

METU Instructional Technology Support Office: Accelerating Return on Investment Through e-learning Faculty Development

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Abstract

The changing conditions caused by the social, economical and technological parameters are forcing higher education institutions to maximize their investments in instructional technology equipment, facilities, and training in order to provide new learning experiences for students. However, these investments can only be valuable for the faculties if conscious actions are taken to improve the use of instructional technology in educational settings. Most of the leading universities recently started to provide Instructional Technology Support (ITS) programs for faculty and staff besides the support provided by individual academic units. ITS centers or offices established as the units to leverage the profitability of the instructional technology investment in the universities. As one of the leading university in Turkey; Middle East Technical University (METU) administration is committed to integrating current and emerging instructional technology into the curriculum effectively. For this purpose, METU ITS Office was established to realize the advantages that technology integration can bring. This paper summarizes the METU ITS Office history, administrative structure, services and facilities and METU ITS Office initiatives. The paper will also present information about the similar initiatives at different universities abroad and discuss how ITS Offices may turn out to be units accelerating return on instructional technology investment of universities. Finally, the paper will share experiences and provide know-how in terms of creating opportunities to establish Instructional Technology Centers in different universities in Turkey.

Keywords: Instructional technology investment, Instructional technology support offices, technology integration into curriculum, higher education.

Introduction

The education system has entered a period of change driven by a powerful and complex interplay of social, economical, and technological forces similar to those that influence the required skills and attributes of society. Future implies changing learning needs at all levels requiring an increased collaboration with community, institutions, and students. Therefore, the education system will go beyond the boundaries built in traditional education. The changing needs will force the development for new educational settings and infrastructure removing the boundaries created by time and space. Developing information and communication technology (ICT) together with Internet technologies have revolutionized learning with the new forms of “web-based learning”, “online learning”, “distributed learning” or “e-learning”.

Most countries take actions to assist higher education institutions in focusing their energies and resources to meet the needs of the 21st century. However, studies of higher education have shown that learners and faculty are not sufficiently prepared to enter the present global environment of teams and technology. It is inevitable to confront the changes in education whether we are ready or not. It is clear enough that new technologies offer substantial

opportunities to improve higher education. Vast amount of research indicates that emerging new technologies have made significant contributions to a variety of instructional areas. This shows the growing effectiveness of instructional technology in higher education programs.

Understanding and Integrating Instructional Technology in Higher Education

Both the development and use of instructional technology in higher education are accelerating. Higher education institutions are making instructional technology investments to equip their infrastructure with the necessary tools for faculty to use in order to provide new learning experiences for their students. Early attempts reflect the need for effective management and integration of technology in education. These attempts will not succeed unless there is a corresponding commitment from the faculty. The successful integration of technology in higher education should be led only by the initiatives for commitment to understanding and using instructional technology effectively in a collaborative way. In this way, faculties who do not have knowledge about using or integrating instructional technologies into educational settings may need support and their needs may differ from technical to pedagogical issues. Besides these, even if they can compatible with those issues, they may need to be encouraged for taking actions in using or integrating instructional technologies in educational settings.

Faculties have such messages that “moving into the world of technology appears time-consuming and uncertain, with insufficient incentives and support for them to make this move with confidence” (Johnston & McCormack, 1996; p.3). In fact, the relationship between new instructional technologies and the faculty member's individual and organizational contexts and their personal histories decide the degree of instructional technology use (Spotts, 1999). Therefore, encouraging faculties to use instructional technology may be one of the important issues and this could be a starting point to make faculties be aware of the importance of instructional technology use in education.

Encouraging Faculty to Use Instructional Technology

To encourage faculties in using instructional technology, faculty members should perceive the value of instructional technology use first. Different strategies and actions could be used in this process. One of those strategies is providing training programs for the faculty development. The purpose of training programs should be “encouraging faculty members to bring in ideas” and showing faculty members how instructional technology can be integrated into education (Spotts, 1999). Such kinds of initiatives can also help to “raise the awareness about the potential for information technology to enhance teaching and learning” (Johnston & McCormack, 1996; p.5). In this way, a common culture of instructional technology use within the institution can be established. Besides that, instructor can also be supported in equipments availability and facilities (Spotts, 1999). All these supports can be thought as services of a central mechanism or framework.

The challenge is implementing effective reforms including time and space independent dynamic collaboration by means of the new learning technologies in order to define both the quality and the productivity of education. It is

very important to establish a framework and mechanisms to engage faculty in instructional technology use. In this framework or mechanism centralized or distributed support is critical to faculty using instructional technology.

Instructional Technology Support and ITS Services

Potential users in universities need support for understanding and learning the instructional technology itself and they also need support for using it effectively in order to improve their instruction and students' learning. Recently, most of the leading universities recently started to provide Instructional Technology Support (ITS) programs or services for faculty and staff besides the support provided by individual academic units.

ITS centers or offices established as the service units to leverage the profitability of the instructional technology investment in the universities. These units are established for the purpose to provide support faculty through different channels to improve the integration of instructional technology in education to enhance their instruction and students' learning. For example Instructional Technology Support Services at Colorado University in America run a media lab where the faculty can use more professional level tools and have access to media professionals (Colorado, 2000).

The collaboration between the faculties and instructional technology support centers may result in an increase in using instructional technology and so does in the quality of education. However, having an instructional technology support center is not the absolute solution for integrating instructional technology into educational settings. By the help of those centers and their encouragements, the faculties need to force themselves in learning how to use and integrate the instructional technology. Besides these, there may be a resistance in using traditional ways or technologies in educational settings. This resistance can only be overcome within time period in which faculties have experiences in using instructional technology. In this sense, instructional support centers are first stops that the faculties can ask for help and support. In addition to these, those centers need to be active units which provide variety of services for faculty development and encouragement of instructional technology usage.

Instructional Technology Support Services provide a comprehensive variety of services supporting the use of information technology in the educational process. These services consist of talented staff provide assistance to faculty using technology in education, research, conferences and special events. These services are places where faculty can get support in improving course design, develop instructional materials or train themselves. These services emphasize the best pedagogical uses of technology for successful student outcomes.

There are some common services provided by Instructional Technology Support Services of the leading universities (Bass, 2000). One of these services is to support the use of Technology Classrooms. These classrooms include computer and video projection, VHS and DVD playback, document cameras, and many offer the capability to digitally record audio from lecturers. Video Services are dedicated to the enhancement of research, academic, and administrative goals through the utilization of video by providing support in professional quality video productions.

Audio services are for capturing and storing recorded content securely for student access via the web. One of the notable examples of these services is in University of Rochester. They prepared the videos of each lecture in sign language, students can access these through the library of the university (Rochester, 2004). There are some other innovative services in some universities. For example, in Santa Clara University, special pens that save the notes of the students are used (SC, 2006). These notes are published in the web. In Temple University, an area of 75,000 m² with 600 desktop and 100 laptop computers is reserved for technological needs of students and faculty (Temple, 2007).

Technology Integration in Higher Education in Turkey

The higher education system in Turkey has to respond to numerous problems, challenges, and changing needs of the society. It is a fact that in higher education new improvements related with use of technology is not at the expected level yet. Although the increase of higher education in terms of both quality and quantity is a primary goal, we could not get rid of the domination of the old style education. In the “Turkish Higher Education Strategy” report published by The Council of Higher Education in 2007, the importance of technology integration in higher education to cope with the international competition is clearly stated. To have a significant place in this competition, the technology development should be widespread in the whole country. Therefore, one of the suggestions in the report is to establish Applied Sciences and Applied Technologies Faculties in the universities and the other one is to establish Continuing Education and Technology Improvement Centers.

Here, we must also mention the technocities established within the universities. These establishments are strategically important to increase the research and technology development of universities. Technocities have some distinguished rights based on the Law of Technology Improvement which has number 4691. METU Technocity is one the most important example of this new expansion. As the beginning of 2006, there were 22 universities having plans to establish technology development regions (YÖK, 2007).

The quality of the science and technology institutions of a country depend on several parameters like the allocation left to the R&D, the experience to manage research, number of the researchers and the demand of the society to research etc. Therefore in Turkey, the governments usually establish plans to manage with these parameters. Lately, Science and Technology Higher Council have accepted the Science and Technology Policies Application Plan (2005-2010) (YÖK, 2007). In this plan, it has been accepted that R&D expenses should be increased to %2 of gross domestic product and the full time scientists should be increased to 40.000.

METU’s Instructional Technology Investment: Equipment and Facilities

As one of the leading universities in Turkey, Middle East Technical University (METU) has always evolved with the needs of our society. Instructional technology resources at METU take many forms ranging from computers in labs, classrooms, and offices; the campus-wide network; fully equipped electronic classrooms, smart classrooms; and distance learning facilities. Investment in instructional technology at METU has been ongoing, and considered to be

a continuing commitment rather than a simple allocation of resources for hardware. This commitment is also mirrored in the METU strategic plan 2005-2010 that recognizes instructional technology needs as one of the vital component to consider in planning for METU's future and emphasizes the urgent need for incorporating instructional technology in the university curriculum.

There are various projects and innovative expansions developed in METU in terms of instruction technology investment. One of them is the learning management system (LMS) developed by Informatics Institute of METU called NET-CLASS. Currently, this LMS is used in 420 different courses. Informatics Online (ION) program is an online nonthesis program prepared by Informatics Institute. This program aims at providing expertise on the rapidly developing subjects of information technology and systems. Work Based Learning program is a new educational model customized for each individual's needs, skills and experience, developed for professionals who have at least five years of public or private sector experience. Another important project is Information Technology Certification Program (IDEA). This program consists of software courses developed for students who work in different areas.

The Return on METU's Instructional Technology Investment

If higher education manages to adapt to meet the new challenges then it is very likely that METU will go on to flourish and retain the leadership among the very best institutions in improving the return on instructional technology investment. METU is targeting to achieve the advantages of investment in instructional technology equipment, facilities, and training in order to leverage the benefits of technology-based instruction.

Technology-based instruction helps faculty solve many difficult problems they face when trying to implement difficult lessons. Lessons that require extra clarity or just boring for students can be enhanced through technology. Technology-based instructional tools are also reusable, so teachers and students can recycle activities very easily. With technology, there is also the option for automatic feedback, so students know immediately what they need to improve.

Many computer and online programs (like PowerPoint or NET-CLASS program respectively) or just using a computer in the classroom would help to keep students' attention longer. Working in a group online is much more exciting for students than just talking and taking notes on paper, or reading out of a book. Overall, technology creates more learning and teaching opportunities, and can greatly enhance the academic development.

The report of "Using Technology for Effective Instruction at METU: Current Status, Expectations, Suggestions" 2007 indicating the need for greater and timely support that help faculty to acquire and incorporate new technologies into their teaching. For this purpose METU took the decision for the establishment of Instructional Technology Support Office (ITS Office) to provide both centralized and distributed support through different channels to meet the emerging needs of the potential instructional technology users on the campus.

METU ITS Office

Brief History, administrative structure

METU Instruction Technology Support Office was established in 2005 under presidency of the university. This office takes innovative approaches to education and research, as well as aims to implement and utilize different instructional technologies and increase the use of e-learning applications in the university environment. According to the Strategic Plan of METU (2005-2010), the facilities being held and to be done:

- Making collaborations in the areas like graduate program without thesis, certificate programs, in which there is an essential need to integrate e-learning.
- Involving in many national and international projects and research, coordinating several projects, sharing the experience and knowledge in the seminars and conferences with other universities and research institutes.
- Organizing seminars regularly in which willing academic staff may participate
- Supporting the facilities of e-learning in the courses of undergraduate and graduate programs
- Providing technical support to academic staff and students of METU for enriching the use of computers and instructional technologies.

Three research assistant under facilitation and management of two academic staff, in METU Instruction Technology Support Office to achieve the facilities considered in the Strategic Plan. The ITS team occupy with support the academic staff in terms of technology use and show them there are various kinds of instructional methods with integration of technology.

Facilities, Services, and Initiatives

ITS Office organized about 30 seminars aiming to support the academic staff in the utilization of technologies in their courses and projects. These seminars cover the facilities such as preparing personal websites, sharing their instructional materials in their websites, being able to construct effective instructional materials with Macromedia Flash, using effectively the learning management systems constructed by METU-Online studies. After seminars, the participants were asked to provide feedback with online surveys to understand the effectiveness of the seminars, to perform the expectations of the academic staff and to provide more efficient and effective seminars. Moreover, these feedbacks enabled the ITS Office to organize seminars with different topics according to the expectations of academic staff. Besides, there are two projects which METU ITS Office is involved: the first one is constructing Open Courseware-like e-learning environment modeling from MIT Open Courseware, the second one is Effective Learning Portal being set up in METU.

E-learning Faculty Development

Professional developments required to set up offices like METU ITS Office in the universities. Analysis of trends and models of e-learning practice, technology integration, instructional technology advancements and contributions to the faculty in the universities is vital for each university so as to follow up the developments in higher education

and provide better learning environments. Therefore, activities that highlight faculty development in e-learning and instructional technology are needed to be organized to build capacity for e-learning organizational institutes.

Investigations held by Educause on higher education's use of instructional technology Educause emphasize that training the faculty for information technology and improving the methods for faculty development is one of the most crucial to improve the effectiveness of higher education institutions. (Crawford, Rudy and Committee, 2003) Addressing the needs of academics in higher education is possible with Garrison, Anderson, and Archer's (2000) model which consists of three elements: cognitive, social and teaching presence. Cognitive presence is related with the process of developing higher-order thinking skills, generating ideas, connecting some ideas with other ideas, integrating these ideas into real life and benefiting from these ideas. Second element, social presence, is concerning with interaction, collaboration skills like academics presenting themselves, helping others to raise the critical thinking and gaining experience from real life and representing them to learners. The last element, teaching presence with which instructional technology interest, comprises developing teaching skills, constructing the learning environment, organization of substances required for course, using these materials with appropriate instructional methods.

Teaching presence interacts with cognitive presence and social presence: the academics improving professional and educational skills (Garrison and Arbaugh, 2007). Cognitive presence allows teaching presence prepare a good content and organize how to mediate the content and social presence collaborate with teaching presence in terms of setting the environments (e-learning, blended education, use of video, audio and effectiveness of use technological devices). Therefore, Faculty in higher education institutions utilize technology in communicating with students and faculty, using computer-based and web-based technologies in their own research activities. Therefore, the more effective utilize the technical (teaching) presence in the model of with Garrison et al. (2007) the more need for technical support to the faculty development in terms of developing e-learning environments for faculty and improving their technological usage skills. Instructional Support Office's primary work is to provide an e-learning environment for faculty development and maintaining support for academics to fulfill their teaching presence side for effective learning environment.

Summary

Learners and faculty are required to be sufficiently prepared to enter the present global environment of teams and technology. The changes in education started the faculty to encourage using instructional technology and as a result they are aware of the importance of instructional technology use in education. Therefore, it is very important to set up a system to show the faculty how they can integrate technology into education. It is possible with the centers, namely Instructional Technology Support Centers, to accomplish the needs of the faculty about instructional technology use in their course. As a result, most of the leading universities recently started to provide Instructional Technology Support (ITS) programs or services for faculty and staff besides the support provided by individual academic units.

“Turkish Higher Education Strategy” report has been acknowledged the importance of technology integration in higher education to cope with the international competition. The report suggests that start faculty developments with Applied Technologies Faculty programs and Technology Improvement Centers. In order to achieve this, METU Instruction Technology Support Office was established in 2005 under presidency of the university. This aims to engage the faculty to use different instructional technologies and increase the use of e-learning applications in the university environment. ITS Office has been organizing seminars to support the academic staff in the utilization of technologies in their courses and projects. As well as, ITS office has been involved with two projects: OpenCourseWare and Effective Learning Portal projects.

Faculty in higher education institutions utilize technology in communicating with students and faculty, using computer-based and web-based technologies in their own research activities. It is inevitable that there is more need for technical support to the faculty development in terms of developing e-learning environments for faculty and improving their technological usage skills. METU ITS office sees this e-learning faculty development and provide more e-learning environment as the primary aims.

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