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Format and Effectiveness of Business Web Sites

An Interactive Qualifying Project Report

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By

Anthony J. Zinno

Anthony Julian Zinno

Huong Higgins

Professor Huong N. Higgins (Advisor)

ABSTRACT

This project studied the format of Business web sites to identify the elements that contribute to the site's success or failure. Step one was to administer two online surveys to gather web site preferences of the typical web user. Step two was to develop a website rating system based on the above survey results. Step three was to assess the accuracy of the rating system through correlation analysis between the rating system and measures of success as defined by the number of unique visitors to a web site. Web site creation and modification guidelines are provided as a conclusion, which will be useful to those interested in web site development.

ACKNOWLEDGEMENTS

I would like to thank WPI for providing me with the opportunity to create this IQP project. The resources provided by WPI proved extremely helpful. I would also like to thank my friends and family for helping me with the surveys and web site evaluation. I'd like to thank Professor Loiacono for her willingness to share her web site evaluation insight with me. I would especially like to thank my IQP advisor, Huong Higgins, for guiding me throughout the entire project. Professor Higgins' input and assistance was tremendously supportive since day one.

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1.0. INTRODUCTION

1.1. Subject and Goals

The subject of this project is the strategic analysis of online business web sites to determine their format that contributes to their success or failure. The goal of the project is to create a web site ranking system that web developers can use as a guideline to help them create a better web site. This goal involves six sub goals:

1. Determine the possible elements of a web site that contribute to its public standing.
2. Narrow the list of elements down to the most important ones so that they may be studied.
3. Create a rating system for web sites using the elements (to be referred to as Web Site qualities) as a guideline.
4. Apply the rating system to a number of web sites, assigning a **total score** (0 to 100) to each site. The total score (rating) is a measure of how accurately a web site captures the web site qualities overall, as explained in detail in the Methodology.
5. Attempt to make correlations between the rating assigned to web sites and their actual overall success (determined by number of unique visitors) in order to show that high ratings correlate with more success.

6. Comment on the results and create a guideline to help web site developers create or modify their web sites.

1.2. Project Purpose

This project is being conducted because web sites are beginning to be used more and more by businesses. It is important for businesses to realize how much web site structure can affect its popularity and customer satisfaction. Many web sites that exist today could be much more successful if certain details were considered when they were created. These elements of web sites may not be as obvious to some people as they may be to others, so it is necessary to pinpoint and explore them in a systematic manner.

1.3. Technological and Social Aspects of Project

This project is a suitable IQP because it encompasses both technological and social aspects. Incorporating the aspects into the research and development of the project provided for an exceptional learning process. The **technological** aspects include:

1. The Internet and World Wide Web - The Internet will be used for almost every aspect of the project, such as online surveying and web site evaluation. It will also aid in research and presentation immensely.
2. Computers – Computers will be used for access to the Internet, and of course for their aid in the presentation of the project (software).

3. Web Sites, Web Site specifics – Web site format will be studied in a systematic manner, as they are the center of the report. The effects of their format will be studied, and they will be used for background research.
4. Software and Programming Use – Microsoft Word and Excel, as well as Macromedia Dreamweaver will be used to accomplish the goals of the project.
5. Systematic creation of rating system – The rating system and analysis of it will be enhanced through use of mathematics and statistics.

The **social** aspects include:

1. Business study – The study of e-commerce and the effect of a web site on the success of a business will be examined.
2. Survey use – Surveys will be conducted to meet the goals of the project, which involves the use of surveys to understand the elements of web sites that people prefer.
3. Web site user preferences – The preferences of the user of a web site will be examined in the project, and will ultimately help to create the rating scale.

1.4. Project Audience

It is important for anyone interested in creating an online business to understand that the particular features of a web site can greatly contribute to its public acceptance. Those interested in online marketing through the use of web sites should read this paper.

However, anyone with an interest in Business should find the project to be an entertaining and interesting read. It encompasses elements of human preferences, web site development, web site critique and scientific methodology. It might also be of interest to a student utilizing surveys in their methodology to read this project report to help them get an idea as to how to frame and conduct their surveys.

1.5. Output of the Project

The results of this project are to be presented in a couple of forms. A Microsoft Excel spreadsheet will be created and used as a rating scale that calculates the total rating score for a number of web sites based on their format. The total score will be mathematically calculated (higher score is better) based on the results of the surveys, as explained in the Methodology. A graph will be made showing the results of the main survey, which determines the importance of each web site quality. Graphs will be presented showing the correlation between total rating scores and the number of unique visitors of a web site, attempting to prove that sites earning higher ratings are more successful. Correlations will be commented on and a guideline for web developers to follow will be included.

1.6. Findings of the Project

It was discovered that a web site is certainly more successful when it contains the format and qualities that the average web user desires more, as determined by the

surveys. Although a total of ten web site qualities were studied in this project, it was determined that some are of greater significance than others. Five of the qualities particularly stood out to be of extreme importance for a business web site. These qualities, in order of importance, are: Organization of the web site's features, Ease of Use, Security, Visual Appeal, and Spelling and Grammar.

Organization of the web site's features is generally defined as the overall organization of the site. The more organized the web site is, the more likely it is that the customers will be pleased with it. Therefore, it is recommended that web site developers maintain a structured and efficient site, perhaps containing useful features such as a search tool.

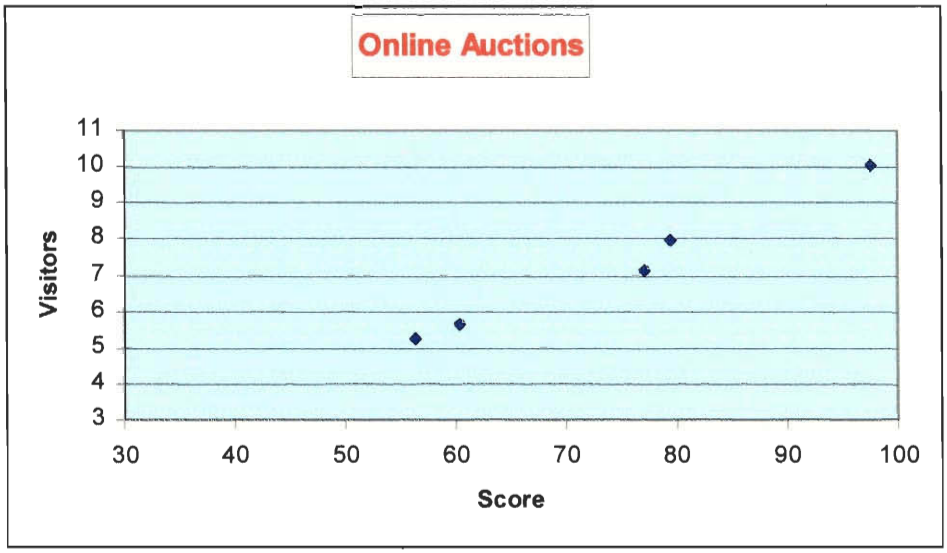
Ease of Use is described as how easy it is to understand navigation of the web site. Is it recommended to keep the web site straightforward to use so that a person of any web-browsing skill level can understand it.

Security is a combination of the actual security measures of a web site, and how secure the user feels when utilizing the site. It is suggested to maintain a "friendly" site where the user feels protected. It may also be of interest to invest in a digital trust service such as VeriSign.

Visual Appeal is a very significant feature for a business web site to have. It is recommended to keep the web site visually attractive while maintaining a "simple" outlook. Also, is a good idea to avoid annoying graphics or pictures on the site, as this could frustrate customers.

Maintaining proper *spelling and grammar* is essential for a business web site. It is suggested to keep the writing relatively simple, as well.

It was proved that the project's rating system, composed of the ten web site qualities, is precise. Higher **total rating scores** in the rating system correlated correctly with higher number of unique visitors to each web site. Therefore, the rating system in this project can be used to accurately evaluate any business web site to find where the strengths and weaknesses of the site lie. A quick glimpse of one of the graphs for the project will be shown. It illustrates the comparison between total quality score assigned by the rating system, and the number of unique visitors.



Much greater details of the results for the project are in the Results (**4.0.**) and Results Analysis (**5.0.**) sections of the report. Detailed conclusions can be found in section **6.0.**, Conclusions and Recommendations.

1.7. What has been learned

I have learned a great amount throughout the completion of this project. First and foremost, I have enhanced my project presentation skills by following the general format of the IQP. My writing and organizational skills have been improved which will aid me greatly for projects in the future that I have to complete, especially my MQP. I built upon my knowledge of researching by learning the different kinds of help WPI provides, such as access to past IQP/MQP reports or the ABI Inform. These forms of research are amazingly helpful and every WPI student should know how helpful they could be. The art of surveying was studied, and I learned how to take a successful and efficient survey to aid in my project goals. I have learned how to make a survey web page through the use of Macromedia Dreamweaver, and how to put the survey on the web and gather the results. Because Microsoft Excel was used to create the rating scale, I have enhanced my knowledge of the program, and learned some new functions to aid in the results.

1.8. Format of Paper

This paper follows the general IQP format. The Background section contains background information that was researched to aid in the writing and presentation of the project. The Methodology section describes in detail the procedure that was carried out for the project, including surveys and creation of the rating scale. The Results section presents the results of the actions taken in the Methodology, and the Results Analysis section goes into detail in analyzing the results. The Conclusions and Recommendations

section provides brief conclusions, and then recommendations that are based on the project results.

2.0. BACKGROUND

2.1. E-Commerce

Electronic Commerce is also sometimes referred to as Internet Commerce and is generally defined as "doing business electronically". To the casual Internet surfer, it may be referred to as "online shopping" (Johnson 1998). Simply put, e-commerce is the exchange of business information between two or more organizations. An example of this would be buying and selling products or services over the Internet. E-commerce also includes buying and selling any item over the Internet, electronic fund transfer, smart cards, and all other methods of conducting business over digital networks. The primary technological goal of e-commerce is to integrate businesses, government agencies, and contractors into a single community with the ability to communicate with one another across any computer platform (Zinro 2000).

Electronic commerce was built on a foundation that was started more than 125 years ago with Western Union's money transfer as an example of telegraph technology (Everett 1998). In the early 1900s the advent of credit cards as a payment system revolutionized the process of automated commerce functions. In the mid 1980s the introduction of the ATM card was the latest improvement to electronic commerce. The Internet was conceived in 1969 when the Department of Defense began funding the research of computer networking. The Internet, as a means for commerce, did not become reality until the 1990s. Before this time, it was mainly a tool for the army, and a research device for some American universities. Its popularity grew when it proved to

become a fast and efficient means to conduct long distance transactions, as well as an effective way to distribute information (Finkel 1999).

Clearly, E-commerce has changed the face of business forever. Companies that are thousands of miles away can complete business transactions or exchange information in a matter of seconds. Dell Computers sells more than $14 million worth of computer equipment a day from its web site (Stewart 1999). By taking their customer service department to the web, Federal Express began saving $10,000 a day. The Internet provides businesses with the opportunity to sell their products to millions of people, 24 hours a day. A study of the Boston Consulting Group claims that business-to-business E-Commerce alone is predicted to grow from $1.2 trillion in 2000 to $4.8 trillion by 2004. United States online purchasing is expected to represent about 41 percent of total purchasing in 2004. This is amazing to think about, considering it will just keep going up, until perhaps one day online purchasing represents almost all of the total purchasing.

The number one advantage that e-commerce possesses is speed. The Internet and World Wide Web give businesses opportunities to exchange messages or complete transactions almost instantaneously. Even with the slowest connections, doing business electronically is much faster than traditional modes. With increased speeds of communication, the delivery time is expedited and that makes the whole transaction from start to finish more efficient. Also, you can find practically any product available for sale on the Internet. Even more significant is the fact that information appearing on the Internet can be changed extremely rapidly. This gives business owners the ability to inform customers of any changes to the service that you are offering. This also allows for

them to update marketing and promotional materials as often and as frequently as they would like.

The second advantage of electronic commerce is the opportunity it offers to save on costs. By using the Internet, marketing, distribution, personnel, phone, postage and printing costs, among many others, can be reduced (Johnson 1998). Online Businesses can be started for extremely low costs compared to the cost of opening a physical store. These extra funds can then be used for marketing and advertising of the products or services. Online business can be done all over the world as easily as you can in your own neighborhood. This opens up greater possibility for customers from all parts of the world.

Using the web to provide customer support, a third advantage of electronic commerce, is an excellent vehicle to help build the reliability and effectiveness of a business product or service. The ability to provide online answers to problems through email or provide an archive section of frequently asked questions for 24 hours a day, 365 days a year, builds customer confidence and retention (Finkel 1999). No matter the business, an online-help feature is an extraordinary advantage to have.

One of the most important aspects of e-commerce for a business is the effectiveness of the business web site, which is studied in this project. This project focuses on the elements or "qualities" of a web site that contribute to its success or failure, as explained in the next section.

2.2. Web Site Elements or "Qualities"

The initial business web site qualities chosen for this project, and a brief description of each, follows. They were chosen based on the research of web site format and on the evaluation of past projects based on a similar topic. These fourteen qualities will be used in the project as described in the Introduction and Methodology sections of the report.

Ease of Use

Ease of use for a web site is generally described as how easy it is to understand how to navigate the web site (Loiacono 2001). The easier the web site is to use, the more people there are that can understand how to navigate it. If a site is difficult to understand or is frustrating, the visitors of the site will probably desire to go elsewhere.

Simplicity of the Domain Name

The simplicity of the domain name is defined as how small and simple the domain name is for the site (Jared 2000). The domain name is the word or words used in the address of the web site, for example www.ebay.com.

Security

Web site security can be described as how secure the site actually is, or simply how secure the visitor of the site feels while browsing or purchasing (Trimbur 2001). Some forms of digital trust services may be evident on the web site.

Organization of the Web Site's Features

This quality describes how organized the web site is as a whole. It could generally be defined as how quickly and efficiently the visitor of the site is able to find what he or she is looking for (Sullivan 1999). Some features of the site can contribute to this quality such as a search function.

Ease of Account Creation

Ease of account creation is simply defined as how quick and easy it is to create an account on the business web site. Some web sites require long and burdening processes, while some others have quick and hassle-free signups (Sweeney 2000).

Spelling and Grammar

Spelling and grammar is the overall quality of spelling and grammar on the web site. It is a fact that potential repeat customers might be lost due to spelling or grammar errors (WebInspect 2002).

Name Recognition of the Domain Name

This quality is defined as how easy it is for people to remember the domain name of a web site. It is usually easier to remember the name if it is smaller and has some kind of innovative feature to it, such as a rhyme (Sullivan 1999).

Frequency of News Updates

The frequency of news updates on a web site is defined as how often the news section of the site is updated by a web master (Emery 1998).

Time it takes for Web Site to Load

This quality is just as it says, the time that it takes for the web site to load (Loiacono 2001). However, it also includes the time that it takes to navigate the site in general, because sometimes it takes longer to navigate throughout the site than to load the original site.

Help Offerings on the Web Site and its Features

Help offerings on the web site are usually included in a section of the site called "Help". They may be documents or Frequently Asked Question sheets, or may be in the form of e-mail support (Hudson 1997).

Use of Pictures or Graphical Aids

Pictures or graphical aids may be used on a web site to enhance customer satisfaction (Wilson 1999). They are more necessary on some web sites than they are on others, but can generally be utilized efficiently on any type of site.

Integrated Communication such as Message Boards and Live Chats

This quality pertains to the integrated communication (Loiacono 2001) built into a web site such as message boards and live chats. The message boards and live chats may be used for the visitors to speak to one another, or they may be used for business to customer relations.

Web Site Informativeness

This quality basically observes how much information is provided about the business on the web site. Some web sites provide lots of background information about the business, and some provide absolutely none (Sullivan 1999).

Visual Appeal

The visual appeal of a site is defined as how visually appealing the average web user finds the site to be. The visual appeal encompasses colors, graphics and fonts of the site (Loiacono 2001). Some sites can have colors and graphics that are annoying and have a negative effect on the visitor of the site.

2.3. Surveying

A survey is used most often gather information from a sample of individuals who are usually just a fraction of the population being studied. For instance, for the project

survey, only a small percentage of web site users will be surveyed. Another example of a survey would be a firm doing one of the potential markets before introducing a new product. Surveys not only have a wide variety of purposes, but they also can be conducted in many ways – including in person, mail, Internet or telephone (Rosetti 1996). The size of the sample depends on the intention of the study. Information is collected by means of consistent procedures so that every individual is asked the same questions in the same way. The intent of this survey is to obtain a composite profile of the web-browsing population.

The sample size required for a survey depends on the statistical quality needed for the survey findings. The well-known national polls frequently use samples of about 1,000 people to get reasonable information (Jackson 1997). A great majority of surveys done in the US are dedicated to commercial or scientific purpose (Trochim 2001). For this project, as time and money are a factor, the amount of survey participants will not be substantially large.

To begin a survey, it is important to plan the questionnaire. The objectives of a survey should be as specific, clear-cut, and explicit as possible. When planning a survey questionnaire, the first step is that the mode of data collection must be decided upon (mail, telephone, internet, person) (Rosetti 1996). Planning the questionnaire is one of the most critical stages in the survey development. Some other factors to take into account when planning a questionnaire include the order in which the questions are asked, their appearance, and such things as the questionnaire's physical size and format. The surveys used in this project are meant to be small and simple, in order to gain feedback.

A critical element in any survey is to identify what group of people the survey is aimed toward. It could be aimed toward a certain geographical location, or just simply a certain age group (Jackson 1997). The survey for this project will probably be aimed towards a certain age group of about 20-25, which is what a large percentage of web site visitors fall into.

Many experienced questionnaire designers actually draft an outline of the final report. The data analysis plan may be quite informal such as a table or flowchart linking everything together. The use of an analysis plan at an early stage is one of the easiest ways to ensure that the questionnaire contains everything that is needed. The larger and more complex the inquiry, the more emphasis should be placed on an analysis plan (Rosetti 1996). For this project, since the survey questions are relatively easy, the analysis plan can be kept to a minimum.

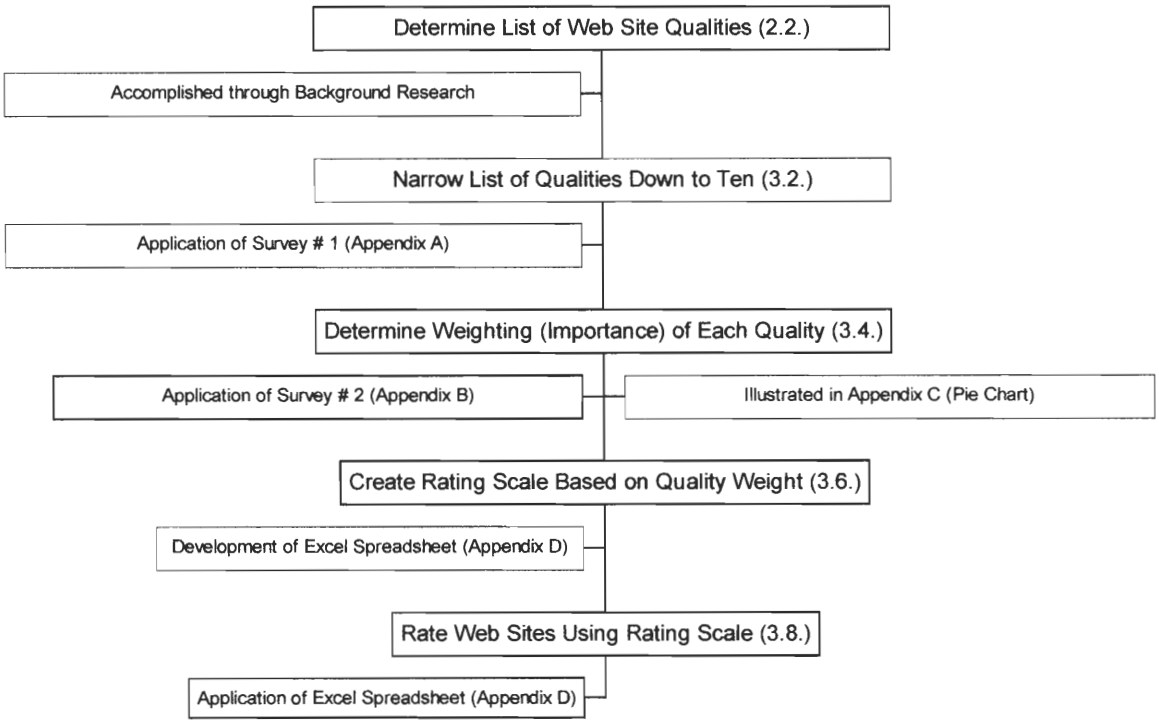
For the question structure, to design a good question, it is crucial that all the concepts be clear and simply expressed. It is important for the participant to understand what each question is asking. In this project, it is important that the participants know the definition of each web site quality. The main method of surveying to be used in this project will be the interval type (with a 1-to-5 rating). This is sometimes referred to as a Likert response scale (Trochim 2001).

It has been learned through the background review of surveying that the most important element of a survey is to keep it relatively simple and clear-cut. I have learned that a survey that can be completed somewhat quickly will get a greater response. Also, it is important that the questions in the survey are easy to understand, and are perceived in the same way by each participant. It was important for me to provide a brief

description of each web site quality in both surveys. I learned that it was important for me to conduct the survey with the right participants to provide accurate results. My goal was to gain participants that can depict the average web site user. Unfortunately, it was impossible for me to obtain very many participants. With a little work, an acceptable amount of people participated in the survey, and although they may not perfectly depict the average web site user, their input should provide for conclusive results.

3.0. METHODOLOGY

3.1. Methodology Overview



3.2. First Step: Determining the List of Qualities

The ultimate result of the methodology portion of this IQP project was to come up with a ratings scale for web sites. Coming up with the ratings scale involved a multi-step process in order to be as accurate as possible, which is detailed below. In this section of the IQP project, the first goal as stated in the literature was to narrow my original list of fourteen web site qualities down to ten. The original list of qualities came from a combination of the literature review (research) and personal choice. The final number of qualities was chosen to be ten because it is an adequate number of qualities to use when determining the overall quality of a web site, and it is a round number to use mathematically. It was decided that the best way to narrow down the original list of web site qualities was to conduct a survey. I determined the type of survey that I would use, the format of the survey, and the target audience for the survey through an extensive research on surveying shown in the literature review. There are two surveys in the project; the second one is described in section 3.5. The details for the first survey follow.

3.3. First Survey Information

- **Respondent Information**

There were exactly 38 survey respondents, mostly taken from a large Internet chat network known as IRC. Some of the respondents were my friends or family. The respondents were generally in the age range of 18-22, with some college education. I

chose to study this group of people because they generally depict the average web user of today. I chose not to study another group of people (perhaps older or younger) because they might not be experienced with web browsing. To ensure that the respondents were treated in an ethical manner, they were asked nicely if they would be willing to donate some of their time to take the survey, and if they weren't interested they were thanked anyway.

- **Sampling Design**

No particular sampling frame was required for this survey, because the survey is not supposed to speak for the whole population, but instead speaks for the population of the average web user. The size of the sample was chosen to be around 40 respondents as recommended to me by some of my peers and some very helpful WPI Professors. Roughly 40 respondents are not very many but should scientifically provide sound results.

- **Questionnaire Design**

A copy of the first survey is included (appendix A). The survey was created with one major goal being to keep it simple so that the respondent can complete it in a very short amount of time. It asks, "Following is a list of 14 Web Site qualities. Please select 4 of them that you feel to be the *least* important when browsing a business Web Site." I decided to make it simple so that the respondent wouldn't mind participating, and also to

help me tabulate the results. It shows the fourteen web site qualities with check boxes next to them, so that the user can select four that he/she feels to be the least important, and click submit. Each quality had a small description next to it to help the respondent understand what it was asking. Each of the web site qualities was put through a small "debugging" procedure, where quality control questions were asked to determine whether the qualities were clearly defined to the average web user. The main concern here was that the qualities were specific enough so that each respondent would interpret them in the *same way*, and that no assumptions were implied. The survey was pre-tested by me, mainly to determine that the database used to tabulate the results was working correctly.

- **Survey Procedure**

The survey method that was employed was to use the World Wide Web. This method was chosen for a few logical reasons. First of all, it is probably easier with this particular survey layout for both the respondent and the administrator if done correctly. Also, it can be assumed that a respondent who is willing to take a web-based survey is probably experienced enough with the Internet to provide adequate results for the survey. On top of this, I was interested in learning how to create a survey web site. The site was created using Macromedia Dreamweaver. A database was created which accepted all of the submissions from the respondents, and reported the results to me. The survey was administered approximately around the week of February 11th, 2002. To increase the response rate of the survey, I asked many people personally if they would be willing to donate their time. The question that I asked was, "Hello, I'm administering a college

project survey which studies the importance of business web site qualities. Could you please take 30 seconds and participate in my survey at www.wpi.edu/~antonio/survey.html? Thank you!" The response rate was roughly 40% - that is, about 40% of the people that I asked agreed to participate. From the respondents' point of view, I was happy to hear that the survey was quick and easy. No problems occurred, except that one person was unable to contact the site for the survey because it was "down" at the time.

- **Survey Limitations**

As no survey is perfect, it is definite that the results of the survey probably don't depict the opinion of the whole web-browsing population. As there were limits to time, only a small amount of participants were used in the grand scheme of things. However, it is safe to say that the results are scientifically accurate, as the target audience and survey format was selected with care.

- **Survey Results Preview**

Again, the goal of the first survey was to narrow the list of 14 qualities down to 10. This was accomplished by viewing the survey results, which will be stated briefly to help follow the methodology of the project. The four qualities that were submitted the most times were omitted from the project, resulting in 10 remaining qualities. There were 152 total submissions (38 respondents times 4 submissions per respondent). Of

these, the qualities that were submitted the most were: Integrated communication such as message boards and live chats (31 submissions), Name recognition of the domain name (25 submissions), Web Site Informativeness (37 submissions), and Ease of account creation (22 submissions). These results seem accurate according to what I would have predicted. Although all of the qualities are important aspects of web sites, these four were determined to be the least important of the whole list. The results make sense because a quality such as ease of account creation, although important, doesn't compare to a quality such as Organization of the Site – as most people would probably agree. Therefore, these four qualities were omitted from the project, and the resulting ten qualities were carried on through the methodology.

3.4. Second Step: Determining the Weight of Each Quality

The next step was to determine the overall importance of each of the ten qualities to the average user, by creating a weightings determination. This was accomplished by conducting a second survey, which was structured similarly to the first one. A copy of the survey is included (Appendix B). The same audience was targeted in this survey, and there were exactly 43 respondents. A copy of the second survey is included. The survey asked, "Please rank the following *business* Web Site qualities in order of importance to you (1 = low importance, 5 = high importance)" and listed the ten web site qualities that were carried over from the results of the first survey. Each quality had a description, as in the first survey, but this time had a small rating scale for the respondent to choose. The respondents chose between 1 and 5 for each quality, and submitted the survey.

3.5. Second Survey Information

The second survey was also created by Macromedia Dreamweaver, and used a database to tabulate the results. It was carried out approximately around the week of February 18th, 2002. The question that was asked to participants was, "Hello, I'm administering a college project survey which studies the importance of business web site qualities. Could you please take a minute and participate in my survey at www.wpi.edu/~antonio/survey2.html? Thank you!" The response rate was roughly 33% for this survey.

3.6. Third Step: Creation of the Rating Scale

The results of the second survey enabled me to create a rating scale determined by weight percents of the ten qualities. They will be shown here to help explain the methodology further. When evaluating the final data, each submitted value between 1 and 5 was given a certain number of points. 1 was worth five points, 2 was worth 10 points, 3 was worth 20 points, 4 was worth 30 points, and 5 was worth 60 points. This was done to ensure that a quality that was voted a score of 5 many times would be worth a good amount more than a quality often voted 1. The total amount of points for the entire survey was 8600. The total points for each quality divided by 8600 determined the weighting of each quality. For example, Security received 1200 points, giving it a weight of 14%. This means that the qualities that were often given a value of 4-5 (out of 5)

ended up with a larger rating than those given values of 1-2. The results, which provided the approximate weight percentages (add to 100%), are as follows:

Organization of web site's features	**29%**
Ease of Use	**17%**
Security	**14%**
Visual Appeal	**9%**
Spelling and Grammar	**8%**
Use of pictures or graphical aids	**6%**
Simplicity of the domain name	**5%**
Frequency of news updates	**5%**
Help offerings on the web site and its features	**5%**
Time it takes for web site to load	**2%**

The results of the second survey shown above seem quite logical. An experienced Internet user could probably tell you that Organization of the web site's features, Ease of Use, and the Security of the web site would definitely be some of the most important web site qualities. One note that might surprise someone that is knowledgeable of the subject is the fact that Visual Appeal only came in 4th place out of the ten. Most people might think that the visual appeal of a web site would be more important to users than would a feature such as security, but it is probable that as users become more adept at web browsing they have a stronger desire for the security of their personal information than for the attractiveness of the site. Fundamentally, it seems that users tend to prefer organized, safe and easy to use sites than ones that load particularly fast or have lots of

pictures. The results of the surveys will be looked into further in the results section of the report.

3.7. Fourth Step: Rating of Web Sites

The next portion of the methodology was to use the final weighting determination, and rate web sites. I decided to use Microsoft Excel to build the data sheet for the web sites, their categories, and their ratings. The final spreadsheet (Appendix D) has five categories each consisting of between 5 and 10 web sites (some very popular, some less popular, per category). As is it hard to find out the number of unique visitors and success of the much more unpopular sites, the spreadsheet doesn't include any extremely unpopular ones. This provides for a better means to discover the small details of a web site that are contributing to its greater success than another one in the same category. It is certain that those sites that aren't popular at all would generally score lower on the rating scale. The spreadsheet categories are: Online Auction, Online Travel Agents, Online Malls, Online Brokers, and General Employment sites. Some examples of these categories are www.ebay.com for online auction, www.travelocity.com for online travel agents, www.buy.com for online malls, www.etrade.com for online brokers, and www.monster.com for general employment sites. The reason that these categories were picked was because they are each very online-related. I tried to choose categories where the company revenue is nearly 100% web-related, or where the brand-name loyalty shouldn't effect the number of unique visitors much at all. The reason for this was of course to ensure that the number of loyal visitors the site is receiving is due to the

overall quality of the web site, and not simply due to the company being significantly larger and more established, where the web site is just another branch of the company. For instance, if I were to evaluate Wal-Mart's web site, it would be hard to determine whether the particular success of the web site was due to the quality of the site, or simply due to loyal Wal-Mart shoppers trying out the web site. On the other hand, when evaluating online brokers, it is easier to determine that the success of the site is probably due to the quality of it. This will help greatly in the Results Analysis section when I try to correlate between the ratings that I give to a web site and the overall success of the site (determined by number of unique visitors).

3.8. Rating Procedure

A total of four people rated the web sites, one of them being me. The average age of the group was twenty. We each evaluated the same web sites, one by one, assigning a value to each quality, as described in detail below. The value assigned was between 0 and 1, where a 0.5 would be 50% and a 1 would be 100% (1 being the best we could give it). This value was assigned to each of the ten qualities, and then multiplied times the weighting of that particular quality to add to the **total score** of the web site. For instance, if the weighting was 20% and the value assigned was 1, +20 would be added to the score of the web site, giving full credit for that particular quality. The final scores of the web sites were averaged, and given a new resulting score. The results and correlations between the scores given and web site success are to be tabulated later.

3.9. Rating Guidelines

In assigning values to each quality, which is ultimately the most important part of the project, some important considerations were taken. The evaluators of the web sites were given general guidelines for each quality, and then a set of specifics. The specifics are a good way to help the person give a score to the quality if he/she is having trouble figuring out what to base it on. For instance, a general guideline for the security quality of online auction sites might be, "Do you feel secure when browsing the site?" (Good). A specific for online auction site security might ask, "Are bidder's email addresses shown to the public?" (Bad).

Quality 1 - Organization of Web Site's Features

How organized is the web site in general? Is it easy to find what you are looking for on the site? Are the categories of the site clearly defined? Is there some form of a search function to help find a particular section of the site? Are there any annoying features that perhaps get in your way when browsing the site such as banner advertisements? Do all of the links work properly on the page? And finally, one of the most important aspects: is the site misleading at all? Does it claim to have things that it doesn't?

Specifics:

- For the Online Auction sites, try to find a jewelry section. Did it take long?

- For the Online Travel Agents sites, try to find the section on vacationing. Did this take long?
- For the Online Mall sites, try to find the games section. Did it take long?
- For the Online Broker sites, try to find a banking section. Did this take long?
- For the General Employment sites, try to search for accounting jobs in Worcester, Massachusetts. Did this take long?

Quality 2 – Ease of Use

How easy is it to use the web site? Are there confusing aspects to it that make you frustrated at all? Would it be easy for a beginning web browser to learn how to navigate the site? Do you need to have any extra computer knowledge besides the ability to point-and-click? Does it seem that it would be easy to create an account with the company's web site?

Specifics:

- For the Online Auction sites, is it easy to understand the way bidding works?
- For the Online Travel Agent sites, is it easy to buy plane tickets?
- For the Online Mall sites, would it be easy to shop for music CD's?
- For the Online Broker sites, is it easy to get stock quotes?
- For the General Employment sites, is it easy to search for jobs?

Quality 3 – Security

How secure would you feel if you were to utilize the web site to purchase something or give personal information to? Check the "help" sections for any information on security for the site. Is there any? Does it seem honest and useful? Check the bottom corners of your browser for indications that the site uses professional security such as VeriSign. Did you get any warnings from your web browser that the web site might not be very secure?

Specifics:

- For the Online Auction sites, check one of the items for sale. Does the bidder's email show for all to see? (A bad sign for security)
- For the Online Travel Agent sites, does it ask for any personal information when trying to figure out plane ticket prices?
- For the Online Mall sites, is your browser taken to a secure site when creating an account?
- For the Online Broker Sites, check for any press releases that commend the site for its user-care.
- For the general employment sites, does it ask you for personal information when trying to search for jobs?

Quality 4 – Visual Appeal

How visually attractive is the web site? Is it easy on the eyes? Are there any annoying pictures or graphics that hinder your navigation of the web site? Is it visually organized? That is – does it use colors to help organize the site's features? Is it overloaded with pictures or unnecessary, annoying graphics?

Quality 5 – Spelling and Grammar

Are there any spelling or grammar mistakes on the site? Are the directions for the site grammatically helpful? That is, are they written in proper English and easy to understand? If there are any spelling errors, it is probable that the site might not be very professionally made. If there are any errors such as these, this quality's score should be downgraded heavily.

Specifics:

- For all of the sites, make sure that you only evaluate the text written by the company itself, and not by one of the users. For instance, the site should not be downgraded because one of the auctions on the site has a misspelled word in the description, or because a job description has bad grammar.

Quality 6 – Use of Pictures or Graphical Aids

Are there useful pictures on the web site? Are there any pictures that enhance the web site more than just text would, such as a picture of an item for sale?

Specifics:

- Ensure that you aren't judging Visual Quality, and that you are judging the usefulness of the pictures rather than their attractiveness.

Quality 7 – Simplicity of the Domain Name

Is the domain name relatively small, easy to read and type?

Specifics:

- Most of the web sites examined in this project will probably have simple domain names, but there are certainly many domain names out there that are very complicated.

Quality 8 – Frequency of News Updates

Is the web site updated often? Is it kept up to date as far as news and current events go? Is it moderated and "kept clean" by administrators?

Specifics:

- Check to see if the main page has a "last updated" note at the bottom. A good website will probably be updated very often.

Quality 9 – Help Offerings on the Web Site and its Features

Is there a help section? Is it useful? Are there any numbers that you can call to contact the company with questions about the web site?

Quality 10 – Time it takes for Web Site to Load

Assuming that your Internet connection is of average speed, does the web site load relatively quickly or does it "hang" or lag often? When clicking a link, does that portion of the web site load just as fast as the other links or do some take a lot longer than others? Is the site always responsive or does it sometimes give you an error message?

4.0. RESULTS

4.1. First Survey Results

The first survey determined the ten qualities that would be carried on to the second survey as described in the methodology. The numerical details of the survey can be seen at the end of section 3.3. The ten web site qualities that were carried on (in no particular order **yet**) were:

Ease of Use

Simplicity of the Domain Name

Frequency of News Updates

Time it Takes for Web Site to Load

Help offerings on the Web Site and its Features

Security

Visual Appeal

Spelling and Grammar

Organization of the Web Site's Features

Use of Pictures or Graphical Aids

This concludes that the following four qualities were omitted from the project:

Ease of Account Creation

Name Recognition of the Domain Name

Integrated Communication such as Message Boards and Live Chats

Web Site Informativeness

As mentioned in the methodology, the ten chosen qualities were carried on and made up the entire second survey.

4.2. Second Survey Results

The second survey results determined the weighting of each quality as chosen by the survey participants. The numerical details of this survey can be seen in section 3.6. The results can be seen in the pie chart labeled Appendix C. They will be explored further in the results analysis, and are as follows (next page please):

Organization of web site's features	**29%**
Ease of Use	**17%**
Security	**14%**
Visual Appeal	**9%**
Spelling and Grammar	**8%**
Use of pictures or graphical aids	**6%**
Simplicity of the domain name	**5%**
Frequency of news updates	**5%**
Help offerings on the web site and its features	**5%**
Time it takes for web site to load	**2%**

4.3. Rating Scale (Excel Spreadsheet) Results

The spreadsheet that uses the weightings to rate web sites as described in the methodology can be seen as appendix D. There is a pretty big range of scores that was assigned to the different web sites in each category. The final scores that were assigned by the four people were generally very similar, providing for conclusive results. It can be seen that each site was assigned a value for each of it components (qualities). These values multiplied times the weighting contributed to its final score. Next to the final score of each site in the Spreadsheet is the number of unique visitors for the month of April 2002, determined by www.top9.com. A unique visitor is defined as someone who visits the web site and found it to his or her satisfaction. A definite trend in the increase

of a final score with the increase of unique visitors can be seen, and will be explored furthers in the Results Analysis section.

5.0. RESULTS ANALYSIS

5.1. Analysis of First Survey Results

The purpose of the first survey, as stated previously, was to narrow a list of fourteen web site qualities down to ten. This resulted in four qualities being omitted from the project: Integrated communication such as message boards and live chats, Name recognition of the domain name, Web Site Informativeness, and Ease of account creation. Although these are certainly valid qualities of web sites, it had been determined by the surveying that they are not as important as the other ones. Someone who is knowledgeable of the subject probably could have predicted this, and the fundamentals behind the choice are probably due to the fact that we are discussing business web sites only.

The first quality that was omitted, integrated communication such as message boards and live chats, was probably less important to survey participants because it doesn't quite meet their needs as much as the ten main qualities. This is probably due to the fact that although integrated communication in a website can be a definite plus, it most likely isn't necessary to aid in the site's success. Integrated communication might be much more preferred to those users browsing sites pertaining to social involvements such as hobby mailing lists or local gatherings. However, as this study is concentrated

only on business web sites, people are more apt to care for other organizational or security features than for the ability to chat or browse message boards while on the site.

The second quality that was omitted, name recognition of the domain name, was probably omitted due to the fact that it shouldn't have much effect on the web site as a whole. In fact, it provides little to no information as to the overall quality of a web site because it has nothing to do with the creation of the site. For example, it may be possible that there is a web site that someone recognizes the name to, but could still be horribly designed. On the other hand, there could be a site that someone has not heard of, and turns out to be very well made and effective towards its success.

Another quality that was omitted in the first survey was web site informativeness. This is usually a portion of a web site that either briefly or with great detail gives some background information about the business and/or its partners. Again, this quality was probably omitted because it isn't very important compared to the other qualities, and because it does not necessarily indicate the worth of a web site. Sometimes it is very interesting to have categories in a web site such as these, but ultimately it does not alter the user's outlook of the site. Also, in a business sense, it can be noted that it is possible that the background of a particular business could be superb, while the web site is poorly designed. As another note, the design of the site could be excellent but missing a portion explaining the business' background, and it would probably still be a very successful site.

The final quality that was omitted through use of the first survey was ease of account creation. Ease of account creation is certainly a helpful and friendly feature of a site, as most people don't want to spend much time or effort attempting to create their account. However, when it comes down to it, the account creation process does not

necessarily affect the user's perception of the site. The user will most likely prefer if the account creation process is simple, but judging from the survey results, he/she will not base their judgment of the site too much from this quality.

5.2. Analysis of Second Survey Results

The second survey determined the importance of each of the ten qualities to the average web user. This helped me to create a weightings determination, as seen in appendix C (pie chart). Analysis of the results follows.

Organization of the web site's features

As seen in the chart, organization of the web site's features was determined to be the most important quality by the survey participants. This is obviously an extremely important feature of a business web site, and for other web sites in general. The site needs organization so that the users can find what they are looking for in a timely manner. For instance, if they go to an auction web site and have trouble finding out what links to follow or procedure to take to place a bid on an item, they may get disgusted and go elsewhere. In the rating scale the organization of the web site's features had the highest weighting factor of all the qualities. An unorganized site ended up with a much lower rating than one with organization.

Ease of Use

Ease of use was determined to be the second most important quality by the respondents. If a web site is easy to use, users will enjoy their stay and have preference over those that

are difficult to use. For example, if they were to go to an online travel agent site and find it difficult to understand the difference between the prices of one-way or round trip tickets, they will most likely want to find another company offering the same type of business. Ease of use was another huge factor into the rating scale as determined by the survey.

Security

Web site security, the third most important feature as determined by the survey, is obviously an extremely important web site quality. People want to feel secure when browsing or purchasing from a web site, and if the site doesn't feel secure this will probably be one of their biggest reasons for going elsewhere. Online fraud is a big issue these days, and people are becoming much more careful when ordering items from web sites. Unfortunately, sometimes it is hard to tell whether a web site can be trusted. It is always a good idea to research a site that the user is going to make a purchase from.

Visual Appeal

Many people would probably agree that the visual appeal of a web site makes their browsing experience much more enjoyable. Although it was determined to be the fourth most important quality, some people would probably even say that it is their main reason for having preference of one site over another. A big part of visual quality isn't so much the fact that the site looks outstanding, but that it isn't visually annoying. Some sites have so many moving graphics or flashing colors that they actually annoy the user, and

he/she will just go elsewhere. Of course, some people simply prefer the site to look good, rather than one that is bland or ugly.

Spelling and Grammar

Most web sites are sure to have perfect spelling, and near perfect grammar. However, some of the unprofessional ones may not. Although this was determined to be the fifth most important quality, some people may be extremely disgusted with a site if it has incorrect spelling or grammar. This can be a big indication that the site could be illegitimate or simply unprofessional. However, people do make mistakes, and it could still be a tremendous site with some spelling or grammar errors – which is probably why this quality only came in fifth.

Use of Pictures or Graphical Aids

Pictures or a graphical aid such as helpful arrows and highlights was determined to be the sixth most important quality. They obviously aren't necessary for a web site to be successful but they can definitely be a benefactor. On some sites they may even be necessary such as on an auction site to show what is for sale. For the most part, a web site can be just fine without pictures – but sometimes they can really make the browsing much more enjoyable.

Simplicity of the Domain Name

Simplicity of the domain name was determined to be a fairly unimportant quality. This makes sense because the domain name usually has nothing to do with the overall quality

of a web site. A site could very well be exceptional but have a long and hard to remember domain name, or it could be a horrible site with a small and easy to remember name. When ordering from a business, a user generally cares a lot less about the domain name than he/she does about the other qualities of the site such as organization and security.

Frequency of News Updates

Although people generally prefer that a site is up to date and updated often, it was determined to be pretty much unnecessary by the survey. This was the eighth most important quality out of the ten, so it was hardly taken into account in the web site ratings. A web site that is updated often will probably also be strong in the other more important qualities, showing a sign of professionalism.

Help Offerings on the Web Site and its Features

Help offerings was determined to be fairly unimportant in comparison to the other qualities. A reason for this could be that people are becoming more experienced with wed browsing overall. Perhaps if the surveys were taken a few years ago, in around 1996, help offerings would have been chosen as one of the more important qualities. Of course, it is excellent for a web site to offer help as a bonus, even these days. But, it was determined that help offerings be considered as a small factor in the final rating scale.

Time that it takes for Web Site to Load

The time that it takes for the web site to load was determined to be the least important quality out of the total of ten. Most web sites these days generally have fast loading times and are very rarely "down" or offline. On top of this, sometimes the speed that a web page loads can be dependant upon the user's Internet connection. This was probably why this particular quality of a web site was determined to be the least important and almost had no factor in the final rating scale.

5.3. Analysis of Ratings Assigned to Web Sites

It can be seen in the Excel spreadsheet (Appendix D) that there was a definite well-sized range of **total scores** (comprised of qualities) assigned to the different web sites. The range of values assigned to the individual qualities, which made up the total scores will be explored below. There aren't any extremely low scoring sites, because as was mentioned earlier, extremely unpopular sites were not analyzed in the project.

Organization of the Web Site's Features

The biggest determinant in the final score of the sites was certainly Organization of the Web Site's Features, which was worth 29% of the total score. Not only was it worth a large amount of points, but also it had a large range of values assigned to it, indicating that this quality changes greatly from site to site. It is clear that this quality should be concentrated on heavily when designing a web site.

Ease of Use

The next biggest determinant in the final score of the sites was Ease of Use, which was worth 17% of the total score and had a considerable range of values assigned to it. The range of values assigned to this quality wasn't as great as was for Organization of the Web Site's Features, telling us that sites are generally more easy to use than they are organized. However, there were certainly some sites that scored low in this quality, and it can be said that some sites could definitely be made easier to use.

Security

Quite a big factor into the final score was Security, which was only worth 14% but had the largest range of values assigned to it. This tells us that many sites probably don't help the user feel very secure, and could use lots of improvement in this area.

Visual Appeal

The Visual Appeal of a site was worth 9% of the total score and had quite an impressive range of values assigned to it for each web site. Another observation is that sites that scored low on Visual Appeal seemed to also score low in Ease of Use. Because Ease of Use was determined to be worth more weight than Visual Appeal, it is probably a good idea for a web developer to concentrate a lot on Ease of Use before Visual Appeal, because it seems that if a site is easy to use it will generally be found to be more visually appealing.

Spelling and Grammar

The Spelling and Grammar quality was given a value of 1 (100%) for each web site because none of them had any significant spelling or grammar problems. The reason for this is because this project examined Business web sites that are at least moderately successful and professional, which leads to correct spelling and grammar throughout the site. However, this does not mean that spelling and grammar on a web site is not important. If some of the more unsuccessful and unprofessional sites were examined, some spelling and grammar errors would surely be found. Most people understand that having bad spelling or grammar is extremely unprofessional, and therefore most sites will not have a problem with this quality.

Use of Pictures or Graphical Aids

A significant factor in the total score of the web sites was Use of Pictures or Graphical Aids, worth 6% of the total score and having a pretty decent range of values assigned to it. The scores are generally high in this quality, however, telling us that most web sites probably make good or efficient use of pictures or graphical aids – or simply do not need to use them. Use of Pictures or Graphical Aids seems to follow the same trend as Visual Appeal, indicating that the user of a site will find the site more visually appealing if it has pictures that aid in the use of the site.

Simplicity of the Domain Name

Simplicity of the Domain Name was also given a value of 1 (100%) for each web site. Again, this is because no unprofessional sites were examined in this project. All of the

web sites that were examined had a fairly simple domain name. It is certainly preferred that a site have a simple domain name instead of a complicated one, but it is not extremely important as it was worth only 5% of the total score.

Frequency of Updates by Web Master, and Help Offerings on the Web Site and its Features

Both of these qualities seem to follow a very definite trend. They were both worth 5% towards the final score of the web sites, so they were obviously not nearly as important as some of the other qualities such as Organization. The similarity of the values assigned for these two qualities can be attributed to the fact that they are both derived from the hard workings of the creators of the web site. A web site with a dedicated web master will generally have both frequent updates and a surplus of help offerings available. Many sites scored well in these qualities, and some could definitely use some improvement. Because these qualities are completely separate from most of the other ones such as Visual Quality and Security, it is important to take them into consideration as they may be overlooked.

Time it takes for Web Site to Load

This quality was worth a mere 2% towards the final score of the web sites. The large range of values assigned to it indicates that some sites probably have long delays between the clicking of links when exploring the site, or just generally load slow when first visiting. Because this quality was worth so little towards the final score, it is clear that it should not be as great of a concern to the web master as perhaps Security, but many

people have different preferences, and it is certain that some people would find this quality to be much more important than some of the other ones.

5.4. Correlations Between Ratings and Web Site Success

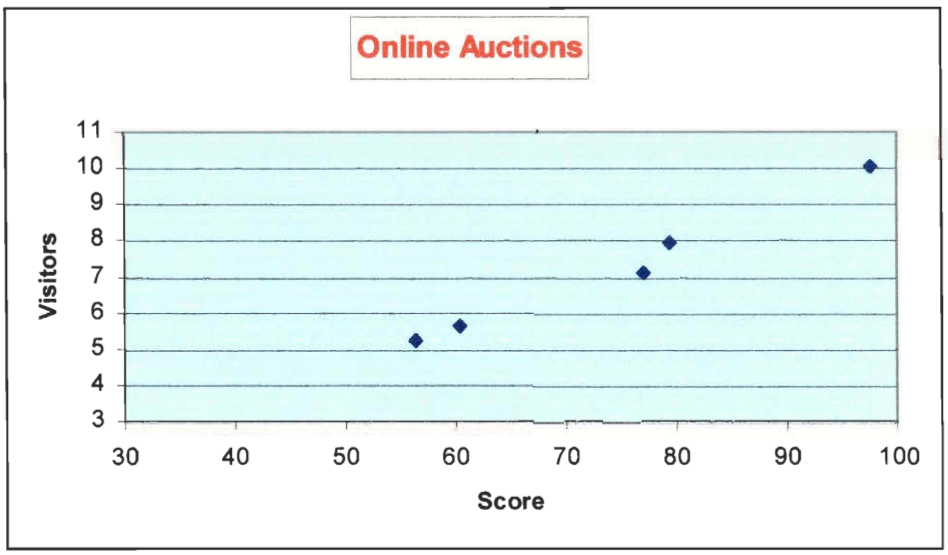
It can be seen in the Excel Spreadsheet (Appendix D) that there is a definite trend between the ratings assigned to web sites and their number of unique visitors. This trend can be seen through use of the correlate (CORREL) function of Microsoft Excel as shown in the spreadsheet. The value of the correlate function usually came out to about 0.8, indicating that the two sets of data move together in a similar manner. The positive number indicates that they move together in the same direction. The closer to 1.0 the value is, the more accurately the two sets of data move together. The data, however, is certainly not linear. For instance, a series of web sites could have received a rating of 70, 80, and 90 but could also have had 2000, 3000, and 8000 unique visitors, respectively. There is a useful and general trend, but it is not linear because it is taking real-world data into account, and because only four people assigned the scores to the web sites. If the project was more large-scale, and more people were to assign scores to the web sites, it is probable that the correlation between the ratings and web site success (number of unique visitors) would be more linear.

5.5. Graphs Showing Correlation for Each Category

In order to aid in the displaying of the correlation between assigned ratings and overall success of the web site, some math was performed on the two sets of data to scale

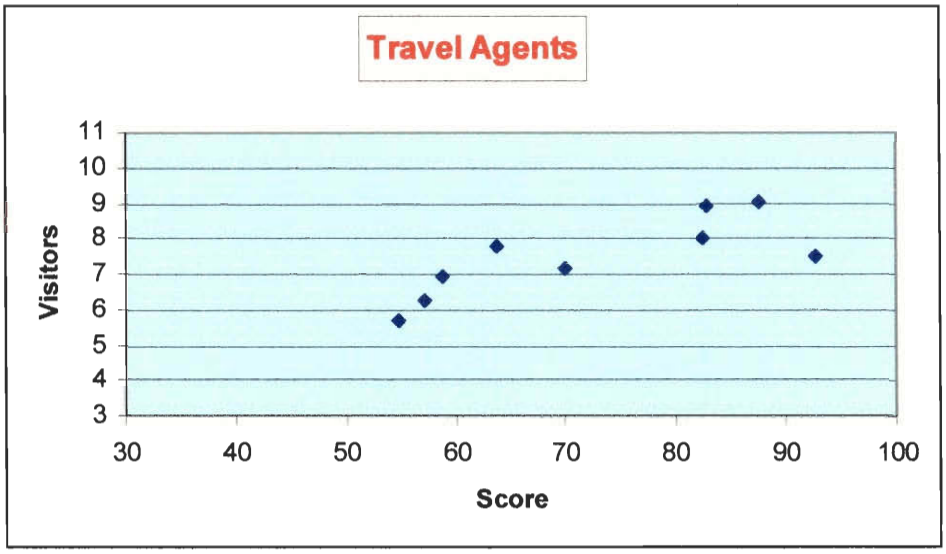
the numbers up or down. The natural logarithm of the number of unique visitors was taken in order to have a smaller range of values for this set of data. To create a larger range of values for the final score, the data was squared and then divided by 100. This provided for two sets of data that could more easily be shown in graphical format. Graphs for each category follow, created by plotting (natural logarithm of unique visitors) vs. (score squared divided by 100). Following is the graph for the Online Auctions category.

Figure A



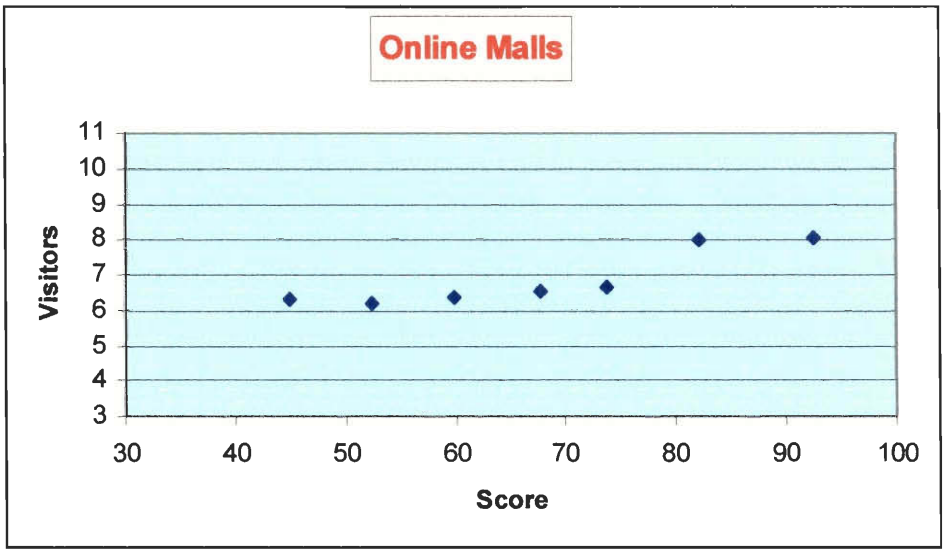
It can clearly be seen that as the assigned total rating score increases, so does the number of unique visitors. Upon examining the graph it can be seen that one of the sites scored a very high score and has an extremely high number of unique visitors compared to the other sites. It can be determined that this site (www.ebay.com) is exceeding expectations, which could be due to other factors than the quality of the web site, such as advertising.

Figure B



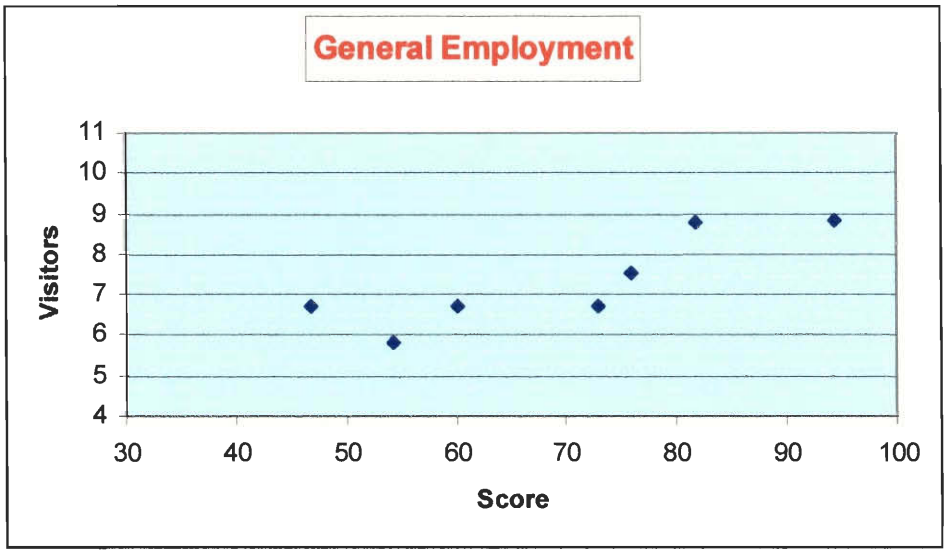
Above is the graph for the Online Travel Agents category. The general correlation between score and visitors is again apparent. However, there are a couple of data points that didn't exactly correlate in the same manner as the others. This is due to the fact that a web site's success is not always going to exactly correlate with the total rating score assigned to it by the four judges. In the real world, things don't always work perfectly, and some sites may have success with a low quality web site or may have a high quality web site and no success. Also, the number of people assigning the total rating score to the web sites was only four, and if there were more the data would most likely correlate better. But, for the most part, the data moves in the same general direction, again proving that the total rating score assigned correlates with the number of unique visitors for each web site.

Figure C



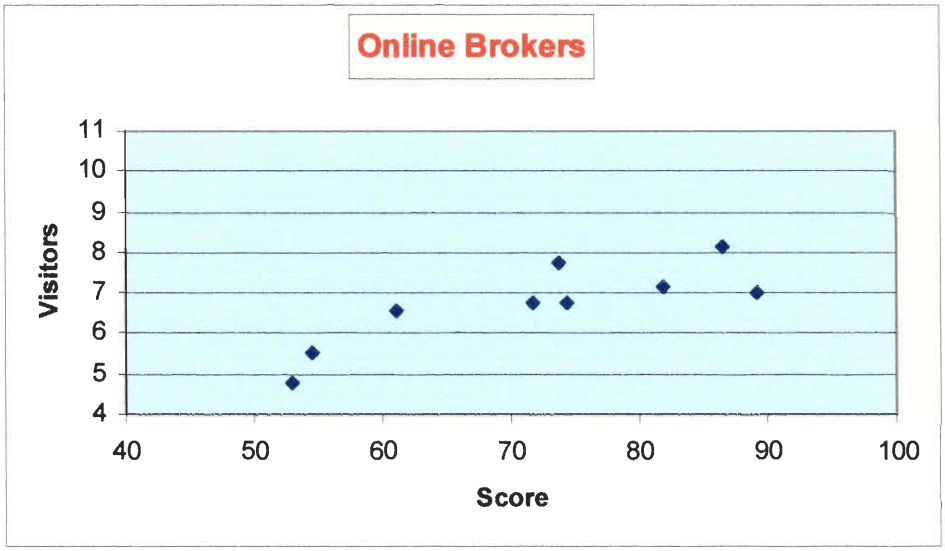
Above is the graph for the Online Malls category. The general increase of the number of unique visitors with the increase in total rating score can be seen. However, the increase in visitors is not very large, providing for a sort of flat graph. This could be due to the fact that many customers utilize the last two web sites on the graph, and the customers that utilize the other sites aren't very picky when purchasing from Online Malls. That is, the quality of an Online Mall web site is apparently less important to the average consumer than is the quality of some of the other categories. This is probably because the user simply wants to find what he or she is looking for, and isn't very picky about the web site's features. However, the general trend can still be seen, indicating that the quality of the web site still helps the business as a whole.

Figure D



Above is the graph for the Online General Employment web sites. The correlation between the data can again be seen, except for one web site. Again, this could be due to the fact that only four people evaluated the web sites, or it could simply be because of another factor not covered in the project. Otherwise, the graph increases in quite a significant manner indicating that users of General Employment sites definitely prefer higher quality web sites that meet their needs.

Figure E



Above is the graph showing the trend in the number of unique visitors vs. the total assigned score for the Online Brokers category. The correlation is again quite apparent, except for a couple of data points, again probably due to experimental error. This category is probably the one where the actual business itself can play a large role in the unique visitors to the site. This means that there will be some people that utilize the web site and don't care at all about the quality of it. However, the trend is still apparent, where the higher assigned scores generally correlate with higher number of unique visitors.

6.0. Conclusions and Recommendations

6.1. Conclusions

It can be concluded that the overall quality of a web site definitely has a positive effect on the web site's success. This has been presented clearly in the Results Analysis section. To run through the individual goals, the first one was to determine the elements (qualities) of a web site that contribute to its public standing. This was successfully accomplished through background research, and the list of 14 original qualities was determined and can be seen in Appendix A (Survey).

The second goal was to narrow the list of qualities down to the most important ones as decided by public opinion. This is what the first survey accomplished, and the result was the omission of four qualities, leaving ten. The list of the ten qualities can be seen in Appendix B (Survey 2).

The third goal was to create a rating system comprised of the ten qualities. This was accomplished by first creating a weighting scale of the ten qualities as determined by the second survey. The results of the second survey (weighting scale) can be seen in Appendix C (pie chart). Using the weightings of the ten qualities, the rating scale was developed, as described in detail in the Methodology section.

The fourth goal was to apply the rating system to a number of web sites. This was accomplished, as explained in the Methodology, and the results can be seen in Appendix D (Excel Spreadsheet).

The fifth goal was to attempt to make correlations between the rating assigned to web sites and their actual overall success. These correlations were made, and they were a

great success. A more in-depth look at the correlations can be seen in the Results Analysis Section, which includes a series of graphs.

The sixth and final goal is to create a guideline to help web site developers create or modify their web sites, also known as the Recommendations section, which follows.

6.2. Recommendations

These recommendations are meant to be of assistance to anyone interested in creating a web site, or improving their current one. They are derived from the results of this project as a whole; the fundamental result being that the overall quality of a web site has effect on the site's success. First and foremost, it is important to look at the pie chart labeled Appendix C. This chart was the result of a survey, and shows the importance of each quality of a web site towards the site as a whole as decided by the average web user. It is important to understand that some qualities of a web site are a lot more important than some of the other ones. For example, from taking a look at the pie chart it is obvious that the security of a web site was determined to be more important than the time that it takes the web site to load. However, it is probably important to some web developers that they consider each of the ten qualities. This is a good idea because some web site visitors prefer different qualities than the other visitors. Because of this, recommendations will be made for each of the ten qualities.

Organization of Web Site's Features

Organization of the web site is extremely important, especially if the goal is to achieve customers. It is necessary to ensure that the user of the site can find what he or she is looking for quickly and efficiently. The categories or links of the web site should be clearly defined, so that the user knows the contents of each one. All of the links should definitely work properly at all times. A search function is probably a good idea to be added to the web site, as some users find it to be a tremendous help. Careful attention should be taken in order to ensure that there are not any annoying elements of the site that provide for lack of organization, such as frustrating advertisement pop-ups. The site should not be misleading at all, it should contain everything that it claims and should try to avoid having extra elements that could hinder the customer's efficiency.

Ease of Use

In general, a business web site should be easy to use. It should be created so that any beginning web surfer will have no problems understanding how to navigate the site. No extra computer knowledge should be necessary besides general web-browsing capabilities. It is recommended that there are no aspects of the web site that could potentially frustrate a user of the site. This is especially important in the account creation section of the web site: it is generally recommended that this section remain relatively simple and efficient.

Security

It should be a main goal of the web developer to create a business web site that ensures that the visitor of the site feels secure when browsing or purchasing from the site. Some possible ways to accomplish this are help offerings or security information availability. A more professional approach would be to contact a digital trust service such as VeriSign Inc. so that they can help build upon the security of the web site. It is a good idea to visit your web site and make sure that no security warning messages are present, as this often worries customers.

Visual Appeal

The visual appeal of a web site is extremely important, as it can even affect some of the other qualities of the site such as organization and security. If the site is visually appealing, it is generally more organized, and customers generally feel more secure when utilizing it. It may be a good idea to contact a web design specialist to enhance the visual quality of the web site. Some important visual aspects are that it is not annoying, and uses good blending of colors to understand the different portions of the site. It should not have too many pictures or annoying graphics to ensure that users of the site that are connected through a slow connection are satisfied.

Spelling and Grammar

In order to obtain professionalism it is necessary that there are no spelling or grammar errors on the web site. Not only this, but the writing on the business web site should be generally easy to read and understand.

Use of Pictures or Graphical Aids

Pictures or graphical aids can be a great benefactor, depending on the category that the web site is in. It is probably a good idea to host a survey deciding whether the customers of the site prefer that there be pictures. If pictures are used, try to avoid using large sized ones that demand a large amount of bandwidth. The pictures should flow well with the site and should not be bothersome at all.

Simplicity of the Domain Name

If the domain name is large or confusing, it might be a good idea to invest in a smaller and simpler one. This is not necessary, but for some categories of web sites it can prove to be extremely accommodating – especially if the name of the site is innovative.

Frequency of News Updates and Help Offerings on the Web Site

It is generally a good practice to show some sign of interest in the development of the web site. Having a news or "what's new" section, and updating it often, can often be a very attractive feature. Web site users tend to enjoy change. Help offerings on the web site are an admirable addition. They should help the visitors learn how the site and the business operate. A "feedback forum" is recommended, so that visitors of the site can inform the web master of any problems that they came across.

Time it takes for Web Site to Load

If the web site loads too slowly, it might be a good idea to find a better host for the site. It is generally a good idea to frequently check and make sure that all of the links on the web site are responsive and capable.

6.3. Limitations and Future Research

Due to the fact that this project was done with a generally small number of survey participants, the results do not portray the views of the entire web browsing community. The results certainly came out satisfactory and are very useful, but they would probably have come out even better if there were additional survey participants. Because time and money were a factor, there were, of course, some restrictions. However, if future research were done on this topic, this project would make a great base for a larger study.

Some improvements that could be made in future research would be to have a larger amount of survey participants. It might also be of interest to separate female and male web users in order to find out their specific interests. If possible, it would be a good idea to have more people rate the web sites, in order to obtain a more accurate value for the total scores for the rating system. But, despite the restrictions, the project was very successful, and an outstanding and constructive learning process.

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APPENDICES

Appendix A – First Survey

Appendix B – Second Survey

Appendix C – Quality Weightings

Appendix D – Rating System (Excel Spreadsheet)

Appendix A (First Survey)

Following is a list of 14 Web Site qualities. Please select 4 of them that you feel to be the *least* important when browsing a business Web Site.

- ☐ Ease of use (*How easy it is to use the web site and its features, such as searching*)
- ☐ Visual appeal (*How attractive it is*)
- ☐ Simplicity of the domain name (*Simple, one word name, or large, multiple word name?)*
- ☐ Name recognition of the domain name (*If the domain name is something that you've heard of before*)
- ☐ Frequency of news updates (*News updates about the business*)
- ☐ Spelling and Grammar (*Correct spelling and grammar throughout the site*)
- ☐ Time it takes for web site to load
- ☐ Organization of the web site's features (*Ease of navigating the web site to get what you are looking for*)
- ☐ Help offerings on the web site and its features (*Customer service links or FAQ availability pertaining to the business or web site)*
- ☐ Integrated communication such as message boards and live chats (*To communicate with other users*)
- ☐ Security (*Use of trusted security web site measures for customer safety*)
- ☐ How informative the web site is about the business (*Web site provides plenty of information about the business*)
- ☐ Ease of account creation
- ☐ Use of pictures or graphical aids, perhaps to show the items that you are shopping for

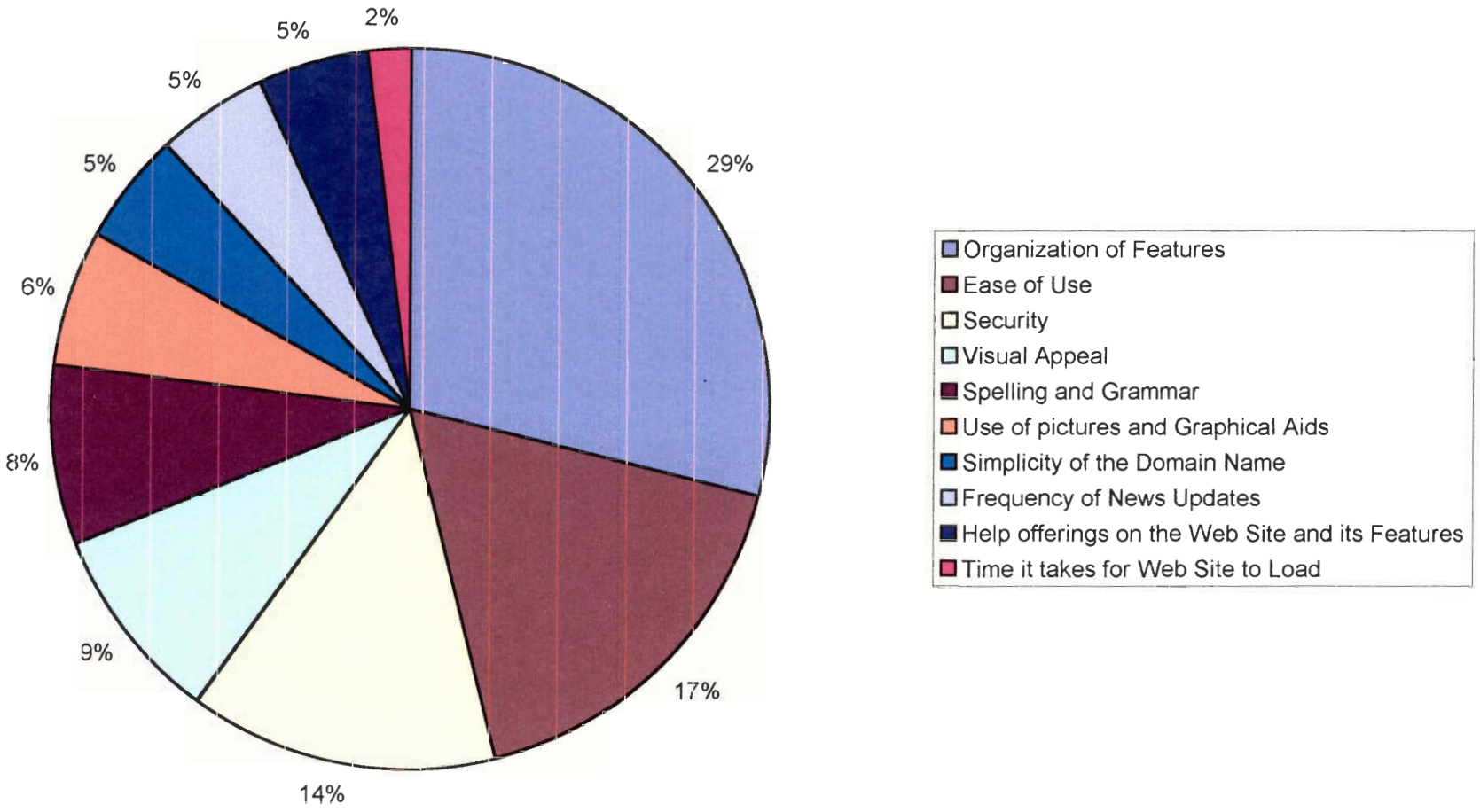
Submit

Appendix B (Second Survey)

Please rank the following *business* Web Site qualities in order of importance to you (1 = low importance, 5 = high importance):

	1	2	3	4	5
Ease of use (*How easy it is to use the web site and its features, such as searching*)	○	○	○	○	○
Visual appeal (*How attractive it is*)	○	○	○	○	○
Spelling and Grammar (*Correct spelling and grammar throughout the site*)	○	○	○	○	○
Security (*Use of trusted security web site measures for customer safety*)	○	○	○	○	○
Use of pictures or graphical aids, perhaps to show the items that you are shopping for	○	○	○	○	○
Simplicity of the domain name (*Simple, one word name*)	○	○	○	○	○
Time it takes for web site to load	○	○	○	○	○
Organization of web site's features (*Ease of navigating the web site to get what you are looking for*)	○	○	○	○	○
Help offerings on the web site and its features (*Customer service links or FAQ availability pertaining to the business or web site)*	○	○	○	○	○
Frequency of news updates (*News updates about the business*)	○	○	○	○	○

Appendix C: Weightings of Web Site Qualities



APPENDIX D (Rating System)

Web Site	Category	Organization of Web Site's Features
www.ebay.com	Auction	0.99
www.bidbay.com	Auction	0.76
www.lowestbids.com	Auction	0.9
www.bidz.com	Auction	0.91
www.bidville.com	Auction	0.78
www.travel.com	Travel Agent	0.72
www.travelocity.com	Travel Agent	0.93
www.onetravel.com	Travel Agent	0.91
www.expedia.com	Travel Agent	0.9
www.sidestep.com	Travel Agent	0.68
www.cheaptickets.com	Travel Agent	0.82
www.trip.com	Travel Agent	0.88
www.lowestfare.com	Travel Agent	0.98
www.hotwire.com	Travel Agent	0.71
www.shop.com	Online Mall	0.72
www.buy.com	Online Mall	0.95
www.ncbuy.com	Online Mall	0.8
www.overstock.com	Online Mall	0.94
www.smartbargains.com	Online Mall	0.65
www.mall.com	Online Mall	0.91
www.pricejester.com	Online Mall	0.62
www.joboptions.com	General Employment	0.71
www.monster.com	General Employment	0.95
www.nationjob.com	General Employment	0.68
www.jobsonline.com	General Employment	0.88
www.flipdog.com	General Employment	0.81
www.careerbuilder.com	General Employment	0.82
www.jobs.com	General Employment	0.8
www.equiserve.com	Online Broker	0.68
www.etrade.com	Online Broker	0.92
www.ml.com	Online Broker	0.71
www.buyandhold.com	Online Broker	0.88
www.schwab.com	Online Broker	0.85
www.ameritrade.com	Online Broker	0.9
www.datek.com	Online Broker	0.88
www.sharebuilder.com	Online Broker	0.95
www.waterhouse.com	Online Broker	0.76

Weight	**Ease of Use**	Weight	**Security**	Weight	**Visual Appeal**	Weight
0.29	0.99	0.17	1	0.14	0.97	0.09
0.29	0.76	0.17	0.51	0.14	0.75	0.09
0.29	0.95	0.17	0.8	0.14	0.82	0.09
0.29	0.94	0.17	0.7	0.14	0.85	0.09
0.29	0.78	0.17	0.59	0.14	0.78	0.09
0.29	0.73	0.17	0.85	0.14	0.48	0.09
0.29	0.94	0.17	0.88	0.14	0.93	0.09
0.29	0.94	0.17	0.81	0.14	0.87	0.09
0.29	0.88	0.17	0.93	0.14	0.93	0.09
0.29	0.71	0.17	0.75	0.14	0.65	0.09
0.29	0.8	0.17	0.85	0.14	0.67	0.09
0.29	0.86	0.17	0.7	0.14	0.78	0.09
0.29	0.95	0.17	0.93	0.14	0.99	0.09
0.29	0.68	0.17	0.72	0.14	0.76	0.09
0.29	0.73	0.17	0.8	0.14	0.78	0.09
0.29	0.98	0.17	0.95	0.14	0.98	0.09
0.29	0.76	0.17	0.79	0.14	0.92	0.09
0.29	0.94	0.17	0.82	0.14	0.88	0.09
0.29	0.77	0.17	0.71	0.14	0.61	0.09
0.29	0.88	0.17	0.75	0.14	0.8	0.09
0.29	0.58	0.17	0.58	0.14	0.38	0.09
0.29	0.73	0.17	0.85	0.14	0.78	0.09
0.29	0.94	0.17	1	0.14	1	0.09
0.29	0.71	0.17	0.81	0.14	0.51	0.09
0.29	0.9	0.17	0.87	0.14	0.96	0.09
0.29	0.78	0.17	0.8	0.14	0.91	0.09
0.29	0.8	0.17	0.9	0.14	0.92	0.09
0.29	0.52	0.17	0.51	0.14	0.55	0.09
0.29	0.68	0.17	0.68	0.14	0.78	0.09
0.29	0.93	0.17	0.88	0.14	0.96	0.09
0.29	0.73	0.17	0.8	0.14	0.82	0.09
0.29	0.85	0.17	0.81	0.14	0.72	0.09
0.29	0.81	0.17	0.79	0.14	0.8	0.09
0.29	0.88	0.17	0.91	0.14	0.82	0.09
0.29	0.71	0.17	0.85	0.14	0.88	0.09
0.29	0.94	0.17	0.91	0.14	0.98	0.09
0.29	0.71	0.17	0.6	0.14	0.49	0.09

Spelling and Grammar	Weight	**Use of Pictures or Graphical Aids**	Weight
1	0.08	1	0.06
1	0.08	0.72	0.06
1	0.08	0.9	0.06
1	0.08	1	0.06
1	0.08	0.75	0.06
1	0.08	0.68	0.06
1	0.08	0.96	0.06
1	0.08	0.88	0.06
1	0.08	0.95	0.06
1	0.08	0.52	0.06
1	0.08	0.61	0.06
1	0.08	0.68	0.06
1	0.08	0.9	0.06
1	0.08	0.75	0.06
1			
1	0.08	0.9	0.06
1	0.08	1	0.06
1	0.08	0.88	0.06
1	0.08	0.93	0.06
1	0.08	0.54	0.06
1	0.08	0.88	0.06
1	0.08	0.8	0.06
1			
1	0.08	0.71	0.06
1	0.08	1	0.06
1	0.08	0.8	0.06
1	0.08	0.91	0.06
1	0.08	0.94	0.06
1	0.08	0.84	0.06
1	0.08	0.58	0.06
1	0.08	0.5	0.06
1	0.08	0.9	0.06
1	0.08	0.65	0.06
1	0.08	0.88	0.06
1	0.08	0.78	0.06
1	0.08	0.81	0.06
1	0.08	0.85	0.06
1	0.08	0.86	0.06
1	0.08	0.59	0.06

Simplicity of the Domain Name	Weight	Frequency of Updates by Web Master	Weight
1	0.05	0.9	0.05
1	0.05	0.7	0.05
1	0.05	0.82	0.05
1	0.05	0.81	0.05
1	0.05	0.8	0.05
1	0.05	0.81	0.05
1	0.05	0.92	0.05
1	0.05	0.93	0.05
1	0.05	0.86	0.05
1	0.05	0.63	0.05
1	0.05	0.77	0.05
1	0.05	0.78	0.05
1	0.05	0.88	0.05
1	0.05	0.81	0.05
1	0.05	0.7	0.05
1	0.05	0.83	0.05
1	0.05	0.84	0.05
1	0.05	0.76	0.05
1	0.05	0.59	0.05
1	0.05	0.88	0.05
1	0.05	0.7	0.05
1	0.05	0.75	0.05
1	0.05	0.98	0.05
1	0.05	0.77	0.05
1	0.05	0.8	0.05
1	0.05	0.9	0.05
1	0.05	0.83	0.05
1	0.05	0.69	0.05
1			
1	0.05	0.8	0.05
1	0.05	0.89	0.05
1	0.05	0.8	0.05
1	0.05	0.82	0.05
1	0.05	0.73	0.05
1	0.05	0.92	0.05
1	0.05	0.84	0.05
1	0.05	0.84	0.05
1	0.05	0.62	0.05

Help Offerings on the Web Site and its Features	Weight	Time it takes for Web Site to Load
1	0.05	1
0.71	0.05	0.95
0.81	0.05	0.9
0.75	0.05	0.6
0.72	0.05	0.72
0.71	0.05	0.68
0.93	0.05	0.95
0.94	0.05	0.84
0.77	0.05	0.88
0.96	0.05	0.91
0.54	0.05	0.63
0.77	0.05	0.9
1	0.05	1
0.88	0.05	0.83
0.55	0.05	0.6
1	0.05	0.86
0.55	0.05	0.82
0.77	0.05	0.88
1	0.05	0.4
0.58	0.05	0.62
0.91	0.05	0.9
0.58	0.05	0.85
0.98	0.05	0.9
0.55	0.05	0.77
0.9	0.05	0.91
0.88	0.05	0.85
0.98	0.05	0.89
0.68	0.05	0.48
0.85	0.05	0.9
0.98	0.05	0.9
0.81	0.05	0.8
0.79	0.05	0.9
0.95	0.05	0.95
0.97	0.05	1
0.93	0.05	0.92
1	0.05	1
0.9	0.05	0.85

Weight	FINAL SCORE	visitors	ln(vis)	score^2	Correlation
0.02	98.77	24000	10.08581	97.55513	0.821053
0.02	75.12	193	5.26269	56.43014	
0.02	89.18	2893	7.970049	79.53072	
0.02	87.82	1260	7.138867	77.12352	
0.02	77.7	290	5.669881	60.3729	
0.02	75.55	528	6.269096	57.07803	0.671546
0.02	93.55	8404	9.036463	87.51603	
0.02	90.85	3084	8.033983	82.53723	
0.02	91.06	7266	8.890961	82.91924	
0.02	74.03	300	5.703782	54.80441	
0.02	79.78	2351	7.762596	63.64848	
0.02	83.59	1267	7.144407	69.87288	
0.02	96.3	1858	7.527256	92.7369	
0.02	76.68	1031	6.938284	58.79822	
0.02	77.36	600	6.39693	59.8457	0.828766
0.02	96.2	3238	8.082711	92.5444	
0.02	82.33	700	6.55108	67.78229	
0.02	90.63	2966	7.99497	82.13797	
0.02	72.36	508	6.230481	52.3597	
0.02	85.87	775	6.652863	73.73657	
0.02	67.03	556	6.320768	44.93021	
0.02	77.53	829	6.72022	60.10901	0.81127
0.02	97.13	6951	8.846641	94.34237	
0.02	73.66	342	5.834811	54.25796	
0.02	90.42	6486	8.777401	81.75776	
0.02	85.38	837	6.729824	72.89744	
0.02	87.13	1933	7.566828	75.91637	
0.02	68.42	842	6.73578	46.81296	
0.02	73.87	257	5.549076	54.56777	0.683011
0.02	93	3406	8.133294	86.49	
0.02	78.13	719	6.577861	61.04297	
0.02	85.92	2261	7.723562	73.82246	
0.02	84.66	843	6.736967	71.67316	
0.02	90.49	1268	7.145196	81.8844	
0.02	86.2	873	6.771936	74.3044	
0.02	94.45	1093	6.996681	89.20803	
0.02	72.76	121	4.795791	52.94018	