

Association for Information Systems  
**AIS Electronic Library (AISeL)**

---

MCIS 2010 Proceedings

Mediterranean Conference on Information Systems  
(MCIS)

---

9-2010

# HOW DO WEBMASTERS EXPLAIN WEBSITE QUALITY?

Hanne Sørum

*The Norwegian School of Information Technology, Norway, hansor@nith.no*

Torkil Clemmensen

*Copenhagen Business School, Denmark, tc.digi@cbs.dk*

Follow this and additional works at: <http://aisel.aisnet.org/mcis2010>

---

## Recommended Citation

Sørum, Hanne and Clemmensen, Torkil, "HOW DO WEBMASTERS EXPLAIN WEBSITE QUALITY?" (2010). *MCIS 2010 Proceedings*. 83.

<http://aisel.aisnet.org/mcis2010/83>

This material is brought to you by the Mediterranean Conference on Information Systems (MCIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in MCIS 2010 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact [elibrary@aisnet.org](mailto:elibrary@aisnet.org).

# HOW DO WEBMASTERS EXPLAIN WEBSITE QUALITY?

Hanne Sørum, The Norwegian School of Information Technology, Norway, hansor@nith.no;  
Torkil Clemmensen, Department of Informatics, Copenhagen Business School, Denmark,  
tc.inf@cbs.dk

*Abstract: This paper investigates how webmasters in first prize winning companies of web awards explain website quality. In order to gain insights into website quality descriptions, we held qualitative interviews with webmasters in eight Norwegian companies. The outcome is grounded theory models of how webmasters representing four ideal types of websites explain website quality. By using the left side of the DeLone and McLean IS Success Model which captures information quality, system quality and service quality, this paper discusses the webmasters' explanations of website quality. The aim is to shed light on the diversity of explanations that webmasters may have, and to explore the potential of the webmaster perspective on website quality. The results show that webmasters explain website quality differently, depending on the type of website, with user friendliness being a repeated key word. Information quality is assessed at different levels, as are the types of services provided for users. Although webmasters seems to have users' interests in mind, user-satisfaction requirements appear to be absent from a webmaster's perspective. The paper concludes that there is not a clearly expressed relation between the degree of investments in user driven activities in order to improve website quality and winning a national website award. A discussion of the use of quality criteria and evaluation methods for website quality is given. The paper ends with implications for practitioners and academia.*

*Keywords: DeLone and McLean IS Success Model, Website Quality, Information Quality, System Quality, Service Quality, Webmaster.*

## 1 INTRODUCTION

A website today is an important channel for communication and marketing purposes, and a webmaster needs to guarantee good interaction between the users and the organization's website. This paper describes how webmasters explain website quality and what they consider to be important quality aspects. Our paper adds categories and interpretations of categories to the existing models of website quality. We are consistently focused on giving voice to webmaster's explanations, and on listening to what they mean by website quality; we do that by insisting on a detailed qualitative analysis of webmasters' explanation of website quality as they emerge in open-ended interviews. Website quality aspects are widely discussed in the research literature, and many studies assessing website quality provide empirical evidence that both website users and designers consider website quality a multi-dimensional construct (Kim & Stoel, 2004). An effective design for users and knowledge of other factors that contribute to a high quality website are thus of critical importance. Lee and Kozar (2006) point out that in previous information system (IS) development literature, the perceptual gap between users and designers has been recognized as being the most critical reason for poor IS development and project failures. However, while usability and, to some extent, user experience of websites, are well defined and studied, e.g. Bai, Law, & Wen (2008), there are surprisingly few studies on how actual webmasters perceive, experience, and explain website quality. However, for a related study of webmasters' perceptions of accessibility issues, see Lazar, Dudley-Sponaugle, & Greenidge (2004).

There are many stakeholders in website quality. In this paper, we look only at webmasters' explanations, and not at those of users/consumers, managers, or shareholders. In relation to investments and improvements of a company's website quality, traditional webmasters play an important and central role. They are in charge of design issues and technical features, and hold the main responsibility for having the website's service quality meet the users' interests, needs and requirements. While other people in the organization may also have an opinion of the website quality, the webmasters have the most accountability for, and the most knowledge of, the company website. They have the daily responsibility for updates and maintenance, and therefore it is of particular interest

to listen to their thoughts and suggestions. There is a gap between the webmasters and the users' perspectives of website quality. We need to re-think how to close the gap between user expectations and the quality of websites available. Accordingly, we address the following research question: *What is a webmaster's explanation of website quality?*

## **2 PRIOR RESEARCH IN WEBSITE QUALITY**

Website quality is a complex concept that has multiple dimensions. The term quality is widely used and the meaning of it is related to the context of use. Usability of the web is one aspect of the quality dimension. The international standard ISO 9241-11 defines usability as: "The extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use" (9241-11, 1998). This definition indicates broad characteristics of a usable website, but is not detailed enough to evaluate whether a website is usable or not. Different models and theoretical frameworks have been developed for the evaluation of websites. DeLone and McLean (2004), in their IS Success Model, divided website quality into three aspects: information quality, system quality and service quality. Each of these aspects contained a number of underlying dimensions. Barnes and Vidgen (2005) developed the eQual approach, a framework which was originally developed as an instrument for assessing user perceptions of the quality of e-commerce websites. The eQual instrument is divided into five main categories: site design, information, trust, empathy and usability. van Iwaarden et al. (2004) identified the quality aspects perceived to be most important in the design and use of websites. Their questionnaire was based on preliminary research by Cox and Dale (2002) who developed a model for assessing the quality of websites. Ethier et al. (2006) then proposed that research on the concept of website quality can be broadly classified into four complementary categories: 1) website functionalities, 2) information quality, system quality, service quality and attractiveness, 3) service quality of the overall quality, and 4) customers' perceptions of quality. Aladwani et al. (2002) examined website quality from a user perspective, and proposed three dimensions of website quality: technical adequacy, web content, and web appearance. Ahn et al. (2007) explored measurement of website quality from a technology and service-focused viewpoint, and found that website quality, divided into system, information and service quality, had a significant impact on perceived ease of use, playfulness, usefulness and consequent promotion of website use in online retailing. Negash et al. (2003) reported the results of a study of quality and effectiveness in Web-based customer support systems that indicated that information and system quality determine effectiveness, while service quality has no impact. Bai et al. (2008) divided measurable aspects of websites into two main categories, functionality and usability, which were further operationalized into sub-dimensions. Tan (2009) investigated what designers consider to be attributes of effective Business to Customer websites, reporting factors that web designers consider in their design but which have received little or no attention in the research literature. Loiacono (2002) studied website quality measurement with 12 core dimensions, where instrument development was based on an extensive literature review and interviews with web designers and visitors. Summing up prior research, we found that the format of analytical papers discussing how websites, from a theoretical point of view, are useful for the organization is the most common way to assess website quality in the research literature. There are some empirical papers that define website quality based on testing systems with consumers or users, or the researchers allow the users to state their opinion in interviews or questionnaires. The few studies that have examined the web designer's perspective on website quality suggest that webmasters may harbor idiosyncratic explanations of website quality that may have significance for government and commercial websites.

## **3 METHODOLOGY**

This paper explores how webmasters in eight first prize winning companies explain quality aspects from their subjective point of view. Our rationale for picking first prize winners in national web awards as our cases is that these websites have been through expert evaluations and should be on a comparable level of quality. With our goal of shedding light on the diversity of explanations that webmasters may have, we first picked four different websites, including both industry and public

websites. We then analyzed the national web award jury's assessments of these four websites and found key criteria for the jury's awards. We named the four cases: (1) The Inviting Website (criteria: The graphical expression is elegant, Great texts, Joyfulness to search), (2) The Intuitive Website (criteria: Numerous daily transactions, Abridge the distance between stakeholders, User-created content), (3) The Easy to Use Website (criteria: Extremely user friendly, Easy to find the information, Users feels they know everything), and (4) The Simple Website (criteria: Target group entrances, Contents overview, Keywords in the contents structure). We then used these criteria to pick four more websites, one in each of the four categories, and ended up with two interviews for each of the four categories of websites. This was enough to explore the webmasters' explanations of website quality, in the sense that the second interviewee in each category did not say anything that was really different or surprising from what the first interviewee in the category had said. The identification of whom to interview, i.e., the webmaster in the company, was based on our intimate knowledge of the industry. We picked our informants from a list of winners from various awards in Norway from 2001-2009. None of the webmasters were familiar to the researchers before the interviews took place, and they all thought of themselves as 'webmaster' or 'webdesigner'. Webmasters in Norway typically have as their main responsibility the task of designing the content of the website (Furu, 2006).

Regarding data collection and initial analysis, we carried out eight qualitative interviews with webmasters in companies winning the first prize in national web awards. We chose to use open-ended interviews because we wanted, as much as possible, to establish a situation or a conversational setting in which the webmasters could explain how, from a practitioner's perspective, webmasters would identify website quality aspects. Thus, we did not restrict the webmaster's explanations of website quality by using a set of pre-defined categories, but took care that it was possible for the webmasters to be open-minded and give meaningful explanations. To meet this objective, we briefed the interviewees thoroughly before the interview regarding the intention, background and purpose of the interview. Confidentiality was seen as important by all the participants, and the researcher guaranteed the anonymity during the interview. In general, the interviewees were allowed to talk as long as needed during the interviews, and we used our predefined questionnaire guide as a guide only and not as a questionnaire. We tried to establish a comfortable interview setting and trust in sharing information and knowledge with the interviewees. In greater detail, at the beginning of the interview the webmasters were asked to briefly describe their company website in their own words. The interview questions then related to the company's website presentation, website quality in general and users' interests. In the investigation we defined the eight sub questions and used the interview guide containing 15 open-ended questions. The interviews took place in the eight participants' own business environment (office location or meeting room). Concerning the validity of the research, specific questions were asked in order to cross check the webmaster's statements, as well as to give the webmasters an opportunity to elaborate on their answers. The participants were willing to share their thoughts and knowledge, and answered the questions in detail. A computer was used to show examples (from the company's website) during two of the interviews. The eight interviews were done in Norwegian, recorded, and notes were taken. The transcription into English was done by the first author immediately after the interview. To ascertain the reliability regarding the conversation during the interview, each participant had an opportunity to read through the interview after the transcription was completed. Three of the webmasters had no comments on the transcribed text from the interview. One webmaster had a few comments and wanted to add some information. The comments from the participants were included in the text that was used in the analysis.

For the further analysis of data, we argued that since a) it is the webmaster who has the main responsibility for the company's website, and b) award-winning websites can be quite different and we distinguished between the four types of the jury's evaluations, then we had to analyse the webmasters' explanation of website quality for each type of website, as well as across all four types. Following the procedures of grounded theory, three sub-steps in the analysis were performed as "open," "axial" and "selective" coding (Strauss & Corbin, 1998). The first sub-step in the post-session analysis actually began during the session, consisting of identification and naming of concepts of interest to the investigation in the interviews (open coding). Concepts of interest were found by listening and looking for related utterances that seemed to concern the same concept. Each interview was segmented in meaningful units of text by re-reading the interviews, and then the segments were coded into

categories that were again refined during the analysis. The text segments were mostly on the paragraph level, for which the total number of segments for the eight interviews was 641. For this analysis, we focused on the webmasters' explanations of website quality. These were coded in 15 categories (approximately corresponding to the interview themes from the interview guide) and grounded in 59 text segments. The next sub-step was categorization of related phenomena (axial coding). At this stage we began to look for relations between categories and consequences thereof. We decided which categories were centrally important to the webmasters' explanations of website quality. The final sub-step in our analysis was to look for a common theme for all of the categories, to find a core category (selective coding) and its relations to other categories, and do refinement and development of these. The main category in our analysis was "explanations of website quality."

The way that we used transcript excerpts and presented the analysis was governed by rules of authenticity (display data in their original form to force the reader to diagnose on the basis of the original situation), inclusion (displays should never show just examples, but the data set itself) and transparency (displays should be explained, axes and dimensions clear to the reader, and data sorting should be intuitive and easy to understand) (Dahler-Larsen, 2002). Each quotation was referenced to the webmaster we cited. We quality checked our categorization of data by having the first and second author do the iterative data coding and analysis together. The first author did the first round of coding, and then the second author checked the codings, and did the first round of model building. The first author then checked and further developed the model building, after which both authors discussed in detail the coding and models built. Throughout the process, both authors had full access to all data. We used qualitative data analysis software (Nvivo8), and shared the project files. The aim was not to reach a certain degree of interrater reliability, but consensus making. All data categorizations were discussed between the two researchers. The mechanisms through which we sought disconfirmatory evidence or alternative explanations for the results were, in particular, by interviewing a second webmaster from the same website category, and look for conflicting explanations within and across website categories.

## 4 FINDINGS

We return now to our research question: What is a webmaster's explanation of website quality? The overall picture from our interviews about how webmasters explain website quality in each of the four ideal types of websites is that there are 15 different explanations or aspects of explanations of website quality, Table 1. We now describe the explanations found in each of the four website categories. We refer to the website categories and interviewed webmasters with acronyms and numbers, see table 1.

	Main categories of concepts found in explanations	The Simple Website category (SW): <i>webmaster no 1 and 2</i>	The Easy to use Website category (EUW): <i>webmaster no 3 and 4</i>	The Intuitive Website category (IW): <i>webmaster no 5 and 6</i>	The Inviting Website category (InvW): <i>webmaster no 7 and 8</i>	No of website quality categories explained by the concept in the row
1	Accessibility (WAI standard)	+	+	+	+	4
2	Content	-	+	+	+	3
3	Deliberate	-	+	-	-	1
4	Dependability	+	+	-	+	3
5	Effective use	+	+	+	+	4
6	Fast mail response	-	+	-	-	1
7	Faster response for the users	-	+	-	-	1
8	Interactivity	+	+	-	+	3
9	Personalization	-	+	-	+	2
10	Search functions	-	-	-	+	1
11	Service quality	-	+	-	+	2
12	Speed	+	-	-	+	2
13	Updated	-	+	+	-	2
14	Uptime	+	-	-	-	1
15	User-friendly	+	+	+	+	4

Table 1. The concepts found in webmasters' explanations of four types of website quality.

#### 4.1 Website quality in The Simple Website (the SW)

The explanation for quality in the SW encompasses three explanations for website quality also found in three other website categories: accessibility, effective use and user-friendliness. The webmasters in the SW design category find accessibility to be a formal part of website quality: *“We use the quality criteria developed by the government (the Norwegian government has developed quality criteria for all public websites) as guidelines in order to present a high quality website”* (Webmaster no 1 (Webmasters no 1-8 hereafter W1, W2 etc.)). In these guidelines, accessibility is highly important, together with user-adoption and content. One of the webmasters refers to a redesign process where a new design was launched: *“During the redesign process we missed one thing! The color we use is not suitable for people that are color-blind, but I thought that was tested. However, it was not done well enough, and we missed something important”* (W1). This statement shows that formal criteria for accessibility are important; however, formal criteria are not the only criteria. One of the webmasters notes that: *“To a large extent we have arranged for a website it is easy to use for most people. For instance by following the WAI principles<sup>1</sup> (Web Accessibility Initiative) related to accessibility”*, and goes on to explain *“We do not use lots of fancy effects (even if it could have been a bite more), like pictures and animations”* (W2). The webmasters of the SW explain accessibility as a matter of simplicity, and argue that if a website is simple in design, it will be accessible to more people.

The effective use that is important for all four website categories is that: *“...it has to be as easy as possible for the users to find the services on the website...”* (W2). This aspect of effective use is shared with The Easy to Use Website (the EUW). A user-friendly website is seen as an important website quality by all the eight webmasters interviewed in this study. The SW category indicates two unique features of user-friendliness. A unique meaning of user-friendliness for the SW category is that users should be able to find the services they need: *“... the services that are most relevant for the users shall be easy to find...”* And *“...that it is findable, that is a criteria [for good usability]”* (W2). A second unique meaning of user-friendliness for the SW category is that content should be organized in a way that clearly separates the different parts from one another. A webmaster from the SW category explains this view of website quality: *“The content shall be organized in a way that the users can separate the different services from each other...”* (W2). Usability for the SW is closely related to content being “easy to find” and well “organized” so that users can manage to discover and retrieve relevant information and services.

The explanation of website quality as having to do with (access) speed is something that the webmasters of the SW category share with one of the other website categories (The Inviting Website (the InvW) category). As one of the webmasters indicates: *“For instance, if there is a delay at the website, this is something that annoys the users...either there is too much data to download or use of wrong software.”* The webmasters of the simple and intuitive websites focus on not requiring the user to download too much data, or to be exposed to website software of the ‘wrong’ kind.

Website quality for the SW has to do with dependability. One of the webmasters from the SW category explains dependability as: *“It is important that the users find correct and believable data/information.”* (W1). This kind of dependability, but simply as “dependable data,” is unique for the SW category. Interactivity is explained by the webmaster as: *“More use of the technological opportunities in order to present information, movies and animations that could be of interest for the users”* (W2). This feature of the explanation is shared with other website categories (EUW and InvW).

A unique category explaining website quality in the SW category is uptime which one of the webmasters explains as: *“...internal in the organizational we have some standards to follow, for instance uptime”* (W1). Uptime is not related to access speed which is also seen as an important quality aspect, but rather to the website’s availability for the users. Server problems are given as an example for when a website fails in uptime.

---

<sup>1</sup> <http://www.w3.org/WAI/>

## 4.2 Website quality in The Easy to Use Website (the EUW)

Similar to the SW category, the explanation for quality in the EUW encompasses three explanations for website quality that are also found in three other website categories: accessibility, effective use, and user-friendliness. The feature of effective use is shared with the SW, and discussed above. A feature of user-friendliness in the explanations of website quality, which the EUW category and the InvW category share, is that it should be lucid and easy to find things on the website. One of the webmasters in the website the category EUW explains: “*Lucid and easy to find the information you are looking for*” (W3), and the webmaster from the InvW category says “*...that it is lucid.*” Again, this explanation is grounded in the importance of arranging for user-satisfaction and efficiency use. Similarly, user-friendliness also has a unique meaning in the EUW category, meaning avoiding scrolling on the webpage, which is explained by one of the webmasters in this category: “*It is important for us that the users find our services easy to use and arrange for that the users avoid scrolling.*” (W4). This aspect may be related to the efficiency aspect of standard definitions of usability, which is discussed later.

In the EUW explanation of website quality, the meaning of updated is the same as in the explanations of website quality in The Intuitive Website (the IW) category, and means that the information presented on the website must be valid at the present time. Another webmaster from this category reveals: “*We present very much information and the information we present is updated. That is the most important thing for me as a webmaster. In addition, the information we present must be true, otherwise the users cannot trust us*” (W3). The webmaster seems to be very aboveboard in giving this statement. In addition, one of the webmasters from the IW category adds the importance of presenting updated information: “*The website should be updated all the time*” (W3). Updated here is not used in the everyday sense of a software patch, but the actual information presented (i.e., about the organization and the services presented).

Personalization of web content and the opportunity of presenting personalized information is a way of accommodating the user’s needs and their expectations: “*In order to improve the website I would use the potential of web 2.0 technologies and make the website more personalized. An example is the website presented by BBC, where the users adapt the content in order to meet personal criteria*” (W3). It is an explanation that the EUWs share with the InvW category. A webmaster gives an example related to concretization of product search, and the user’s opportunity to log-in with a unique username and password and, to some extent, personalize the website content, adding: “*It is more exciting to work with the website when it is personalized, and it shall be funny (to work with the website) – that is important!*” (W3). This illustrates a EUW webmaster’s view of personalization.

Interactivity as a quality aspect featuring the potential of using new technologies is an explanation the EUWs share with the SW category, and covers the use of technological opportunities in order to present interesting and useful information in new ways: “*Most website users expect more than a static website containing lots of information, it should be some interactivity which also appears as an added value.*” (W4). However, the webmaster is very satisfied with their own arrangement for interactivity, in addition to presenting electronic services the users expect to find.

Although the concept of dependability is presented in explanations of website quality from more than one website categories, the unique feature of the EUW explanation is that dependability means true, updated and trustworthy information. This is explained by one of the webmasters in this category as: “*The content must be true and all the time updated, and trustable*” (W3). The webmaster refers to other organizations that provide updated information, which also affects whether the users return to the website or not.

Service quality is a quality aspect in this website category, explained by the importance of presenting response at the website. One of the webmasters for the EUW explains fast response as part of service quality as: “*...I think it is important that people get an answer...*” (W4). Thus service is not only about speed in response, but in the sense that you get an answer when you ask a question. Content as a concept in the explanation of website quality is shared among the EUW, IW and InvW. The meaning of content as an explanation of website quality, which the EUW category shares with the InvW

category, is that the website uses pictures: *“In our new design we have some pictures reviving our website”* (W4), and *“and we have focus on delicate pictures at the front page, as we often change, and about once a week”* (W8). Finally, in the EUW category, a unique feature for content as an explanation of website quality is the use of easy language: *“The language must be simple and it should not appear too much text on the screen. We try to make the information as simple as possible, but the lawyers in the organization tell us that it cannot be so simple so it turns out to be wrong. Either it cannot be so simple that no one does understand...”* (W4). This citation explains how the content at the website can contribute, in order to make the website more reader-friendly and easy to use.

In addition, the analysis reveals three unique explanations for the EUW category: faster response for the users, deliberate and fast mail response. The first of these, faster response for the users, is explained by one of the webmasters as: *“Unless it is a difficult case, I believe it is important to respond on mails from the users within a day. That is very important for us, as well as it is surprisingly too many users that we respond so fast”* (W4). The webmasters refer to personal experience from other organizations that do not respond at all or are very late. The second unique explanation of website quality for the EUW category is fast response to users: *“...that the users find information on the web. And the most important thing is that they avoid long telephone cues, as it can be in hectically periods”* (W4). The third unique explanation for this category is “deliberate,” which states the importance of presenting content that the users are looking for and expecting to find at the website. The webmaster states: *“The responsible for the website must be aware of what the users are interested in”* and accordingly present content thereafter in order to satisfy them; or, in the worst case, the users will not return to the website (W3).

### **4.3 Website quality in The Intuitive Website (the IW)**

Similar to the SW and EUW categories, the explanation for quality in the IW encompasses three explanations for website quality that are also found in three other website categories: accessibility, effective use, and user-friendliness. Effective use is a concept used in explanation of website quality in all four website categories, but in the IW category it has a unique meaning as the “shortest way possible.” One of the webmasters in this website category explains: *“It should be as shortest way as possible from what you have in mind and to you actually find it”* (W5). Thus, the website needs to enable users to accomplish their goals and tasks without any additional steps to carry out. User-friendliness is also an explanation of website quality found in all website categories, but has two unique meanings in the explanations found in the IW category. First, user-friendliness means that the website appears to have a ‘logical structure.’ One of the webmasters in the IW category gives the following explanation of this feature: *“This can be explained by how easy it is for the users to find out what they want to do, as in our case is related to buy or sell...”* (W5). The other webmaster in this website category says: *“The structure of the website must be logic...”* (W6). Second, user-friendliness means in the Intuitive website that ‘the users shall find what they are looking for.’ One of the webmasters states in the interview: *“I think website quality means that the users easily find what they are looking for – whether it is through the main menu at the start page or an internal search engine at the website”* (W6). How the users find information seems not to be of particular importance, but what is important is the issue of finding information or not.

For the webmasters in the IW website, content is explained as: *“It is not enough to have a good structure and a clear idea of what to present, you also need to present quality of the content presented”* (W6). In addition, one of the webmasters from the InvW category claims: *“The information value is gone if the content fails to be updated.”* He states further: *“It is better to present a website it is a little bit hard to use with poor design – but have correct content, compared to a website with very nice design, with content the users cannot trust”* (W6). This citation tells us that the content is of first priority also among the webmasters in this website category, while design issues come second.

A unique feature regarding ‘updatedness’ is that the website is continually under development. One of the webmasters in the IW category explains being updated as: *“Today we do not present a website, and then wait three years in order to present a new one. It is a continually development process to*



*present an updated website*” (W6). This explanation is witness to the fact that there is a need to progress in order to present an attractive website and please the users.

#### **4.4 Website quality in The Inviting Website (the InvW)**

The explanation of quality in the the InvW category website encompasses three explanations for website quality that are also found in three other website categories: accessibility, effective use, and user-friendliness. However, for the the InvW, explanations of website quality as effective use have two unique features. First, the website should always make it possible for the user to make the right choice: *“We still have lots of work to complete and we can always improve the user experiences. However, for us is effective use related to presenting detailed information which makes it easier for the users to choose right. That is the point – helping the users to make a right decision”* (W7). Second, users should be able to find information fast as part of the effective use: *“...if it doesn’t work, I get impatient – and then I leave the website...”* (W7). Website development in this category is also seen as a continual process where there is always room for improvements. Moreover, one of the webmasters in the InvW category compares effective use with presenting content in order to help the users in decisions and tasks, as primary related to the type of services and information they present on the web.

Similarly, even though user-friendliness is a category of explanation that the InvW category shares with the three other website categories, it has unique meanings for this website category. First, the feature that the website should be lucid, it should be easy to find things: *“...there should be a good overview [on the website]”* (W7) is shared with the EUW category. Second, it is a unique feature of user-friendliness for the InvW indicating that it is important how easy it should be to buy a product: *“That means anything. People are impatient and if the website is hard to use – they give up. We want most people to buy a product, and then it must be easy to accomplish a deal”* (W7). Similarly, it is a unique feature of user friendliness for the Inviting website that it should be possible to avoid errors: *“The website content must be correct, and then the users will allocate the information easily and without any errors”* (W7). In business domains, where competitors are only a mouse-click away, user-friendliness seems to be of particular importance from a webmaster’s point of view.

The InvW website quality explanation has more sub-categories than the other website categories; the webmaster’s definition of website quality in this category covers many and various quality aspects. In addition to the quality aspects presented in the prior sub-sections, the InvW category introduces some new features. The explanations for what are seen as website quality among the webmasters in the category the InvW include seven explanations: accessibility, effective use, user-friendly, content, dependability, service quality, interactivity, personalization, speed, as well as a unique explanatory category for this website category, namely, search functions. Personalization and speed are two explanations that this website shares with some of the other websites, which have been explained above, and these shared explanations have no unique features for the InvW category.

The content of the website is also explained as a quality aspect in this website category, and one of the webmasters focuses on the use of pictures: *“We focus on delicate pictures on the main page as we often change, about once a week”* (W7). This is explained by the importance of presenting a dynamic website, which makes the users return to the website in order to find updated information. One of the webmasters from the website category Easy to Use website, also highlighted the use of nice pictures, and explained as follows: *“In our new design we use pictures in order to lighten up the design.”* (W7). Pictures are therefore seen as a valuable contributor and a design element that is important to the users. Both content and use of pictures are features of explanations that the InvW shares with some of the other websites. The content presented must be relevant for the target group, while functionality and website design come second.

The unique feature for dependability in this website category is related to trust. One of the webmasters from the InvW, explains dependability as: *“The content must be trustable, otherwise it is not interesting to the users – regardless of the functionality presented at the website...”* (W7). The website content is again seen as being highly important, and the users must have a reason for believing in it.

Service quality is also seen as an important quality aspect in this website category, and for this category of websites, the unique explanation is that the website should present help functions at the website. One of the webmasters for the InvW explains service quality as: *“The users must easily have an opportunity for help, the contact information must be visible at the website, as well as someone from the company must be able to help the users”* (W7). This statement shows the importance of satisfying the users by providing help and support. It is not enough only to provide a high quality website, but the organization must also arrange for a high level of service quality.

In order to create interactivity at a website and contribute to more knowledge among users, the unique feature of this website category is pedagogy through games. This feature is mentioned by one of the webmasters in this website category as an opportunity: *“We have slightly discussed how to for instance develop games in order to give the users advice and knowledge about relevant topics”* (W7). The webmaster refers to products and services they present and new ways for how to interact and communicate with the users through games. More use of interactivity and new ways of presenting and visualization of web content are also mentioned by one of the webmasters in the simple design category. Search functions – the unique explanatory category for the InvW - are explained by one of the webmasters in the InvW as the importance of presenting a concretized product search: *“In order to improve the website quality I would probably concretize the product search further...”* (W8). The webmaster’s description of the website is close to what the webmaster finds important: *“I think the website meets my requirements in a good way, but we can always be better. If I had unlimited resources and could do some changes I would concretize the search for products further. We could also make it more exciting for the users by personalization the website more than today, and I believe the customers would appreciate it. And, more apparent categorization, more articles about updated topics... but we are on our way to do it... and have more focus on learning and make the articles (information) easier to understand for everybody, as well as trying to avoid internal terms”* (W8). This statements show the importance of: presenting search functions in order to make it easier for users to find relevant information, personalizing the web content, and updates and improvements.

## 5 DISCUSSION OF FINDINGS

In this study we focus on webmasters’ views of website quality and ask the research question: *What is a webmaster’s explanation of website quality?* The answer suggested by this study is that webmasters’ view of website quality have at least 15 different aspects, and are different both from current definitions of usability and from existing frameworks for website quality. Furthermore, across the four ideal types of websites: 1) The Simple Website (SW), 2) The Easy to Use Website (EUW), 3) The Intuitive Website (IW), and 4) The Inviting Website (InW), three aspects of explanations of website quality common to all explanations are “accessibility,” “effective use” and “user friendliness.” Our findings seem to be partly consistent with other studies of webmasters’ views of website quality. Our research question was thus appropriate, and the results are hopefully credible. Compared to the study by Tan et al. (2009), we also found content, categorization of information, update, downloading time, and effective navigation to be part of webmasters’ explanations of website quality. We did not find support for Tan et al’s other categories: “colors, font style and size, mix of text and graphical information and sort, shape, size and placement of links.” If these were present at all in our webmasters’ explanations, it was on a more detailed level in the explanations, not at all the most important. Also, we did not find any explanations concerning brand or website identity, graphic usage, or advertisement/pop-ups/animations, all of which were part of the comprehensive list of important considerations that web-designers should take into account according to Tan et al. (2009).

### 5.1 Comparison of the DeLone and McLean model

The theoretical consideration that we want to make has to do with our claims for theory development that we can make if we want to be consistent with our data. First, we discuss why it is necessary to explore webmasters’ explanations, coming back to the DeLone and McLean model and their ways of studying website quality. In this section, we compare the results from the webmasters’ explanations of website quality with the three dimensions of website quality found in the IS Success Model from

DeLone and McLean (2004): information-, system- and service quality. The data from the interviews indicate that system quality is important to the webmasters, but that there are very different aspects of system quality that are important in different types of websites. Common to all four website categories are the importance of presenting a website that accommodates the WAI principles, and caters to users with various disabilities. In the InvW, quality has to do with response time, simplicity and aestheticism. These qualities have recently been discussed by Lindegaard et al. (2006), who argue that web designers have only as little as 50 milliseconds to make a good impression on users before users go on to the next site. In the IW, the webmaster sees system quality as close to traditional usability in terms of effectiveness and efficiency, while the third component of traditional usability, satisfaction (9241-11, 1998), is not included. The two different views of system quality represented in the IW and the InvW appear to be complementary without any overlap.

The third site, the EUW, shares the aesthetic element with the InvW, and the effectiveness with the IW, but it puts more emphasis on the interactivity of the site. Interactivity is by many researchers seen as a key feature of website success, and explained in relation to message types (Song & Zinkhan, 2008), impression formation (Sundar, Kalyanaraman, & Brown, 2003) and customization (Palmer, 2003). A website that is very interactive may, however, put a cognitive load on its users (Sicilia, Ruiz, & Munuera, 2005), which may be part of an explanation for why interactivity is mentioned by the webmaster of the EUW and the SW. The fourth site, the SW, also prioritizes ease of use, which is not surprising since there are studies showing that the traditional technology acceptance model can account for as much as 64% of the variance in usage (Chuan-Chuan Lin & Lu, 2000). In the SW, animations and interactivity are much hyped, but in reality very limited. The four different views of system quality presented here indicate that system quality may be something very different, depending on the type of website, as seen from a webmaster's perspective. Although we are not in a position to challenge DeLone and McLean (2004)'s general model of website quality, the findings in this study suggest caution is needed when using their definition of system quality and how to divide system quality into measurable aspects. Based on our findings, system quality deals with various quality aspects, and design issues, aestheticism and interactivity are seen as important aspects, in addition to traditional system quality measures. The quality of the information on the website focuses on the output produced by a system and the value, usefulness or relative importance for the users. This aspect has been launched by many researchers as being important in order to satisfy users and make them return to the website.

The content of the website may be the main reason for revisiting a website. Nielsen (1993) concludes that a successful website has high-quality content, is often updated, has minimal download time, is easy to use and is relevant to the user's need. In our study, information quality is mentioned explicitly but on different levels. All eight webmasters state that the information must be easy to find, and it is important not only that the users find what they are looking for, but that they also understand and find the information usable. In contrast, only the EUWs explicitly mentions that the information needs to be updated and that the actual information presented at the website must be true and updated all the time. Moreover, for the SW, dependable data could be an aspect of information quality, and concern the importance of presenting data/information the users can trust. In the literature, there is agreement that high quality content is important in order to receive a high quality website, but there is not much discussion on how content on a website that provides public information differs compared to a website in e-business. Information presented on an e-business website can refer to, for example, factors as personalization and security regarding transaction of money and use of credit cards (Ahn, et al., 2007; DeLone & Mclean, 2004). This aspect is, of course, also important to public websites, but on a different level. It is related to the type of information and services presented, use of technology and the extent to which the users have access to various systems/applications and for what purposes.

The findings in this study indicate that for two of the websites, the InvW and the EUW, service quality as a quality aspect is relevant. Service quality as an aspect of website quality is not only relevant for companies in e-commerce, but is also an important factor in order to satisfy users and encourage them to be more interactive with, for example, digital self-services. However, for e-business, providing service quality is one of the main drivers in order to sell products, as well as influence users and customers to return to the website. Service quality as an aspect of website quality in the public sector

is highly important in order to serve the businesses and citizens and fulfil their needs and requirements. In the DeLone and McLean model, service quality is seen as the overall support delivered by the service provider. The statement from the webmaster interviewed in this paper regarding service quality, is explained by the webmaster from the EUW and the InvW, as the importance of been visible for the users (e.g., providing contact information) and fast response on mail correspondence from the users. This is closely related to prior research (Ahn, et al., 2007; Negash, et al., 2003), but leaves out, for instance, the importance of empathy for the users and credibility.

If we then compare the DeLone and McLean model with our grounded theory model of webmasters' explanations of website quality, Table 1, consisting of 15 website quality aspects across different categories of websites, we find in our model an overlap between the three DeLone and McLean quality dimensions. The webmasters explain information-, system- and service quality at varying levels of detail and completeness; all three aspects of the DeLone and McLean model enter each webmaster's explanation of what is relevant and important in order to present a high quality website. We speculate that this is independent of the business domain or type of users to satisfy. Compared to the DeLone and McLean model, we also find that webmasters tend to focus their explanation on system quality. Finally, user friendliness is a repeating key word among the webmasters.

A key question is to ask how to optimize the users' interaction with a website in order to support and extend the activities in an effective, useful and usable way. The eight webmasters interviewed in this paper explain various levels of how user interest is taken into consideration in order to improve the website quality. Satisfying the users is also very important in order to encourage them to return to the website, and all webmasters fully agree with this. When it comes to how they actually included the users in practice, it is a different story. Each of the eight empirical cases in this study represents a different level of user involvement. Only a few of the websites in this study include the users on a regular basis, and considering that the websites presented in this study have won national web awards, it is somewhat surprising that the concern about the actual user's interest seems to be absent from the webmasters' views and knowledge. A possible explanation can be that the evaluation criteria in the web awards are assessed from a point of view that do not include the user's opinion and requirements in the limited sense, as suggested by DeLone and McLean's model of website quality. However, they all hold the user's interest in mind, but when it comes to actual use of the website, analysis of navigation patterns and the total satisfaction and experience by using the website, there is surprisingly low knowledge among most of the webmasters, even though they seem to find this very important.

## **6 CONCLUSION**

The aim of this paper is to explore how eight webmasters in first prize winning companies of website awards explain website quality. The webmasters in this study indicate that system quality may vary, depending on the type of website, as seen from their perspective. A key word for system quality is a broad definition of ease of use to include user friendliness, effective use and accessibility. With the users in mind, information quality can also be assessed at different levels, and is, in our study, linked to the concepts of trust, updated and relevance. Moreover, the interviews indicate that information quality is important and seen by the webmasters as a driver in influencing users to return to the website. Service quality regarding responsiveness and providing help to users is linked by the webmasters to principles related to ease of access, but must not be confused with the WAI standard, which is related to technical standards and system quality. Fast feedback and response to users, and visible contact information are seen as the main findings concerning service quality. Furthermore, compared to a private homepage, a business site representing a company needs to be representative, serious and fulfill the organizations' visions and image. Since our findings show that system quality may vary depending on the type of website, and a key word for system quality is a broad definition of ease of use, webmasters should be aware of their significance for the organization. Finally, in research literature there are various studies on how to assess website quality from different perspectives, and how to increase the use and user-satisfaction. Since our findings show that system quality may vary depending on the type of website, and a key word for system quality is a broad definition of ease of use, more research on website quality from the viewpoint of webmasters should be carried out.

## References

- 9241-11, I. I. S. (1998). Ergonomic requirements for office work with visual display terminals (VDTs) - Part 11 : Guidance on usability (No. ISO 9241-11:1998(E)).
- Ahn, T., Ryu, S., & Han, I. (2007). The impact of Web quality and playfulness on user acceptance of online retailing. *Information & Management*, 44(3), 263-275.
- Aladwani, A., & Palvia, P. (2002). Developing and validating an instrument for measuring user-perceived web quality. *Information & Management*, 39(6), 467-476.
- Bai, B., Law, R., & Wen, I. (2008). The impact of website quality on customer satisfaction and purchase intentions: Evidence from Chinese online visitors. *International Journal of Hospitality Management*, 27(3), 391-402.
- Barnes, S., & Vidgen, R. (2005, May 26-28). Data triangulation in action: using comment analysis to refine web quality metrics. Proceedings from ECIS 2005 (13 th European Conference on Information Systems) Regensburg , Germany. Published.
- Chuan-Chuan Lin, J., & Lu, H. (2000). Towards an understanding of the behavioural intention to use a web site. *International Journal of Information Management*, 20(3), 197-208.
- Cox, J., & Dale, B. (2002). Key quality factors in Web site design and use: an examination. *International Journal of Quality and Reliability Management*, 19(7), 862-888.
- Dahler-Larsen, P. (2002). At fremstille kvalitative data, Odense Universitetsforlag, Denmark.
- Delone, W., & Mclean, E. (2004). Measuring e-commerce success: Applying the DeLone & McLean information systems success model. *International Journal of Electronic Commerce*, 9(1), 31-47.
- Éthier, J., Hadaya, P., Talbot, J., & Cadieux, J. (2006). B2C web site quality and emotions during online shopping episodes: an empirical study. *Information & Management*, 43(5), 627-639.
- Furu, N. (2006). Nettredaktørundersøkelsen (Webmaster survey). Retrieved from [www.nettredaktor.no](http://www.nettredaktor.no)
- Kim, S., & Stoel, L. (2004). Dimensional hierarchy of retail website quality. *Information & Management*, 41(5), 619-633.
- Lazar, J., Dudley-Sponaugle, A., & Greenidge, K. D. (2004). Improving web accessibility: a study of webmaster perceptions. *Computers in Human Behavior*, 20(2), 269-288.
- Lee, Y., & Kozar, K. (2006). Investigating the effect of website quality on e-business success: an analytic hierarchy process (AHP) approach. *Decision Support Systems*, 42(3), 1383-1401.
- Lindgaard, G., Fernandes, G., Dudek, C., & Brown, J. (2006). Attention web designers: You have 50 milliseconds to make a good first impression! *Behaviour & Information Technology*, 25(2), 115-126.
- Loiacono, E. T., Watson, R. T., & Goodhue, D. L. (2002). WebQual: a measure of Web site quality. *Marketing Theory and Applications*, 13, 37-64.
- Negash, S., Ryan, T., & Igbaria, M. (2003). Quality and effectiveness in web-based customer support systems. *Information & Management*, 40(8), 757-768.
- Nielsen, J. (1993). *Usability Engineering*, Academic Press.
- Palmer, J. W. (2003). Web Site Usability, Design, and Performance Metrics. *Information Systems Research*, 13(2), 151-167.
- Sicilia, M., Ruiz, S., & Munuera, J. L. (2005). Effects Of Interactivity In A Web Site: The Moderating Effect of Need for Cognition. *Journal of Advertising*, 34(3), 31-44.
- Song, J. H., & Zinkhan, G. M. (2008). Determinants of Perceived Web Site Interactivity. *Journal of Marketing*, 72(2), 99-113.
- Strauss, A., & Corbin, J. (1998). *Basics of Qualitative Research - Techniques and Procedures for Developing Grounded Theory*. London, SAGE Publications.
- Sundar, S. S., Kalyanaraman, S., & Brown, J. (2003). Explicating Web Site Interactivity: Impression Formation Effects in Political Campaign Sites. *Communication Research*, 30(1), 30.
- Tan, F. B., Tung, L. L., & Xu, Y. (2009). A Study Of Web-Designers' criteria For Effective Business-To-Consumer (B2c) Websites Using The Repertory Grid Technique. *Journal of Electronic Commerce Research*, 10(3).
- van Iwaarden, J., van der Wiele, T., Ball, L., & Millen, R. (2004). Perceptions about the quality of web sites: a survey amongst students at Northeastern University and Erasmus University. *Information & Management*, 41(8), 947-959.