Examining the Factors Affecting Student Dropout in an Online Learning Environment

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ABSTRACT

This study examined the factors affecting student dropouts in an online certificate program. In this research, a combination of quantitative and qualitative methods was used. Online Course Dropout Survey was developed and used to determine which factors affect student attrition from the program. The dropout survey was sent by e-mail to 98 students who had dropped the program. Twenty-six students returned the survey. The findings show that the most important factor affecting student retention is finding sufficient time to study. Having personal problems and affordability of the program took second and third place.

Keywords: Online Learning; Online Students; Online Student Dropouts.

INTRODUCTION

Technology has been thrust into our lives during the last half-century. Across the developing world, with technology profound changes have occurred in various areas such as communication, working, and even daily life routines. In other words, technology is changing how we work, how we learn, how we spend our free time and how we interact with each other. Moreover, the expectation from human capital has changed; besides formal college degrees, employers are expecting job applicants to have more advance and specific knowledge. As a result, people need to learn about changes in their professional area because their success depends on keeping up with it through advanced training and lifelong learning. Therefore, institutions offer distance education courses and programs delivered through the Internet, from certificate programs to graduate degrees. The number of online courses provided by educational institutions is increasing drastically (NCES, 1999).

Although online learning is one of the convenient ways to educate people, it suffers from a number of problems. Despite a huge interest in appropriate design and development, attrition (decrease in the number of enrolled students) is one of the main concerns of online education (O'Brien, 2002; Oblender, 2002). Many students are quitting online courses or finishing without any satisfaction. The dropout rates for distance education courses are usually higher than those for comparable on-campus courses (Keegan, 1990; Morgan & Tam, 1999). It is reported that the distance education dropout rate is approximately 30-50% (Parker, 1995; Hill & Raven, 2000; Frankola, 2001). In Europe, dropout rates in distance education programs typically range from 20 percent to 30 percent (Rumble, 1992) and Asian countries have recorded rates as high as 50 percent (Shin and Kim, 1999).

A large amount of research has been conducted regarding online student attrition. In these studies, researchers followed different approaches to determine dropout problems. Morgan and Tam (1999) list the three types of research approaches taken to examine attrition;

- **predict dropout by looking at student characteristics such as age, gender, employment status, and pervious education (see Parker, 1999; Xenos, Pierrakeas & Pintelas, 2002);**
- **examine the features and format of the courses which possibly affect student dropouts (See Frankola, 2001; Garland 2003);**
- **and gather students' perspectives (see Vergidis & Panagiotakopoulos, 2002; Xenos, Pierrakeas & Pintelas, 2002; Parker, 1999).**

In the literature, the reasons for dropouts are vary. For example, Galusha (1997) classified the dropout problems of distance education into four categories, namely student barriers, faculty barriers, organizational barriers, and course considerations. Problems and barriers encountered by the students were about costs and motivators, feedback and teacher contact, student support and services, alienation and isolation, lack of experience, and training. Faculty problems were related to lack of staff training in course development and technology, and lack of support for distance learning in general. Organizational problems, especially infrastructure, availability of funds and technology problems were also presented as challenges. Course considerations were related to the problems of course standards, curriculum development and support, course content, assessment of student performance, and course pacing in developing distance learning programs.

Table: 1
List of Dropout Problems Regarding Learners and Online Programs

Learners	Programs
Unexpected emergency situations (Vergidis & Panagiotakopoulos, 2002)	Course schedule and pacing (Morgan & Tam, 1999)
Underestimating time and effort necessary for courses (Vergidis & Panagiotakopoulos, 2002; Arsham, 2002; Xenos & Pierrakeas & Pintelas, 2002)	Insufficient feedback (Morgan & Tam, 1999)
Lack of time management (Parker, 1995; Phillips, Chen, Kochakji & Greene, 2004; Saba, 2002)	Quality of learning materials (Morgan & Tam, 1999; Rossett & Schafer, 2003; Frankola, 2001)
Ill-defined educational goals (Parker, 1995)	Lack of interaction among learners and teacher (Saba, 2002; O'Brien & Renner, 2002)
Lack of technology proficiency (Phillips, Chen, Kochakji & Greene, 2004; Frankola, 2001)	Inexperienced instructors (Terry, 2001)
Lack of skills of taking learning responsibility (Saba, 2002)	Lack of social integration (Hill & Raven, 2000 ; Rovai, 2003; King, 2002)
Lack of study space (Saba, 2002)	
Unfamiliar learning environment (Rovai, 2003; Lynch, 2001; Arsham, 2002; Martinez, 2003; Terry, 2001)	Lack of student support (Frankola, 2001)

Similarly, Garland (1993) categorized various reasons given by students for withdrawing from distance learning courses into four groups (situational, dispositional, institutional, and epistemological):

- **Situational: Problems arise from a student's own life circumstances, such as changing employment situations or family obligations.**
- **Dispositional: Personal problems that influence the student's persistence behaviour such as motivation.**

- **Institutional: Difficulties students encounter with the institution, such as lack of support services.**
- **Epistemological: Difficulties faced by students while apprehending course content**
- **She added that situational and dispositional barriers proved to be the primary causes of attrition in distance education.**

Besides these advanced categories, the dropout problems can be perceived in two stems: problems originating from the learner side and the problems of the program itself. Table 1 represents a list of problems that result from learners and programs.

As a summary, even though there are not significant differences in learning outcomes and satisfaction between completers of distance education courses and traditional courses (Russell, 1999), completion rates in distance education courses are often lower than in traditional ones.

Therefore, we need more research to analyze dropout problems in distance education programs since the attrition rate is seen as a measure of the quality of the education (Rovai, 2003). Further, dropouts have economic and educational implications (Thompson, 1999). In addition, Phipps and Merisotis (1999) found that distance education research tends to focus on single courses rather than programs and does not adequately explain higher attrition rates for distance learners.

In other words, very little is known about attrition in all graduate study programs (Cooke, Sims, & Peyrefitte, 1995). This study analyzes dropout problems in entire online certificate program. This kind of study results will help to discover causes leading to dropouts to improve quality of education, provide sensitive support, and guide online students and course designer to take precautions to prevent dropouts.

METHOD

Research Design and Procedure

The main aim of the study is to examine the dropout problems of participants in the online 4th, 5th and 6th cohort of Information Technologies Certificate Programs. The main question of the study is: What are the factors that affected participants who dropped an online Information Technologies Certificate Program?

An Online Course Dropout Survey was developed and used to collect data for this study. It was sent by e-mail to all participants who left the online 4th, 5th and 6th ITCPs. With an online survey, it was thought that all participants could access it more easily. It also minimized response error, and the results were coded with minimum effort.

However, even though the number of participants who dropped out of the online 4th, 5th and 6th ITCPs was 98, only about one fourth of these participants replied to the survey.

This online survey consisted of two parts. In the first part, the quantitative part, the main dropout problems were asked to the participants. It had 14 main problems that were rated on a likert-type scale with 5 equaling strong agreement, 4 equaling agreement, 3 equaling neutral, 2 equaling disagreement, 1 equaling strong disagreement. In the data analysis of the first part, the related data were transferred to an electronic format and analyzed by using descriptive statistical techniques.

Afterwards, they were arranged in order and displayed into tables so that the conclusions could be reasonably drawn. In the second part of the online survey, the qualitative part, open-ended questions were asked to verify and deeply examine the problems in the first part. The careful and purposeful combinations of different methods in social and behavioral research strengthen and deepen the analysis and decrease the weaknesses of the study (Johnson and Turner, 2002).

The data analysis in the second part was continuous and iterative throughout the collection of data and the writing of the report. This process of analysis went through iterative cycles of examining the data, exploring similarities and differences among the participants, and searching for confirming and disconfirming evidence that would be incorporated into the conclusions (Merriam, 1998; Glaser & Strauss 1967; Miles & Huberman 1984).

In an initial data sort, the researchers first looked for similarities in the data from both the questionnaire and open-ended part. Secondly, the researchers looked for data that captured major differences among those results. Lastly, the dropout problems were identified and categorized with respect to these similarities and differences.

Online Certificate Program and Participants

The subjects of the study were chosen from the online Information Technologies Certificate Program (ITCP), which is one of the first Internet Based Education Projects of Middle East Technical University. It started in May 1998 and still continues.

This certificate program is based on synchronous and asynchronous education over the Internet offered with the cooperation of Middle East Technical University, the Computer Engineering Department and the Continuing Education Center (Isler, 1998). The main aim of the online ITCP is to train participants in the information technology field to meet demands in the field of computer technologies in Turkey.

The program includes eight fundamental courses of the Computer Engineering Department and is comprised of four semesters lasting totally nine months. The courses in the program, which were prepared Turkish course materials, are given by instructors of the Computer Engineering Department.

The participants, who are students or graduates from 2 or 4 year colleges or universities, have been accepted to the program. The participants are expected to be computer literate and having an intermediate level of English. The subjects of this study were chosen from the 4th-6th programs' participants who dropped the online ITCPs. The percentages of participants who left the program were 35.8 percent in the 4th, 38.6 percent in the 5th, and 33.7 percent in the 6th online ITCPs. These are presented in Table: 2.

Table: 2
Numbers of Students Enrolled to and Dropout from Certificate Program

	# of enrolled students	# of dropout students	Dropout percentage
4th program	106	38	35.85
5th program	88	34	38.64
6th program	77	26	33.77

Table: 3 presents the demographic characteristics of the participants who registered and left the 4th, 5th and 6th online ITCPs. The number of male participants was greater than the number of female participants, and the majority of the participants' ages range from 20 to 29, both among registered and dropout participants.

In addition, the majority of the participants attended the online ITCPs from Ankara and Istanbul, two of the highest populated cities of Turkey. The majority of the participants were college graduate. Similarly, approximately half of the participants have a job and half of them are unemployed.

Table: 3
The Demographic Characteristic of the Participants and Dropout Students

	4th program		5th program		6th program	
	R	D	R	D	R	D
Gender						
Female	32.1	35,7	28,4	26,5	18,2	15,4
Male	67.9	64,3	71,6	73,5	81,8	84,6
Age						
19 and below	0,9	0,0	0	2,9	5,2	0,0
20-24	33	38,9	27,2	35,3	31,2	42,3
25-29	37,7	19,4	48,8	41,2	26,0	34,6
30-34	19,8	25,0	14,7	11,8	19,5	7,7
35-39	5,7	16,7	4,5	6,1	7,8	7,7
40 +	2,8	0,0	4,5	2,9	10,4	7,7
Locations						
Ankara	61,3	62,5	64,4	55,6	54,5	72,7
Istanbul	19,8	31,3	18,8	37,0	20,8	27,3
Izmir	4,7	3,1	2,2	3,7	2,6	0,0
Others	14,2	15,6	14,4	29,6	22,1	18,2
Education Level						
College graduates	59,4	58,3	51,1	52,9	55,8	53,8
Undergraduate students	32,1	25,0	25,0	32,4	29,9	23,1
Graduate students	5,7	11,1	23,9	14,7	14,3	23,1
Other schools	2,8	5,6	0	0	0	0
Occupation						
Working	52,8	50,0	52,3	51,0	58,4	50,0
Not working	47,2	50,0	47,7	49,0	41,6	50,0

Note: R: Percentage of the registered participants, D: Percentage of the dropout participants

FINDINGS

About the factors affecting student dropout the findings show that participants have immense problems in arranging time for the program. Personal problems take second place. Generally, personal reasons were a primary factor for dropping out. The items - arrangement of time, personal problems, expenses, and motivation – had higher mean scores than problems regarding the program. Participants affirmed that their reason for dropout caused by instructors was the lowest.

Interestingly, participants rate failure from exams low as a dropout reason. Table: 4 represents mean and standard deviations of dropout survey questions.

Table: 4
Means and Standard Deviations for Dropout Survey

	Questions	*N*	*M*	*SD*
1.	I couldn't arrange sufficient time to study and attend the program.	25	3.44	1.53
2.	I had personal problems (e.g. about my family, job, health).	26	2.96	1.66
3.	I couldn't meet the expense of the programs.	26	2.54	1.75
4.	My motivation decreased gradually.	26	2.54	1.39
5.	If the program were face to face, I would continue on attending the program.	26	2.38	1.39
6.	I couldn't adapt to the distance education system.	26	2.35	1.23
7.	I couldn't get enough satisfactory support and feedback	25	2.32	1.41
8.	I couldn't sufficiently utilize communication tools (e. g. discussion list, chat and e-mail).	24	2.17	1.31
9.	I recognized that the program was not suitable with my expectation.	26	2.12	1.37
10.	I was not pleased with the content of the courses.	26	2.12	1.24
11.	The courses were overloaded and I did not have adequate knowledge level.	26	2.08	1.26
12.	I could not communicate with other participants.	25	2.08	1.15
13.	I could not pass the exams of program.	26	2.00	1.30
14.	I was not satisfied with instructors' efforts and desires in the program.	25	1.92	1.04

*** Ratings were made on a 5-point scale (1 = strongly disagree, 5 = strongly agree)**

The findings of the questionnaire were parallel with open-end questions confirming students' dropout was caused mostly by personal reasons. Seven participants reported that that they could not allocate enough time to the program because of their work life. Two participants mentioned having to go abroad for business trips. Another participant stated that:

> **"*I am dealing with a project that lasts a long period of time in my job, so I could not study the courses.*"**

Similarly some of the student participants mentioned other educational responsibilities required by their programs such as writing a thesis in their MS program. Furthermore, two participates can not much talk about their satisfaction from program because they had little time to attend program.

Although participants rated personal problems high in the survey, they did not much mention these in open-ended questions. One participant stated having a health problem in his family. Some participants faced problems of affording the cost of the program. Three participants mentioned effects of the economic crisis in the country. The economic crisis also affected some of the participants indirectly by means of their work. One participant stated that:

> **"*The most important reason [dropout] for me is financial problem. I am working in my company, and we are facing with some financial problems in my company while attending the program.*"**

Although many participants registered to the program with high motivation, some dropout participants expressed that their motivation decreased gradually. One participant reported that the program was very compact and short (eight courses within nine

months) so they expected more activities to increase their motivation throughout the program. Another participant stated that the duration and number of face-to-face sessions should be extended to increase students' motivation. Additionally, one participant mentioned that the contents of homework were not interesting to prepare them excitedly. Participants indicated that they would prefer face-to-face classroom instead of taking the courses online. One of them indicated his perception of online learning as;

> **"*Students can learn in a few seconds in the face-to-face classroom, but students need to read many documents for a long time in distance education while the learned information is the same*."**

One of the participant thought that if the format of the education was classroom-based instruction, the dropout rate would be much less. Being an online student and learning from a distance was unfamiliar for most participants so that some of them mentioned problem adapting to distance problems. One participant stated that having adaptation problems restrained that person from attending the next one.

Participants expressed negative feelings about lack of feedback and support for their online learning process. One participant stated that they did not receive responses when they had problems. Moreover, two participants stated that graduate assistants did not deal with students' problems as much as necessary. Another one said that this program was not suitable for the participants who require substantial individual help. One participant mentioned that online learners should take responsibility for their learning responsibility, but it does not mean they are alone or not supported in their learning. Another participant summarized this situation:

> **"*I think that there were many deficiencies in the program. One of them is that there is not enough feedback. For example, student does not know specifically whether his/her result of assignment is correct or not, so students do not realize what they had learned."***

Participants had complaints about the administration of discussion sessions. For examples, different expertise levels of some students made others inconvenient and predetermined chat session schedule was not perceived proper by some students. One participant stated that:

> **"*If this program is given over the Internet, the time of the chat sessions should be agreed by every participant. However, all chat sessions were done at nights and weekdays and no one took my idea about these topics into consideration*."**

Further, some participants felt uneasy as if being in an experiment because their attendance and participation to chat sessions were graded. In addition, participants stated they could not utilize communication tools (e.g. discussion list, chat and e-mail) since they did not attend discussions regularly. There are several reasons stated by participants why they did not attend discussions: inadequate time, hesitancy writing messages, and insufficient domain knowledge. On the other hand, one participant expressed that:

> **"*Discussion, especially in discussion lists, are quite good. We can share our idea and ask all our questions in the discussions.*"**

Regarding courses of the program, some participants thought that the courses were too hard as if they were designed for only engineers. Similarly, participants found course content designed to help only students from computer or electronic engineering departments. They stated they expect better course materials and additional resources. For example, one participant expressed that the resources were not enough except course notes. In addition, some participants expressed that their expectations were not

satisfied because of the administration and design of the courses. For example, one participant wrote that:

> **"*I don't think this program is appropriate for me because the structure [course] is unsystematic and I can not always follow that structure*".**

Some participants recognized that their expectations did not suit the program. They expressed that after noticing the program did not fit their expectation, they stopped attending the course sessions. Although two participants preferred that the courses were more related to work life, one participant stated that program gives more theoretical and academic information.

Failures in the course exams also lead few students to quit the program. For example, one participant did not think that attending the future courses of the program was reasonable after failing three of the first four courses. Regarding the evaluation process of the courses, one participant expressed negative attitudes toward assessment of the courses because of easy exams or unfair grading.

In addition, some participants presented their positive perceptions regarding the program. For example, six participants thought that the courses were useful. Some participants mentioned advantages of online certificate program; for example, one participant expressed that saving time was the biggest advantage for them. Furthermore, twelve participants were positive about reenrolling this online program in the future. Ten participants expressed that they may apply for another certificate programs that were given over the Internet again. Three participants stated that they applied to other online programs if these programs' curriculums and conditions were appropriate for them.

CONCLUSION AND SUGGESTIONS

In this study, the factors that affect the dropout rates in online certificate program are analyzed. This certificate program is one of the first online certificate programs and its aim is to train the participants in the IT field to meet demands in the field of computer technologies because there is a need qualified person in the IT field in Turkey. Participants of the program come with different educational backgrounds, employment characteristics, financial status, marital and family status. Some of them are students at different departments in universities or some of them have job or other responsibilities. Also, they have different expectations about the program. Some participants' expectations are to be more productive in their present jobs and some of them are finding a job with help of this program (Yukselturk &Yildirim, 2004). Unfortunately, in the last three years, approximately 35 % of the participants didn't complete program.

The factor affecting student retention in this online certificate program is combining into two main reasons: the learner side and the problems of the program itself. Parker (1995) stated that attrition from online courses is a complex issue that involves number of intercorrelated and distinct factors particular to the learning environment, and student context. This study shows that personal reasons were a primary factor for attrition. Many participants cannot deal with the program requirements. This result emphasizes the online learner's responsibilities. Research states that online learners have different responsibilities and properties compared to traditional instruction. For example, learners can assume control of their learning. Increased responsibility and accountability for learning were required of online learners (McGrath, 1998). Furthermore, the findings showed that participants have immense problem in finding time for the program and some had personal problems related to their job, family, or finances. Also, some participants had adaptation problems to distance education or their motivation decreased gradually. Dropout reasons in the literature are inline with these findings (Parker, 1995; Vergidis & Panagiotakopoulos, 2002; Arsham, 2002; Xenos & Pierrakeas & Pintelas, 2002; Saba, 2002). For instance, Vergidis and Panagiotakopoulos (2002) conducted a study to examine the root causes of student dropout in Hellenic Open University's postgraduate

program in Greece (neighbor country). Similarly, they found that working adults' obligations are the main cause of dropping out. These obligations are especially related to workload, work commitments and family obligations. Furthermore, Tresman (2002) mentioned about data from 1998–2000 survey in Open University, UK in her study. She stated that the most significant factor influencing students' decision to withdraw is lack of time. Balancing work and family obligations are other factors which also ranked high in the survey. Illness, death, divorce, house removal, and job loss were also cited.

In addition to personal problems about dropout reasons, there are some important critiques about the program stated by participants in this study. In the literature, there are several key principles stated by researchers to design distance education programs. For instance, Moore and Kearsley (1996) have identified 12 key general design principles for successful distance education programs. Four of them, especially related to the results of this study, are good structure, clear objectives, feedback and planned participation to increase types of interaction. According to some participants, this certificate program had some problems in respect to courses (i.e. the contents of courses), and communication tool (i.e. organization of chat sessions and discussion lists). Furthermore, even though participants thought that they were satisfied with instructors' efforts and desires in the program, it is not enough for them since participants stated that they could not get enough satisfactory support and feedback, especially individual feedback. Likewise, Garland (1993) studied distance education student perceptions of barriers to retention of the study. Such barriers found his study related to this study results included poor learning environment, problems with institutional procedures, problems with course scheduling, problems concerning tutorial assistance, lack of clear goal, and lack of support. These problems are also mentioned by some research in the literature (Morgan & Tam, 1999; Frankola, 2001, Saba 2002; Rossett & Schafer, 2003).

The generalizability of the results of this study is greatly limited since the focus of this study was on a certificate program with a small number of dropout students. However, following suggestions can be considered for online learners and designers who deal with online programs:

Online learners

- **Being well-informed about online courses, programs before starting**
- **Arrange their time more effectively**
- **Make control their learning**
- **Being active seekers**
- **Learn how to use online technologies, tools**
- **Attend communication tools (chats, discussion lists) and online activities regularly**
- **Interact with peer and instructors**
- **Study course requirements as much as conventional course one.**

Designers who deal with online programs

- **Analyze students' learning styles, strengths and weaknesses**
- **Provide orientations**
- **Provide counseling to help each applicant to explore his aims, motivation and commitment**
- **Provide active personal and tutorial assistance during the courses.**
- **Enhance student active participation to learning process**
- **Make course content relevant to student experience**
- **Monitor the performance of the instructors**
- **Periodical redesign of courses and instructional materials.**

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