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Factors Affecting Student Satisfaction in Distance Learning: A Case Study of COMSATS (VIRTUAL CAMPUS)

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Abstract
Generally, In Pakistan people perceived that quality of distance learning education is poor. Therefore, we decided to carry out the study to see if it's only people opinion or legend. The aim of the study is to analyze the association between instructor performance (IP), student instructor interaction (SII), course evaluation (CE) and student satisfaction (SS) variables in distance education by taking Virtual COMSATS as a Case study. Target population of this research was the COMSATS (VIRTUAL CAMPUS). students out of which 251 graduate and undergraduate students were selected as sample for current research. The purpose of this research study was to understand the key factors affecting student satisfaction in distance learning .Researchers also collect information through primary data using survey questionnaire that distributed through email to all the students of VCOMSAT. From literature review it was found that in distance learning education student satisfaction is based on instructor performance, student-instructor interaction, course evaluation, Learning management system use, instructor attitude etc. From literature review we found that course evaluation and instructor performance is very important for student satisfaction in distance learning. Researchers need to compare student's satisfactions with subject wise. Comparison of practical subjects and without practical subjects needs to identify with student satisfaction. There is also required to compare lecturer motivation with student satisfaction and performance. Future research is also need to compare satisfaction of rural area and urban areas students in distance learning education and also need to compare with traditional education.

Keywords: Distance learning, e-learning, student satisfaction, instructor performance, Course evaluation, student instructor interaction

Introduction

The introduction is a little different from the short and concise abstract. The reader needs to know the background to your research and, most importantly, why your research is important in this context. What critical question does your research address? Why should the reader be interested?

Distance education is defined as method of learning in which teacher and students are isolated physically. In this method teacher and student can interact with each other from remote location. Student can interact with instructor from any place, any location and any time. New delivery method and platforms of education are telephone, radio, postal services, television (TV), printing machines and internet. These methods are used in distance education.

In these days internet has turned into a profitable educational resources and offer new instructive experience for students, which were impractical prior. Now a day's web and data innovation has change the substance of education. In advance education, web instructions is quickly getting to be normal and developing as an open door for conveying training on the web. Now universities can give distance education chance to students who have limited access to advance education opportunity.

According to Sher (2008) the development of online education projects has been invigorated by the progress of the web and present day information innovation (IT) that changed the substance of training. Internet has turned into an important instructive means. It offers new educational experiences for understudies which

were not prior conceivable. Because of the progression of the most recent innovation, online training has ascended as a choice or if nothing else a huge supplement to routine strategy for learning and teaching (Lewis & Waits, 2004).

Research Gap

This study was taken to explore the most recent issue of COMSATS VIRTUAL CAMPUS students in distance education (DE). In Pakistan most of the people perception that quality of distance learning education is poor. Therefore, we decided to carry out this research study to see if it's only people judgment or there is any authenticities about poor outcome of students in distance education as correspond to traditional education students. The aim of this study is observe the association among student satisfaction and different independent variable in distance education by taking Virtual COMSATS as a Case study. That's why we asked different questions to COMSATS VIRTUAL CAMPUS students about their satisfaction regarding instructor performance, student-instructor interaction and course evaluation. Secondly, this study was carried out by keeping in view the increasing demand for distance education in Pakistan.

Significance of the Study

This study was carried out by keeping in sight the rising demand of distance education in Pakistan. Presently there are limited degree awarding universities in Pakistan which are providing distance education i.e. COMSATS VIRTUAL CAMPUS, Virtual University (VU) and Allama Iqbal Open University (AIOU). In Pakistan most of the people perception that quality of distance learning education is poor. Therefore, we decided to carry out this research study to see if it's only people judgment or there is any authenticities about poor outcome of students in distance education as correspond to traditional education students. The aim of this study is observe the association among student satisfaction and different independent variable in distance education by taking Virtual COMSATS as a Case study.

Concept of E-learning

Electronic Learning (e-learning) is the utilization of information technology (IT) to distribute information for training and education (Aixia and Wang, 2011).Different methods of electronic learning are virtual learning, web base learning, circulated learning and network base learning. These are referring to education processes that are utilized in information and communication technology. According to Naidu (2006) electronic learning comprise a lot more than virtual learning, distributed learning, web base learning and online learning. In e-learning "e" stands for dictionary word "electronic" all education activities are included in e-learning that are carried out by group or individual working offline or online, standalone pc or networked or other electronics devices (Naidu,2006). Recent years, e-learning society is seen as vital to the future of education and the help of deep rooted learning. By empowering learners to learn at whatever time and anyplace, enthusiasm for it has been developing for organizations to prepare their workers as well as academic institutions to set up web-course learning frameworks. Adaptable access refers to get to and utilization of data and assets at once, place and place that is suitable and helpful to individual learners as opposed to the educator and/or the instructive association. Versatile access alludes to get to and usage of information and resources at once place that is helpful and suitable for individual learners rather than instructor and the educational affiliation. It permits distance learners, to be in full or part time vocation furthermore have the ability to learn at one place that is suited for their accommodation.

Learner Satisfaction in E-learning

E-learning is a new example of higher education in modern education. After initial experience there are many students who stop their online learning and students' early apparent fulfillment with technology based e-learning will decide whether they will utilize system continuously.

Factors that influence student satisfaction

There are different factors that influence on students satisfaction. Instructor-related factors, student related factors and technology related factors

Instructor-related factors

According to Rockwell et al., (1999); Sloan Consortium, (2006) faculty members are satisfied when they are known for the work that they are doing. Faculty satisfaction is positively influenced when faculty believes that they can promote positive student outcomes (Rockwell et al.; 1999; Sloan Consortium, 2006). Other intrinsic motivators include intellectual challenge, self gratification and an interest in technology (Panda and Mishra, 2007; Rockwell et al., 1999). Faculty satisfaction is decrease when they experience difficulties of

technology and tools access. According to Finly-Neuman, 1994; Williams and Ceci, 1997 the teacher is the important predictor in course satisfaction. Instructor becomes a motivator and facilitator for student. Instructor feedback is key factor in satisfaction with student. DeBourgh, (1999); Hiltz, (1993), Instructor performance and his/her availability and response time highly associated with student satisfaction.

Student-related factors

In online there is an open door for students to interface in exceedingly intelligent correspondence with the teacher and their companions that is inspiring to faculty (ADEC, n.d.; Betts, 1998; Sloan Consortium, 2006). There is reason that workforce like to show online is that online instruction bears access to advance education more different student population (ADEC, n.d; Betts, 1988; Rockwell et al.; 1999; Sloan Consortium, 2006). As indicated by Bower, (2001) some employees express worry about restricted communication with students where they never meet face-to-face to the student. In this research positive correlation between student performance and faculty satisfaction is built up. The level of personnel fulfillment is high in which course student execution is better (Frederickson et al., 2000; Hartman et al., 2000).

Technology-related factors

Chen & Huang (2012) expressed that understanding student mentalities can extend e-learning frameworks and address student issue, which ought to further build the effect of learning and improve fulfillment with the learning process. Student fulfillment with e-learning situations was inspected in a few studies (Sasidharan, Santhanam, 2008; So & Brush, 2008; Wu and Hsia, 2010, Zhu, 2012). Helpful learning environment and execution desires influence student fulfillment and execution desire give the best commitment to learning fulfillment. Teacher and student will hold inspirational state of mind towards e-learning on the off chance that they realize that it would offer then some assistance with improving their showing and learning adequacy and effectiveness (Rehmat et al., 2012; Wu, Tennyson, & Hsia, 2010).

Interaction in Distance Learning

Communication process between human and non human for example human-computer interaction is called interaction. According to Moore, 1989; in distance education three types of interaction exist that are: (a) learner-to-learner interaction (b) learner-to-content interaction (c) learner-to-instructor interaction.

Benbunan-Fich, et al., (2005) proposed the online interaction theory for online learning environment that define the procedure and result in online learning. 3P model specially applies to both classroom and online learning. Benbunan-Fich, et al. (2005) 3P models consist of 3 process (a) input (b) learning process and (c) output. In the learning process level of interaction influence on the effect of input on outputs for example learning process play an important role between inputs and outputs. In learning procedure level of interaction impact on the impact of contribution on yields for example learning procedure assumes an essential part among inputs and yield. Benbunan-Fich et al., (2005) representation spotlight on the part of communication element at the phase of learning method with a specific end goal to expect yield of learning. Model of Biggs (1979); focus on student ways to deal with instructing in the learning system in desire of output of learning. Student, instructor, technology and course are Inputs factors that influence on online learning satisfaction. All these factors are moderator variables that effect in the learning technology that are adopted for special subject. If instructor has no experience how to teach online or design online courses then he will not able to take online class effectively.

Student satisfaction from student-instructor interaction:

As indicated by numerous analysts, the overall achievement and effectiveness of online training relies on the interaction which is a vital component to student learning (Fresen, 2007; Northrup, 2001; Moore, 1993). Along these lines, Volery et al.; (2000) recommended that keeping in mind the end goal to support students' interaction; the teacher may give a cooperation mark. Besides, instructor ought to have the capacity to comprehend the various way of student, include them in online talks and urge student to student interaction (Durling, Johnson, Cross, 1996).

In distance education interaction is vital part of learning. In education student-instructor interaction is hence common that is basic require for learning (Garrison and Anderson, 1995; Picciano, 2002. Three type of interaction reported by Moore (1989) that is student to student, student to content, and student to instructor. All these types of interactions are important for satisfaction of students in distance education (Young & Norgard, 2006). Interaction quality between students and their instructor, student and course content and student-student are important. Student-instructor interaction was the most important factors in online studies (Battalio, 2007). Face to face meeting with each learner this does not have the advantage for instructor in online learning.

Student satisfaction from Course Evaluation

Michailidou and Economides, (2003) the change of an online domain permits understudies to take an interest for the informative techniques by and playing with the lesson objects. Especially the subjects that include dialog, conceptualizing, and reflection are most appropriate to the online organization (Wells, 1992).A standout amongst the most vital elements of distance education is student's interaction through course discussions (Shea, Swan, Maher, and Pickett, 2000). Irani, (1998) course plan should have loaded correspondence prospective, because correspondence level sensibly affects understudies' learning, fulfillment and support in web courses.

Swan et al. (2000) conducted that student favored reliable course structure with the goal that route does not change starting with one course then onto the next. As per Levin et al., (1990) understudies see that dialog in separation learning are most impartial and fair than up close and personal talks. Student got to be disappointed when their courses were inadequately outlined, and when educators did not take an interest in talks or reacted to addresses inside of an exceptionally constrained time (Yang and Cornelius, 2004; Perris and Zeng, 2004). As per Sahin (2007) there might be probability that this dissatisfaction might unravel into a poor learning results for students. In this manner, in online education, receiving student's criticism about their requirements and inclinations is essential for the fruitful configuration and execution of this atmosphere.

Swan (2001) reported three components, for example, communication with instructor and dynamic exchange among course members and clarity obviously outline, which altogether impacted the satisfaction of students in distance learning courses.

Method

This study was focused on key factors affecting student satisfaction in distance learning education. In this study student satisfaction was taken as dependent variable and Student instructor interaction (SII), Instructor performance (IP) and Course evaluation (CE) was taken as independent variable that impact on student satisfaction in distance learning education as COMSATS VIRTUAL CAMPUS was taken as case study. In this chapter procedure was defined that were used in this study.

Participants

Sampling is defined as identifying group of participants from target population that were used in research. From sample data is collected for research because it is not possible to get data from whole population. The population size of this research was all the students of COMSATS VIRTUAL CAMPUS, but as sample data was collected from 251 students. There are different methods for sampling like probability sampling and non-probability sampling and every technique has some advantage and disadvantage. In this study we used probability sampling technique. For questionnaire we created online Google form. For accurate data collection we create password protected form only COMSATS VIRTUAL CAMPUS student can fill form and one attempt is allowed to fill the form. After creation the form we generated the web link and sent this link to admin of virtual COMSATS for sending the email to all COMSATS VIRTUAL CAMPUS students. Admin received the mail and sent it to all COMSATS VIRTUAL CAMPUS students because only moderator of the list can send the email on students groups. We received response of 251 undergraduate and graduate students of COMSATS VIRTUAL CAMPUS from session FA12 to SP15. Students responds was collected in excel form and download the excel file and used for further analysis.

Measurement

The research questions all questions were used based on the work of Arbaugh (2000) and Ali. A., & Ahmad I.,(2011). The questionnaires were comprised of 26 items. It was contained on two parts. First part contained on demographic information and the second part contained the variables and their items. The demographic profile included four items: Gender, age, student type and educational level. Student satisfaction was measured with six questions, student instructor interaction with five questions, instructor performance with nine questions and course evaluation with six questions. Each of the items measured using five-point Likert-type scales, ranging from 1(strongly disagree) to 5 (strongly agrees).

Data Analysis

Data analysis was used to analyze collected data using different tools and techniques. In this research the collected data were analyzed using descriptive analysis, correlation analysis, and regression analysis and

cross tabulation between different variables. Correlation coefficient was used to measure the relationship between dependent and independent variable. Cross tabulation was used to measure the statistics of one variable with compared to other.

Results and Discussion

This study was focused on key factors affecting student satisfaction in distance learning education. In this study student satisfaction was taken as dependent variable Student instructor interaction (SII), Instructor performance (IP) and Course evaluation (CE) was taken as independent variable that impact on student satisfaction in distance learning education.

Descriptive Analysis

Table 1 reveals the students demographic profile. It reveals that 187 (74.5 %) male and 64 (25.5 %) female students' responded the sample out of 251. Full time students were 65 (25.5 %) and part time student were 186 (74.1 %) that participated in the survey.

Variable Name		N	%
Gender	Male	187	74.5
	Female	64	25.5
Student Type	Full time	65	25.9
	Part time	186	74.1
Age	20-25	65	25.9
	26-30	93	37.1
	31-35	43	17.1
	36-40	29	11.6
	Above 40	21	8.4
Academic Program	Bachelor	30	12.0
	Master	180	71.7
	Other	41	16.3
Total sample size n= 251			

Table 1: Demographic Sample

The result reveals that 37 percent responded age was 26-30 years and only 8.4 percent student's age was above 40 years. Master program students (71.7%) were greater than bachelor (12%) and other students (16%) in distance education. Furthermore most of the responded were master program students. Overall this table showed that most of the responded were male, part time and master program students. Other details are mentioned in table 1.

Reliability Analysis

Table 2 reveals that after collecting the data Cronbach alpha was used to verify the reliability of the data. Student's satisfaction and its determinants have good internal consistency. Researcher showed that scale was reliable because the Cronbach alpha was 0.877, 0.885, 0.929 and0 0.897 are greater than 0.8 and showed internal consistency in the scale and is applied on the research model.

Variable Name	Items	Mean	Std. Deviations	Cronbach Alpha
Student Satisfaction	6	3.655	.889	.877

Student-Instructor Interaction	5	3.298	1.0162	.885
Instructor Performance	9	3.537	.944	.929
Course evaluation	6	3.817	.895	.897
Total Sample size n= 251				

Table 2: Descriptive Statistics and Cronbach Alpha

Table 2 also reveals the means and standard deviation results of all dependent and independent variables. The means of student satisfaction, Student instructor interaction (SII), Instructor performance (IP) and Course evaluation (CE) was greater than 3.0 it showed respondents gave positive response.

Correlation Analysis

Using correlation matrix researchers find the results of hypothesis based on the below table.

	Student satisfaction	**Student instructor interaction**	**Instructor performance**	**Course evaluation**
Student satisfaction	1			
Student Instructor Interactions	.463**	1		
Instructor Performance	.620**	.670**	1	
Course Evaluation	.696**	.453**	.686**	1

Table 3: Correlation

**. Correlation is significant at the 0.01 level (2-tailed).

Correlation was used to identify the relationship between dependant variable (student satisfaction) and independent variable (Student instructor interaction, instructor performance and course evaluation). The value of significance is represented as * p< 0.05, **p<0.01 and ***p<0.001.

H1: Instructor performance will be positively related to the student's satisfaction.

In table 3 Pearson correlation value for instructor performance and student satisfaction was r=0.620 that was close to 1. So we can conclude that there is strong positive relationship between instructor performance and student satisfaction. The value of significance was less than p<0.01 it means there was statistically significant relationship between instructor performance and student satisfaction.

H2: Student-instructor interaction will be positively related to the student's satisfaction.

Pearson correlation value for student instructor interaction and student satisfaction was r=0.463 that is close to 1. So we can conclude that there was strong positive relationship between student- instructor interaction and student satisfaction. The value of significance was less than p<0.01. it means there was statistically significant relationship between student-instructor interaction and student satisfaction.

H3: Course evaluation will be positively related to the student's satisfaction.

Pearson correlation value between course evaluation and student satisfaction was r=0.696 that was close to 1. So we can conclude that there was strong positive relationship between course evaluation and student satisfaction. The value of significance was less than p<0.01. It means there was statistically significant relationship between course evaluation and student satisfaction.

Regression Analysis

We calculate the hypothesis results using both linear and multiple regressions.

Variable name	R 1	R 2	R 3	R 4
Student Instructor Interaction	.414*** (.050)			.082*** (.053)
Instructor Performance		.612*** (.049)		.205*** (.071)
Course Evaluation			.724*** (.047)	.533*** (.062)
Constant	2.363*** (.175)	1.538*** (.182)	.927*** (.188)	.662*** (.190)
Test Diagnostic				
R^2	.214	.385	.485	.528
Adjusted R^2	.211	.382	.483	.522
F Value	67.869	155.636	234.478	92.097
P value (sig)	0.000	0.000	0.000	0.000

Table 4: Impact of Student instructor interaction, Instructor performance and Course evaluation on Student satisfaction

Standard error in parenthesis, ***, ** and * represent statistical significance at 0.01, 0.05 and 0.1 level.

Linear regression and multi regression were used to analyze the impact of independent variables on dependent variable. In table 4 Column R1, R2 and R3 reveals the regression value of independent variables student instructor interaction, instructor performance and Course evaluation respectively. Column R4 showed the multi regression value of all the variables.
In table 4 co1umn R1 reveals that if there is one unit increase in student instructor interaction it leads to 0.414 unit increases in student satisfaction. This result is statistically significant at 0.01% level of significance.R^2 shows that 21.4 percent variation in dependent variable is explained by student instructor interaction. Probability of F stat is below 10% which shows that model is statistically correct.
In table 4 columns R2 reveals that if there is one unit increase in instructor performance it leads to 0.612 unit increases in student satisfaction. This result is statistically significant at 0.01% level of significance. R^2 shows that 38.5 percent variation in dependent variable is explained by instructor performance. Probability of F stat is below 10% which shows that our model is statistically correct.
In table 4 Regression3 reveals that if there is one unit increase in course evaluation it leads to 0.724 unit increase in student satisfaction. This result is statistically significant at 0.01% level of significance. R^2 shows that 48.5 percent variation in dependent variable is explained by course evaluation. Probability of F stat is below 10% which shows that our model is statistically correct.
In above table column R4 showed the results of multi regression that if there is one unit increase in student instructor interaction, instructor performance and course evaluation it leads to 0.082, .205 and .662 respectively unit increase in student satisfaction. This result is statistically significant at 0.01% level of significance. The overall Probability of F stat is below 10% which shows that our model is statistically correct.

Questionnaire Analysis

Item number/question	SD%	DA%	N%	A%	SA%
Overall instructors were effective	6.8	7.6	31.1	39.4	15.1
The instructors were available for consultation during office hours or by appointment.	7.2	12.4	33.9	28.7	17.9
The instructors stimulated students learning	6.0	16.7	33.1	30.3	13.9
The instructors treated all students fairly	3.2	11.6	27.5	33.9	23.9
The instructor treated all students with respect	5.6	4.4	17.1	41.8	31.1
The instructor welcomed and encouraged questions and comments	2.8	10.0	25.9	36.3	25.1
The instructor presented the information clearly	4.8	9.6	24.7	38.2	22.7
The instructor emphasized the major points and concepts.	4.4	12.0	22.7	38.6	22.3
The instructor demonstrated knowledge of the subject	4.0	9.2	24.7	39.4	22.7
Course Evaluation					
Overall, I have valuable learning experiences from my courses	4.8	8.0	19.1	43.4	24.7
The assignments were relevant and useful	3.2	5.2	16.7	40.6	34.3
Course materials were relevant and useful	4.0	6.8	13.9	43.4	31.9
Expectations were clearly stated either verbally or in the syllabus	2.8	11.2	21.5	39.0	25.1
The testing and evaluation procedures were fair.	2.4	7.2	17.9	45.8	26.7
The workload was appropriate for the hours of credit	6.4	10.0	19.5	41.0	23.1
Student Instructor Interaction					
The instructors encouraged me to become actively involved in the course discussions	11.2	16.3	24.7	31.5	16.3
The instructors provided me feedback on my work through comments	12.4	13.9	23.5	33.1	17.1
I was able to interact with the instructors during the course discussions	8.8	10.8	27.1	35.5	17.9
The instructors treated me individually	8.8	17.9	21.1	34.3	17.9
The instructors informed me about my progress periodically	13.1	17.9	23.9	28.7	16.3
Total sample n= 251					
Where SD means strongly disagree, D=disagree , N= neutral, A= agree, and SA=strongly agree					

Table 5: Key Factors for Determining Student Satisfaction

Table 5 showed the results of key factors that determined the student satisfaction in distance learning education. Table demonstrated the results of independent variable that affect the dependent variable showed item/questions wise.

Conclusion

The purpose of this research study was to understand the key factors affecting student satisfaction in distance learning .Researchers also collect information through primary data using survey questionnaire that

distributed through email to all the students of VCOMSAT. From literature review it was found that in distance learning education student satisfaction is based on instructor performance, student-instructor interaction, course evaluation, Learning management system use, instructor attitude etc. From literature review we found that course evaluation and instructor performance is very important for student satisfaction in distance learning.

Researcher collects the primary data and analyzes the finding that were based on the questionnaire and found those students were very satisfied from instructor performance, course evaluation and student-instructor interaction. It is also verified that there is strong relationship between student satisfaction and independent variables instructor performance, course evaluation and student-instructor interaction. It is also concluded that male students are highly satisfied compare to female students. In literature review people perceived that distance learning is poor than traditional learning but this study proved it wrong, students are also satisfied in distance learning education because there is no need to attend classes physically and student can continue study with jobs.

Results also showed the reliability of the independent variable and dependent variable. As reliability is calculated using alpha all data is accurate. Means and standard deviation was calculated using descriptive analysis and mean values of all the variables were acceptable that were greater than 3. As indicated in traditional learning students were also satisfied in distance learning VCOMSATS that instructor were motivated, intelligent, cooperative with students, courses were up to date, easy to learn and instructor communication with students were very satisfied. Now a day the demand of distance education is increasing and students are satisfied with distance learning.

The finding show that the best indicators of general course evaluating, Course materials, Student Services, and teacher's characteristics all together were critical indicators of general fulfillment in game particular graduate foundations. The real finding of the prevailing force anticipating student fulfillment with online courses is collaboration driven as opposed to data and quality. This should be a wakeup call for instructive chairman or administration course designer who trust data quality or framework quality is relatively more vital than connection quality in driving student's fulfillment. Finding show that learner content interaction was the strongest forecaster of student satisfaction, as previous finding of Keeler and Chejlyk (2006).Second strongest forecaster is learner-instructor interaction that considerably contributed to student fulfillment. So design of online content is more important factor for student satisfaction.

References

About CIIT | COMSATS Institute of Information Technology, Virtual Campus. (n.d.). Retrieved March 05, 2016, from http://vcomsats.edu.pk/aboutus

Afzaal Ali & Israr Ahmad, (2011). Key factors for determining students' satisfaction in distance Learning Courses: A study of Allama Iqbal Open University contemporary educational technology,2(2), 118-134.

Aixia, Ding, and Dan Wang (2011). Factors influencing learner attitudes toward E-learning and development of E-learning environment based on the integrated E-learning platform. International Journal of e-Education, e-Business, e-Management and e-Learning, 264-68

Allen, I.E., & Seaman, J. (2007, October). Online nation: Five years of growth in online learning.

Needham, MA: Sloan-C. Retrieved December 28, 2008, from http://www.sloanconsortium.org/publications/survey/pdf/online_nation.pdf

American Distance Education Consortium (ADEC). (n.d.). Quality framework for online education. Lincoln, NE: Author. Retrieved December 28, 2008, from http://www.adec.edu/earmyu/SLOANC41.htm

Andersen, Jeffery C., (2013). Learner satisfaction in online learning: An analysis of the perceived impact of learner-social media and learner-instructor interaction . Electronic theses and dissertations. Paper 1115. http://dc.etsu.edu/etd/1115

Anderson, Rolph E.(1973). Consumer dissatisfaction: The effect of disconfirmed expectancy on perceived product performance. Journal of marketing research, 38-44

Anderson, T. (2003). Modes of interaction in distance education: Recent developments and research questions. In M. Moore (Ed.) Handbook of distance education, 129- 144. Mahwah, NJ.: Erlbaum.

Anderson, T. D. & Garrison, D. R. (1995). Transactional issues in distance education: The impact of design in audio teleconferencing. The American Journal of Distance Education, 9, 27–45.

Arbaugh, J. B., & Benbunan-Fich, R. (2007). The importance of participant interaction in online environments. Decision support systems, 43(3): 853-865.

Astin, A.W. (1993). What matters in college? Four critical years revisited. San Francisco: Jossey-Bass.

Banerjee, M. & Brinckerhoff, L. C. (2002). Assessing student performance in distance education courses: Implications for testing accommodations for students with learning disabilities. Assessment for Effective Intervention, 27(3), 25-35.

Beaudoin, M. (1990). The instructor's changing role in distance education. The American journal of distance education, 4(2), 26–34.

Benbunan-Fich, R., Hiltz, S. R., & Harasim, L. (2005). The online international learning model: An integrated theoretical framework for learning networks. In S. R. Hiltz, R.G. Goldman (Eds.), Learning together online, 20-37. Mahwah, New Jersey:

Betts, K.S. (1998). An institutional overview: Factors influencing faculty participation in distance education in postsecondary education in the United States: An institutional study. Online journal of distance learning administration, 1(3). Retrieved January 1, 2009, from http://www.westga.edu/~distance/Betts13.html

Biggs, J. B. (1999). Teaching for quality learning at university. Buckingham: The society for research into higher education & Open University press.

Bolliger, Doris U.(2004). Key factors for determining student satisfaction in online courses. International Journal on E-learning 3.1: 61-67.

Bower, B.L. (2001). Distance education: Facing the faculty challenge. Online Journal of distance learning administration, 4(2). Retrieved January 1, 2009, from http://www.westga.edu/distance/ojdla/summer42/bower42.html

Boyd, D.M., & Ellison, N.B. (2007). Social network sites: Definition, history, and scholarship. journal of computer-mediated communication, 13(1). Retrieved from http://jcmc.indiana.edu/vol13/issue1/boyd.ellison.html.

Chen, Chih-Ming, Hahn-Ming Lee, and Ya-Hui Chen (2005). Personalized e-learning system using item response theory. Computers & Education, 44.3, 237-255.

Chiu, C., Hsu, M., & Sun, S. (2005). Usability, quality, value and e-learning continuance decisions. Computers & Education, 45, 399-416.