Çevrimiçi Bilgi Teknolojileri Sertifika Programı Tamamlamanın Mezunlar Üzerindeki Etkileri

The Impact of Completing the Online Information Technologies Certificate Program on Graduates

Erman YÜKSELTÜRK[*]

Middle East Technical University

Öz

Bu çalışmanın amacı, Çevrimiçi Bilgi Teknolojileri Sertifika Programını tamamlamanın iş, kariyer ve kişisel planlara etkileri hakkında mezunların algılarını araştırmaktır. Bu program, sekiz dersi içermektedir ve toplam dokuz ay sürmektedir. Çalışmanın örneklemi, bu programdan 2005 ve sonrası mezun olan 70 katılımcıdan oluşmaktadır. Veriler, iki adet çevrimiçi anketle toplanmıştır. Birincisi, 10 dereceli Likert tipli 19 maddeden oluşmaktadır ve ikincisi sekiz açık uçlu soru içermektedir. Mezunların kişisel güveninin, iş özerkliğinin, iş arkadaşları tarafından duyulan saygı ve güvenin artmasında, bu programı tamamlamanın önemli etkilerinin olduğu görülmüştür. Kişisel planları içinde, mezunlar bilgi teknolojileri alanında kendilerini geliştirmek ve teknolojik gelişmeleri izlemek istemektedir.

Anahtar Sözcükler: Çevrimiçi öğrenme, Çevrimiçi Sertifika Programı, mezun algıları, kariyer geliştirme.

Abstract

The purpose of the study is to investigate graduates' perceptions about the impact of completing the online Information Technologies Certificate Program (ITCP) on their job, career development and personal plans. The program includes eight courses and lasts in nine months. The sample of the study consisted of 70 participants who graduated from the program in 2005 or later. The data were collected through two online questionnaires. The first one consisted of 19 ten point-Likert type scale items and the second one included eight open-ended items. The results of the study indicated that the major impact of program completion were the increase in graduates' personal confidence, job autonomy, credibility and respect from coworkers. In their personal plans, they were eager to continue to improve themselves in the field of information technology while monitoring technological developments.

Keywords: Online learning, online certificate program, graduate perceptions, career development

Introduction

During the last half century, technological improvements have given rise to several innovations that affect many people in the developing world. Across the developing world, profound changes have occurred in various areas, especially in working area. For example, the expectation from human capital has changed in the business market. In addition to formal college degrees, employers are expecting job applicants to have more advance and specific knowledge (Yukselturk & Inan, 2006). Harvey (2000) stated that employers seek employees or graduates who have both interactive attributes (i.e. communication, teamwork and interpersonal skills) and

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* Dr Erman YÜKSELTÜRK., Middle East Technical University, Continuing Education Center, eyukselturk@gmail.com

personal attributes (i.e. intellect, ability to learn and self-confidence). As a result, people need to learn to cope with changes and demands through training and lifelong learning. In a rapidly changing world, graduates and employees need to be part of lifelong learning (Harvey, 2000).

Higher education institutions have tried to meet the needs of people in the developing world. Organizations, companies and universities have been trying to supply the demand for lifelong learning in many countries. Technical training, graduate programs and certificate programs are provided in many ways for the students, adults and employees (Mattoon, 2009). Online learning is one of the most convenient ways to offer this type of programs since it provides answers to the problems of availability in terms of accessibility and cost, and demand for flexibility in terms of time, place and pace of learning (i.e. Moore & Kearsley, 2005; Simonson et al., 2006; Yukselturk, 2005). Consequently, online learning expanded dramatically in the 1990s with the help of emerging technologies and this growth has continued in the new century. The number of new online degree programs and courses has dramatically increased. The trend in online enrolments in colleges and universities has carried on all *around the world* (Allen & Seaman, 2007; Bonk, 2004).

As distance education continues to expand, higher education institutions try to find ways to evaluate the effectiveness of online education to improve teaching and learning in courses and programs (Aluka, 2009; Kendall & Pogue, 2006; Özkök, Yurdugül & Aşkar, 2011). One of the elements of evaluating programs is to assess graduate or alumni perceptions, opinions and experiences after completing their education and training.

Alumni Research

Alumni studies have served a variety of purposes for university administrators, educators, and evaluators in the literature. Cabrera et al. (2005, p.14.) highlighted the benefits of alumni surveys by focusing on three approaches: "measuring alumni outcomes", "engagement and competencies", and "alumni giving". Alumni outcomes approach seeks to measure institutional quality and accountability by monitoring alumni performance in the labor force and society. Engagement and competencies approach seeks to institutional success based on effective engagement and instructional practices and acquisition of relevant competencies. As alumni giving approach, alumni surveys have a market-based purpose to identify alumni who possess the capacity and inclination to support their alma mater. Similarly, Kraus (2007) mentioned that alumni studies can contribute to the assessment of student outcomes, program goals, policy, management, and instruction within graduate programs. Fahy, Spencer and Halinski (2008) conducted a follow-up study with graduates and they stated that this type of alumni studies is one of the major elements of program and institutional accountability, and a source of information relevant to program evolution. In their project, Davidson-Shivers, Inpornjivit and Seller (2004) found that alumni surveys allowed the faculty to assess their program's effectiveness for accreditation, begin tracking students in their progress toward their degrees, and plan for necessary improvements to their programs.

There has been a growing interest in alumni studies related to gathering and analyzing information about experiences of students after graduation especially from online programs in recent years. For example, Kendall and Pogue (2006) analyzed academic experiences of alumni who enrolled in an online and a face-to-face program. Results showed that both groups of alumni were very satisfied with their educational outcomes. Online alumni chose the distance program for personal and work-related reasons. They emphasized that their education had significant value for them both personally and professionally. Aluko (2009) examined the impact of a distance education program on the professional practice of teachers. According to the results, the program was found to be beneficial for graduates' personal development, professional practice, schools, learners, and colleagues. In another study, Cocchiara et al. (2010) analyzed master's degree alumni perceptions and they found that male and female graduates perceived their post-graduate degree success differently. Female graduates reported less salary gain, but, higher hierarchical levels

and job satisfaction than male graduates. In addition to the gender variable, social capital and perceived discrimination indirectly influenced the career success of alumni on salary gain.

Alumni`s perceptions are also important for evaluating program impacts on their personal and career life. Bootsma and Vermeulen (2011) investigated graduate`s skills in their working environment by collecting data both from graduates and their bosses. They stated that alumni gained sufficient research skills, communicative skills, and group project skills during their education period to act effectively in their working area. Pryor et al. (2006) examined factors that affect the college choice decision of college first-year students and they found two main factors: the potential for obtaining a good job after graduation and the reputation of an academic institution.

To summarize, the results of alumni studies can be used to assist institution and university administration in addressing the issues of quality and accountability by analyzing the further impacts of these programs (Cabrera et al., 2005; Fahy, Spencer & Halinski, 2007; Kraus, 2007). However, there are not many studies that examine the impact of an online education program on graduates (Aluko, 2009; Fahy, Spencer & Halinski, 2007). For these reasons, the aim of the study is to investigate graduates' perceptions about the impact of an online certificate program on their job, career and personal development.

Method

This study was a descriptive case study that was designed to describe graduates' perceptions about the impact of an online certificate program. Case study as defined by Merriam (1988) is "an intensive, holistic description and analysts of a single instance, phenomenon, or social unit" (p. 21). In this case study, emphasis was on how participants make sense of their lives and experiences, and how they interpret these experiences after completing the online certificate program.

Participants

The participants of this study were selected from 163 students who graduated from the online Information Technologies Certificate Program in 2005 and later. Moreover, data were collected from the ones who were volunteers to participate in the study (43% of all graduates). Table 1 presents both frequencies and percentages of participants in the population.

Table 1.

Participation by Graduation Year

Graduation Year	# of graduates attended the study	# of graduates	%
2005	11	27	40.7
2006	12	28	42.9
2007	16	39	41.1
2008	14	29	48.3
2009	17	40	42.5
Total	70	163	43

The number of male graduate respondents (n= 45) was greater than the number of female graduate respondents (n=25), and the graduate respondents' age ranged from 25 to 55. All respondents, except six, have a full-time or part-time job. More than half of the graduates (n=38) are currently employed in information technology related positions, such as, hardware specialist, web programmer, system analyst, and electronical engineer.

Description of the Online Information Technologies Certificate Program (ITCP)

Online Information Technologies Certificate Program (ITCP) is based on synchronous and asynchronous communication methods over the Internet offered by cooperation of Computer Engineering Department and Continuing Education Center in Middle East Technical University (METU), Ankara, Turkey. The program includes eight fundamental courses about computer engineering and is comprised of four semesters lasting a total of nine months. The main aim of the online ITCP is to train the participants in the IT field to meet the demands in the field of computer technologies in Turkey. University students and people who graduated from two or four year university programs are accepted to the programs.

The online ITCP offers online lecture notes, learning activities and visual aids in the courses. Each course has a textbook to follow and an instructor and a teaching assistant are assigned for each course. In order to provide interaction between instructors and participants, and among participants, each course has an e-mail address, discussion list and chat sessions. At the end of each semester, there are face-to-face sessions for each course conducted in university. At the end of the program, graduates receive an official certificate approved by the president of METU, the chair of the Computer Engineering Department and the director of the Continuing Education Center (Isler, 1998; Yukselturk, 2005).

Data Collection Instrument and Data Analysis

Two online questionnaires were used to gather graduates' perceptions about the impact of their online ITCP program on their subsequent career progress and development. The first one was adapted from a questionnaire developed by Fahy, Spencer and Halinski (2008). In order to evaluate the clarity and relevance of the items, two experts in the instructional technology field and instructors in the online certificate program reviewed the adapted Turkish version of this questionnaire. It consisted of 19 ten point-Likert scale items related to program impacts on professional career with 10 items and personal plans with 9 items. In this study, internal consistency coefficient, Cronbach's alpha, was computed as .91 for professional career sub-scale and .81 for personal plans sub-scale.

The second questionnaire was developed by researcher and it consisted of eight open-ended questions. Similarly, these questions were prepared by program instructors' suggestions and taking experts' reviews. The aim of this questionnaire was to gather additional information about graduates' perceptions, opinions, and suggestions about the impacts of the online certificate program.

To collect the data, all graduates of the online certificate program were contacted via their e-mail addresses that existed at the program's database. The graduates were informed about the study and their participation was voluntary. Later, the links of online questionnaires were sent to the graduates who volunteered to take part in the study.

Descriptive statistics for the means and standard deviations of the subjects were calculated for each item of the first questionnaire. A series of independent t-test were used to see if there are statistically significant differences in regard to graduate characteristics, such as gender, employment status. For the qualitative data, the following steps based on the content analysis method (Marshall & Rossman, 1999) were followed:

- organizing the data,
- generating categories and themes,
- coding the data,
- testing the emergent understandings as considering participants' individual differences,
- searching for alternative explanations and,
- writing the report.

In order to increase the validity, the data analysis process was reviewed by an expert and

program instructors especially during coding the data and generating categories processes. In addition, the raw data were coded more than once by the researcher at different times to compare the codes in terms of their consistency.

Results

The results of the study are reported based on graduates' perceptions about the impact of the online ITCP program under three headings.

The Impact of Graduation on Job and Career Development

Table 2 presents graduates' perceptions about the impact of online certificate program on their job and career development. The findings were ranked from the most to the least impact on the 10-point Likert scale. Graduates rated the most impact of graduation on four items: "more confidence at his/her work"(mean=7.5), "more job autonomy" (mean=6.9), "credibility in eyes of coworkers" (mean=6.7) and "respect from coworkers" (mean=6.7). On the other hand, the lowest ratings were observed on two items: "salary increase" (mean=3.3) and "promotion or advancement" (mean=3.1).

Table 2.
Impact of graduation on perceived job and career

	n	Mean	Std
More confidence at his/her work	70	7.5	2.5
More job autonomy	68	6.9	3.2
Credibility in eyes of coworkers	65	6.7	3.1
Respect from coworkers	67	6.6	3.1
Project direction/management duties	69	6.4	3.0
New responsibilities at his/her job	65	6.1	3.5
Leadership capability	66	6.1	3.1
Number of supervisees	68	6.0	3.2
Promotion or advancement	66	3.8	3.3
Salary increase	66	3.3	3.1

The findings of the first questionnaire paralleled to the open-ended questions' results in the second questionnaire. According to graduates' views, the major impact of program completion was the increase in graduates' personal confidence. Most of the graduates (n=50) stated that they were being more self-confident after the program. They could take responsibilities bravely and they were sure that they could overcome their responsibilities at their works. Similarly, the graduates mentioned that they could combine IT technologies into their existing jobs with the help of knowledge gained through this program. They completed their works and developed projects more systematically after graduation. One graduate reported that, "I can identify the problems and find the posible solutions easily in my works after the program". Supporting this statement, another graduate commented that, "After graduation, I can use my time more efficiently for completing my tasks during my jobs. I know which software or strategy will be used when a problem arises".

In the open-ended questions, graduates were asked whether they were facing problems about validity and credibility of their gained certificate. The majority of the graduates (n=55) answered this question and stated that they did not face any problems while explaining and describing this online certificate program. Moreover, they were generally appreciated for being graduated from this program by people who were in the IT field. Also, they expressed that this online certificate program was offered by a university, METU, which is one of the respectable

universities. That affected others` attitudes positively while mentioning the program. In addition, they pointed out that they were a good example for their friends in their work and their children in their families. For example, one graduate stated, that "My friends admire me and they follow what I am doing after graduation."

Moreover, the qualitative findings showed that graduates started to use information technologies more prevalently in their professional and daily life after graduation. According to the results, graduates (n=18) who work as engineers used them in their projects, graduates (n=5) who work as teachers used them in their courses, graduates (n=10) who are students in the university used them in their assignments, and graduates (n=6) who have children used them in guiding their children. Also, graduates especially who are working in related to IT field stated that they got new responsibilities over time at their jobs. However, an overwhelming majority of graduates stated that they did not get any promotion or salary increase directly in their professional life. For example, one graduate reported, that "there are many benefits of the program for me, I'm doing my job responsibilities more professionally, but, I have not get salary increase so far".

The Impact of Graduation on Personal Development

Table 3 shows how graduates perceived the effect of this online certificate program on their future personal plans. Graduates rated the most impact of graduation on three items: "continue to improve yourselves in information technology field" (mean=8.1), "monitor technology developments" (mean=7.9) and "consider another certificate program" (mean=7.1). On the other hand, the lowest ratings were observed on two items: "remain connected to online certificate program classmates" (mean=4.5) and "remain connected to university" (mean=4.5).

Table 3.
Impact of graduation on personal plans

	n	Mean	Std
Continue to improve yourselves in Information Technology(IT) field	70	8.1	2.3
Monitor technology developments	70	7.9	2.5
Consider another certificate program	69	7.1	3.3
Consider graduate studies (MS or PhD)	70	6.4	3.5
Consider similar programs at another institution or university	70	6.3	3.5
Attend conferences, events related to IT field	70	6.0	3.3
Consider changing jobs	69	5.6	3.7
Remain connected to ITCP classmates	70	4.5	3.2
Remain connected to University (METU)	70	4.5	3.5

According to the qualitative findings, almost all graduates agreed that their perspectives related to this field have been changed and they formed their foundation of knowledge about computer technology after completing this program. One graduate summarized impacts of this program as follows: "I have learnt basics of computer technology and now, I am not just a computer user. I realize that my skills have been improved with the help of getting knowledge from the program." Moreover, graduates mostly stated that their notions were updated with this program. They claimed that they remembered several information they neglected and they added new experiences to existing ones. This program increased their interest to the IT field. Therefore, they stated that they wanted to continue their education related to computer technologies in the future. These results were parallel to the factors affecting graduates in choosing this online program. For example, most of the graduates expected to get knowledge about information technology or to renew their knowledge about information technology by attending to this online program. Also, graduates anticipated to be productive in their present jobs and to make progress in their existing careers as a result of this program.

In the second online questionnaire, graduates were asked whether they registered to other online programs after this online certificate program. The results showed that 15 graduates attended new online courses and 6 graduates registered to the graduate programs. They generally preferred to the programs related to IT field since they wanted to improve themselves in this area. Besides, most graduates did not attend any other program after this online certificate program; on the contrary, they stated that they might attend similar online programs whenever they needed in the future.

Almost all graduates mentioned that they could recommend this online certificate program to others, especially their friends. Graduates suggested that the program might be recommended to people who want to get theoretical background of computer engineering, people who want to continue their education related to IT field while working or studying, and people who are able to study by themselves and have enough time to accomplish the requirements of the program. In addition, graduates also proposed several major recommendations to the instructors and coordinators in order to improve the program:

- Course contents: They should be updated regularly, some of them might be changed and more current topics could be added since IT technologies are changing fast. Also, course notes should consist of more practical examples and assignments should be selected from real life problems.
- Guidance: In the program, the participants come with different educational backgrounds, age levels, employment characteristics, and different expectations. Therefore, individual guidance was more important and it should be increased.
- Interaction: Graduates thought that interaction among the participants was weak in the program. Also, there were not enough activities after graduation in the program. Program coordinators should interact with graduates regularly; inform them new instructional facilities and especially job opportunities.
- Program structure and pacing: According to graduates, the program had a heavy and intensive curriculum since eight different courses were given in nine months. The graduates wanted that the duration of the program could be designed based on participants' properties and provide more flexible options.

Work and Gender Effects

This study also analyzed the impacts of working or not working in the field of IT on responses. As seen in Table 4, the results showed that the differences in mean ratings toward working in IT field positively were found on following items: more job autonomy (p=0.004) leadership capability (p=0.017), at a significance level of 0.05.

Table 4.

Impact of graduation by work effects

	n	Mean	SD	*P*
More job autonomy				
- Work in IT field	38	4.4	3.2	0.004*
- Work in other field	32	2.2	2.2	
Leadership capability				
- Work in IT field	38	7.5	2.9	0.017*
- Work in other field	32	5.1	2.8	

*p<0.05

Moreover, the gender differences on impact of graduation were analyzed. Although, generally, male graduates' ratings tended to be higher than female ones, there was not a statistically significant difference on all items of the questionnaire.

Summary and Discussion

There is a widespread demand for assessment, accountability, and market-driven research about educational programs in higher education (Cabrera et al., 2005; Peak & Berge, 2006). For meeting this demand, alumni surveys and graduate studies play an important role to gather valuable information for policy development and assessment of program in higher education institutions. Similarly, this study analyzed graduates' perceptions and opinions about the impacts of the online certificate program on their following job, career and personal development. According to the results, similar to previous ones (i.e. Fahy, Spencer & Halinski, 2008; Kendall & Pogue, 2006), graduation from online programs affected these alumni broadly. They got more personal confidence, job autonomy, and credibility in the eyes of coworkers after the program. Further, regarding their personal life, graduates seemed eager to continue improving themselves in IT field and monitor technology developments. They were planning to attend another certificate and graduate programs. Also, as might be expected, respondents who were working in IT field under a wide variety of job titles had more job autonomy and leadership capability.

Graduates' opinions from qualitative data showed similar results about the impacts of the program on them. Parallel to their aims while attending the program, graduates got essential information about information technology and they formed their foundation of knowledge about computer technology. Most graduates started to use their experiences in their projects and jobs during and after the program. These results showed that the program's major aims were basically matched up with the graduates' ones. That was important for alumni satisfaction. Hartman and Schmidt (1995) pointed out that satisfied alumni are likely to mention about institutions and programs positively and provide several facilities to subsequent graduates. Likewise in this study, most graduates recommended this online certificate program to the others dealing with IT technology which might affect this certificate program positively since the program is still active now.

In the literature, some researchers found that distance education might be lower quality than traditional training (i.e. Fahy, Spencer & Halinski, 2008). On the contrary, graduates generally did not face with any problem about the validity and credibility of the program in this study. They highlighted the importance of the program, offered by the respectable university. The results showed that the credibility of the program was also affected by the recognition of higher education institutions which ensure accountability and quality issues of education.

Delaney (2002) investigated that graduates' success and satisfaction were affected by several variables. One of them is related to graduates' level of income. Teichler (2002) stated that only a minority of 10–20% of graduates face substantial problems on the labour market or end up in positions not commensurate with their level of education. Demiray (2000) analyzed distance education graduates of Turkey's Anadolu Open University and found that graduation resulted in increased income, promotion increase in status and responsibility, and use of academic knowledge at the work place. However, the results of the study showed that graduates did not get direct advancement and salary increase in their professional life. These types of the results showed that educational or academic achievement might not be always associated with graduates' level of income even though they provide various benefits (Delaney, 2002).

Data from alumni studies are uniquely capable of giving both cognitive and affective feedback on programs (Fahy, Spencer & Halinski, 2008; Kendall & Pogue, 2006). Similarly, the results of the study showed that the major deficiencies in this program were related to course contents, individual guidance, lack of interaction and program structure. The program coordinators could redesign their courses and structure of the program based on these graduates' suggestions. According to these results, this type of study could be regularly conducted to evaluate the effectiveness of online education to improve teaching and learning in courses and programs.

Conclusion

Eventually, the results of alumni studies play an important role to provide valuable information about the impacts of academic program completion on graduates. The results allowed higher education institutions to demonstrate success of their program and to focus on their weaknesses of program. Also, the results encouraged new learners and participants to attend online degree and certificate programs. In this study, graduates from the online certificate program believed that this program have contributed to their job, career and personal development in several ways. There is a strong relationship between the completion of the program and the improvement of their personal performance. Besides, graduates mentioned about the deficiencies of the program to the coordinators. As a conclusion, the results confirmed that alumni studies could be used for evaluation to what the extents of a program have met the intentions and expectations.

Moreover, some potential limitations of this study should be taken into consideration while discussing the results. The study population consisted of 43% of all graduates for the last four years of online certificate programs, which limits the generalizability of the results. In the literature, the responses in graduate studies are discussed mainly. Fahy, Spencer and Halinski (2008) analyzed participation of several research studies related to graduates and they concluded that low responses were reported and studies were ranged from 5% to 44% of the target population due to several reasons. Therefore, the response rate could be acceptable; however, there is still cautious about making strong general conclusions. In future studies, extending the scale of participants to various programs and universities might produce different results. Moreover, more longitudinal studies are needed to see outcomes of such programs in long term. In order to understand the effects of attending to these programs and the efficacy of these programs better, the topic should be examined from different perspectives, such as, university administrators, program instructors, employers.

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