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Quality and Cost/Benefit Analysis of Distance Education: A Case Study at Karadeniz Technical University

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Abstract

Karadeniz Technical University Distance Education Research and Application Center (KTU-DERAC) has 5 Master Degree Program, 2 Graduate Program and 4 courses with approximately 20.000 students. Quality and cost in distance education have been considered and evaluated by university and Higher Education Institution. Quality and cost analysis studies are held on yearly and distance education policies are composed and shaped regarding results. At this study, quality and cost analyze studies between September 2010 and June 2014. Problems, achievements, benefits and strategies are detailed and presented with changes over time. Student's success, comfort, expectations, supports; instructors' performance, comfort, expectations, supports; university management's expectations, KTU-DERAC staffs' performance, comfort, expectations are regarded for analyzing quality. Cost/ Benefit analyses has been made regarding budget, expenses, investments over the years. Quality and cost/benefit relation is also discussed at this study. Results of study showed that experiences, investments, student's and instructors' comfort and expectations are key factors for success of distance education.

Keywords: Cost/Benefit, Distance Education, Quality

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1. Introduction

Distance education in the Turkey has experienced a lot of important changes in the last ten years that have changed traditional model of education. Number of University has increased from 90 to 160 in last ten years. Number of student not attending universities because of some problems like budget, university fees, accommodation and transportation has decreased. Government increased university capacities and opened new departments and programs at each university. At the dimension of that grow some problems like insufficient classroom, budget and instructor have appeared at Higher Education in Turkey. Politics of government increased number of students at graduate level but working people's education needs has not been solved. To meet that needs new modes for higher education have been developed and distance education was used for most powerful method. Universities started to integrate distance education courses in the curriculum and some courses are conducted with distance education. Rate of distance education courses are between %1 to %20 in universities at Turkey. Also to solve education needs of working people new distance education programs were opened. Universities and students solved a lot of problems using distance education. However, at the other part of this situation, quality of courses and its assurance appeared an important problem at distance education. Quality assurance is not specific for distance education; it is a big factor for all education activities in Higher Education. But in distance education, as a new method, it is an important indicators for choosing distance education.

There are a lot of factors that affect to quality and quality assurance in distance education. Clarke identified three important areas for quality assurance, curriculum and its assessment, handling of coursework and assignments and liaison with the students. (Clarke and oth, 2004). But Clarke also mentioned that there is no one area of distance learning that can be singled out for supplying quality assurance and all aspects of the distance courses must be evaluated and teachers, managers, staff and especially students must be satisfied. Appropriate technology is another factor for quality, choosing appropriate technologies and software will lead increasing quality. Choosing correct technology can solve adoption problems of members (Berge, 2002). Wang in his study defined quality factors at 5 factors; Learning outcome assessment, Curriculum and instructional development, Institutional commitment, student support and faculty support (Wang ,2006).

2. KTU-DERAC Analyses Between 2010 to 2014

KTU DERAC's first online program started at 2010 at the area of management of education at master degree level. One master program with 100 students was first distance education facilities of KTU-DERAC. In five years 5 master degree program,1 graduate program and 2 vocational high school program with 942 students and 5 courses given with distance education with 24.680 students were capacity of KTU-DERAC. As number shows there was a big expanding demand and tendency to distance education. Table-1 shows number of students and programs between 2010 and 2014.

Table 1. Number of students and programs between 2010 to 2013

	2010	2011	2012	2013	2014
Number of Programs	1	4	6	7	8
Number of Course conducted with distance education	-	-	4	4	5
Students in programs	100	470	678	843	942
Student in Courses	-	-	16867	19.454	24680

Courses conducted with distance education are compulsory courses of Turkish Higher Education System. These courses are Turkish Language I, Turkish Language II , History of Revolution and Ataturk' s Principles I, History of Revolution and Ataturk' s Principles II and Application Of Basic Information Technologies courses. Also there are a lot of students in distance education programs. One of the most important quality issues in distance education is student's satisfaction and easy use of distance education system. Table 2 shows systems integrated in distance education for students between 2010 and 2014 at KTU-DERAC.

Table 2. Systems integrated in distance education for students between 2010 and 2014

	Content Delivery	Learning Management Systems	Content Management Systems	Student Support Services
2010	Recorded live classes Videos	Moddle	Adobe Connect	Phone, email.
2011	Recorded live classes Videos	Moddle	Adobe Connect	Phone, email, online students support system
2012	Recorded live classes Video Interactive educational material, lecture notes, online exams	Moddle Adobe Connect Trainer Module	Adobe Connect Moddle	Phone, email, online students support system, forum
2013	Recorded live classes Video Interactive educational material, lecture notes, online exams, animations,	Moddle Adobe Connect Trainer Module	Adobe Connect Moddle	Phone, email, online students support system, forum, Student evaluation forms
2014	Recorded live classes Video Interactive educational material, lecture notes, online exams, animations,	Moddle Adobe Connect Trainer Module	Adobe Connect Moddle	Phone, email, online students support system, forum, Student evaluation forms

Content is one of the most important factor for supplying quality issue in terms of academic achievement, student's motivation and satisfaction. Kinds of content delivery increased over to time between 2010 and 2014. Using different types of student support services help to students to contact with related department for their assistance needs. (Stella and Gnaam, 2004) Increasing number and type of content increased student's success. Rate of success at courses given by distance education was shown table 3.

Table 3. Success rate of students at distance education courses between 2012 and 2014

Year	Success Rate
2012	%78
2013	%82
2014	%86

Distance education composed an important profit for university budget. Using distance education for compulsory 5 courses having 11 credit at total supplied university supplied 450.000 \$ for each year and departments have chance to use classrooms for another courses at % 10 rate. Also electricity, maintenance, cleaning and security payments decreased around %10. Another important contribution of using distance education for 3 compulsory courses for first grade graduate students helped to earn and develop graduate students' lifelong learning skills. At that point university management has been aware of profits and advantages of using distance education in a short time.

Instructor at distance education system is another important factor for evaluating quality in distance education. Instructor earned more money at distance education courses.(Quilter and Weber, 2004) That also motivated to instructor to give distance education courses. Also quality of instructor support systems increased motivation and distance education skills and experiences of instructors. Table 4 shows change of instructor support system facilities between 2010 and 2014.

Table 4. Instructor Support systems and Number of Instructor between 2010 and 2014

Year	Instructor Support Systems	Number of Instructor in Distance Education Systems.
2010	Detailed user manual	5
	Online videos about system use	
	Call Center	
2011	Detailed user manual	24
	Online videos about system use	
	Call Center	
2012	Technical Assistance	49
	Detailed user manual	
	Online videos about system use	
	Call Center	
2013	Technical Assistance	67
	Orientation programs	
	Detailed user manual	
	Online videos about system use	

2014	Call Center	75
	Technical Assistance	
	Orientation programs	
	Online Support Systems	
	Detailed user manual	
	Online videos about system use	
	Call Center	
	Technical Assistance	
Orientation programs		
Online Support Systems		

Distance education requires experienced staff to complete tasks, to organize and manage distance education. Skills and experience of staff determines growth speed of distance education and quality of distance education. Staff comfort, expectations and performance is another important factor determining quality of distance education. Staffs are at the center of distance education activities and must give support to other components of distance education like instructors and students. Growth and profit of distance education in KTU-DERAC increased earns of staff, developed their skills and experiences related with distance education and composes profession satisfaction. Table 5 shows number of staff, Staff education program of staff, and composed work groups

Table 5 Staff information between 2010 and 2014

Year	Number of Staff		Education programs completed by staff	Composed Work Groups
	Full Time	Part Time		
2010	7	-	Learning Management Systems Content Management Systems Students and Instructor Support Systems Budget and Management	Learning Management Systems Group Budget Group Management Group Technical Group
2011	8	3	Content Design and Development	Content Development Group
2012	10	5	Content Design and Development	Learning Management System Development Group Financial Management Group
2013	13	10	Quality Assurance	Students Affair Group Teacher Support Group
2014	14	8	Quality Assurance	Quality Assurance Group

Using capable and new technologies is a key factor to increase quality in distance education. Following and integrating new technologies to distance education can solve lots of problems at

distance education. Table 6 shows technologies integrated to distance education between 2010 and 2014.

Table 6. Technology innovation and investment at KTU DERAC between years of 2010 and 2014

Year	Hardware	Software
2010	Smart Board ,Server, Personal Computers,	Live Classroom Software: Adobe Connect, Development Software: Adobe Flash, Dreamweaver, Photoshop Learning Management System: Moodle
2011	Drawing Board, Smart Pen, Smart Phones, Data Center	Development Software: Adobe Captivate, Presenter
2012	Server Upgrade, Media Casting Device	E-learning Development: Raptivity
2013	Haptic Devices, Video Cameras,	Learning Management System: KTU LMS
2014	Live Casting Device	Web Casting: DigiLab

Using new hardware helped to instructor to enrich teaching activities in classrooms. Also increasing capacity of servers and development device helped KTU-DERAC's staff to develop and design better products. Using new and practical software increased capacity and components of content ((Marshall and Mitchell, 2006).

In five years at KTU-DERAC a lot of investments and innovation completed. Incomes and expenses rate of distance education is accepted an important indicator for distance education in terms of both quality and development and management policies. Table 7 shows incomes and expenses of distance education between 2010 and 2014.

Table 7. Incomes and expenses of KTU-DERAC between 2010 to 2014

Year	INCOME		EXPENSES
	STUDENT'S FEE	PROJECTS	
2010	420.000 \$	15.000\$	260.000 \$
2011	625000\$	20.000\$	340.000 \$
2012	540.000\$	60.000\$	410.000 \$
2013	720.000\$	340.000\$	700.000\$
2014	740.000\$	260.000\$	720.000 \$
TOTAL	3,045.000	695.000	2,435.000

Results of table 7 shows income of KTU-DERAC is enough over from expenses. That is an important rate to allocate budget to quality assurance studies and new investments. Distance education is a profit-bringing education method for Turkish Higher Education system, but profit increases directly proportional with quality.

3. Conclusion

Advancing and scaling up distance education in universities is not easy. (2011). In this review factors affecting quality and components for deciding quality assurance identified. There is a critical interaction between profit and development of distance education. Investments and development processes are related with all quality assurance factors. Students', instructors 'and staff's comfort and expectations are key factors for success of distance education. All distance education institution has a unique context and organization. Quality must be evaluated regarding components of distance education context and organization.

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