INFORMATION QUALITY OF
THE JORDAN INSTITUTE FOR FAMILIES WEB SITE

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A Master's paper submitted to the faculty
of the School of Information and Library Science
of the University of North Carolina at Chapel Hill
in partial fulfillment of the requirements
for the degree of Master of Science in
Information Science.

Chapel Hill, North Carolina

July, 2002

Approved by:

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Advisor

Yutao Peng. Information Quality of the Jordan Institute for Families Web Site. A Master's paper for the M.S. in I.S. degree. July, 2002. 57 pages. Advisor: Gary Marchionini

The purpose of this study was to evaluate the information quality of the Web site for the

Jordan Institute for Families (URL of the web site: http://ssw.unc.edu/jif/) – a research,

training and technical assistance arm of the School of Social Work at the University of

North Carolina at Chapel Hill. A set of information quality indicators, including

accuracy, timeliness, easy understanding, organization, consistent representation and easy

navigation, were divided into four categories and evaluated in this study. A survey was

conducted to test users' performance of some information-finding tasks and to collect

users' assessment of the JIF Web site. A total of 25 subjects voluntarily participated in

this survey. The results of the study revealed some significant strengths and weaknesses

in the design of the JIF site regarding the information quality. With the findings of the

study, a list of recommended changes and suggestions were provided to improve the

design of the site, make the information more clearly organized and presented, and make

it easier for users to locate information on the site.

Headings:

World Wide Web

Information Quality

Web Site Evaluation

Survey

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Chapter 1: Introduction

In today's era, the Internet has grown up to be a primary platform for information technologies and businesses (Desanctis, Dickson et al. 2000). Almost every organization has its own Web site to publish information on the Internet. For instance, businesses can promote their products and services to consumers through Web sites; Libraries are able to provide digital resources and online services to users on their Web sites; Academic schools can publish research findings, curriculum information and other resources on their Web sites. As a matter of fact, the Internet offers us unprecedented communication powers, and Web sites become an important medium for us to provide information to the masses.

It is essential for a Web site to provide quality information. When contents have errors and links are broken, users may be incapable of using the site and most of them will give up when their reasonable attempts result in failure. On the contrary, a well-designed and high quality Web site can attract visitors to stay longer in the site and return more often. If visitors stay long enough, the site has better chances to have messages get across to them and turn them into frequent users, or even customers and sponsors.

Unlike professional journals and commercial publications, it is difficult for Webmasters and Web designers to create and maintain information quality on a Web site due to its uniqueness, for example, the use of hyperlinks and its vulnerability to alteration (Oliver, Wilkinson et al. 1997; Alexander and Tate 1999). Many researchers and practitioners have proposed guidance and criteria for effective Web site design focusing

on usability. However, the notion of information quality has not been fully addressed in those guidelines and tips (Katerattanakul and Siau 1999). Therefore, there is a need to develop approaches to specifically address the issue of how to create or evaluate information quality of a Web site (Katerattanakul and Siau 1999).

This paper describes a study in which we apply a research framework, proposed by Katerattanakul and Siau (1999), to evaluate the information quality of the Jordan Institute for Families (JIF) Web site (URL: http://ssw.unc.edu/jif). The main purpose of the study is to assess the design of the JIF website from the information quality perspective by conducting a user study with a questionnaire survey.

The Jordan Institute for Families is a research, training and technical assistance arm of the School of Social Work at the University of North Carolina at Chapel Hill (UNC). Strengthening families is the primary goal of the institute. The JIF website publishes research findings, reports, presentations, resources on family issues, and information about the projects and programs conducted through JIF. The JIF website was redesigned in the winter of 2001. Since then, more and more Web pages have been added to the site. Right now, it contains more than 200 documents, including Web pages dynamically generated from databases upon user's request.

Through the study, we intend to find out strengthens and weaknesses of the design of the JIF Web site in terms of information quality. We also expect to provide some useful suggestions and recommendations to JIF that may help it to improve and maintain the information quality of its website, and serve the user's information needs better.

This paper is organized into the following chapters. Chapter 2 presents some definitions, literature reviews on information quality and Web site evaluation, as well as

some background information about the Jordan Institute for Families and its website.

Chapter 3 presents evaluation methods, design of the questionnaire, describes participants

and the development of procedures. Chapter 4 presents results and discussion. Finally,

Chapter 5 closes with conclusions, as well as suggestions for future work.

Chapter 2: Background and Literature Review

In this chapter, first we will give definitions of some frequently used terms in this paper. Then we will present literature reviews on an information quality framework, information quality of Web Sites, as well as some relevant studies in Web site information quality evaluation. Finally, we will introduce the Jordan Institute for Families (JIF) and its Web site, focusing on the current status (spring 2002) of the site and the need to evaluate its information quality.

2.1 Definitions

Information versus data: According to Merriam-Webster's collegiate dictionary, "data" is factual information, and "information" is knowledge obtained from investigation, study, or instruction. In practice, people distinguish these two terms intuitively, and often use them synonymously (Huang, Lee et al. 1999). Unless specified otherwise, this paper will use information interchangeably with data.

Quality: The International Standards Organization (ISO) formally defines quality as "the totality of characteristics of an entity that bear on its ability to satisfy stated and implied needs" (ISO 8402).

Information Quality (IQ): According to the general quality literature, Information Quality (IQ) is defined as information that is fit for use, or meets the expectations of its users (Strong, Lee et al. 1997; Huang, Lee et al. 1999). This definition emphasizes the importance of taking a consumer's viewpoint of quality because ultimately it is the consumer who will judge whether the information is fit for use or not. It also implies that

the notion of IQ is relative, i.e. what may be considered good information in one case may not be sufficient in another case (Huang, Lee et al. 1999).

Dimensions of information quality: An IQ dimension is "a set of IQ attributes that represent a single aspect or construct" of IQ (Huang, Lee et al. 1999). Frequently mentioned dimensions are accuracy, completeness, consistency, and timeliness.

World Wide Web versus the Internet: Webopedia.com defines World Wide Web as "a system of Internet servers that support specially formatted documents," and the Internet as "a global network connecting millions of computers." Although not all Internet servers are part of the World Wide Web, we often use the two terms synonymously.

Web page: According to Dictionary.com, a Web page is "a document on the World Wide Web, consisting of an HTML file and any related files for scripts and graphics, and often hyper-linked to other documents on the Web."

Web site: According to Dictionary.com, a Web site is "a set of interconnected web pages, usually including a homepage, generally located on the same server, and prepared and maintained as a collection of information by a person, group, or organization." It can also be written as a single word "website."

URL: URL is an abbreviation of Uniform Resource Locator. According to Webopedia.com, URL is "the global address of resources on the World Wide Web."

2.2 Information Quality Framework

Prior to 1991, no books on information quality existed (English 2001). There are no formal methodologies applying total quality management (TQM) principles to information, and only a handful of researchers and software companies had addressed

information quality in some way (English 2001). In 1991, Richard Wang established the

Total Data Quality Management (TDQM) program at the Massachusetts Institute of

Technology (MIT); Tom Redman was writing his first book on data quality (published in

1992); and Larry English began applying Edwards Deming's 14 Points of Quality in a

formalized methodology called Total Quality data Management (TDdM) (English 2001).

The year 1991 is thus called by Larry English (2001) the "birth of information quality

management" in his article "10 years of information quality advances: what next?"

During the past decade, the world has experienced the most dramatic growth in

the information age. At the same time, awareness and maturity in information quality

have grown (English 2001). Several international conferences on information quality

have been held; there are approximately 200 information quality products available for

information quality assessment, analysis, management, and defect prevention; and some

companies and libraries have begun to apply information quality rules and applications to

information systems (English 2001).

In many literatures on information quality (IQ), it is emphasized that information

should be managed as a product and it should be defined from information consumers'

perspective. Just as a product has multiple attributes and dimensions, information also has

multiple dimensions. Ballou and Pazer (1985) identified the following four dimensions:

- Accuracy – recorded value is in agreement with the actual value

- Completeness – all information related to the subject are recorded

- Consistency – information is recorded in uniform format, and

- Timeless – recorded information is not out of date.

Later, Holmes (1996) added six additional dimensions:

- Relevance – whether the information addresses its customer's needs

- Format – how the information is presented to the customer

- Accessibility – whether the information can be obtained when needed

- Compatibility – how the information can be combined with other information and delivered to a customer

- Security, and

- Validity – the information can be verified as being true.

After that, Wang and Strong (1996) conducted a series of comprehensive empirical studies to further analyze the concept of information quality. Finally, a new Information Quality Framework was developed on the basis of those studies (Wang and Strong 1996; Strong, Lee et al. 1997; Wang 1998; Huang, Lee et al. 1999). In this framework, 15 dimensions of information quality are defined and grouped into four categories (Table 1).

Table 1. IQ Categories and dimensions

IQ Category	IQ Dimensions
Intrinsic IQ	Accuracy, Objectivity, Believability, Reputation
Contextual IQ	Relevancy, Value-Added, Timeliness, Completeness, Amount of information
Representational IQ	Interpretability, Ease of understanding, Concise representation, Consistent representation
Accessibility IQ	Accessibility, Access security

Intrinsic Information Quality: Intrinsic IQ denotes that "information has quality in its own right" (Huang, Lee et al. 1999). Accuracy is a key aspect, but it is only one of the four dimensions in this category.

Contextual Information Quality: Contextual IQ highlights the requirement that "IQ must be considered within the context of the task at hand" (Huang, Lee et al. 1999). Information must be relevant, timely, complete, and appropriate in terms of amount so as to add value.

Representational Information Quality: Representational IQ denotes the aspects of format and presentation of the information (Huang, Lee et al. 1999). It requires that information systems present information concisely and consistently, and in a way that is interpretable and easy to understand by information consumers (Huang, Lee et al. 1999; Katerattanakul and Siau 1999).

Accessibility Information Quality: Accessibility IQ requires that the information system must be accessible but secure (Huang, Lee et al. 1999).

This framework broadens conventional IQ conceptualization and treats information as a multi-dimensional product. It emphasizes that IQ is not merely an intrinsic concept, and it should be measured in the context in which information is produced and used. Moreover, the information quality cannot be assessed independent of the people who use information – information consumers (Strong, Lee et al. 1997). As consumers now have more choices and control over their computing environment, information consumers' assessments of IQ are increasingly important (Strong, Lee et al. 1997).

It is a difficult task to ensure information quality of information systems. Unlike physical material, information is intangible and very susceptible to changes. When a Web site becomes an important medium for information exchange, it adds new challenges and own problems to this process.

2.3 Information Quality of Web Sites

In the last decade, the Internet has been developed at exponential speed and countless Web sites have been created. Almost anyone can publish information on the Internet, and disseminate information to global audiences faster than ever before. A great number of Web sites and pages are posted to the Web everyday. Unfortunately, very few are of high quality (Oliver, Wilkinson et al. 1997). Huang et al. (1999) cited an article in the Wall Street Journal and commented that: "cyberspace is increasingly littered with digital debris – Web sites neglected or altogether abandoned by their creators."

Compared to traditional media, the Web has its uniqueness, which poses some new challenges and sometimes complicated twists to maintaining and improving the information quality of Web sites. Essentially, the Web is a hybrid medium that is able to integrate different components together, e.g. combine visual content with text, and use audio and video clips (Alexander and Tate 1999). This merging of text, image, sound, and animation constitutes a powerful new medium for conveying messages, but also brings a lot of diversity and complexity to the Web (Alexander and Tate 1999).

 The use of hypertext links is one of the Web's most appealing features (Alexander and Tate 1999). It gives the users flexibility to browse in various paths. However, it can cause problems when there are inactive links, i.e. links that are broken or don't respond to user's action. An inactive link means a dead end to users, and too many

of those links on a Web site can easily make people frustrated and leave the site, even though the Web site contains information of high quality.

Another challenge is the fact that visitors may enter the site at any point. Almost every Web site has a homepage containing background information and serving as an initial page viewed by users. However, sometimes users first enter the site at another page, for example, when they retrieve a page by using a search engine. Under those circumstances, they may not be able to figure out who is responsible for the site if such background information is not provided on that page. When users think the information is provided anonymously, believability of the information is usually discounted.

Compared to other media such as newspapers, Access to information of a Web site depends on factors beyond the human consumer, such as the type of browser being used and additional software or hardware that may be required to view the material (Alexander and Tate 1999). Different browsers may display information in varying ways. Thus, a Web page may not appear in the same manner when it is viewed by using a different browser. Sometimes, pages may require a sound card or appropriate software plug-ins to access certain type of information, for example an audio clip or animations.

In addition, Web pages are susceptible to alteration (Alexander and Tate 1999). For example, networking problems can cause the page to not be shown properly or even stop loading. Malicious hackers can also break into a site and deliberately change the information. In general, the Web is inherently a less stable medium than print (Alexander and Tate 1999). It brings some new challenges for Webmasters and Web designers to maintain and evaluate the information quality of a Web site.

2.4 Criteria and Framework of Evaluating Information Quality of Web site

In recent years, some studies have been done with respect to evaluation of information quality on Web sites. Most of them examined different evaluation criteria and approaches and developed evaluation instruments or frameworks.

Alexander and Tate (1997) discussed five traditional evaluation criteria – accuracy, authority, objectivity, currency, and coverage – in their book "Web wisdom: how to evaluate and create information quality on the Web." They applied these criteria to Web resources with consideration of the unique nature of the Web. They work out a basic checklist that can be used as keys to evaluate and create information quality on the Web site. In addition, they classified seven types of Web pages and discussed differences among them. For individual types of Web pages, they worked out an IQ evaluation checklist. This book provides very detailed guidance to Web users to help them access the quality of online resources. It is also a good reference for Webmasters and Web designers on creating and evaluating the information quality of Web site.

In the article, "information quality of commercial Web site home pages: an explorative analysis," Zhang and Keeling et al. (2000) described their study of evaluating information quality of Web home pages for approximately 200 selected Fortune 500 companies across 10 industries. They developed an evaluation instrument, and performed an explorative analysis between types of Web home pages and user perceptions. The findings of this study reveals that differences exist among certain types of Web home pages with respect to user's perceptions of presentation of information, navigation, and quality (Zhang, Keeling et al. 2000).

The instrument developed by Zhang and Keeling et al. consists of three constructs that respectively measure user's perceptions of presentation, navigation, and quality of Web home pages. They considered published information criteria recommended in the design of Web sites to develop their constructs. The presentation of information on a Web home page includes the use of graphics, colors, the amount of information displayed, and the way it is organized (Zhang, Keeling et al. 2000); The quality of navigation is measured on the basis of the user's perception of being able to readily locate information and move around the Web site (Zhang, Keeling et al. 2000); Measuring quality of a Web page includes whether or not the page can get a user's recommendation, to what extent the user perceives the information as believable and whether or not the page gives the user a good image of the company. (Zhang, Keeling et al. 2000).

This study considers users' perception of navigation and presentation of information as part of the evaluation criteria. Although it evaluates only the home page of the Fortune 500 corporations, some general principles and approaches are still applicable to other types of Web sites.

Another evaluation framework was proposed by Pairin Katerattanakul and Keng Siau (1999) in their study of "measuring information quality of Web sites: development of an instrument." This framework was developed on the basis of the Information Quality Framework as presented in section 2.2 of this paper. It proposed IQ evaluation criteria for Web sites, and grouped them into the same four categories classified in the Information Quality Framework (Table 2).

Table 2. Framework of measuring IQ of Web site

IQ Category	Evaluation Criteria
Intrinsic IQ	• Accuracy and errors of the content • Accurate, workable, and relevant hyperlinks
Contextual IQ	• Provision of author's information
Representational IQ	• Organization, visual settings, typographical features, and consistency • Vividness and attractiveness • Confusion of the content
Accessibility IQ	• Navigation tools provided

For intrinsic IQ of Web sites, they use two constructs to measure it: (1) accuracy of the contents and (2) accuracy of the hyperlinks (Katerattanakul and Siau 1999). The first one is mainly concerned with errors, e.g. grammatical and spelling errors, and the second one is concerned with navigation, e.g. whether or not the Web site contains any broken links (Katerattanakul and Siau 1999).

Regarding contextual IQ, they argue that it is mainly concerned with the author's information, and it "should be measured by whether or not the author provides enough information so that the readers can imagine or perceive the author;" and whether or not any contact information is provided (Katerattanakul and Siau 1999).

In terms of representational IQ, they define it as concerns about the visual appearance and typographical features, e.g. color, font, image, and any other visual effects (Katerattanakul and Siau 1999). For example, whether or not the Web site is

confusing or difficult to read; whether or not design is consistent throughout the Web site; whether or not the Web site looks visually vivid and attractive (Katerattanakul and Siau 1999).

For accessibility IQ, they propose that it is mainly concerned with the navigation tools, that means, it should be assessed by whether or not the Web site provides enough navigation mechanisms so that visitors can locate their desired information on the Web site quickly and easily (Katerattanakul and Siau 1999).

Based on this framework, Katerattanakul and Siau (1999) further developed an instrument and tested it in the individual Web site context. They found that the overall tests and analysis results are somewhat consistent with the proposed research framework. This framework provides us a comprehensive model for evaluating information quality on Web sites. Although it may need to be redefined for other types of Web sites, the basis structure and principles can still be applied. Based on this framework, we designed an evaluation questionnaire to measure the information quality of the JIF website in our study.

2.5 Web Site of the Jordan Institute for Families

The Jordan Institute for Families (JIF) is a research, training and technical assistance institute based at the School of Social Work at The University of North Carolina at Chapel Hill. It was co-founded on Michael Jordan's contributions, and established in October 1996. The primary goal of the institute is to strengthen families.

The JIF Web site (http://ssw.unc.edu/jif) provides information and online resources on family issues, and publishes research findings and reports of projects and programs supported by JIF. Its main purpose is to "explore and share practices and

policies that support families, and to encourage informed debate about diverse approaches for strengthening families and their communities" (JIF 2002).

The original JIF Web site was a simple and small site, with less than 20 Web pages. In the winter of 2001, the Jordan Institute for Families initiated a redesign process for the JIF Web site. Several months later, a totally redesigned Web site of JIF went live and replaced the old one. Today, it contains more than 200 documents, including Web pages dynamically generated from databases upon a user's request.

Although the current JIF Web site has been designed carefully, no formal evaluations have been conducted to assess its performances and users' satisfaction, especially whether or not the new design helps JIF provide quality information to users. This study was thus designed to collect users' feedback regarding those issues, and to evaluate how well the JIF website did in providing quality information to users.

Summary

In this Chapter, we discussed some key topics in the domain of information quality (IQ), and introduced the Information Quality Framework (IQF), which classified 15 IQ dimensions into four categories. It is a hard task to ensure information quality of Web sites because of the complexity of the Web being a hybrid medium, the use of hyper links, the instability, and the susceptibility of Web site to alteration. The evaluation framework, proposed by Katerattanakul and Siau (1999), was founded on the IQF. It defined evaluation criteria for website IQ based on the four categories classified in the IQF. Based on this framework, as well as some other studies on website IQ evaluation, we conducted an evaluation of the information quality of the JIF website.

Chapter 3: Methodology

Since the primary goal of this study was to evaluate the information quality of the Jordan Institute for Families website from the user's perspective, we conducted a user study, using a questionnaire to collect users' feedback and assessment of the information quality of the site. The questionnaire was primarily formulated based on the evaluation framework developed by Katerattanakul and Siau (1999). A total of 25 subjects voluntarily participated in this study. We analyzed collected data both quantitatively and qualitatively.

3.1 Participants

The Jordan Institute for Families website is mainly targeted at scholars and practitioners on family issues such as child welfare, aging, health and mental health. It also aims to serve agencies, policymakers, as well as families and communities. A total of twenty-five volunteers were recruited from those targeted audiences based on convenience to participate this study. They included faculty, staff, and students from the School of Social Work at UNC-Chapel Hill, scholars at the Jordan Institute for Families, as well as social workers, home workers, and other college students.

Some participants were recruited by sending out email messages to the listserv of the School of Social Work at UNC, and some were referred by staff in the Jordan Institute for Families. No prior experience with the JIF website was required for participants. The only inclusion criterion was that they read English and have basic knowledge of how to use a web browser. Another restriction to participating in the study

was any participant must have access to the World Wide Web in order to evaluate the JIF website.

3.2 Evaluation Instrument

An electronic questionnaire was designed for this study. We did not make it a Web version because we wanted the participants to have flexibility of filling out the questionnaire in the way they feel comfortable. They could either fill it out electronically in the Microsoft Word application, or print it out and fill out a paper version. They were also allowed to do the study using the Web browser and tools with which they were most comfortable in their own environment.

The questionnaire consists of three sections: a pre-test demographic survey, a series of information finding and answering tasks, and a post-test questionnaire.

3.2.1 Pre-Test Survey

The pre-test survey (Appendix A) was constructed to capture background information about individual participants, e.g. age, gender, and occupation. It also included questions that were designed to determine how much experience the participants have with the World Wide Web, Web browsing tools, and the JIF website. In addition, participants were asked to indicate what type of Web browsers they would use for this study. The data collected in the pre-test survey would allow us to derive generalizations of the study.

3.2.2 Information Finding Tasks

Five information-finding tasks (Appendix B) were designed to assess whether or not the visitors are able to navigate the JIF site and successfully locate some information. With those tasks, we could also make sure that the participants had visited the site before

they responded to the evaluation questions later. The tasks were designed to simulate real-world scenarios, e.g. looking for the contact information of JIF, searching for a specific report, or looking for information of the research projects conducted through JIF. The difficulty of those tasks varies from easy to difficult. The first two tasks were assumed easy because the information is on the homepage of the site; the task item 3 was designed to be more difficult because the answer is on a page other than the homepage; for the task items 4 and 5, users should trace the links deep down into the site to find the information, thus they are much harder tasks than the others. Since we were primarily concerned about the success rate, the users were only required to answer YES/NO (YES for found, NO for not found) to each question.

3.2.3 Post-Test Questionnaire

The post-test questionnaire (Appendix C) was formulated based on the studies by Katerattanakul and Siau (1999), Zhang and Keeling et al. (2000), and Wang and Strong (1996). According to Katerattanakul and Siau (1999), the information quality of a website includes the following four categories: intrinsic quality, contextual quality, representational quality, and accessibility quality. We developed 15 evaluation questions that covered major aspects in those categories and asked participants to rate the site on a five-point scale ranging from (1) poor to (5) excellent.

Intrinsic Information Quality of the site

Katerattanakul and Siau (1999) commented that accuracy was the "main determinant" of the intrinsic information quality of a website, and it should be assessed by accuracy of the contents and accuracy of the hyperlinks. We included question item 3, "Are there any obvious spelling or grammatical errors?" and question item 4, "How

reliable are the links (are there inactive links)?" to measure intrinsic information quality of the site. Alexander and Tate (1999) also included those items in their checklist to evaluate information accuracy of a website.

Alexander and Tate (1999) also commented that one of the most important aspects of evaluating the information of a Web site is ascertaining the authority of the site. The question items 1 and 2 were included to assess whether the author's information and the scope of the site were clear enough to users. Zhang and Keeling et al. (2000) also included item 2 in their instrument to measure a user's understanding of the purpose of a Web page.

Contextual Information Quality of the site

Contextual information quality highlights the requirement that information quality must be considered within the context of the task at hand (Wang and Strong 1996). In order to add value to the tasks, the information must be relevant and complete (Wang and Strong 1996; Huang, Lee et al. 1999). Although the context of the study was artificial for subjects, we aimed to get users' perceptions about contextual value. We included question item 6, "Does the content fit the stated scope, purpose, and audience?" to measure to what extent the information was perceived relevant to users. The question item 7, "Are there any obvious gaps or omissions in the coverage of the topic?" was included to measure whether or not the site covered its topics appropriately and completely.

In addition, Huang and Lee (1999) also remarked that the relevant information must be provided in time and in an appropriate amount. The question item 5, "Is the

information sufficiently current?" and item 8, "Is the information of appropriate amount?" were formulated to address those issues.

Representational Information Quality of the site

Representational information quality includes aspects related to the format and organization of the information, e.g. clear and effective organization scheme, appealing and consistent representation. For the information to be considered of good representational quality, it must be interpretable, easy to understand, and concisely and consistently represented (Huang, Lee et al. 1999).

Katerattanakul and Siau (1999) comment that the contents of the Web site must be well organized for information consumers to easily understand and digest the information. Oliver, Wilkinson and Bennett (1997) also pointed out that whether or not a website had a good organizational scheme was one of the most important indicators of information quality of a Web site. In the question item 9, the participants were asked to evaluate whether or not the website had an effective organization scheme (e.g. by subject, format, audience, etc.).

Furthermore, Katerattanakul and Siau (1999) defined representational information quality of web site also as "the concerns about visual settings or typographical features, such as background, color, text, font, and image, of the Web pages." They proposed to measure the representational information quality by whether or not the Web pages are confusing or difficult to read; whether or not the design of the Web pages is attractive; whether or not the use of graphic components contribute to the user's understanding of the information. The Question items 10, 11, and 12 were designed to address those issues.

Accessibility Information Quality of the site

Katerattanakul and Siau (1999) stated that accessibility information quality of a Web site was about "the navigation or the means by which visitors or information consumers travel in the hyperspace created by the site." The question item 13, "Is the site easily navigable?" and item 14, "Does the design of the document/site make it easy to locate information?" as well as item 15, "Are the links clearly visible and understandable?" were included to measure whether or not the JIF website provided effective navigation mechanism to users so that they could locate desired information fast and easily

The last question in the post-test questionnaire was included to ask the users to give comments, or offer suggestions and recommendations regarding the design and information quality of the site. We designed it as an open-ended question so that the participants could address any opinions, as they liked.

3.3 Procedures

We sent out the questionnaire and the information form (Appendix D) through email to participants. In the information form, we present some background information about this study, e.g. the purpose, procedure, as well as some concerns such as risks, discomforts, privacy and rights of the participants. We also indicated both in the email (Appendix E) and the information form that submission of the questionnaire will be taken as consent to participate in this study.

Following the instructions of the questionnaire, participants were asked to complete the pre-test demographic survey at the first step. Then, they were asked to open a Web browser and enter the Jordan Institute for Families Website before they worked on

the second part of the questionnaire. In this section, they were given five information-finding tasks. They should look for the information on the JIF website and answer YES/NO (YES for found and NO for not found) to individual questions. After that, the participants were asked to answer 15 post-test evaluation questions and one open-ended question.

After finishing the questionnaire, the participants were instructed to either return the questionnaire through campus mail or submit electronically through email.

3.4 Data Analysis Method

The collected data were analyzed quantitatively and qualitatively. Demographic information from the pre-test survey was summarized. We calculated the success rate for individual information-finding tasks. For each post-test evaluation question, we computed mean, standard deviation, maximum, and minimum of the scores.

Qualitative data were analyzed according to the nature of problems and the design of the JIF website. The strengths and weakness of the site were discussed, problems were identified, and recommendations were provided.

Chapter 4: Results and Discussions

The results from the study are separated into three sections: demographics of participants, performances in tasks and results of post-test evaluations. Finally, the strengths and weakness of the site, as well as recommendations and suggestions to the site improvement, are discussed based on the study results and comments noted by the participants.

4.1 Demographics of Participants

The participants' ages range from 24 to 57, with an average of 36.5. A breakdown of the participants is shown in the following Table 3:

Table 3. Age of Participants

Age	N	Percentage
< 30	7	28%
>= 30 & < 40	9	36%
>= 40 & < 50	3	12%
>= 50	5	20%
Not specified	1	4%
Total	**25**	**100%**

The occupations of the 25 participants vary widely, including professor, instructor, college teacher, student, program evaluator, program manager, research assistant, administrator, social worker, homemaker, editor, and Web developer. Among those participants, 15 (60%) are females and 10 (40%) are males.

As shown in Table 4, all participants have prior experience with the Web. Most of them indicated that they used Web browsers on a daily basis. Therefore, we believe that they are fairly experienced with the Web tools, and had no technical problems to take this study.

Table 4. Participants' Experience with the Web Browsers and Tools

Experience with the Web	N	Percentage
Daily	23	92%
Weekly	1	4%
Occasionally	1	4%
Total	**25**	**100%**

Regarding the experience with the Jordan Institute for Families Web site, many of them had visited the JIF website prior to this study, and only 7 participants had never visited this site before.

Table 5. Participants' Experience with the JIF website

Experience with the JIF website	N	Percentage
Weekly	4	16%
Monthly	3	12%
Occasionally	11	44%
Never	7	28%
Total	**25**	**100%**

In the pre-test survey, we also asked the participants to indicate what type of browsers they used for this study. 16 (64%) participants choose Internet Explorer, and 9 (36%) participants used Netscape.

4.2 Participants' Performance in Information-Finding Tasks

As shown in Table 6, most participants successfully completed all five tasks, and none of them failed more than one task. The average number of tasks that were successfully completed by participants is 4.64, with standard deviation of 0.49.

Table 6. Participants Performance of Tasks

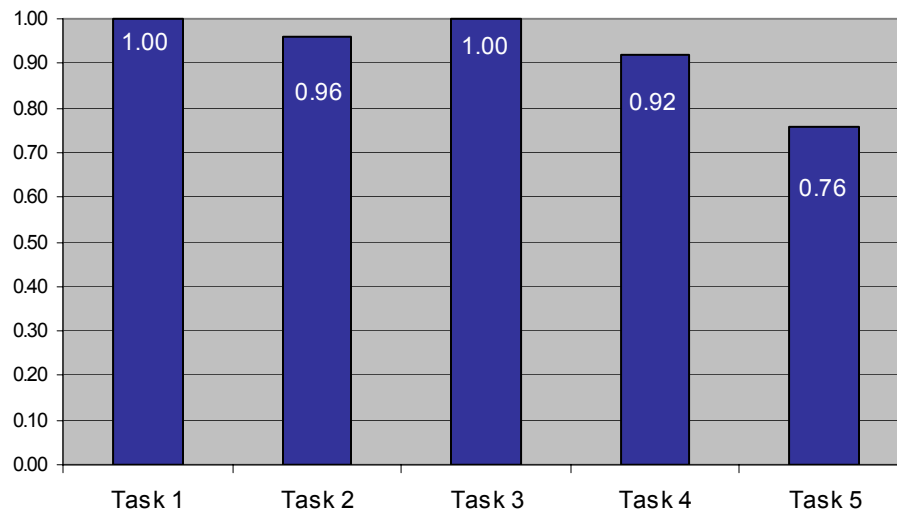| N = 25	N	Percentage
All Tasks Successful	16	64%
One Task Failed	9	36%
Total	**25**	**100%**

Figure 1. Completion Rate of Each Task

The completion rate for each task was illustrated in the following Figure 1. As it shows, all participants accomplished task items 1 and 3. For the task item 2 only one participant failed; two participants failed at the task item 4; four persons could not accomplish the task item 5. We are not surprised to see this result because the items 4 and 5 were designed to be more difficult than the others. According to the feedback of participants which they gave at the end of the survey, the task item 5 was difficult

because some of page titles were not very clear to them, so they were not able to figure out where to find the information. We will discuss it later in section 4.4.2.

Table 7. Task Completion Rate Grouped by Participants' Experience with JIF Website

JIF website experience	N = 25	Task 1	Task 2	Task 3	Task 4	Task 5
Weekly	4	100%	75%	100%	100%	75%
Monthly	3	100%	100%	100%	100%	100%
Occasionally	11	100%	100%	100%	91%	82%
Never	7	100%	100%	100%	86%	57%

As shown in Table 7, participants with prior experience with the JIF Web site accomplished tasks more successfully than the ones who had never used the site before. That is understandable because those tasks were designed to represent some of the most frequent usages of the site and the familiarity with the JIF Web site should have effects on the performance of participants.

4.3 Post-Test Evaluation of the JIF Web Site

This section contains Table 8 through 11, which list of questionnaire items grouped by the four IQ categories. For each of items, we calculated the overall mean, standard deviation, minimal score, and maximal score given by participants. Again, the possible range of the score is from 1 (poor) to 5 (excellent). Please note that the items listed in the following tables are worded exactly as they appeared in the questionnaire.

Table 8. Intrinsic Information Quality Category

Item	Mean	Standard Deviation	Min.	Max.
Is it clear who is responsible for the contents of the page?	2.80	1.12	1	5
Is the scope and purpose of the site clearly stated?	3.83	1.34	1	5
Are there any obvious spelling or grammatical errors?	4.32	0.69	3	5
How reliable are the links (are there inactive links)?	4.17	0.92	2	5

Since the mean scores of the first two items are 2.80 and 3.83 (see Table 8), they suggest that participants did not feel the JIF website provides clear and adequate information about the author and scope of the site. However, the site got pretty good scores regarding the accuracy of the content and the reliability of links.

Table 9. Contextual Information Quality Category

Item	Mean	Standard Deviation	Min.	Max.
Is the information sufficiently current?	3.52	1.00	1	5
Does the content fit the stated scope, purpose, and audience?	4.09	0.68	3	5
Are there any obvious gaps or omissions in the coverage of the topic?	3.86	0.89	2	5
Is the information of appropriate amount?	4.04	0.73	3	5

As Table 9 shows, the mean scores of the items in the contextual information quality category are between 3.52 and 4.09, which are a little above average. What participants found most unsatisfactory was the information currency of the site.

Table 10. Representational Information Quality Category

Item	Mean	Standard Deviation	Min.	Max.
Is there an effective organization scheme (e.g. by subject, format, audience, etc.)?	4.17	0.87	2	5
Does the use of graphics, photos and icons contribute to your understanding of the information?	4.08	0.72	3	5
Is the site aesthetically appealing (Good use of graphics and color)?	4.16	0.94	1	5
Do you have any difficulty reading the text (sufficient contrast, adequate font size, etc.)?	4.44	0.58	3	5

Compared to the items in the above two categories, the items in the

representational IQ category got quite high mean scores, ranging from 4.08 to 4.44

(please see Table 10). These scores suggest that most participants thought that the JIF

website presented information in a clear and attractive way, and the visual design and

page layout were reasonable and appealing. Particularly, users felt that the Web pages

had enough color contrast with adequate font sizes.

Table 11. Accessible Information Quality Category

Item	Mean	Standard Deviation	Min.	Max.
Is the site easily navigable?	4.08	0.86	2.00	5.00
Does the design of the document/site make it easy to locate information?	3.79	0.93	2.00	5.00
Are the links clearly visible and understandable?	4.20	0.87	2.00	5.00

As Table 11 shows, participants felt that the JIF website did better than average in

providing accessible information to users. Even though users felt that the site was

navigable, they did not feel it was very easy for them to locate information. This may be partly due to the fact that some participants experienced difficulties to do the task item 5 in the previous section.

4.4 Discussion and Recommendations

A close review of the data collected in the questionnaire shows that the JIF Web site excels in its readability, accuracy of information, reliability of links, organization of information and appearance, but needs improvement in naming of titles and labels, navigation mechanisms, currency of information, clarity of site scope and purpose, annotation of links and use of a splash page.

4.4.1 Strengths of the JIF Web Site

According to participants' evaluation scores and comments, the JIF Web site has many positive features. They are summarized below:

Readability

The average score of 4.44 out of possible 5 shows that participants are fairly satisfied with the readability of the site, especially the color contrast, font types and sizes, and they feel easy to read the Web pages on the screen. One participant commented "I found the site easy to read and navigate for someone who has never been to the site previously."

Accuracy of Information

The site obtained a fairly high average score regarding the accuracy of information: 4.32 for the content accuracy and 4.17 for the accuracy of links. Participants did not found obvious spelling and grammatical errors, and inactive links on the site.

<u>Visibility of Links</u>

The average score for the visibility and clarity of links is 4.20, indicating that most participants felt that the hyperlinks on the site were obvious and easy to use. We were not surprised to found that participants who accomplished all information-finding tasks gave a higher score, in average 4.22, than people who did not, only 4.11 in average.

<u>Organization of Information</u>

The average score for the organization of the site is 4.17 and seven participants gave the highest score – 5 means excellent. That indicates that the site has organized its contents effectively and users have no serious problem to follow the organization scheme of the site.

<u>Appearance</u>

The average score for the item, whether the use of graphics, photos and icons contributes to users' understanding of the information, is 4.08, and the average score for the site's aesthetical aspect is 4.16. That shows most participants like the visual design of the site and think it appealing. One participant noted, "I like the colors used in the pages. The site looks clean and vivid." Another participant also wrote, "I love the map on the Community Service page."

4.4.2 Weakness of the JIF Web Site and Recommendations to the Site Improvement

Based on evaluation results, some weaknesses and problems were found in the design of the site. For those problems a number of comments and suggestions for site improvement are proposed in the following. The comments offered by the participants and the design guidelines proposed by design experts serve as a basis for our discussions here.

Naming of Titles and Labels

According to participants' evaluation, the site links are visible and understandable. However, some of the page titles and labels were confusing and caused problems for them to locate certain information.

In Task item 5, four participants could not find Jordan Institute's projects that were carried out in the Orange County of North Carolina. This information was only linked to the "Community Service" page. Users had to click the link to the "Community Service" page first and select the Orange County from there. At the final open-ended question, three participants pointed out that they had difficulties to do the last task in the previous section because the title was not clear enough to them. They suggested re-titling the "Community Service" page.

Another participant also commented on titles and labels of the site:

"Title and label EVERYTHING (e.g., on the Home page, the Race, Ethnicity, and Culture poster is just there by itself, the writing is not legible; it forces the user to click it just to find out what it is.) Conversely, someone actually looking for the lecture series would have to click on it by trial and error. A title or label would solve this problem."

As we know, well-named labels and headings can quickly communicate the contents of Web pages and enable users to quickly scan through information to find what they want. In the article "Ten good deeds in Web design" by Nielsen (Nielsen 1999), he recommended to "write straightforward and simple headlines and page titles that clearly explain what the page is about and that will make sense when it read out-of-context." The headlines and labels that confused users should be re-titled. Another quite frequently used technique is to use link titles or toolkit to give users explicit cues to the context of information.

<u>Navigation Mechanism</u>

Even though participants gave a not bad score (in average 4.08) for the item, "Is the site easily navigable?" some participants pointed out that it was not a good idea to place the site navigation menu at the bottom of Web pages. One participant noted that:

> "On the Home page, the navigation buttons were off the bottom of my screen, maybe they should be on the side or at the top. Having them visible on the Home page is critical to making the site inviting and easy to use (I sort of figured them were there somewhere so I scrolled around, but inexperienced users might not get it)."

Another participant gave similar comments that:

> "I think putting the menu bar back on the top may be better. For the navigation is most done through the menu bar at the bottom. For folks whose monitor is not that big, they need to scroll down every time in order to go to another section."

Scrolling is hard for some users. Even though most users have started scrolling when they visit a long Web page, there are still a few users who rarely scroll (Nielsen 1997). Therefore, it is not suggestible to put the navigation menu at the bottom of Web pages when pages are long and users have to scroll down the page to use the navigation menu. Users often get confusing within such a page: there is no way of knowing how far one has to scroll down the page or what other information is on the page. In particular, it is almost impossible to predict what else one might see further down the page.

Furthermore, it is also a much standard way to place the navigation menu at the top or side of Web pages. Placing navigation menu differently may cause confusion to users, as one participant pointed out:

> "Your major challenge, as I see, it is in dealing with usability issues--your navigation menu should be placed along the top or left hand side of each page so that it is consistent with standard navigation layout."

In their article "Navigation in Web applications" Shubin and Meehan (1997) explained, "Web users frequently get lost because applications have a model of navigation that is different from what they are used to." To overcome the problem, designers are suggested to adapt familiar design rules to the Web (Shubin and Meehan 1997).

It is also preferable to provide additional navigation aids to users, e.g. within-page navigation and within-site search engine. One participant noted that: "If search capability was available, I would have used it for Question 5 (Orange County projects)." Nielsen (1999) suggested in his article "Ten Good Deeds in Web Design" that providing search if the site has more than 100 pages. Since the JIF Web site has more than 200 Web pages, it is reasonable to include a search engine in the site, which can provide users search option in addition to browsing and thus improve the navigation power of the site.

For long Web pages, within-page navigation is quite common and useful tools, which help users quickly locate information and avoid getting lost in the page.

Scope and Purpose of the Site

According to the evaluation scores presented before, participants rated the clarity of the scope and purpose of the site not very high, only 3.83 in average. Five participants even gave the lowest scores (1 and 2) -- 1 means poor -- to this item. One participant commented that:

> "I think the audience isn't clearly enough identified. We know why we want people to look at the site, but it doesn't really come across—is it social workers, researchers, the general public, people in allied professions, others? Some people who find the site might have searched the web for Michael Jordan's name. Why would they stay and look around? It is not very clear yet on what they want it to do and how to make it appeal to a diverse audience."

The JIF Web site has stated the mission and purpose of the Jordan Institute for Families in the "About the Institute" Web page. However, the text is long and such information appears hidden in the text. That makes it difficult for users to quickly get ideas of what the site is about. Many studies show that Web users usually scan the text rather than read word-by-word; they do shallow reading combined with selected depth (Nielsen 2000). Therefore, the Web page should be structured in a way that facilitates scanning and helps users ignore large chunks of the page in a single glance: for example, use grouping and subheadings to break a long list into several smaller units (Morkes and Nielsen 1997). As newspapers usually do, the important information should be placed at the top of a Web page. One participant recommended that:

> "It might be helpful to have the goals of the Jordan Institute come at the top of the first inside page somehow, rather than at the bottom."

Nielsen (1997) also provided some advice on how to make Web pages more scannable:

- Highlighted keywords (hypertext links serve as one form of highlighting; typeface variations and color are others)
- Meaningful sub-headings (not "clever" ones)
- Bulleted lists
- One idea per paragraph (users will skip over any additional ideas if they are not caught by the first few words in the paragraph)
- The inverted pyramid style, starting with the conclusion.
- Half the word count (or less) than conventional writing

The above advice is applicable to all Web pages of the site. In fact, the JIF Web site did well in readability of the text and using bulleted lists and sub-headings to chunk information. It would be better if it had highlighted keywords and presented information more concisely. The scope and purpose could be made more obvious and be easier to identify.

<u>Authors' Information</u>

The participants gave a very low score, in average 2.80 of a 1-5 scale, to the clarity of authors' information on the site. One participant pointed out that

> "Incidentally, Webmaster's name doesn't appear on the site, and I didn't see a 'mail the webmaster' link anywhere. That's one reason why it's not clear who is responsible for the material found on the site. Also, I don't see a link for e-mail contact with anyone else."

Another participant also commented that:

> "Contact information on each page might be helpful. For example, on the Events page, I chose the 'FYI - a brown bag series…' there was no mention of where this event would be held or who to contact for more info."

There are e-mail and mail contact information of the Jordan Institute for Families on the "About the Institute" page, but there is no contact information to Webmasters or to content managers on Web pages. For most articles and journals published on the site, it is not very clear and easy to find authors' information, for example, on the "Publication" page, the authors' information was not listed besides of the title of articles. Users must click an article's hypertext link to browse to the detailed page of the article to find out its authors' information.

It is important for a Web site to provide information sources and authors' information. Without knowing who is the publisher of the site and who are the sources of information in the site, the sources' motivation, qualifications, and trustworthiness are unclear (Morkes and Nielsen 1997). All of this can cause users to wonder about the credibility of the site. It is suggested for the JIF Web site to add contact information to the site content managers, and more important, list authors' information for the articles and reports published on the site.

<u>Information Currency</u>

Currency is the extent to which information can be identified as up to date (Alexander and Tate 1999). The information currency of the site gets the lowest mean score (3.52) in the contextual information quality category. Eight participants gave a neutral score (3) to this item. That indicates either they thought the site didn't do particularly bad or good in this aspect, or they felt difficult to judge.

Two participants pointed out some of the Web pages had old stuff, e.g. the faculty and staff information on the site. Other two participants explained that it was hard for them to tell how current things are because there were no obvious signs of the time of the documents. One participant suggested giving obvious time stamp of the documents on the Web pages could help users to tell whether the information on the site was current or not.

Because there are no established guidelines for including dates on Web pages, it can be difficult to determine the currency of Web resources (Alexander and Tate 1999). For print material, the currency can usually be determined from the publication and copyright dates. For Web pages, a date may be variously interpreted as the date when the material was first created, when it was placed on the Web, or when the Web page was last revised. It is thus necessary to clearly identify what kind of a date it is when such a time stamp provided.

<u>Splash Page</u>

The JIF Web site uses a splash page (Please see a screen snapshot in Figure 2) as the opening page of the site. It redirects users automatically to the next page -- "About the Institute" -- in few seconds.
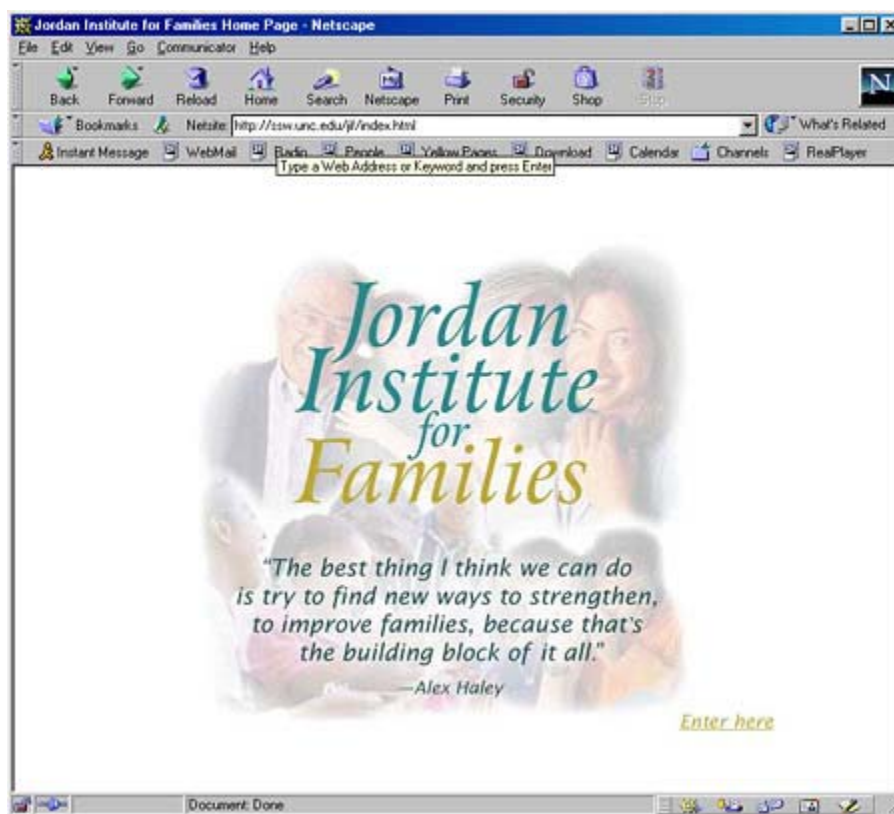
Figure 2. Screen Snapshot of the Splash Page of the JIF Web Site

A splash page of a Web site is like the digital version of a book cover. A well-designed splash page can entice visitors to enter a site to see more. It sets the mood of the site and introduces the brand. However, be careful with a splash page. Internet users are busy and want information quickly. Some of them may leave a site rather than click a splash page or wait for the redirect. One participant commented that:

> "While the opening page is pretty, it's also a nuisance after the first visit.
> Maybe a Flash opener that people could skip after the first visit?

It is not necessary true that using a splash page as the home page will decrease search engine rankings of the site. However, a non-splash home page can provide more

information and links. From there, users may be able to locate information more easily and with fewer clicks.

Annotation of Web Resources and Links

In the "Web Resources/Other Links" page of the JIF Web site, a number of hypertext links to resources related to the Jordan Institute for Families or resources on concerned research fields are listed by categories (please see a screen snapshot in Figure 3).
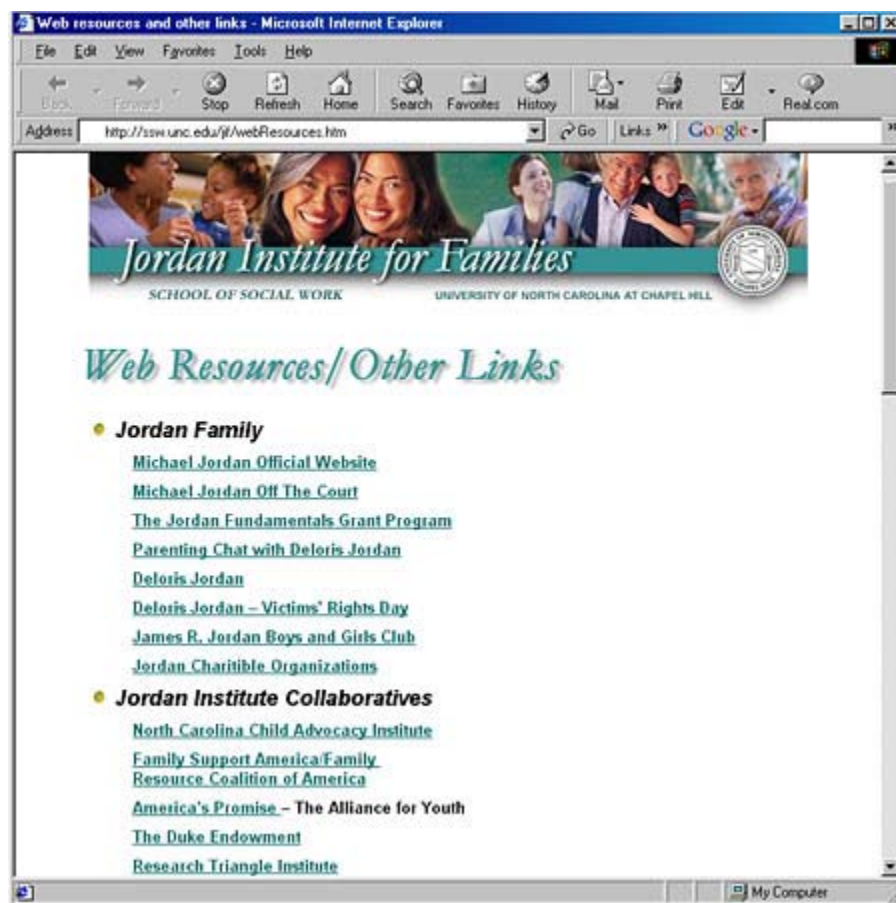

Figure 3. Screen Snapshot of the "Web Resources/Other Links" Web Page

Regarding those links, one participant commented that "the links for aging are better than they were the other day when I looked at them (no more dead ones), but they

aren't particularly good choices, in some cases." Another participant also suggested "the links should be annotated so that their relevance is clear before the user clicks them."

The ability to use hypertext to link a variety of Web resources together is one of the Web's most appealing features. However, those Web resources are not uniform in quality. As a result, each resource must be evaluated carefully and included in the site with cautions.

In addition, it is a good suggestion to add annotations to the resources and links. It can help users confidently predict where the link will lead, and make their browsing easier and faster (Spool, Scanlon et al. 1999). Even though the link text gives the title of the page it lead to, it isn't so much a description of the content of that page, for example, it is difficult to predict where the link "Building Family Strengths" leads to, a program, an agency, or somebody's personal Web page, by just knowing the title of the link. In this case, an annotation will make the browsing much simpler.

Chapter 5: Conclusions

The information quality of a Web site covers a wide range of issues, including accuracy, timeliness, authority, navigational and representational mechanisms. This study offers a quick and convenient way to evaluate the information quality of the JIF Web site with limited resources. It offers a wealth of data and reveals some significant problems of the JIF Web site. With the findings of the study, we can improve the design of the site, make the information more clearly organized and presented, and make it easier for users to locate information on the site.

The JIF Web site is a typical Web site of a research institute in higher education. We believe that other similar academic Web sites may encounter many problems of this site and have the same need to improve their information quality. We hope this case study can help them conduct some similar evaluation studies and discover their problems successfully.

We should also note that this study is only able to generally identify some problems due to its design limitations. For example, from the results we know that some of the site's titles and labels are not very clear to users, but we are not able to get more ideas about users' perception from this study. To further explore those issues and other usability problems, an in-depth usability testing will be necessary. Future work direction should include examination of site's identified problems, for example navigation mechanism and naming of titles and labels, with some usability testing methods.

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Appendix A: Pre-Test Demographic Questionnaire

Your answers to the following questions will help the study researchers to analyze the data.

1. Age _____

2. Gender ☐ Male ☐ Female

3. Occupation _____

4. Please describe your experience with web browsers and tools

   ☐ Never ☐ Occasionally ☐ Monthly ☐ Weekly ☐ Daily

5. How often do you visit the web site of the Jordan Institute for Families?

   ☐ Never ☐ Occasionally ☐ Monthly ☐ Weekly ☐ Daily

6. What web browser you will use for this study?

   ☐ Netscape ☐ Internet Explorer ☐ Others

Appendix B: Information-Finding Tasks

I. Please enter the web site of the Jordan Institute for Families (http://ssw.unc.edu/jif/) before you answer the following questions.

1. Can you find out how to contact the Jordan Institute for Families by mail?

    ☐ Yes   ☐ No

2. Can you find out what is the primary goal of the Jordan Institute for Families?

    ☐ Yes   ☐ No

3. Can you find out who is the Executive Director of the Jordan Institute?

    ☐ Yes   ☐ No

4. Can you find the report "Income and Family Strength in North Carolina" in this site?

    ☐ Yes   ☐ No

5. Can you find which projects are carried out in Orange County through the Jordan Institute?

    ☐ Yes   ☐ No

Appendix C: Post-Test Questionnaire

II. Please give a rating from 1 to 5 for each of the following questions.
A rating of 1 = poor, 3 = average, and 5 = excellent.

	Poor ← Average → Excellent				
	1	2	3	4	5
Is it clear who is responsible for the contents of the page?	☐	☐	☐	☐	☐
Is the scope and purpose of the site clearly stated?	☐	☐	☐	☐	☐
Are there any obvious spelling or grammatical errors?	☐	☐	☐	☐	☐
How reliable are the links (are there inactive links)?	☐	☐	☐	☐	☐
Is the information sufficiently current?	☐	☐	☐	☐	☐
Does the content fit the stated scope, purpose, and audience?	☐	☐	☐	☐	☐
Are there any obvious gaps or omissions in the coverage of the topic?	☐	☐	☐	☐	☐
Is the information of appropriate amount?	☐	☐	☐	☐	☐
Is there an effective organization scheme (e.g. by subject, format, audience, etc.)?	☐	☐	☐	☐	☐
Does the use of graphics, photos and icons contribute to your understanding of the information?	☐	☐	☐	☐	☐
Is the site aesthetically appealing (Good use of graphics and color)?	☐	☐	☐	☐	☐
Do you have any difficulty reading the text (sufficient contrast, adequate font size, etc.)?	☐	☐	☐	☐	☐
Is the site easily navigable?	☐	☐	☐	☐	☐
Does the design of the document/site make it easy to locate information?	☐	☐	☐	☐	☐
Are the links clearly visible and understandable?	☐	☐	☐	☐	☐

Do you have any additional suggestions or comments for improving the quality of the Jordan Institute's web site?

Appendix D: IRB Form

Information Form for Information Quality Evaluation Study of the Jordan Institute for Families Web Site

Purpose of this Study

We are inviting you to participate in a research study of information quality on the Jordan Institute for Families (JIF) web site. This study will evaluate the overall information quality of the JIF web site including accuracy, timeliness, completeness, and accessibility. The study is being conducted by Yutao Peng, a student in the School of Information and Library Science, as a Master's project in conjunction with Dr. Gary Marchionini.

What Will Occur During this Study

As a participant you will be asked questions regarding your experience with web browsers and the JIF web site. After this you will be given five information finding and question answering tasks to do with the JIF web site. Once you have completed those tasks, you will be asked to answer a series of questions regarding your experience with the JIF web site. The entire study should take less than 30 minutes. We hope to include 25 participants.

Your Privacy is Important

We will make every effort to protect your privacy. Any information obtained in the study will be recorded using a participant number, not your name. Since we will be making efforts to protect your privacy, we ask you to agree that we may use any information we get from this research study in any way we think is best for publication or research.

If you have any questions regarding this study, please contact me (Yutao Peng, ypeng@email.unc.edu) or my advisor, Dr. Gary Marchionini (966-3611, march@ils.unc.edu.)

Risks and Discomforts

We do not know of any personal risk or discomfort you will have from being in this study.

Your Rights

You are free to refuse to participate in or to withdraw from the study at any time.

Institutional Review Board Approval

The Academic Affairs Institutional Review Board (AA-IRB) of the University of North Carolina at Chapel Hill has approved this study. If you have any concerns about your rights in this study, you may contact the Chair of the AA-IRB:

>   Barbara Davis Goldman, Chair
>   CB# 4100, 201 Bynum Hall
>   UNC-CH
>   Chapel Hill, NC 27599-4100
>   962-7761
>   aa-irb@unc.edu

Your submission of the questionnaire will be taken as indication of your consent to participate in this study.

Appendix E: Email Message

Dear Faculty and Staff,

     We are inviting you to participate in a research study of information quality on the Jordan Institute for Families (JIF) web site (URL: http://ssw.unc.edu/jif/). This study will evaluate the overall information quality of the JIF web site including accuracy, timeliness, completeness, and accessibility. We expect to work out a list of recommendations based on the results of this study and hope the study will help web designers and web masters to improve the quality of the JIF web site, and to serve the information need of our communities better.

     Please read the attached Information Form for more information about this study. If you are willing to participate, please open the attached questionnaire in MSWord and fill it out electronically at your convenience. You can also print it out and fill it out with pencil or pen. The entire study should take less than 30 minutes. Your submission of the questionnaire will be taken as indication of your consent to participate in this study. After completing the questionnaire, please email it as attachment to Yutao Peng (ypeng@email.unc.edu), or drop it to Yutao Peng's mailbox in the School of Social Work. If you have any question, please do not hesitate to contact me (Yutao Peng, 962-6544).

     Thanks in advance for your participation!

Yutao

****
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Master student
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UNC-Chapel Hill
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****

Appendix F: Demographic Data of Participants

Item No.	Age	Gender	Occupation	Web Experience	JIF experience	Browser
1	27	M	Manager, Continuing Education	Daily	Occasionally	IE
2	57	M	Professor	Daily	Weekly	Netscape
3	44	F		Daily	Occasionally	IE
4	31	F	Social Worker	Daily	Occasionally	Netscape
5	34	M	Clinical Instructor	Daily	Weekly	Netscape
6	56	F	CPS Investigator	Occasionally	Occasionally	IE
7	25	F	MSW student	Daily	Monthly	IE
8	51	F	Editor, Writer, Web Manager	Daily	Occasionally	Netscape
9	51	F	Student	Daily	Occasionally	IE
10		F		Daily	Monthly	Netscape
11	36	F	Executive Assistant	Weekly	Monthly	Netscape
12	36	M	Program evaluator	Daily	Occasionally	Netscape
13	34	F	Homemaker	Daily	Never	IE
14	30	M	Social Worker	Daily	Never	IE
15	36	F	Administration	Daily	Weekly	Netscape
16	31	M	Social Worker/Web developer	Daily	Never	IE
17	50	M	College teacher	Daily	Occasionally	IE
18	43	M	Professor	Daily	Weekly	Netscape
19	26	F	Graduate student	Daily	Never	IE
20	25	F	Student and Research assistant	Daily	Occasionally	IE
21	26	M	MSW student	Daily	Occasionally	IE
22	24	F	Social Worker	Daily	Never	IE
23	28	F	Student	Daily	Occasionally	IE
24	34	M	Project manager	Daily	Never	IE
25	42	F	Evaluation Researcher	Daily	Never	IE

Appendix G: Comments of Participants

- I think the audience isn't clearly enough identified. We know why we want people to look at the site, but it doesn't really come across—is it social workers, researchers, the general public, people in allied professions, others? Some people who find the site might have searched the web for Michael Jordan's name. Why would they stay and look around? YTP has done a good job setting it up, but I don't think the folks who asked her to do it are very clear yet on what they want it to do and how to make it appeal to a diverse audience. Incidentally, YTP, your name doesn't appear on the site, and I didn't see a "mail the webmaster" link anywhere. That's one reason why it's not clear who is responsible for the material found on the site. Also, I don't see a link for e-mail contact with anyone else. The links for aging are better than they were the other day when I looked at them (no more dead ones), but they aren't particularly good choices, in some cases. It might be helpful to have the goals of the Jordan Institute come at the top of the first inside page somehow, rather than at the bottom. Scope and purpose of the site is different than mission of the institute, and that goes back to the problem of who's the audience. While the opening page is pretty, it's also a nuisance after the first visit. Maybe a Flash opener that people could skip after the first visit? Hard to know how current things need to be. I've certainly got old stuff on my page, but those tend to be reports that have some shelf life (probably expired by now), rather than news releases from some time back.

- Relationship to the School; more current information from faculty (some listed here are no longer on faculty)

- Love the map on the Community Service page. You could re-title Community Service since it's really "JIF Projects in NC Counties." In Web Resources, the links should be annotated so that their relevance is clear before the user clicks them. You don't need the link to Flying Bridge in Web Resources. On the Home page, the navigation buttons were off the bottom of my screen, maybe they should be on the side or at the top. Having them visible on the Home page is critical to making the site inviting and easy to use (I sort of figured them were there somewhere so I scrolled around, but inexperienced users might not get it). Title and label EVERYTHING (e.g., on the Home page, the Race, Ethnicity, and Culture poster is just there by itself, the writing is not legible; it forces the user to click it just to find out what it is. Conversely, someone actually looking for the lecture series would have to click on it by trial and error. A title or label would solve this problem. Finally, the website does not do a good job of stating the scope and purpose of the website.

- If search capability was available, I would have used it for Question 5 (Orange County projects). I found the site easy to read and navigate for someone who has never been to the site previously. Contact information on each page might be helpful. For example, on the Events page, I chose the "FYI - a brown bag series.." there was no mention of where this event would be held or who to contact for more info.

– I like the colors used in the pages. The site looks clean and vivid.

– If the Jordan Institute is part of the School, it should follow the same design as the School. The color-style etc does not reflect that it is part of the school.

– Your major challenge, as I see, it is in dealing with usability issues--your navigation menu should be placed along the top or left hand side of each page so that it is consistent with standard navigation layout. Also, you might want to reconsider having the intro/splash page functioning as your home page--it does not offer any content and will decrease your search engine rankings because it contains no actual text.

– It is quite hard to do the last task in previous section. The title "Community Service" is not clear. Some of the pages are quite long, and having some local navigation mechanism will be helpful.

– (1) Is the information sufficiently currently? For this question, I think it is difficult to tell, for all pages have no obvious signs of the time of the documents. As a viewer, he or she may not get any information to help him or her to tell whether the doc is current or not. (2) Is it easy to locate information? Generally speaking, it is easy to locate information. But for a few categories. Like question 4, I went to the new releases instead of the publications. For question 5, I went to the project link instead of the community service to look for projects in Orange County. I think this is not going to cause any problem for users who often access this site. But for a new comer like me, I will confuse some terms with other terms when locating the information I need. But I think the organizing of the information is very efficient, the only thing needed to do may be adding some explanations to differentiate similar labels. (3) Easily navigable? Here I think putting the menu bar back on the top may be better. For the navigation is most done through the menu bar at the bottom. For folks whose monitor is not that big, they need to scroll down every time in order to go to another section. (4) The site map is a better help. For the report is clearly stated under publications in the site map. So when locating the information in the 5 questions. I feel the site map tells the location better. I think maybe to include a second level for the menu bar might help.