"> -Was the site URL found enough quickly? -Is it possible to change immediately displayed pages? -Is it possible, for you, to contact, within a reasonable delay, all provided links?

Conclusion

The aim is to develop measures that provide an estimation of the quality and value of current Web sites. Web sites offer an extension of and augment library services. The Web can provide a good source of quick overview of a subject field while the library provides the user a more in-depth analysis. Web sites encourage the use of abstracts rewarding the user to explore hidden depths of the data, information and knowledge that it is sought. This exploratory pursuit of this issue can be used to develop programs directed to determine the full power of Web sites in meeting the needs and requirements of their users.

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