



The Influence of Critical Factors on E-Learning Satisfaction

Kritik Faktörlerin E-Öğrenme Memnuniyeti Üzerine Etkisi

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Abstract

E-learning as a part of blended learning has advantages compared to traditional learning, and many educational institutions are therefore adopting E-learning platforms. However, problems in the implementation of E-learning with Learning Management Systems (LMS) in the universities can cause students to be unsatisfied. This study examined the critical factors affecting student satisfaction with E-learning and what the students experience and perceive when using Moodle as part of their blended learning in a computer literacy course at a funded University in Turkey. A questionnaire was given to 452 students. Four factors were found to be significant in the research model after an exploratory factor analysis. The study also used structural equation modeling (SEM) for data analysis. The results showed that these 4 factors were learner attitude toward computers, learner Internet self-efficacy, perceived usefulness, and perceived ease of use.

Keywords: Student satisfaction, learning management system, E-learning, structural equation modeling.

Öz

Karma eğitimin bir parçası olarak E-öğrenme, geleneksel öğrenme ile karşılaştırıldığında avantajları vardır ve bu sebeple pek çok eğitim kurumu E-öğrenme platformlarını kullanmaktadır. Ancak, E-öğrenmenin üniversitelerde Öğrenme Yönetim Sistemleri ile kullanımındaki sorunlar öğrencilerin memnun olmamalarına neden olabilmektedir. Bu çalışma, Türkiye’de bir vakıf üniversitesinde okutulan bilgisayar okuryazarlığı dersinde karma eğitimin bir parçası olarak Moodle kullanırken öğrencilerin E-öğrenme ile ilgili memnuniyetlerini etkileyen kritik faktörleri ve öğrencilerin deneyim ve algılarını araştırmaktadır. 452 öğrenciye anket uygulaması yapılmıştır. Keşfedici faktör analizi ile 4 faktörün istatistikî olarak önemli olduğu bulunmuştur. Bu çalışmada veri analizi için aynı zamanda, yapısal eşitlik modellemesi kullanılmıştır. Sonuçlar, bu dört faktörün, öğrencilerin bilgisayarlara olan tutumu, internet ile ilgi öz-yeterlilik, algılanan yararlılık ve kullanım kolaylığı olduğunu göstermiştir.

Anahtar Kelimeler: Öğrenci memnuniyeti, öğrenme yönetim sistemi, E-öğrenme, yapısal eşitlik modellemesi.

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1. Introduction

As part of blended learning, online learning platforms are used at most universities. Online learning or E-learning platforms facilitate knowledge construction, knowledge gathering, and sharing it among learners. E-learning brings a new perspective to education by liberating learners from space and time. It is flexible and provides access to materials, which must be properly prepared in order to promote learning.

Different terminologies have been used for E-learning. Online learning, distributed learning, and distance learning are a few to mention. The learner is at a distance from the instructor, and the learner gains access to learning materials via a computer (Ally, 2004). Ally (2004) defines E-learning as:

“The use of Internet to access learning materials; to interact with the content, instructor, and other learners; and to obtain support during the learning process, in order to acquire knowledge, to construct personal meaning, and to grow from the learning experience” (p. 5).

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Rovai, Ponton, and Baker (2008) also define distance learning as “Any type of learning in which the components of a structured learning activity (i.e., learners, instructor, and learning resources) are separated by time and/or geography” (p. 1).

Similarly, Simson, Smaldino, Albright, and Zvacek (2009) argue that the purest form of distance education occurs at different times and in different places. In other words, learners choose when and where to learn and when and where to access instructional materials.

Online lectures using audio and video, electronic materials, PowerPoint slides and discussion in the form of forums are used in E-learning (DeRouin, Fritzsche, & Salas, 2005). These E-learning systems utilize both synchronous and asynchronous methods and offer many advantages compared to traditional methods. With asynchronous methods, students can send emails to the teacher anytime and use recorded audio and video materials and textual materials, whereas synchronous methods enable students to chat with text or voice. People can learn from each other and can also access to experts in the field (Guha & Maji, 2008).

In the literature, there are studies in which E-learning success is determined by the factors that affect student satisfaction. E-learning effectiveness and student satisfaction are important when using E-learning, and there are several factors that can account for user satisfaction (Alonso, Lopez, Manrique, & Vines, 2005). One of the problems in E-learning implementations is that some students stop using E-learning after a while.

Sun, Tsai, Finger, Chen, and Downing (2008) developed a model for examining the dimensions affecting learners' satisfaction in E-learning. The dimensions were learners, instructors, courses, technology, design, and environment. They found that aspects such as learners' computer anxiety, instructor attitude toward E-learning, course flexibility and the quality of E-learning, perceived usefulness, and ease of use, and lastly diversity in assessments were influencing learners' perceived satisfaction (Sun et al., 2008).

This study first mentions some theoretical basis of blended learning and its relationship to E-learning. It then discusses prior studies and finally determines the critical factors for user satisfaction from a scale adapted from the model of Sun et al., (2008): what the students experience and perceive in using an LMS like Moodle as a part of their blended learning in a computer literacy course in a funded University in Turkey. The data were obtained via a questionnaire with a sample of 452 students. The results are analyzed to determine what creates a successful E-learning environment.

2. The major functions of blended learning and E-learning

Blended learning includes face-to-face and online learning (Fig. 1). Littlejohn and Pegler (2007) argued that blended E-learning is studying online with teachers as facilitators, using the virtual environment to access course materials, and asking questions whether on- or off-campus. According to Garrison and Vaughan (2008), blended learning integrates verbal and text-based communication while creating synchronous, asynchronous, direct and mediated modes of communication. The proportion of face-to-face and online learning activities may significantly vary. In blended learning, students manage their learning, interact with their instructors, visit updated class material and complete assigned homework via an online platform while having face-to-face teaching.

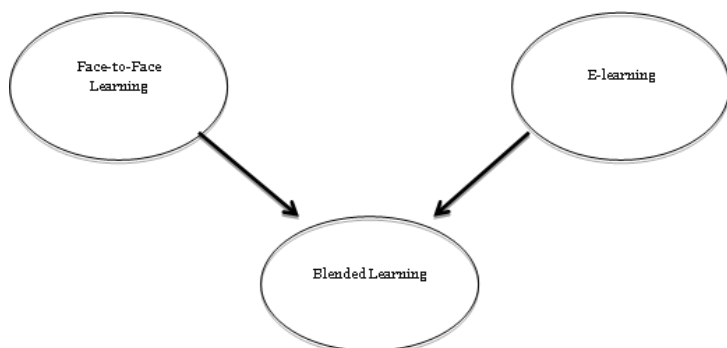


Figure 1. *Blended Learning*

The major functions of the online platform and E-learning system include teaching/learning materials, assignments, and forums. Students can answer questions posted by the instructor and discuss it with their peers in the forum. They can also access class assignments and complete them before the deadline, to which they can receive immediate feedback from their instructors. Moreover, an Internet link for students to access to audio and visual materials can be

created. In this study, as part of blended learning E-learning platform offers a welcome page which includes the syllabus, the discussion message, teaching/learning materials in the Word format, Acrobat PDF documents and PowerPoint slides which are made available so that students can access them anytime and anywhere and study before coming to class.

3. Prior Studies

Measures of successful E-learning implementation are users' satisfaction and continuance of usage of the system (Ramayah, Noor, & Lo, 2010). Satisfaction in a system can be measured with factors that affect the system and satisfaction models in which expectations from the system and factors that affect the measuring system satisfaction determined are used as an important approach in research (Kantoglu, Torkul, & Altunisik, 2013). Various studies have examined and discussed the use of E-learning and aspects that influence students' satisfaction. Kantoğlu et al. (2013) also argue that expectations and quality are important in satisfaction. Therefore, this study uses Sun et al.'s (2008) model via structural equation model and looks at the studies in which quality is also a concern for influencing user satisfaction and continuing usage of E-learning system as follows.

In a study, a decomposed Expectancy Disconfirmation Theory (EDT) model was proposed. The study showed that satisfaction determines users' continuance intention. In the satisfaction formation process, the roles of usability, quality and value are also clarified (Chao-Min, Meng-Hsiang, Szu-Yuan, Tung-Ching, & Pei-Chen, 2005).

Hassanzadeh, Kanaani, and Elahi (2012) presented "MELSS", a model for measuring E-learning systems success. They showed that technical system quality, educational system quality, content and information quality, service quality, user satisfaction, intention to use, user loyalty to the system, and the benefits of using the system and goals achievement were relevant components (Hassanzadeh et al., 2012).

Dorobat (2014) proposed a comprehensive model for the evaluation of an E-learning System Success (ELSS). It was based on overall system quality, user perceived control, usefulness and user satisfaction, user attitude, social factors, and benefits of using E-learning.

In their study, Kantoğlu et al. (2013) proposed a model which examined the factors affecting student satisfaction with E-learning. After an exploratory factor analysis, their model with 15 dimensions increased to 16 dimensions. These 15 factors were student-instructor interaction, student's use of computer, student's perception toward computer use, instructors' interest to E-learning, course material quality, development traceability, usability, system accessibility, system interaction quality, quality, flexibility, material updating, university support, student tracking and course management. The findings showed that only 6 of these affected students' satisfaction (Kantoğlu et al., 2013).

The factors that predict perceived self-regulation in E-learning were also investigated in a study of 196 university students using an E-learning system. Their answers to a questionnaire showed that perceived satisfaction, perceived usefulness and interactive learning environments were the predictors in the learning environments (Liaw & Huang, 2013).

The users' satisfaction with E-learning courses was measured in a study based on 239 students' interviews. The quality attribute expectations were classified with a marketing perspective using the Kano Model (Gandolfo & Federica, 2013).

Educational institutions have to increase the quality of their service to students. They are considered as customers needing to graduate from the institution with a high level of satisfaction. In his study, Cakmak (2013) examined the quality of distance education and found that students were dissatisfied with it.

In the Shee and Wang (2008) study, students used Moodle as an E-learning platform. Even though there were some problems concerning student use of Moodle, they mostly indicated satisfaction with the method.

The authors of another study examined the aspects that influenced students' satisfaction and achievements. Among the course characteristics, students' achievement goals ranked highest for success with regard to their expectations. The students' view of the instructor's expertise and instructor's scaffolding were ranked highest for their learning achievement and course satisfaction based on their experiences. The results of the study showed the importance of adapting instruction to enhance students' motivation and goals (Paechter, Maier, & Macher, 2010).

Seung and Vachon (2005) looked at the satisfaction-dissatisfaction aspects of E-learning in their qualitative study. The study used Thorndike's law of effect and Herzberg's motivation-hygiene theory. One of the lessons learned was the need to create "organizational readiness".

In a study the use of E-learning in corporate universities was examined. The authors argued that user preference perspectives must be integrated into E-learning (Macpherson & Wilkinson, 2005).

Hölbl and Welzer (2010) argued that E-learning cannot replace face-to-face learning completely. The teacher has an important role in implementing the course even though students did not indicate any problem in using E-learning (in this case, Moodle). The results of their study showed that many of the social network features such as forums, chats,

blogs, and wikis were unused. Students appreciated that the teaching materials and exercises online were accessible anywhere (Hölbl & Welzer, 2010).

Other important studies that investigated the use of E-learning from different perspectives are as follows.

Guha and Maji (2008) studied the importance of E-learning as a distance education model. They found that E-learning is an interactive experience for students, which offers an opportunity to study with accredited learning providers.

Homan and Macpherson (2005) studied E-learning in the context of corporate universities. They showed that the success of E-learning was significantly proportionate to its ability to enhance the learning processes.

A study analyzed the E-learning experiences of students and instructors and discussed the strategies for improving the quality of E-learning. Students' online grade point averages increased whereas students' retention rates decreased (Omar, Kalulu, & Alijani, 2011).

The aim of another study was to ascertain the strategies necessary for quality E-learning (Deepak & Himanshu, 2012). According to the authors, most instructors follow traditional academic practices. The results indicated that instructors need to adopt new practices and move beyond traditional pedagogy. ("Here is the syllabus, go off and read or do research, come back and discuss"). Clark (2001) pointed out that the instructional strategies utilized can account for why students benefit more from E-learning compared to traditional instruction whereas comparing the success of learners in traditional and distance education while taking an information and communication technology course, Yigit, Arugaslan, Ozaydin, Tonguc, and Ozkanan (2011) found that distance education learners were less successful than traditional education learners.

In a study of why E-learning has poor adoption and high cost rates was investigated. The results showed that high levels of support were needed to encourage individuals with low technological efficacy to adopt E-learning (Sukanlaya, Cameron, & Kieren, 2013).

4. Research Model and hypotheses

This study uses the model of Sun et al. (2008), where the dimensions and the independent variables that determine student satisfaction were learners, instructors, courses, technology, design and environment (Fig. 2) in E-learning. The dependent variable of the model is perceived E-learning satisfaction.

4.1. Learners

The learner dimension in measuring E-learning student satisfaction will be examined through three factors; learner attitude toward computers, learner computer anxiety and learner Internet self-efficacy. When dealing with the E-learning environment, learners with a positive attitude use the technology easily and without being afraid of the challenges (Albirini, 2006). Attitudes are feelings that someone has towards something, and if one has more positive feelings for something, s/he is not scared to use it, therefore, deals with the challenges easily. According to Piccoli, Ahmad and Ives (2001), learners will be satisfied with LMS if they have more positive attitudes towards it.

The degree to which users perceive the ease of use is determined by computer anxiety. In their study, Saade and Kira (2009) investigated the relationship between computer anxiety and the perceived ease of use. The effect of computer self-efficacy was also studied. Self-efficacy was found to be important as a mediator in the computer anxiety and the perceived ease of use relationship in an E-learning and learning management system (LMS) context (Saade & Kira, 2009). According to Barbeite and Weiss (2004), computer anxiety lowers student's satisfaction.

According to Bandura (1994), self-efficacy is defined as how people view themselves and their abilities for the target performance, which influence their behaviours and thoughts. In their study, Gunawardena, Linder-VanBerschoot, LaPointe, and Rao (2010) explored factors that predict learner satisfaction. The students used E-learning systems and technologies: learning management systems such as Blackboard and SharePoint and design tools such as Breeze, Captivate and PowerPoint. Problem-centered and case-based approaches were used in designing the courses. The authors found that the most important factor that influenced learner satisfaction was self-efficacy. Therefore,

Hypothesis 1a. Learner attitude toward computers is positively associated with perceived E-learning satisfaction.

Hypothesis 1b. Learner computer anxiety is negatively associated with perceived E-learning satisfaction.

Hypothesis 1c. Learner internet self-efficacy is positively associated with perceived E-learning satisfaction.

4.2. Instructors

The instructor dimension in measuring E-learning student satisfaction is examined in light of two factors: instructor response timeliness and instructor attitudes toward E-learning. Instructor responsiveness to students' needs and problems is important. In the study of Soon, Sook, Jung, and Im (2000), student feedback was examined to determine

their satisfaction with an E-learning course. Students' answers showed that there were problems in connecting to the Internet, getting feedback from instructors and getting information about the webpages they were using. Students' perception of their professors is based on the instructor's attitudes toward E-learning (Sun et al., 2008).

Therefore,

Hypothesis 2a. Instructor response timeliness is positively associated with perceived E-learning satisfaction.

Hypothesis 2b. Instructor attitude towards E-learning is positively associated with perceived E-learning satisfaction.

4.3. Courses

The course dimension in measuring E-learning student satisfaction is examined with respect to three factors: E-learning course effectiveness (self-development), E-learning course flexibility and E-learning course quality. E-learning is flexible in time and location and enables students to communicate anytime and anywhere. Course effectiveness and quality in E-learning are also important factors as they have an impact on learners' satisfaction (Piccoli et al., 2001). The quality of an E-learning course is important in motivating student to continue E-learning, managing the learning processes and the presentation of course materials. Therefore,

Hypothesis 3a. E-learning course effectiveness is positively associated with perceived E-learning satisfaction.

Hypothesis 3b. E-learning course flexibility is positively associated with perceived E-learning satisfaction.

Hypothesis 3c. E-learning course quality is positively associated with perceived E-learning satisfaction.

4.4. Technology

The technology dimension in measuring E-learning student satisfaction is examined according to two factors: technology quality, and Internet quality since higher quality facilitates the learning process (Piccoli et al., 2001). Therefore,

Hypothesis 4a. Technology quality is positively associated with perceived E-learning satisfaction.

Hypothesis 4b. Internet quality is positively associated with perceived E-learning satisfaction.

4.5. Design

The design dimension in measuring E-learning student satisfaction is examined in view of two factors: learner perceived usefulness and learner perceived ease of use of the E-learning system. Perceived usefulness is the perception of progress in using the system (Sun et al., 2008) and is important in delivering an E-learning course which will result students' willingness regarding using E-learning system. Perceived ease of use is user perception of the ease of adopting E-learning (Sun et al., 2008), which also results in a more positive attitude toward E-learning.

Therefore,

Hypothesis 5a. Learner perceived usefulness is positively associated with perceived E-learning satisfaction.

Hypothesis 5b. Learner perceived ease of use is positively associated with perceived E-learning satisfaction.

4.6. Environment

The environmental dimension in measuring E-learning student satisfaction is examined with respect to two factors: diversity in assessment and learner perceived interaction with others. Different assessment tools will enable students to be evaluated properly and the feedback from assessments will influence learning effects. Although interactions in E-learning environments require more concentration and design, research shows that students are more satisfied with interactive instructional materials and learning environments (Hong, 2002).

Therefore,

Hypothesis 6a. Diversity in assessment is positively associated with perceived E-learning satisfaction.

Hypothesis 6b. Learner perceived interaction with others is positively associated with perceived E-learning satisfaction.

Perceived e-Learner satisfaction is the most important indicator for evaluating the effectiveness of an E-learning environment. In Arbaugh's (2000) study, where student satisfaction was examined in online MBA courses, the author found that perceived usefulness and flexibility, and professor endeavors in constructing an interactive learning environment were the most important predictors of student satisfaction. Therefore, the aim of this study is to measure the effectiveness of the E-learning environment through learner satisfaction and the critical factors affecting learner satisfaction. Based on this discussion, the research model is presented in Fig. 2.

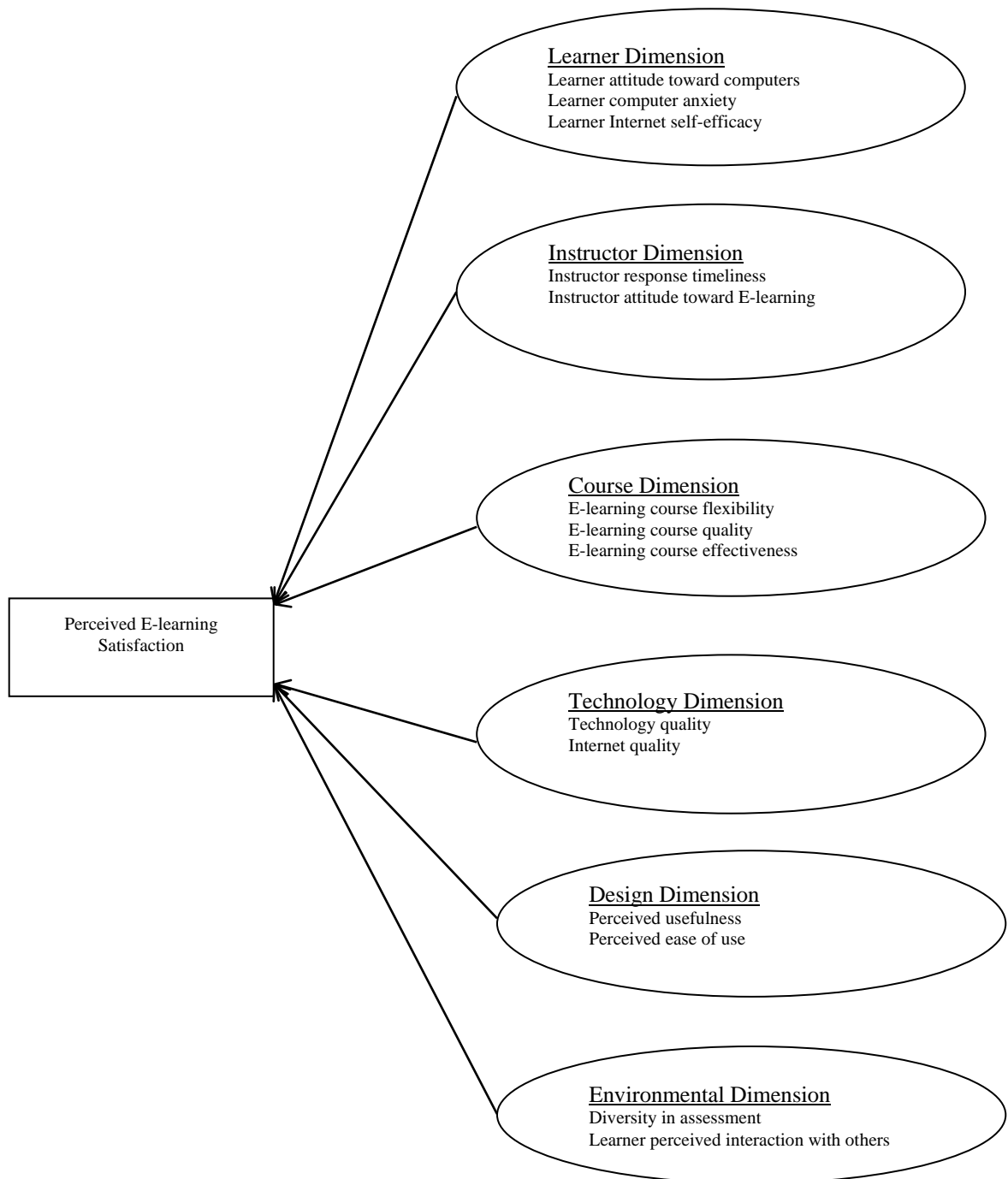


Figure 2. Dimensions of perceived e-Learner satisfaction (Sun et. al, 2008)

5. Research Design

5.1. Research Setting

The data were collected at a major university located in the capital of Turkey. At this university, the usage of LMS is promoted as a part of the computer literacy course as well as in other courses. The course is offered in 48 sections to all of the students excluding engineering students at the university. Lecturers are encouraged to adopt the LMS Moodle in their teaching while students use the E-learning system for retrieving teaching materials and get informed

about the class-related topics. Moodle is an E-learning platform in which instructors upload their teaching material, course syllabus, and all other class-related topics and manage the lectures. Students use Moodle to download the material, follow the schedule, join class discussion and interact with the instructors.

5.2. Participants

At the end of the spring semester of 2015, out of the 774 students in 48 sections enrolled in the Computer Literacy course at a funded University, 452 students answered the online survey questionnaire (Google Docs), resulting in a response rate of 58% of those using Moodle as a part of their course. The high response rate is because volunteer students were rewarded with 5% bonus points in their overall course grade. *Table 2* summarizes the descriptive statistics while *Table 3* gives their computer skills levels. There were more women than men since only one third of the 452 students were men (154 men versus 298 women). All respondents were undergraduate students, and their ages ranged from 18 to 24. Demographics and background of survey participants are indicated in *Table 1* and *Table 2*.

Table 1
Demographics of Survey Participants

Measure and Item	Frequency	Percentage
Gender		
Female	298	65
Male	154	34.1
Age		
18	50	11.06
19	132	29.20
20	143	31.64
21	57	12.61
22	30	6.64
23	22	4.87
>=24	18	3.98
Faculty		
Faculty of Dentistry	2	0.44
Faculty of Education	32	7.08
Faculty of Science and Letters	25	5.53
Faculty of Fine Arts, Design and Architecture	29	6.42
Faculty of Law	24	5.31
Faculty of Economics and Administrative Sciences	58	12.83
Faculty of Communications	19	4.2
Faculty of Health Sciences	49	10.84
Faculty of Commercial Sciences	27	5.97
Vocational School of Social Sciences	5	1.11
Vocational School of Health Sciences	124	27.43
Vocational School of Technology	3	.66
Adana Vocational School of Health Sciences	36	7.96
Kazan Vocational School	2	.44
Konya Vocational School of Health Sciences	14	3.1
State Conservatory	3	.66
Prep Student		
Yes	135	29.9
No	317	70.1

Table 2
Background of the Survey Participants

Measure and Item	Frequency	Percentage
Prior Experience with E-learning		
None	212	46.9
1 Class	92	20.4
2 Classes	57	12.6
3 Classes	28	6.2
>=4 Classes	63	13.9
Computer Skills		
Beginner	66	14.6
Intermediate	327	72.3
Advanced	59	13.1

5.3. Data Collection Tool (Appendix)

The data tool items were adapted from original language based on previous literature (Sun et al., 2008) by consulting an expert in language translation. A 5-point Likert scale questionnaire ranging from 1 as strongly disagree to 5 as strongly agree was used for the measurement. The scale has been studied and its content and structure have been reviewed by a colleague. As a result of these evaluations, a pilot test has been conducted. *Table 3* summarizes the measurement constructs and codes used in this study.

Table 3
Variable Definitions and Measurements

Measurement Construct	Tested of Variables - Code
Learner Dimension	STUCOMPS (STC) STUANX STUSELF (STS)
Instructor Dimension	INSTRRESP INSTRATT
Course Dimension	LECTEFF LECTFLEX LECTQUAL
Technology Dimension	TECHQUAL INTQUAL
Design Dimension	USAB (USB) USABEASE (USBA)
Environmental Dimension	ENV PEERINT
E-learning Satisfaction	ESATIS (EST)

5.4. Pilot Test

An online pilot test was conducted with a class of 20 computer literacy students who used the LMS Moodle as a part of their course. Some items were revised, and some were deleted. According to the results of the pilot test, there had been no change in scale items. The pilot test results were excluded from the actual study.

6. Data Analysis

This study used structural equation modeling (SEM) implemented for data analysis. SEM analysis was chosen over regression analysis because SEM can be used to analyze all the paths in one analysis. First, exploratory factor analysis was used to develop the measurement model. Second, to explore the causal relationships among all constructs, the structural model for the research model depicted in Figure 3 was tested using SEM. The statistical analysis software packages used to perform the analysis were AMOS 6.0 and SPSS 23.0.

6.1. Measurement model

The measurement model was assessed in terms of individual item loadings, reliability of measures, and internal validity. Reliability was assessed using Cronbach's alpha. When Cronbach Alpha is equal to or greater than 0.60, measurement's internal validity is high (Malhotra, 1999). In Table 5, the values are 0.82 for STC, 0.93 for STS, 0.90 for USB and 0.89 for USBA. These values show that the dimensions are reliable and the features that need to be measured are correct.

In Table 5, the variances described by the dimensions showed that stc explains 17% of the measurements whereas sts explains 50%, usb explains 12% and usba explains 65% of the measurements. According to these results, each measurement in the model measures a structure and for this reason accounts for the structural reliability.

Before beginning to test the hypothesis with a structural equation model, exploratory factorial analysis was implemented to determine the measurement size used in the model. The criteria of $KMO > 0.50$ shows whether the sample size is adequate for factorial analysis and the value for χ^2 is significant (Tabachnick & Fidell, 2001). This means that the sample size used in this study is adequate. The values in Table 5 show that the data is appropriate for exploratory factor analysis.

At the end of the implemented exploratory factor analysis, factors need to be greater than 1 and the factor values of constructs must greater than 0.5 in order to find the most convenient solution (Tabachnick & Fidell, 2001). For this reason, constructs with factor values < 0.50 have been excluded from the analysis. The results are shown in Table 4.

Table 4

Exploratory Factor Analysis Results

Learner Dimension (KMO=0,914; Barlett's Sph $\chi^2=339,966$;p=0,000)	
Learner attitude toward computers(VE=%16,678;$\alpha=0,816$)	Factor
Stc 1-I believe that working with computers is very difficult	0,766
Stc 2-I believe that working with computers is very complicated	0,843
Stc 4-I believe that working with computers let me feel strong psychological stress	0,606
Learner Internet self-efficacy(VE=%50,319;$\alpha=0,930$)	Factor
Sts 2-I feel confident connecting to the internet homepage that I want	0,541
Sts 5-I feel confident linking to desired screens by clicking	0,586
Sts 6-I feel confident going to previous pages by using "back" function	0,738
Sts 7-I feel confident going to next pages by using "forward" function	0,718
Sts 8-I feel confident scrolling around the monitor screen	0,684
Sts 9-I feel confident using Internet search engines such as Yahoo, Google	0,739
Sts 10-I feel confident locating necessary information on the Internet for a specific topic	0,701
Sts 11-I feel confident selecting the right search terms for Internet search	0,616
Sts 13-I feel confident finishing the Internet program	0,502
Design Dimension (KMO=0,907; Barlett's Sph $\chi^2=2497,942$;p=0,000)	
Perceived usefulness(VE=%11,758;$\alpha=0,900$)	Factor
Usb 1-Using web-based learning systems would enhance my effectiveness in the program	0,786
Usb 2-Using web-based learning systems would improve my performance in the program	0,819
Usb 3-I would find web-based learning systems useful in the program	0,731
Usb 4-Using web-based learning systems in the program would enhance my productivity	0,757

Perceived ease of use(VE=%64,750;α=0,893)	Factor
Usba 1-It would be easy for me to become skillful at using web-based learning systems	0,768
Usba 2-Learning to operate web-based learning systems would be easy for me	0,807
Usba 3-I would find it easy to get a web-based learning system to do what I want it to do	0,672
Usba 4-I would find web-based learning systems easy to use	0,781
Perceived E-learning Satisfaction (KMO=0,875; Barlett's Sph $\chi^2=1575,104$; VE=%75,061; α=0,916; p=0,000)	
Est1-I am satisfied with my decision to take this course via the Internet	0,767
Est2-If I had an opportunity to take another course via the Internet, I would gladly do so	0,684
Est3-My choice to take this course via the Internet was a wise one	0,782
Est4-I was very satisfied with the course	0,780
Est5-I feel that this course served my needs well	0,740

6.2. Structural model

Before evaluating the relationships between the structural equation model and the research model, it is necessary to determine that the model is statistically valid. Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI), Normed Fit Index (NFI), Relative Fit index (RFI), Incremental Fit index (IFI), Tucker-Lewis index (TLI), Comparative Fit Index (CFI) and Root Mean Square Error Approximation (RMSEA) values are shown in *Table 5*.

Table 5

Measurement Model's Goodness of Fit values

Measures	Research Model	Ideal Model
P	0,000	
χ^2/sd (CMIN/DF)	3,902	
Goodness of Fit Index (GFI)	0,853	1.000
Adjusted Goodness of Fit Index (AGFI)	0,817	
Normed Fit Index (NFI)	0,876	1.000
RelativeFit Index (RFI)	0,858	
Incremental fit index (IFI)	0,905	1.000
Tucker-Lewis index (TLI)	0,890	
Comparative Fit Index (CFI)	0,904	1.000
Root Mean Square Error Approximation (RMSEA)	0,080	
Hoelter .05 Index (HFIVE)	133	
Hoelter .01 Index (HONE)	141	

According to the results in *Table 6*, the value obtained by the χ^2 value divided by degrees of freedom is equal to 3,902. When this value is between 0 and 3, the data and model are valid. When this value is equal to or less than 5, it is still acceptable (Hooper & Mullen, 2008). Since χ^2 value is sensitive to sample size, other measures related to the structural equation model were also studied. According to this, the other measures (GFI=0,853; AGFI=0,817; NFI=0,876; RFI=0,858; IFI=0,905; TLI=0,890; CFI=0,904) are all within acceptable values. When the values are close to 1.0, it shows that the data is acceptable for the model. According to those criteria, the data is compatible with the research model. Moreover, the RMSEA value, which must be between 0.05 and 0.10, was found to be 0.080. According to the RMSEA value, it can be said the data is compatible with the research model. These results show that the sample size is adequate for the research model, and the model is statistically significant and valid (Zhang & Suhong, 2006).

According to the Hoelter 0.05 index, the minimum sample size is 133 to test research hypotheses at the 0.05 significance level, whereas for the Hoelter 0.01 index the minimum sample size is 141 to test research hypotheses at the 0.01 significance level. Our sample size to test the research hypotheses is larger than the minimum required sample size. The obtained structural equation model by required modifications is shown in Fig. 3, in which the arrows show the relationships between variables. The values on those arrows are the standardized regression weights.

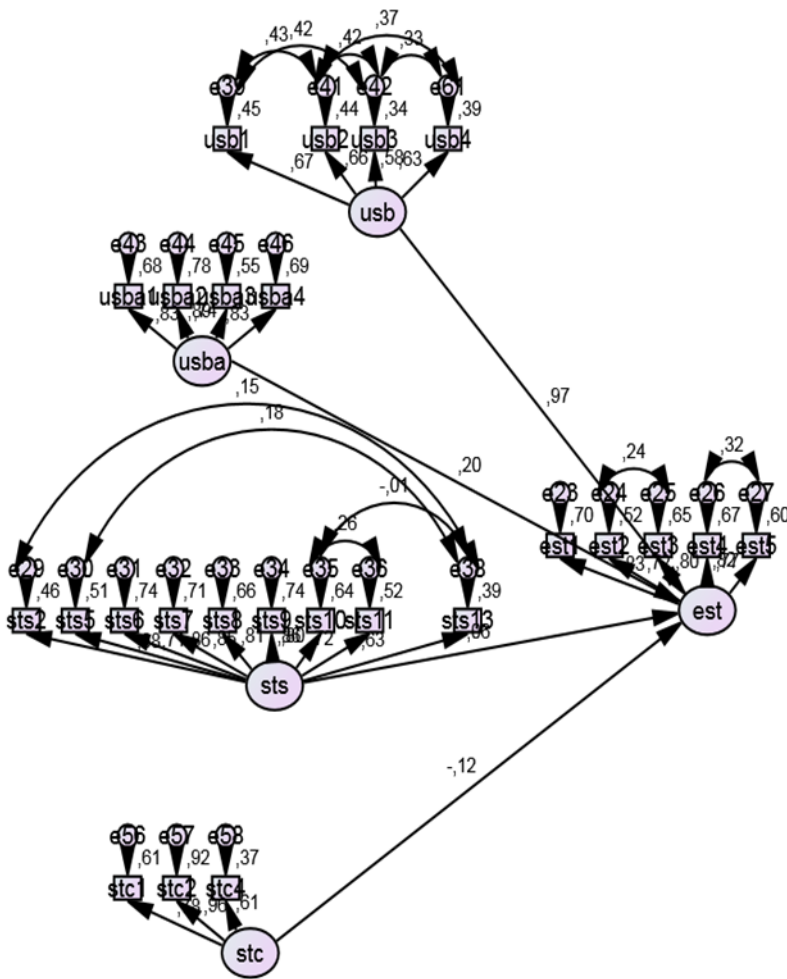


Figure 3. Structural Equation Modeling Analysis

Figure 3 shows the standardized coefficients for each hypothesized path in the model and the R² for each dependent variable. Learner dimension (learner attitude toward computers and learner Internet self-efficacy) explains 67 percent and design dimension (perceived usefulness and perceived ease of use) explains 77 percent of the variance in terms of perceived E-learning satisfaction, which are indicative of strong explanatory powers.

Hypothesis 1a Learner attitude toward computers, **Hypothesis 1c** Learner internet self-efficacy, **Hypothesis 5a** Learner perceived usefulness and **Hypothesis 5b** Learner perceived ease of use were found to be statistically significant at the $p < 0.05$ level. **Hypothesis 1b** Learner computer anxiety, **Hypothesis 2a** Instructor response timeliness, **Hypothesis 2b** Instructor attitude toward E-learning, **Hypothesis 3a** E-learning course effectiveness, **Hypothesis 3b** E-learning course flexibility, **Hypothesis 3c** E-learning course quality, **Hypothesis 4a** Technology quality, **Hypothesis 4b** Internet quality, **Hypothesis 6a** Diversity in assessment and **Hypothesis 6b** Learner perceived interaction with others were not significant in the model. Thus, H1b, H2a, H2b, H3a, H3b, H3c, H4a, H4b, H6a, H6b were rejected.

7. Discussion

7.1. Dimensions

In this study, the first exploratory factor analysis was used to develop the measurement model; then the structural

model for the research was tested using SEM. From the SEM analysis, four variables are proven to have critical relationships with E-learning satisfaction. Learner attitude toward computers, learner Internet self-efficacy, perceived usefulness and perceived ease of use will positively influence perceived E-learning satisfaction. Learner dimension (learner attitude toward computers and learner Internet self-efficacy) explains 67 percent and design dimension (perceived usefulness and perceived ease of use) explains 77 percent of the variance in terms of perceived E-learning satisfaction.

7.1.1. Learners dimension

Learner attitude and learner self-efficacy have some implications on both E-learning use and E-learning satisfaction. First, learners who have positive attitudes toward computers use technology easily; second, they are not afraid of the challenges they are likely to face in the process. Moreover, they are not only satisfied with the E-learning and learning management system (LMS) but also intend to utilize it more often. Since most of the participants of the study are at the beginning of their college life and even though almost half of them have no E-learning experience at all (46.9%), their computer skills are intermediate (72.3%). Their familiarity with technology from early ages can cause them to have positive attitudes toward it and view themselves as capable of dealing with it. This finding is consistent with Piccoliet al.'s (2001) study in which learners will be satisfied with LMS if they have more positive attitudes toward it and Artino's (2008) and Gunawardena et al.'s (2010) in which self-efficacy was the most important factor in influencing E-learning satisfaction. Computer anxiety was not found to be an important influence on the E-learning satisfaction in the study. This result is contradictory to Sun et al.'s (2008) study.

7.1.2. Instructors dimension

Instructor response timeliness and instructor attitudes toward E-learning were not found to be important factors in E-learning satisfaction. Since Moodle has been generally used for following the schedule, downloading the materials and only a few times for submitting homework and participating in forum, the needs and problems of students were not understood clearly. Moreover, even though students were generally comfortable with Moodle, there were login and connection issues. The slow response when many students were online simultaneously limited the use of LMS. Students did not have many opportunities to get feedback from their instructors. Moreover, since the learning and teaching practices were centralized by the ICT coordination, instructors were not flexible in using Moodle for other purposes. This finding also suggests that instructor attitudes toward E-learning was not a critical factor in learners' use of E-learning and E-learning satisfaction. The finding is not consistent with Selim's (2007) and Soon et al.'s (2000) studies, whereas it does agree with Sun et al.'s (2008) study.

7.1.3. Courses dimension

E-learning course effectiveness, flexibility and quality were not found to be critical factors in influencing E-learning satisfaction. The main reasons for this were the low level of interaction between learners and instructors, and once more the limited use of Moodle by learners. Therefore, the interactive discussion arrangement, teaching materials and overall course design must be properly provided. Instructional expertise and technical supports are important for learners to avoid having any problems during the learning process. When learners have problems, they lose motivation and stop using E-learning. This finding is contradictory with Piccoli et al.'s (2001) study in which the effectiveness and quality were found to be critical factors in satisfaction as they contribute greatly to motivating students to continue E-learning while helping them to manage the learning processes and follow the course materials.

7.1.4. Technology dimension

The technology dimension was examined in view of two factors: technology quality, and Internet quality. Neither was found to have an influence on E-learning, which is also contradictory to Piccoli et al.'s (2001) study in which higher quality facilitated the learning process.

7.1.5. Design dimension

The perceived usefulness and perceived ease of use are the factors that are the most important in this study since they result in a more positive attitude toward E-learning and greater tendency to continue using it. This finding suggests that the easier the system is to use and the more useful it seems to the learners, the more satisfied with it they will be. This is consistent with Lee, Kim, and Lee's (2006) study.

7.1.6. Environment dimension

Two factors related to the environment dimension, diversity in assessment and learner perceived interaction with others were found to have no influence on E-learning satisfaction. Since different assessment tools (such as online quizzes or exams) did not evaluate the learners, they seem to be unaffected by this factor. Once more, the limited peer interaction and student-teacher interaction may be the source of the result. This finding is inconsistent with Arbaugh and Benbunanfich's (2007), Marks, Sibley, and Arbaugh's (2005), Swan et al.'s (2000), as well as Swan, Schenker, Arnold, and Kuo's (2007) studies. Some of the factors that affect E-learning satisfaction and sources are indicated in Table 6.

Table 6

Some of the factors that affect E-learning satisfaction and sources

Arbaugh & Benbunanfich (2007)	Learner-instructor interaction, learner-learner interaction, learner-system interaction
Artino (2008)	Self-efficacy
Lee et al. (2006)	Perceived usefulness, perceived ease of use
Marks et al. (2005)	Instructor-student interaction, student-student interaction
Selim (2007)	Instructor's attitude towards technology
Swan et al. (2000)	Interaction (Student-student interaction, student-instructor interaction)
Swan et al. (2007)	Student-Instructor interaction

In sum, despite many features and functionalities of E-learning platform-LMSs, some factors prevent successful implementation. Like any other database system, they require constant monitoring, updating and maintenance over time. Moreover, LMS should not be seen only as a technological tool but also for the teaching and learning practices that are an important part of it. A team of colleagues from various backgrounds needs to be ready to deploy strategies for successful implementation. In planning process, the importance given to these aspects makes the system more utilitarian. Lecturers need to be encouraged to adopt Moodle in their teaching to upload lecture notes, make online announcements, conduct online discussions and online exams, and provide online feedback while students use the E-learning system for retrieving teaching materials and getting information regarding class-related topics.

Course materials must include real life examples and offer practical information to users while being prepared according to the users' intention so that they can be used easily. The ease of use and accessibility of the course materials and media are important criteria for students' E-learning satisfaction. In this context, the applications and programs that are used in the presentation of the materials and access to the content must be easy and comfortable to use. The system quality and structure need to facilitate students' ease of use and access. In addition, support services need to be fast and helpful for users to feel comfortable.

7.2. Limitations of the Study

This study has the following limitations;

- The sample is limited to students who chose to complete the survey.
- The population of this study is limited to freshman students who enrolled in the computer literacy course at the university.

The study also has the following assumption:

- The respondents answered all survey questions honestly.

8. Conclusions

In an E-learning system, learner satisfaction is important since it facilitates learner use and acceptance of the technology. Based on established theory and empirical research, this study validated Sun et al.'s (2008) model which demonstrated the critical factors that affect E-learning satisfaction. This study highlights the factors that influence E-learning and encourage learners to continue using the system. The aspects like learner attitude toward computers, learner Internet self-efficacy, perceived usefulness and perceived ease of use must be taken into consideration.

Since the population of the study is limited to freshman students who enrolled in the computer literacy course, the model should also be tested with respect to other courses at the university. Therefore, further research is necessary.

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APPENDIX

BTU Dersi Öğrenci Memnuniyet Anketi

Açıklama

Sevgili BTU dersi öğrencileri, bu çalışma BTU Koordinatörlüğü tarafından BTU dersi öğrenci memnuniyetini ölçmek için yapılmaktadır. Bu sayede almış olduğunuz dersin kalite ve etkinliğinin artırılması hedeflenmektedir. Ankete katılan öğrencilerin bilgileri tamamen bu çalışma için kullanılacaktır. Göstermiş olduğunuz ilgiye şimdiden teşekkür ederiz.

Cinsiyetiniz

1 Erkek 2 Kız

Yaşınız

İngilizce Hazırlık Bölümü öğrencisi misiniz?

1 Evet 2 Hayır

Fakülteniz

1 Diş Hekimliği Fakültesi 2 Eğitim Fakültesi 3 Fen Edebiyat Fakültesi 4 Güzel Sanatlar Tasarım ve Mimarlık Fakültesi 5 Hukuk Fakültesi 6 İktisadi ve İdari Bilimler Fakültesi 7 İletişim Fakültesi 8 Mühendislik Fakültesi 9 Sağlık Bilimleri Fakültesi 10 Ticari Bilimler Fakültesi 11 Tıp Fakültesi 12 Sosyal Bilimler MYO 13 Sağlık Hizmetleri MYO 14 Teknik Bilimler MYO 15 Adana Sağlık Hizmetleri MYO 16 Kazan MYO 17 Konya Sağlık Hizmetleri MYO 18 Devlet Konservatuarı

Bölümünüz

Daha önce web tabanlı öğretimin (Moodle) gerçekleştiği kaç ders aldınız?

0 1 2 3 4

Bilgisayar becerileriniz hangi seviyededir?

1 Başlangıç 2 Orta 3 İleri

Web-tabanlı öğretimin (Moodle) yüzyüze öğretimle harmanlandığı BTU dersi ile ilgili görüşleriniz nelerdir?

1 Kesinlikle Katılmıyorum 2 Katılmıyorum 3 Kararsızım 4 Katılıyorum 5 Kesinlikle Katılıyorum

Öğrenci

Öğrencinin bilgisayara yaklaşımı

1) Bilgisayarlarla çalışmanın çok zor olduğuna inanıyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

2) Bilgisayarla çalışmanın çok karışık olduğuna inanıyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

3) Bilgisayarla çalışmanın teknik yetenek gerektirdiğine inanıyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

4) Bilgisayarla çalışmanın beni psikolojik strese sokacağına inanıyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

5) Bilgisayarla çalışmanın ancak "Basic" gibi temel bir programlama dilini bilmekle mümkün olabileceğine inanıyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

6) Bilgisayarla çalışmanın ancak çok sabırlı insanlara tavsiye edilebileceğine inanıyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

7) Bilgisayarla çalışmanın kişiyi işinde çok üretken yaptığına inanıyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

8) Bilgisayarla çalışmanın sadece gençler için uygun olduğuna inanıyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

Öğrenci

Öğrenci bilgisayar kaygısı

1) Bilgisayarla çalışmak beni sinirli yapıyor.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

2) Bilgisayar kullanmaya çalıştığım zaman kendimi isteksiz hissediyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

3) Bilgisayarlar beni rahatsız hissettiriyor.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

4) Bilgisayarlar beni huzursuz ve kafamı karışık hissettiriyor.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

Öğrenci

Öğrenci İnternet Özyeterliliği

1 Hiç Güvenmiyorum 2 Güveniyorum 3 Çok Güveniyorum

1) İnterneti açmakta (başlatmakta) kendime güveniyorum.

1 2 3

Hiç Güvenmiyorum

Çok Güveniyorum

2) İstedğim internet anasayfasına bağlanmakta kendime güveniyorum.

1 2 3

Hiç Güvenmiyorum

Çok Güveniyorum

3) Bağlantı sırasında internet programını bitirmekte kendime güveniyorum.

1 2 3

Hiç Güvenmiyorum

Çok Güveniyorum

4) İnternette gerekli materyalleri yüklemekte kendime güveniyorum.

1 2 3

Hiç Güvenmiyorum

Çok Güveniyorum

5) Tıklayarak istenilen ekranlara bağlanmada kendime güveniyorum.

1 2 3

Hiç Güvenmiyorum

Çok Güveniyorum

6) Geri butonu ile önceki sayfalara gitmede kendime güveniyorum.

1 2 3

Hiç Güvenmiyorum

Çok Güveniyorum

7) İleri butonu ile sonraki sayfalara gitmede kendime güveniyorum.

1 2 3

Hiç Güvenmiyorum

Çok Güveniyorum

8) Monitör ekranında dolaşmada kendime güveniyorum.

1 2 3

Hiç Güvenmiyorum

Çok Güveniyorum

9) Yahoo, Google gibi İnternet arama motorlarını kullanmada kendime güveniyorum.

1 2 3

Hiç Güvenmiyorum

Çok Güveniyorum

10) İnternette belirli bir konu için gerekli bilgiyi bulmada kendime güveniyorum.

1 2 3

Hiç Güvenmiyorum

Çok Güveniyorum

11) İnternette arama yaparken doğru terimleri seçmede kendime güveniyorum.

1 2 3

Hiç Güvenmiyorum Çok Güveniyorum

12) İnternette çıktığı almada kendime güveniyorum.

1 2 3

Hiç Güvenmiyorum Çok Güveniyorum

13) İnternet programını bitirmede kendime güveniyorum.

1 2 3

Hiç Güvenmiyorum Çok Güveniyorum

Öğretim Elemanı

Öğretim Elemanının Cevaplama Süresi

1) Uygulama ve projelerle ilgili olarak zamanında yorum ve geribildirim aldım.

1 2 3 4 5

Kesinlikle Katılmıyorum Kesinlikle Katılıyorum

Öğretim Elemanı

Teknolojiye öğretim elemanının yaklaşımı

2) Geleneksel öğretim ile karşılaştırıldığında, öğretim elemanı web-tabanlı öğretimin (Moodle) kullanışlı olduğunu düşünüyor.

1 2 3 4 5

Kesinlikle Katılmıyorum Kesinlikle Katılıyorum

Ders

E-öğrenme (Moodle) ders esnekliği

1) Bu dersi İnternet üzerinden almam (Moodle) dersle ilgili çalışmalarımı daha etkili düzenlememi sağladı.

1 2 3 4 5

Kesinlikle Katılmıyorum Kesinlikle Katılıyorum

2) Bu dersi İnternet üzerinden almanın (Moodle), avantajlarının dezavantajlarından daha fazla olduğunu düşünüyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum Kesinlikle Katılıyorum

3) Bu dersi internet üzerinden almam (Moodle) diğer faaliyetlere daha çok vakit ayırmama neden oldu.

1 2 3 4 5

Kesinlikle Katılmıyorum Kesinlikle Katılıyorum

4) Bu dersi internet üzerinden almamın (Moodle) çok ciddi bir dezavantajı yoktur.

1 2 3 4 5

Kesinlikle Katılmıyorum Kesinlikle Katılıyorum

5) Bu dersi internet üzerinden almam (Moodle) zamanımı ve programımı daha etkili bir şekilde düzenlememi sağlamıştır.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

6) Bu dersi internet üzerinden almam (Moodle) sınıfa daha çok zaman ayırmama neden olmuştur.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

7) Bu dersi internet üzerinden almam (Moodle) normalde kaçıracağım başka bir dersi almamı sağlamıştır.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

8) Bu dersi internet üzerinden almam (Moodle) üniversite eğitimimi ve mezuniyetimi hızlandırmaktadır.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

Ders

E-Öğrenme (Moodle) ders kalitesi

1) Dersi internet üzerinden (Moodle) yürütmek dersin kalitesini diğer derslere göre geliştirmiştir.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

2) Dersin kalitesi (Moodle) diğer derslerimle karşılaştırdığımda çok iyidir.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

3) Aldığım bu dersin internet üzerinden (Moodle) yürütülmesinin kalitesine etkisi olduğuna inanmıyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

Ders

E-Öğrenme Ders Etkililiği

1) Bu e-öğrenme dersi (Moodle) haftalık konuların organizasyonunu sağlamıştır.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

2) Bu e-öğrenme dersi (Moodle) sayesinde materyallere kolayca ulaşabildim.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

3) Bu e-öğrenme dersi (Moodle) sayesinde duyurular hakkında bilgi sahibi oldum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

4) Bu e-öğrenme dersi (Moodle) sayesinde grup çalışması yaptım.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

5) Bu e-öğrenme dersi (Moodle) sayesinde sanal topluluklara katılıp sohbet edebildim.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

6) Bu e-öğrenme dersi (Moodle) raporlama ve notlama araçlarından yararlanmamı sağlamıştır.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

7) Bu e-öğrenme dersi (Moodle) bir tartışma platformu ve paylaşım sistemi olan forum ile düşüncelerimi ifade etmemi sağlamıştır.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

Teknoloji

Teknolojinin kalitesi

1) E-öğrenmede (Moodle) bilgi teknolojilerini kullanmanın çok kolay olduğunu düşünüyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

2) E-öğrenmede (Moodle) bilgi teknolojilerinin pekçok kullanışlı fonksiyonu olduğunu düşünüyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

3) E-öğrenmede (Moodle) bilgi teknolojilerinin esnekliği olduğunu düşünüyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

4) E-öğrenmede (Moodle) bilgi teknolojilerini elde etmenin kolay olduğunu düşünüyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

Teknoloji

İnternet Kalitesi

1) İnternet hızından memnunum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

2) İnternetin iletişim kalitesinin iyi olmadığını düşünüyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

3) Çevrimiçi olmanın çok kolay olduğunu düşünüyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

Tasarım

Algılanan Kullanışlılık

1) Web-tabanlı öğrenme sistemini (Moodle) kullanmak dersteki etkililiğimi geliştirmektedir.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

2) Web-tabanlı öğrenme sistemini (Moodle) kullanmak dersteki performansımı geliştirmektedir.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

3) Web-tabanlı öğrenme sisteminin (Moodle) kullanışlı olduğunu düşünüyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

4) Web-tabanlı öğrenme sistemini (Moodle) kullanmak üretkenliğimi geliştirdiğini düşünüyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

Tasarım

Algılanan kullanım kolaylığı

1) Web-tabanlı öğrenme sistemlerini (Moodle) kullanmayı öğrenmek benim için kolaydır.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

2) Web-tabanlı öğrenme sistemlerini (Moodle) çalıştırmayı öğrenmek benim için kolaydır.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

3) Yapmasını istediğim şeyi yapacak bir web-tabanlı öğrenme sistemi (Moodle) bulmak benim için kolaydır.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

4) Web-tabanlı öğrenme sistemlerini kullanmayı (Moodle) kolay bulurum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

Çevre

Değerlendirmede çeşitlilik

1) Bu e-öğrenme dersi (Moodle) öğrenmemi değerlendirecek pekçok yol sunmuştur. (Quizler, yazılı çalışmalar, sözel sunum, vs.)

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

Çevre

Öğrencinin diğer öğrenciler ile algılanan etkileşimi

1) Öğrenci-öğrenci etkileşimi diğer derslere göre daha zordu.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

2) Sınıf tartışmalarına katılmak diğer derslerdekine göre daha zordu.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

3) Bu derste diğer derslerime göre sınıf arkadaşlarımdan çok şey öğrendim.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

4) Öğretim elemanı sık sık öğrenci etkileşimini sağlamaya çalıştı.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

5) Web-tabanlı öğrenme sistemini (Moodle) kullanırken diğer öğrenciler ve öğretim elemanı ile etkileşim ders ilerledikçe daha doğal hale geldi.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

6) Ders boyunca sınıf tartışmalarının kalitesinin yüksek olduğunu düşünüyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

7) Sınıf tartışmalarını izlemek kolaydı.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

8) Sınıf dinamikleri diğer derslerden çok farklı değildi.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

9) Web-tabanlı öğrenme sistemine (Moodle) alıştıktan sonra sınıfa etkisi çok az olmuştur.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

Algılanan e-öğrenci memnuniyeti

1) İnternet üzerinden (Moodle) yapılan bu dersi almış olduğum için memnunum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

2) Başka bir internet üzerinden yapılan dersi alma şansım olsaydı kesinlikle alırdım.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

3) İnternet üzerinden (Moodle) yapılan bu dersi alma seçimim akıllıca oldu.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

4) Bu dersten çok memnun kaldım.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

5) Bu dersin ihtiyaçlarımı karşıladığını düşünüyorum.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

6) İnternet üzerinden yapılan alabileceğim kadar ders alacağım.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

7) Bu dersin işleniş şeklinden çok hayal kırıklığına uğradım.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

8) Tekrar şansım olsaydı, internet üzerinden (Moodle) yapılan bu dersi almazdım.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum

9) İnternet üzerinden (Moodle) yapılan bu dersi yürütmek diğer aldığım derslere göre daha zordu.

1 2 3 4 5

Kesinlikle Katılmıyorum

Kesinlikle Katılıyorum