Applying KANO Model for Users’ Satisfaction Assessment in E-Learning Systems: A Case Study in Iran Virtual Higher Educational Systems

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ABSTRACT

Many projects fail due to lack of product development to meet customer needs, leading to a waste of organizational resources and non-systematic creation of products. Understanding user behavior and the effective management are key elements in the competitive knowledge-based economy. One of the outlets for knowledge-based economy is e-learning, facilitating education using information technology (IT) infrastructure, which plays an important role in today’s virtual world breaking distance and time obstacles. The purpose of this study is to probe e-learning users’ satisfaction attributes having noticeable impacts on enhancing instruction paradigm. Therefore, using two concepts of asynchronous learning and KANO model, the authors conduct a survey on user satisfaction in e-learning educational centers in Iran via interviews. Five satisfaction factors are pedagogical regulation, user characteristics, user interface, ICT infrastructures, group interactivity, and content. A questionnaire is proposed based on KANO concept and samples are collected. The statistical analyses are worked out on questionnaires applying Statistical Package for the Social Sciences (SPSS) software package. The results show that group interaction and user interface have high satisfaction level while content and infrastructures are the effective factors of dissatisfaction.

Keywords: E-Learning User Satisfaction, Electronic Learning (E-Learning), Information Technology (IT), KANO Model, User Satisfaction

INTRODUCTION

Electronic learning (e-learning) is one of the most significant recent developments in the information and communication technology (ICT) industry. The growth of e-learning systems presented a unique challenge for universities (Wang, 2003). According to some interpretations, e-learning is a part of a continuum process in the presence of technology as a substantial
component for replacing traditional learning systems (ZeKANOvic-korona et al., 2007). E-learning has been adopted in education for a variety of purposes, especially in higher education. Most universities use e-learning as a supplementary tool to enhance in-class instruction (Siritongthaworn et al., 2006).

In the present economic environment, characterized by technological dynamism and intensive competition, the problems of customer profitability have become paramount for the success of any business. Understanding customer needs and leveraging this information to manage customers more effectively is necessary to creating a competitive advantage in the new economy (Gurau, 2001). A marketing perspective suggests that students are as the ultimate customers of an educational system, since satisfaction with an educational product/service is one outcome of the exchange between instructors and students (Wang, 2003). In the e-learning environment, satisfaction includes both pedagogical aspects as well as the information systems. The prior research of fulfillment in the field of e-learning systems also provides a significant background to the e-learning context.

For comparing the e-learning system and traditional learning system, two comprehensive studies are illustrated. Mahdavi et al. (2008) compared traditional system with virtual educational system statistically in Iran. In this way, by the means of economical equations and statistical analysis they illustrated an in depth survey. Finally, by the means of hypothesis testing, they illustrated the best option for educational system is the combination of both systems. Fazlollahtabar and Sharma (2008) compared traditional engineering educational system with the e-learning engineering educational system on the economic dimension using hypothesis testing approach in Iran. The comparison involved trend analysis and prediction based on costs and benefits of the two systems. Interestingly, the analysis revealed that the traditional system had greater advantage on the economic dimension. Several factors support the e-learning system despite the associated economic disadvantage. The final analysis provided results in favor of a blended system which takes advantage of the traditional and e-learning systems.

Different studies have been worked out on cost optimization within e-learning environment. Mahdavi et al. (2008) identified varied cost elements in e-learning educational system and optimized them by the means of mathematical programming. Then they proposed an effective method to estimate the learning cost between any two skills of learner using the grey relational analysis. Mahdavi et al. (2008) developed their previous study combining the grey relational analysis and a radial basis function network to estimate the learning cost between any two skills after identification of varied cost elements in e-learning educational system and optimization by the means of mathematical programming. Fazlollahtabar and Yousefpoor (2009) applied the cost elements in the e-learning educational systems and proposed a combination of grey relational analysis and a radial basis function network to estimate the learning cost between any two skills. An integer programming method was employed to demonstrate that it is possible to facilitate the acquisition of single skills by considering a set of useful compound skills.

Finding the optimal (shortest) learning path for user or tutor has been studied in different researches. Fazlollahtabar (2008) applied a dynamic programming to find the shortest path for users in the e-learning environment. Since the learning parameters are qualitative, he used an analytical hierarchy process approach (AHP) to turn the qualitative parameters into quantitative ones. Fazlollahtabar and Mahdavi (2009) proposed a neuro-fuzzy approach based on an evolutionary technique to obtain an optimal learning path for both instructor and learner. The neuro-fuzzy implementation helps to encode both structured and non-structured knowledge for the instructor. On the other hand, for learners, the neural network approach has been applied to make personalized curriculum profile based on individual learner requirements in a fuzzy environment.

Also Tajdin et al. (2008) designed an assessment method based on real-time simula-
Web-Based Two-Tier Diagnostic Test and Remedial Learning Experiment
Ah-Fur Lai and Deng-Jyi Chen (2010). *International Journal of Distance Education Technologies* (pp. 31-53).
www.igi-global.com/article/web-based-two-tier-diagnostic/40327?camid=4v1a