

Dimensions of Student Satisfaction on Online Programs

Petek Askar

Hacettepe University, Turkey

Oktay Dönmez

Hacettepe University, Turkey

Gonca Kizilkaya

Hacettepe University, Turkey

Volkan Çevik

Hacettepe University, Turkey

Kerem Gültekin

Hacettepe University, Turkey

INTRODUCTION

This research studies on the evaluation of online courses are usually conducted for investigating the differences between face-to-face and Web-based environments with respect to achievement. Most of the findings indicated “no significant difference” (Russell, 1999). However, only looking at achievement as a quality measure is reducing the complex phenomena into a single variable. Therefore, an analysis of the system with its components is needed.

A study on students’ frustrations with a Web-based distance education course (Hara & Kling, 1999) showed that there were two foci of frustration among students in the course. The first focus was technological problems; students without access to technical support were especially frustrated. The second focus involved the course content and the instructor’s practices in managing communications with students. Students were frustrated because of a lack of immediate feedback from the instructor and ambiguous instructions on the Web and via e-mail.

This article focuses on student satisfaction as a measure of quality of online programs. Learner satisfaction is one of the key factors for the diffusion of online courses. Satisfaction with the online courses often has been included as a dependent variable in studies of distance education and Internet-based

courses (McGorry, 2003). In fact, student satisfaction is a combination of several factors, and in this study, a model is proposed by aggregation of these factors into three groups: usability, instructional design and implementation.

USABILITY

Human-Computer Interaction (HCI) is a scientific discipline that investigates the interaction of humans with computer systems. The part of HCI that deals with the World Wide Web is often called Web usability. Usability is a quality attribute that assesses how easy user interfaces are to use. The word “usability” also refers to methods for improving ease-of-use during the design process. As Nielsen (2000) stated, there are five quality components of usability:

- **Learnability:** How easy is it for users to accomplish basic tasks the first time they encounter the design?
- **Efficiency:** Once users have learned the design, how quickly can they perform tasks?
- **Memorability:** When users return to the design after a period of not using it, how easily can they reestablish proficiency?

- **Errors:** How many errors do users make, how severe are these errors, and how easily can they recover from the errors?
- **Satisfaction:** How pleasant is it to use the design?

ISO (International Organization for Standardization) is developing a new standard for Web usability. The new standard will be of interest to anyone who designs, evaluates or commissions Web sites, and it is likely to have a significant impact in improving the overall usability of the Web. ISO is engaged in developing a new standard titled ISO/AWI 23973 "Software ergonomics for World Wide Web user interfaces." ISO has been developing ergonomics standards for more than 20 years and one of their sub-committees (SC 4) is responsible for standards in the field of human system interaction (Travis, 2004).

The standard contains detailed guidance in four main areas:

- **Purpose and strategy:** What is the purpose of the site and how is this made clear to its users?
- **Content and functionality:** What is the site's conceptual model? How is content organised and how should the site deal with issues such as privacy and personalisation?
- **Navigation and interaction:** How should the content be organised so that users can navigate the site easily? How will users search the content of the site?
- **Presentation and media design:** How should individual pages be designed so that people can make use of the information? How should multimedia be used? (Travis, 2004)

The research studies for testing usability of Web are based on instruments developed for obtaining the perceptions of the users (Prescott & Crichton, 1999). For educational implementations, the views of the learners are critical for the quality of online programs.

INSTRUCTIONAL DESIGN

The systematic method of how to plan, develop, evaluate and manage the instructional process ef-

fectively is termed by instructional design (ID). It is based on what we know about learning theories, information and communication theories, systematic analysis and management methods (Kemp, Morrison & Ross, 1994). Besides the ID approaches, new design methodologies are needed for online programs. Indeed, the critical elements to be considered for online programs are: individual differences, content organization, instructional materials, interactivity, resources, intelligent agents and evaluation.

One of the aims of online programs is to provide individual differences. This means we need an ID approach that takes into consideration learning styles, perceptions, attitudes, motivation, learning strategies, prior learning and intelligences. In the ideal educational environment, a tutor or an intelligent agent can identify students' individual differences and can provide them with learning material individually selected and structured.

Learning styles employed by online learning systems will be tailored to individual students as well. Different students learn in different ways. Online learning systems will identify individual students' preferred learning styles, and present educational materials accordingly. Thus, for example, students who learn best by exploring (for example, learning software by trying every command to see what happens) will be presented a variety of options they may pursue, while students who prefer ordered, linear presentations may be presented with a video stream covering the same material. Students who learn orally may watch and listen to a taped lecture, while students who learn visually may be presented with graphical representations of the concepts being covered (Downes, 1998).

On the other hand, there is problem of identifying these characteristics of students, since the existing assessing methods are for face-to-face teaching-learning environments. However, students' learning strategies are changing according to the material and content.

Learning object is defined by the Learning Technology Standards Committee (2002) of the Institute of Electrical and Electronics (IEEE) as any entity, digital or non-digital, that can be used, re-used or referenced during technology-supported learning. The features of learning objects are self-contained, interactive, reusable and tagged with metadata. By the use

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