DEVELOPING AND VALIDATION A USABILITY EVALUATION TOOLS FOR DISTANCE EDUCATION WEBSITES: Persian Version

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ABSTRACT

The web is playing a central role in distance education. The word "usability" is usually synonymous with functionality of the system for the user. Also, usability of a website is defined as something that can be used by a specific group of people to carry out specific objectives in an effective way, with efficiency and satisfaction. There are some useful usability evaluation instruments of websites in other languages. The aim of this study was to develop a Persian instrument to evaluate usability in distance education websites. This study was a methodology research design.

According to review literature, the main structure of evaluation instrument for usability designed. It was consisted of forty-eight items divided in 8 domains. Each domain was composed of closed multiple choice questions in which an ordinal scale with three values is used (always, sometimes and never) that measures the opinion of the evaluator about the frequency of visiting each item selected in the website.

After that, we used face validity method. It refers to what instrument appears superficially to measure. At the final step, we omputed a formal content validity index (CVI) across the experts' ratings of each item's relevance. The content validity index was measured by set of ten experts, who evaluated each item individually. According to CVI, the final version of instrument was composed of 40 questions divided into 8 domains: Navigation, Functionality, Feedback, Control, Language, Consistency, Error prevention and correction, and Visual clarity.CVI score for each phrase was more than 0.75. According to our findings, this instrument has enough validity to apply in evaluation usability of educational websites of Persian distance education websites. However, instrument reliability can be measured in further study.

Keywords: **Instrument Development, Validity, Website Usability**

INTRODUCTION

The globalization of distance education provides many opportunities for developing countries for the realization of their education system-wide goals. The terms *open learning* and *distance education* represent approaches that focus on opening access to education and training provision, excommunication of learners from the constraints of time and place, and offering flexible learning opportunities to individuals and groups of learners.

Open and distance learning is one of the most rapidly growing fields of education, and its potential impact on all education delivery systems has been greatly accentuated through the development of Internet-based information technologies, and in particular the World Wide Web (UNESCO, 2002). Today many institutions in different societies offer distance education or online degrees to individuals who seek opportunities for life-long learning. Distance education (DE) constitutes an important and integral teaching/ learning methodology, one that many feel will support emerging growth trends in education and training worldwide. Various forms of DE delivery, particularly those based on the use of information and communication technology (ICT) tend to be included in the operational scope of many higher education institutes. Universities oriented towards the use of open and distance learning were first in-line when it came to adopting new and emerging technologies, actions that heralded an new era of increasing access to further education and training (Goho, MacAskill, & McGeachie, 2003).

Distance education has involved a more sophisticated technology, moving towards virtual environments in which instruction from a host site is distributed to distant sites by using a combination of live, two-way interactive audio, video, or both, and synchronous and asynchronous computer-based interactions that use local area networks (LANs), wide area networks (WANs), and the Internet (Williams, Pabrock, & Covington, 1999). The web is playing a central role in distance education. While distance education continues to expand by using online or Internet-based technologies, it is important to recognize learners as clients of education and to be concerned about their attitudes toward internet-based learning as well as their satisfaction with educational services provided (Mayzer & Dejong, 2003).

The word "usability" is usually synonymous with functionality of the system for the user. Also, usability of a website is defined as something that can be used by a specific group of people to carry out specific objectives in an effective way, with efficiency and satisfaction. In other words, usability is the property of a mediated learning environment of supporting the users as transparently as possible in the accomplishment of their learning goals (Triacca, et al., 2004).

If we assume that the organization and the usability of the information is partly responsible for a better learning (Najjar, 1996), then a usable e-learning website is not just a resource with a nice "look & feel", but a web application which communicates contents and structures the interaction in such a way that facilitates the learning experience. However, it is clear that usability evaluation is just one specific aspect of the quality assessment of a e-learning environment. A highly usable online course does not guarantee at all a high quality in the learning outcome (Triacca, et al., 2004).

How can usability of an e-learning web application be effectively evaluated and measured? How can evaluators, instructors, reviewers, tutors and course managers be equipped with usable and ready-to-use tools for evaluating the usability of the web application prototyped or deployed? There are some useful usability evaluation instruments of websites in other languages.

This paper presents an adapted version of a proven methodology for usability evaluation which has been already used in a variety of web application domains and that has been used and tailored for e-learning web applications. The aim of this study was to develop a Persian instrument to evaluate usability in distance education websites.

METHODS

This study has done by methodologic research design. Methodologic research refers to investigations of the ways of obtaining, organizing, and analyzing data. Methodologic studies address the development, validation, and evaluation of research tools or methods.

Most methodologic studies are descriptive and nonexperimental, often focusing on instrument development and testing (Polit & Beck, 2003). Stages of this research work were:

• First stage to determine the definition of "evaluation of educational Web site":
Referring to texts and sources in Persian, the theoretical and practical definition of this relationship not found. The common issues found in the literature relating to Web site evaluation are quality, Web design, and usability. Researchers have adopted web quality concept from the quality of product or service. For example, some adopted Kano's Model of Quality as a theoretical framework to evaluate the quality of Web sites (Hung & McQueen, 2004).

• The second stage to determine the domains and phrases:
According to review literature, the main domains of usability evaluation instrument were extracted (Hung & McQueen, 2004; Triacca, et al., 2004; Matera & al, 2002; Masterilli, 2009; Erica & Sherae, 2007).

These main domains consisted of Navigation, Functionality, Control, Language, Feedback, Consistency, Error prevention and correction, Visual clarity. Each domain was composed of closed multiple choice questions in which an ordinal scale with three values is used (always, sometimes and never) that measures the opinion of the evaluator about the frequency of visiting each item selected in the website.

• The third stage to determine tool validity:
We used face validity and content validity methods to validity determination of instrument. Face validity refers to whether the instrument looks as though it is measuring the appropriate construct. Content validity concerns the degree to which an instrument has an appropriate sample of items for the construct being measured. It was done by using a panel of experts to review the items.

At the final step, an instrument's content validity is necessarily based on judgment; we computed a formal content validity index (CVI) across the experts' ratings of each item's relevance (Yaghmaie, 2003).

The content validity index was measured by set of ten experts, who evaluated each item individually. A Part of the questionnaire that show to determine how content validity index will follow in table 1:

Table: 1
A part of the questionnaire to assess content validity by CVI

		Simplicity				Clarity				Relevance			
		1	2	3	4	1	2	3	4	1	2	3	4
A	Navigation												
1	There is a clear indication of the current location		X			X						X	
2	All major parts of the site are accessible from the Home page		X				X			X			
3	Site structure is simple, with no unnecessary levels	X				X				X			

Relevance:
1. Phrase is not related. (Is irrelevant)
2. Phrase is to some extent the need to review.
3. Phrase is related, but has little need to review.
4. Phrase is very relevant.
Be clear:
1. Phrase is not clear. (Is unclear)
2. Phrase is to some extent the need to review.
3. Phrase is clear, but has little need to review.
4. Phrase is very clear.
Be simple:
1. Phrase is not easy. (Complex)
2. Phrase is to some extent the need to review.
3. Phrase is simple, but has little need to review.
4. Phrase is very simple.

RESULTS

Content validity method is a qualitative manner. But in quantitative manner, CVI procedure is to have experts' rate items on a four-point scale. Each phrase points to be derived from three fields of relevance, clarity and simplicity. This range was at least 3 points up to 12. In other words, if there is maximum value of fields, the final point for that phrase will be 12 points. According to number of expert panelist, the average point of each phrase is extracted. If the average points obtain more than 75 percent of 12, it is acceptable content validity index. Since the 8 phrases were obtained less point than 0.75, therefore, only CVI of 40 phrases were confirmed. According to CVI, the final version of instrument was composed of 40 phrases divided into 8 domains: Navigation (included 6 phrases), Functionality (included 4 phrases), Control (included 6 phrases), Language (included 4 phrases), Feedback (included 6 phrases), Consistency (included 4 phrases), Error prevention and correction (included 5 phrases), and Visual clarity (included 5 phrases). CVI score for each phrase was more than 0.75.

Since the responses consisted of three words per condition "never", "sometimes", and "always" is therefore allocated the contract rates from zero to 2, and in the best conditions with the total evaluation points will be 80 of the numeration decimal system (percentage basis) the maximum equivalent of 100 is considered. From other contractual allocation as the third point of cutting rates can be assessed to the 33 poor, 33 to 66 average evaluation, and greater than 66 categories to be desired.

CONCLUSION

Many articles on website evaluation criteria are available. However, access to native tools on appropriate to each country's culture and technology are essential. In order to develop this tool, initially based on library studies, evaluation tool was written, and then use of experts opinion, content validity was reviewed and approved. Therefore, this tool can be useful as an evaluation tool with practical approach for evaluating the usability of distance education websites. However, perhaps due to common strategies in websites designing, some phrases of this tool may be applicable in evaluation of non-educational types of websites, however, researcher has focused and purposed in determining educational websites.

Regarding the development of distance education system in Iran, and the necessity of education website evaluation, these tools can be used as a first step in this way. Future work will consolidate the results of the usability evaluation by application of this tool.

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