African Journal of Business Management Vol. 5(30), pp. 12031-12039, 30 November, 2011
Available online at http://www.academicjournals.org/AJBM
DOI: 10.5897/AJBM11.1152
ISSN 1993-8233 ©2011 Academic Journals

Full Length Research Paper

Internet bookstore quality assessment: Iranian evidence

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Accepted 3 August, 2011

In websites that are designed for e-commerce like B2C, assessment of websites quality in view of users as being their customers is very important. WebQual is a tool for evaluating the usability, quality information and interactive service quality of websites, especially websites that offers e-commerce facilities. In the present study, we using version 4.0 WebQual to assess one of the most viewed bookstore website in view of graduate students. The findings of this study show that despite the assessment, the results are above average, but the amount of points that was obtained is not as important as the indices. Particularly, the aspect of information quality, the difference between points earned and how important the website is impressive are considered in the view of users as the most important aspects in the overall quality of websites. In the concluding part of this article, we obtained the score from this study and that from the Amazon website findings with the same version of WebQual, and it better reveals the strengths and weaknesses. The results of the analysis findings indicate that factors, such as website design, aimed at easing the use and adoption of mechanisms to make sure that financial transactions are done properly. This is more important in the view of users, and should be placed in the administrators and designers' priority of these websites.

Key words: Quality of websites, WebQual 4.0, online bookstore, internet users.

INTRODUCTION

In dynamic and changing environment of today business, organizations are successful with the help of management tools, and new technologies use the opportunities to their advantage. One of the ways for them is stepping to the e-commerce arena. Reducing production costs, increasing security, facilitating business operations, increasing information for better decision making, improving communication with stakeholders, facilitating access to international markets and enhancing competitive capability are only parts of the benefits for e-commerce that experts have mentioned (Seyal et al., 2004). Chaffey (2002) in a simple definition of the electronic commerce defines it as purchasing and selling products via the internet.

The internet gives customers the ability to search information and purchase goods and services directly through internet stores. In internet purchases, customers do not have any physical interaction with the sellers or products, and communicate via the Web, using two-dimensional graphical interface and without face to face interaction with the seller. Therefore, by highlighting the role of the internet in business interactions, websites for organizations will be more important. The importance of websites in environment, which costumers face with invisible dealers, invisible processes, invisible controls and intangible nature of e-business relations, is undeniable; hence, proper design of websites has been very important. According to Kelly and Vidgen (2005), websites design requires the appropriate application of standards and procedures to ensure their performance, availability and capabilities. User's attention and keeping them require deep knowledge of the information needs of users and timely diagnosis of solutions (Barnes and Vidgen, 2002 a).

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Internet customers can easily compare the services of websites. As a result, for companies to keep their customers and build loyalty, they must provide high quality online services. On the other hand, if users, in order to use a website more effectively, are not able to understand the good quality and features that are needed, and do not know what features a good website must have for it to provide them access to information, they consider its usage as a waste of time and thus will stop using it (Ismail and Khanlari, 2009).

Assess quality of websites, considering its role in attracting customers and building loyalty is very important for activists in the field of e-commerce. Many of the research in this area are concentrated on components, graphic design and usability of the website that clients understand than the evaluation of the quality which has higher importance than the technical aspects. Many studies show that if perceived quality of a company's website is more, the company gets to a higher level of performance (Hoffman and Novak, 1996).

In this paper, methods for quality assessment of websites, especially WebQual model was introduced to measure the quality of one of the most used internet bookstores in Iran.

Websites quality assessment tools

As the use of internet and e-commerce become more comprehensive, assess services quality in cyberspace has been more important. In order to introduce and develop measurement tools and scales in this area, several studies have been done. Studies to assess the quality of online services can be generally categorized in two groups: quality of website design and e-commerce quality. Tools used in quality of website design are more emphasized on website, how to design it and its interaction to service and commercial aspects, and tools of e-commerce category had less stress on websites and more focus on interaction and quality service in e-commerce environment. In review of studies on quality of online services, we found numerous studies and some highlights are mentioned here. Liu and Arnett (2000) have focused on four criteria in the field of quality of information and services, the use of the system, being attractive, and system design quality. Yoo and Donthu (2001) presented a tool that was named SiteQual for measuring perceived quality of online stores that have four main aspects: easy to use, beauty in design, processing speed and security. Cox and Dolly (2001) showed that items such as decency, transparency, people or intimacy, have little impact on online sales, but measures such as access, communication, credibility and website appear to affect success in this environment. Gefen (2002) stated that service quality dimensions can be classified into three groups; evident; combines dimensions of accountability; reliability, trust and empathy. In this regard, other tools were presented by Wolfinbarger and Gilly (2002) which generally consists of four sections that include website design, reliability, privacy/security and customer service. With a critical view, Yang and Fang (2004) believe that a little research into comprehensive models of quality of traditional services and quality of information systems has been done and therefore, a single aspect of the quality of online services, especially in services, has not been reflected well. Wang and Pho (2009) used a research framework based on the DeLone and McLean ınformation system success (D and M IS) model for assessing website quality. In addition, a small exploratory study with an emphasis on personal and group interviews has been done in this area. These researches have also interviewed a limited number and size and therefore have not discovered the complex dimensions and sub dimensions of quality. On the other hand, in the conducted researches, experimental and behavioral aspects of quality of service have not been included. And questions such as whether sex, age, income level, educational level, etc., has impact on customers understanding of the quality of online services or not, remains unanswered (Barnes et al., 2001). Further, we introduce the WebQual model and describe its evolution. In this study, this model is used to evaluate the quality of web site as users' point of view.

Introducing WebQual model

WebQual is a tool for evaluating the usability, quality of information and quality of interactive services of websites, especially websites to provide e-commerce services (An overview of WebQual, 2011), user-friendly facilities, easy-to-understand issues, related information of the services in the website, multiplicity of appropriate communication channels with service or product (link tab), suitable time response by site, competitive position when compared with similar sites, innovation and adaptation of relevant images to the relevant services and products that are the main items in website quality which form customers' opinion (Mamaghani and Abbasi, 2011). The first version of the WebQual tool was developed in UK business schools (Barnes and Vidgen, 2000). Development method of this tool is based on the use of the concept of quality function development (QFD). Institute for quality function development considers that this concept includes the following items; understanding the needs of users, thinking about quality systems, psychology, epistemology, increasing optimum quality in system and consequently improving its efficiency on the whole, total quality system for the satisfaction and a strategy for being at the top of the helm of affairs. Nature of electronic services is constantly changing, constituent dimensions of quality services and the criteria for evaluation of these dimensions used are also changing (Tate et al., 2007).

Hence, several editions of the WebQual models are presented in different studies, and to suit the study population and research needs, different versions are used.

In the first version of WebQual model, this tool includes four dimensions: usefulness, ease of use, entertainment and interaction (Ismail and Khanlari, 2009). This model has a questionnaire that had 35 elements in 12 sections, and was used to design other versions of WebQual in the future. Twelve sections of this questionnaire are: suitability for the job information, interaction, trust, response time, attractive design, visual appeal, emotional appeal, being sensitive, being innovative, communications integration, business process and the ability to replace (Barnes and Vidgen, 2001). By using WebQual to assess B2C websites, it was identified that the dimension of quality interaction is not considered in WebQual 1.0. Bitner (1990) believe in many cases, interaction is a service in view point of customer. In WebQual 2.0, interaction aspects were developed by adapting and accepting the work on quality of services, particularly IS SERVQUAL and SERVQUAL (Parasuraman, 1995; Pitt et al., 1997). The SERVQUAL model has been widely used by service providers in various industries to assess key quality attributes with a view to devising strategies for quality improvement (Chen et al., 2011). Although WebQual 1.0 was strong in quality of information dimension, it was weak in service interaction. However, WebQual 2.0 with emphasis on the quality of interaction lost some of the strengths of previous versions. In studying this tool, one can find that all qualitative criteria can be divided into three distinct areas: quality of website, quality of information and quality of service interaction. The next version, WebQual 3.0, was tested to assess the online auction (Barnes and Vidgen, 2001). Analysis results of WebQual 3.0 leads to the identifying of three dimensions of e-commerce websites quality which are usability, information quality and quality of service interaction. WebQual 4.0 is derived from the development of WebQual versions from 1 to 3 and is also adjusted and developed from SERVQUAL. This tool, except overview is composed of three dimensions, usability, information, and interaction services. Usability was more abstract than the other two dimensions and refers to how a user understands and uses a website. Website designers, by suitable designs for various sites, can increase its usability. WebQual 4.0 questionnaire includes 23 questions that will be further referred to (Barnes and Vidgen, 2002b).

Research questions

This study was done to evaluate the quality of one of the most viewed bookstores website in Iran in the view point of users, to identify strengths and weaknesses in this website and assess quality of information, interaction and ease of use. On the other hand, this research provides the ability to focus on the criteria that have a higher importance in view of the users, in order to increase the quality of the reviewed website. Therefore, this study was done with the aim of answer the following main questions:

1. Quality of reviewed bookstore website in main three dimensions of WebQual 4.0, that is, usability, quality of information and quality of interaction is how much in view of users?
2. How much is the Importance of each component of WebQual 4.0 model in evaluating the quality of bookstores web pages in view of users?
3. What is the overall opinion of users about the quality of reviewed bookstore web pages, as one of the most viewed bookstores websites in Iran?

RESEARCH METHODOLOGY

This is a descriptive and survey study, and is sectional in terms of time horizon. The study population is all graduate students (MA and Ph.D.) in University of Sistan and Baluchestan. They are chosen because of their significant numbers, and on the other hand, these students need more specialized books that cannot be found in Zahedan and their distance from big cities is too much. Therefore, the selected populations in this study are more willing to buy books online. Using simple random sampling, 189 people were selected among the population.

Data collection tool in this study is standard questionnaire of WebQual 4.0 that is shown in Table 1. In addition to questions about demographic variables, there are 23 questions in seven fields. Of these, eight questions about usability, seven questions related to the quality of information, seven questions related to quality of interaction and a question related to the overall view, will check the website. In order to evaluate the importance of each evaluation criteria of the quality of website selling books, each of the 22 component used the seven scale except question 23 (question 23 relates to the overall view, but its importance is not considered in measurement). According to the standard questionnaire, its validity was not examined, but to assess its reliability, the Cronbach's alpha coefficient was used. Questionnaire reliability analysis by SPSS software shows that Cronbach's alpha coefficient is 0.926 which indicates acceptable reliability of data collection instruments in this study (Table 2).

DATA ANALYSIS

First, the descriptive statistics was used to describe those that respond to the questionnaire in terms of gender, age and level of experience. Figure 1 shows the relative frequency of sex research samples. As shown in Figure 1, male contributors are more than females. In addition, to know those that responded to the questionnaire, we showed sex, age and approximate internet use on the day (Table 3). As this table shows, the student population selected in this research is a young population and 82% of them use internet more than an hour a day, hence they have the experience of visiting numerous websites and making internet purchases.

Table 1. WebQual 4.0 questionnaire.

Category	Questions							
Usability	1. I find the site easy to learn to operate	1	2	3	4	5	6	7
	2. My interaction with the site is clear and understandable	1	2	3	4	5	6	7
	3. I find the site easy to navigate	1	2	3	4	5	6	7
	4. I find the site easy to use	1	2	3	4	5	6	7
	5. The site has an attractive appearance	1	2	3	4	5	6	7
	6. The design is appropriate to the type of site	1	2	3	4	5	6	7
	7. The site conveys a sense of competency	1	2	3	4	5	6	7
	8. The site creates a positive experience for me	1	2	3	4	5	6	7
Information quality	9. Provides accurate information	1	2	3	4	5	6	7
	10. Provides believable information	1	2	3	4	5	6	7
	11. Provides timely information	1	2	3	4	5	6	7
	12. Provides relevant information	1	2	3	4	5	6	7
	13. Provides easy to understand information	1	2	3	4	5	6	7
	14. Provides information at the right level of detail	1	2	3	4	5	6	7
	15. Presents the information in an appropriate format	1	2	3	4	5	6	7
Service interaction	16. Has a good reputation	1	2	3	4	5	6	7
	17. It feels safe to complete transactions	1	2	3	4	5	6	7
	18. My personal information feels secure	1	2	3	4	5	6	7
	19. Creates a sense of personalization	1	2	3	4	5	6	7
	20. Conveys a sense of community	1	2	3	4	5	6	7
	21. Makes it easy to communicate with the organization	1	2	3	4	5	6	7
	22. I feel confident that goods/services will be delivered as promised	1	2	3	4	5	6	7
Overall	23. Overall view of the Web site	1	2	3	4	5	6	7

Table 4 shows results obtained from a questionnaire study in two dimensions, the importance of each of the 22 questions and the mean scores obtained from questionnaires distributed among 189 people. Also, in each of these aspects, the standard error and rate of standard deviation was mentioned. As Table 4 suggests, respondents have been allowed high importance of cases 1 and 17 that were about ease of use and trust to financial transaction. Among these cases, 19 and 20 are of less importance, which means that the respondents' view is also consistent with the preferences of users, while the induction of a sense of community is less important in the quality of online bookstores. Results of the obtained mean scores of the quality of reviewed online bookstore, as one of the most used online bookstores in Iran, indicated an overall satisfaction of 4.57 from 7, which is the result related to the Question 23 in the questionnaire. Also obtained mean from the 22 questions (4.42) is not far from mean of question 23, Therefore, the user satisfaction of website quality average be assessed above mean.

In total, there are five factors in WebQual 4.0 tool that can be grouped in three main parts, which were previously mentioned (Barnes and Vidgen, 2002 B):

1. Usability: this section contains "design" and "usability"; for example, web appearance, ease of use, handling between pages and transmission of needed messages and images to the user.
2. Information quality: refers to quality of website content and relevance of information to user's purposes; for example, the amount of accuracy, context, format and relevance of information.
3. Interactive service quality: the quality of interactive services offered by the website to user. This part is divided to "trust" and "empathy". For example, issues about transactions, information security, product delivery, personalization and communication with website owners.

This division can be used to better analyze the research's data and compare the results with similar studies. Table 5 shows scores related to the dimensions of this division in current study. As shown in Table 5, usability has the highest mean (4.62) and indicates that usability is the most important factor in the view point of users. Usability in the subgroup with a mean of 4.81 also has the highest mean. The lowest mean belong to interaction service quality with a mean of 4.22 and its subgroup trust with a mean of 4.19.

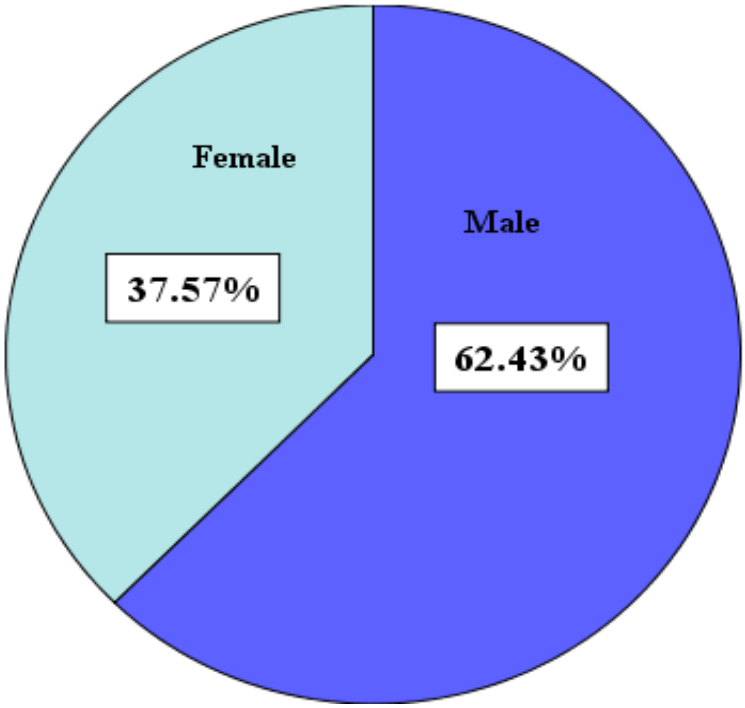

Figure 1. Circular charts based on gender of respondents.

Table 2. Reliability analysis of the results of a study questionnaire.

Cronbach's alpha	N of Items
0.926	45

Table 3. Frequency distribution of respondents by gender, age and Internet hour use.

Respondent		Frequency	Frequency (%)
Sex	Man	118	62.43
	Woman	71	37.57
Age	Less than 25	69	36.5
	25 to 30	102	53.97
	More than 30	18	9.53
Approximate amount of internet use per day	Less than 1 hour	34	17.99
	1 to 3 hours	72	38.09
	3 to 5 hours	32	16.93
	More than 5 hours	51	26.98

Figure 2 will compare scores obtained in the three dimensions of quality of websites with the importance of the research questionnaire in three dimensions: usability, quality information and interactive servicee quality. This chart indicates that although users' assess to the quality of this website is above average, there is difference between the three dimensions with the scores obtained. Thus, to fill the gap, we should plan in each of these

Table 4. Summary of the mean, standard error and standard deviation of data.

Question number	Website score			Importance		
	Standard deviation	Standard error	Mean	Standard deviation	Standard error	Mean
Easy to operate	1.46	0.11	4.87	1.55	0.13	6.31
Interaction with site	1.14	0.08	4.75	1.29	0.11	5.72
Easy to navigate	1.31	0.09	4.76	1.47	0.14	6.15
Easy to use	1.40	0.10	4.84	1.35	0.12	6.23
Attractive appearance	1.22	0.09	4.48	1.92	0.16	4.88
Appropriate design	1.25	0.09	4.65	1.24	0.11	4.91
conveys a sense of competency	1.52	0.11	4.21	1.27	0.12	5.79
Positive experience	1.60	0.12	4.40	1.41	0.13	5.43
Accurate information	1.46	0.11	4.16	1.36	0.13	6.17
Believable information	1.34	0.10	4.38	1.82	0.15	5.98
Timely information	1.34	0.10	4.63	1.88	0.16	5.92
Relevant information	1.44	0.10	4.44	1.57	0.15	5.64
Easy to understand information	1.37	0.10	4.49	1.47	0.14	6.27
Right level of detail	1.46	0.11	4.33	1.69	0.16	5.96
Appropriate format	1.31	0.10	4.38	1.48	0.11	5.78
Good reputation	1.99	0.14	3.95	1.90	0.18	5.62
Safe to complete transactions	1.70	0.12	4.19	1.87	0.17	6.32
Feels secure	1.65	0.12	4.25	1.57	0.15	6.09
Sense of personalization	1.47	0.11	4.14	1.90	0.18	4.65
Sense of community	1.61	0.12	4.29	1.47	0.14	3.86
Easy to communicate	1.56	0.11	4.38	1.87	0.17	5.33
Get promised goods/services	1.64	0.12	4.37	1.69	0.16	6.22
Overall view of the Web site	1.59	0.12	4.57	-	-	-

Table 5. Mean scores of WebQual 4.0 dimension in current study.

Interaction service quality		Information quality	Usability	
4.22		4.40	4.62	
Trust	Empathy	Information	Design	Usability
4.19	4.27	4.40	4.43	4.81

dimensions, especially in the dimension of information quality, which is the most important dimension in the quality of these websites.

Scores obtained from study questionnaire in five dimension of WebQual 4.0 model, that is, web design, usability, information quality, trust and empathy is displayed in Figure 3. Empathy dimension points to the website consistent with customer preferences, inducing the sense of community and the possibility to communicate with website owners. As Figure 3 shows, reviewed internet bookstore is better in the usability more than other four dimensions and achieves lower grade in trust in view of users.

In the study's perspective, a comparison of the results of similar studies was done with that of Barnes and Vidgen (2002b) about Amazon website that was done by WebQual 4.0, because a similar study was done about internet bookstores in Iran. Despite the difference between time and population of these two studies, we compare them because of the same tool used for assessing the quality of each websites. So, we can find and compare the difference between two different kinds of internet bookstores.

As Figure 4 shows, there is a sizeable difference between two websites in 4 of 5 dimensions of WebQual 4.0 model. Particularly, Amazon acts better than the reviewed website in trust, which is a very important issue, but Amazon did not put up a good act in empathy and thus gained a score of 4.19, which is close to that of the reviewed website. This study, by comparing the results

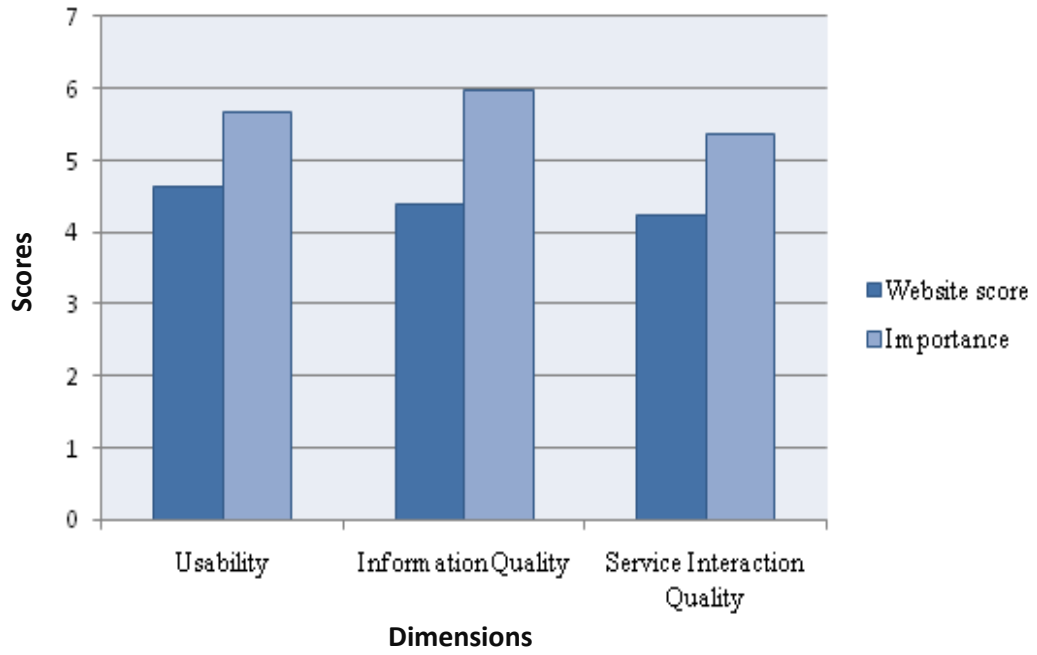

Figure 2. Comparing reviewed website scores with the importance of three dimensions of WebQual 4.0 model.

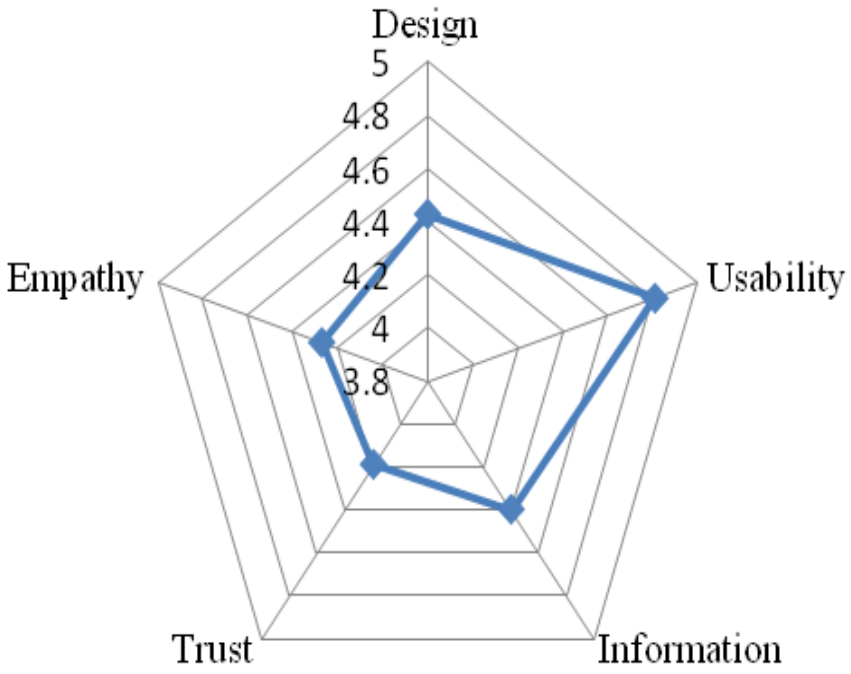

Figure 3. Scores of internet bookstore in the five dimension of WebQual model.

with a pioneer internet bookstore in the world such as Amazon, helps managers of internet bookstores to find their weakness and strength, and fill the gaps.

Conclusion

Despite the importance of professional engineers and

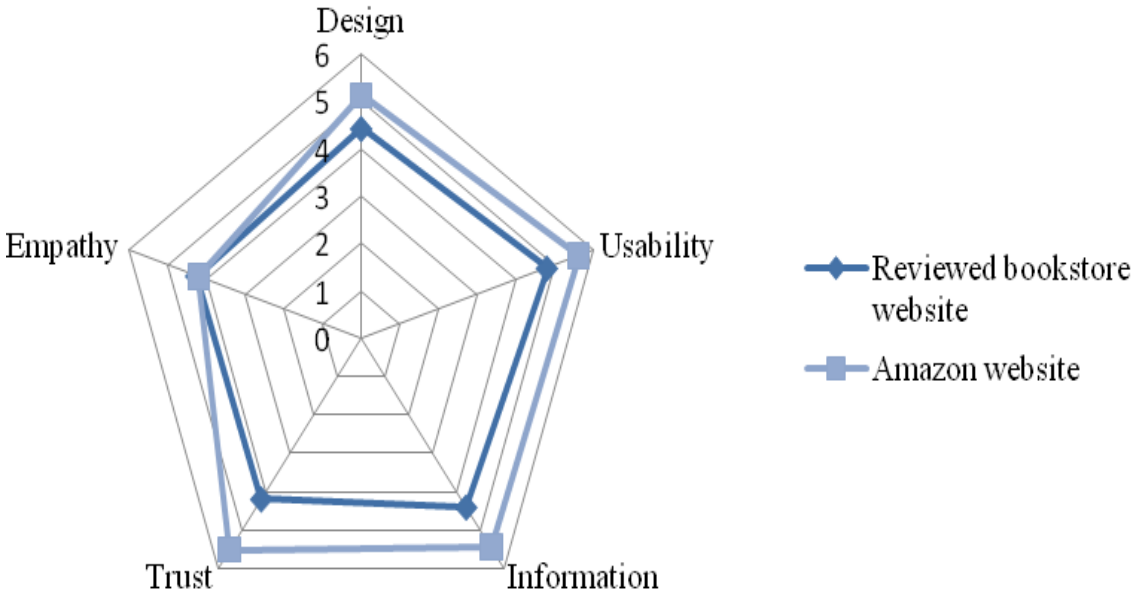

Figure 4. Compare scores of reviewed website and Amazon website based on WebQual 4.0.

designers views and a technical approach in assessing the quality of websites, measuring websites quality, especially in view of users in e-commerce websites with the aim of B2C, has become very important, because users of these websites are considered costumers of the organization. Hence, attention should be paid to several points in design of such websites, that is, ease of use, attractiveness of website, providing accurate information in the appropriate format and detail, reliable financial transactions, protect privacy and allow the user to communicate with website owners. WebQual is a method for evaluating e-commerce quality, and in doing its work in the view of users. Data analysis is based on 5 criteria (usability, design, information, trust and empathy) which in WebQual 4.0 are divided to 3 dimensions (usability, information quality and interactive service quality). Organizations by assessing these three dimensions can supervise website design, content management and integrate related processes.

Although users assess to the quality of this website is above average, but the score obtained is not as important as the indices. Particularly, there is a significant difference between the gained scores and the importance of this aspect in the quality of information which is the most important aspect in view of users. So, by improving the design of websites and fixing the weaknesses, we can smoothen the success way of e-commerce. In this regard, the indicators that have high importance from the view of users should be placed in high priority, and they include website design aimed at ease of use and adoption of mechanisms to make sure to do financial transactions.

At the end, the results of this research, compared to study which took place on Amazon, and Figure 4, points differences between five aspects in two websites. Amazon website have better situation at four dimensions of trust, information, usability and website design; especially, the difference in gained points in trust dimension is impressive. We should have a good planning and a comprehensive occurrence to fill the gap between e-commerce websites in Iran and successful websites, such as Amazon. Usage of standard measuring tools, such as WebQual, helps us to review the progress and resolve possible weaknesses.

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