

E-Learning and an Implementation in Yildiz Technical University

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In a globalizing world, the rapid advancements in technology affect education as well as the other sectors. To keep up with the innovations in information and technology, it is imperative to implement communication technologies within instructional settings. The use of internet and web in education is important especially for keeping the graduate curriculum that aims to equip students with modern trends in order to prepare them for the work force updated and for reaching more people without any time or location limit.

Today, most institutions draw on lecture-oriented methods. Traditional education has its limitations in terms of its engagement with students due to the inadequate use of audio-visual technology, causing a setback by not letting the learner to study in his/her own speed. (Inoue, 2004). Furthermore, there are other educational methods such as case study analysis, role-playing, conducting research, which provide students to have real life experiences. However, the insufficient funds together with the growing population of students require new alternatives to be employed by institutions as a means to complement the current instruction methods.

In this sense, technological advancements serve the educational institutions by both providing them with access to internet and to other communication technologies to help them create new learning and teaching opportunities.

E-learning is an example of the communication technology usage in higher education level. Some Turkish Universities follow “distance learning” and “e-learning” implementations by both practicing and blending it with other learning activities to attain to the modern education standards, to meet the increasing educational demand independent of any locational limits, with 7 days 24 hours access, and with less costs and more participants. In a supporting manner, the draft report of 2006-2008 Higher Education Strategy for Turkey, stipulates a %10-%30 percent increase in higher education programs via e-learning with the purpose of increasing the capacity of Turkish Universities. Also, the inter-university project; titled as “e-campus” supports the transformation of knowledge community in the higher educational level. (Yalabik, 2004)

Yildiz Technical University (YTÜ), to which we belong, is also among the Turkish Universities which utilizes e-learning. 2006-2008 Strategic Plan of YTÜ attempts to make sure that each YTÜ student takes at least one e-course before graduation. In the strategic plan, the role and the short, intermediate and long term goals of YTÜ E-Learning Commission, decisions about the usage of blended learning model and the introduction of e-learning technologies to instructors and students have been emphasized.

Table 1. The electronic courses in YTÜ

Course Title	Micro Economics	Macro Economics	English-Listening	Instructional Technology and Material Development	Design Languages and Figuration Grammars	Data Structure and Algorithms
Department	Economics	Economics	Foreign Lang.	Computer and Inst. Techn.	Comp. Eng.	Architecture
Class	2	2	Prep	3	2	Graduate
Instructor's Title	Prof. Dr.	Prof. Dr.	Lecturer	Asst. Prof. Dr.	Prof. Dr.	Prof. Dr.
Credit	3	3	3	3		
Requisite	Requisite	Requisite	-	Requisite	-	Requisite
Prerequisite	Prerequisite	Prerequisite	-	Prerequisite	-	-
Updating	updated	not updated	not updated	updated	not updated	not updated
First Semester*	2003-2004 autumn	2003-2004 autumn	2003-2004 autumn	2003-2004 autumn	2003-2004 autumn	2003-2004 autumn
Last Semester**	2006-2007 autumn	2005-2006 spring	-	2006-2007 autumn	-	-
New Course Suggestion***	International Economics	International Economics	no	no	no	no
Research****	yes (Eren & Donduran, 2005)	yes	no	yes	no	no
Membership*****	yes	yes	no	yes	no	no

*The first semester of the electronic course

**The last semester of the electronic course

***Will the department suggest new e-course?

****The research about the success or satisfaction after the e-course implementation.

*****Membership of E-Learning Commission.

The mission of the project titled as “e@yildiz”; is primarily to raise the quality of education, and secondarily to maximize the efficiency in facility management and human resources by applying distance learning technologies along with traditional models. For the effective usage of distance learning technologies, a preparation committee was constituted in May 2002. In 2003-2004 fiscal year, 5 courses from various disciplines have been offered on the web: Instructional Technology and Material Development, Micro Economics, Data Structure and Algorithms, Design Languages and Figuration Grammars, English-Listening courses. In the 2006-2007 fiscal year, three of these courses are still presented via web. A chart about YTÜ’s e-courses is given below.

In addition to the courses presented in Table 1, the departments of Business Administration, Economics, Civil Engineering, Western Languages and Literature have suggested four more courses to be transferred to the web. This four courses including Human Resource Management course which is suggested by our division of Management and Organization in the Department of Business Administration have been endorsed by the commission as a part of the e-learning project.

This study involves the scenario work of the above-mentioned HRM course which has been prepared within the framework of Blended Learning Model.

E-learning can be described as an instruction in the electronic environment and has been defined by the American Society for Training and Development’s e-learning glossary as “a wide set of applications and processes, such as Web-based learning, computer-based learning, virtual classrooms and digital collaboration” (Derouin, Fritzsche and Salas, 2004). E-learning provides synchronized and asynchronized education via computers, internet/ intranet, network, CD-ROM technologies.

Besides, blended learning is defined as an integrated model that unites the strengths of the face to face teaching activities in the classroom and online learning environments such as information and communication technology instruments (Hummel, 2006, 3). The notion here is that e-learning elements or modules are combined with traditional methods to make a hybrid learning experience (Kovaleski, 2004, 35; Coné, 2002, 19).

Each method and instrument has its own strengths and weaknesses in its own context. Today it is accepted that communication instruments should be mixed in best fit to be able to provide a more effective education.

Bersin identifies these instruments as classroom instruction, books, conference meetings, CD-ROMs, PPT presentations, handbooks/guides, education softwares, web pages, online simulations, web based discussion groups, mentoring programs and videos. He also mentioned that there is no need to use all of these materials to succeed in blended learning, but rather just two or three of them will be sufficient if they’re consistent with the course content.

To be able to carry on HRM course in a more updated and affective manner, the courses presented in Table I have been investigated. HRM e-course had been adapted from the Instructional Design Model of Kemp, Morrison and Ross (Morrison, Ross and Kemp, 2001).

In this study, undergraduate students’ readiness for self-directed learning and technical readiness (Chapman, 2004, 351), learning behavior of their age, size of the group, their interest and needs had been taken into consideration while setting the instructional objectives and constituting the content and the scenario. Differently from target audience analyze, course contents’ predisposition to visuality and the appropriateness of showing most of the HRM applications on web were also affected the selection. Students take this basis and single course of HRM along their management education so the HRM functions and main concepts are intended to make known.

While configuring the HRM course content in the “instructional objectives setting” stage, the objectives indicated within the context of YTÜ EKSİP (Continual Quality Improvement Project in Education) were treated as the guidance.

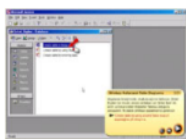

The knowledge had been separated in the modules that have integrity inside. The objectives for each module had been determined, some had been planned to be given in blended learning and the others in face to face instruction.

In the “instructional objectives organizing” stage, the learning behavior that will be introduced to students were prepared in accordance with Bloom’s Taxonomy of Educational Objectives. Taxonomy consists of three domains of learning: cognitive, affective, and psychomotor. In addition; six levels of cognitive domain; knowledge, comprehension, application, analysis, synthesis and evaluation have been taken into consideration. The objectives in knowledge and comprehension level had been thought to fit to e-learning, the ones in application and advanced levels to classroom education.

For the purpose of informing students about the content of the course and to motivate them, the objectives of the new module will be presented in the first page of the module. By using the most appropriate language for the student, the new issues which will be introduced him by that module at the end of the session will be emphasized. By means of these, it is aimed for the student to be prepared and open for learning.

In the “module design” stage, some limitations have been assigned for both written texts part and visual expressions part. Allocating the subject into chapters, giving a heading to each chapter, allocating the chapter headings into subheadings, designating progressivity incisively, approaching a new subject under a new heading, scheduling the time table for module accesses and location selections(classroom or lab) for the courses, preparing an interactive visual material, writing the scripts

Figure 1. Interface sample

MODULE NO		: 4.2	SCREEN NO		: 3/5
CHAPTER		: TRAINING AND DEVELOPMENT			
1	 		TRAINING AND DEVELOPMENT Text about the subject.....		
2		 Job rotation means moving management trainees from department to department to broaden their understanding of all parts of business and to test their abilities.		
3			Training Methods: On-the-job Training: Text about the subject. Ex: internship, rotation*		
4			Off-the-job Training: Text about the subject. Ex: Case studies, role playing, sensitivity training		
5			Text about corporate training activities, e-learning, web sites.....		
		search the web pages and investigate the training demos.			
		When the cursor have been brought onto the word signed with "*", the definition of the term (Job rotation means moving management trainees from department to department to broaden their understanding of all parts of business and to test their abilities) should appear in a box.			

The web addresses should be linked to the web pages

of animations, using maximum seven visual materials for a plain interface, not using horizontal scroll bar, using vertical scroll bar for the large charts, creating the texts and visuals for the 800x600 pixel resolution, disposing the written texts in the right side of the interface, never using an horizontal scroll bar in this written area and using the vertical one for maximum three times scrolling are basic standards.

YTÜ uses IBM Learning Space 5.0 in its project. The interface of the program has three main parts. Visual expressions such as figures, tables, charts, animations are found in the midst of the screen, thumbnails in the left part of the screen and the written texts of the course are found in the right side of the screen. (see www.e-learning.yildiz.edu.tr)

The visual expressions in the centre part can be changed easily to click on the links in the text or thumbnails in the left part. The thumbnails which are lined up one under the other represent the number of visual expressions in the module, the colored icon represents the actual visual material on the screen just in that moment.

In the scenario study of e-HRM course, visual expressions and written texts showed course content and screen flows is being arranged following the instructional texts are prepared in summarized formats. Scenario study is simply a plan that explains things that student will see, hear and do on screen during the e-course process.

In this study, an interface template of Learning Space 5.0 has been constituted to guide the web design team. In the lower-middle part of the template the verbal exposition about the visual material in the midst of the screen is found. If there's an annotation about the written text, this can be found lower-right cell of the template.

Furthermore a notation is created for facilitating the communication process between web design team and instructor and getting them understand the requests about the interface easily. Notation can be defined as a system of numbers and signs. Some notation examples are given in the Table 2.

In the "content constitution" stage, the objectives and contents of HRM courses in foreign universities are investigated and benchmarked to see the HRM relevant literature which is predominantly consisting of foreign sources as well as to be able to read the global implementations. The extent and classification of Dessler (2005) and De Chenzo (2001) in HRM were helpful while preparing of our own.

The HRM course contents of Melbourne Business School, AUSTRALIA; McGill University, CANADA; Nottingham University Business School, UK ; Seattle University & Washington State University & Yale School of Management; New Haven USA; and the contents of Turkish Universities HRM courses; Marmara University, Yildiz Technical University have been benchmarked.

Some important differences have been detected in the course contents in terms of "speed of change" and/or "cultural diversities". To state as an example, although employer-employee relations, collective bargaining, racial and religious discrimination are frequent subjects in foreign and most notably in USA origin HR literature, the same subjects are emphasized less frequently in Turkey; and accordingly, they didn't take a place in our e-course.

We tried to show and give examples to the daily practices and business life experiences in the content preparation process. A self produced video about competency-based recruitment&selection and a 360-degree performance feedback test for the students' term project in which the evaluation of instructor, project team members, classmates and the student himself have been taken into consideration for his performance were specially created to be used in the modules. These are

some examples for the most outstanding tools used in the program. On the other hand, the compensation management function of HRM had been left out of the content because it's difficult to build up the subject with audio visual stimulus in electronic media and also it's best fit to face-to-face learning. As a support for this elimination, a research of YTÜ Department of Economics puts forward some important evidences. The research showed that the students achievement has fallen after the web-assisted education; although previously an improvement had been expected. As one of the reasons behind these results, it was stated that the students were used to traditional style education, especially to the blackboard illustrations of technical issues (Eren&Donduran, 2005, 197), such as graphics or the compensation charts of HRM.

Student access scheduling and arrangement of the modules are modified in terms of opening each module just after the former module is worked up and being able to access the corequisite modules concurrently.

At the end of the process of "deciding on the instruction strategies", YTÜ decided to use Blended Learning Model during all the term, right along with the modules which have been followed through the web, and with the process of face to face instruction readings, discussions, case studies and workshops. Mid term and end-term evaluations will be done in class as it is in traditional education. The activities will be sent to the teacher or tutor by e-mail, the evaluations will be done at class, by that way the mutual interaction between the teacher and the student will be able to be provided.

The learning of lesson over web will be done by presentation. First of all the whole will be shown and explained by the method of deduction, then examples will be given. Every week after the students checked the modules, teachers and students will meet at the class, they plan to overview the details if needed, debate and summarize the subjects. The activities in the class should not be as a repeat of the subjects on the web; rather they should be in a complementary and supportive manner. The issues like student-student and instructor-student interaction and active engagement to the class have not been maintained in a satisfactory manner with virtual class and synchronized practices in e-learning and they are tried to be maintained with face-to-face education.

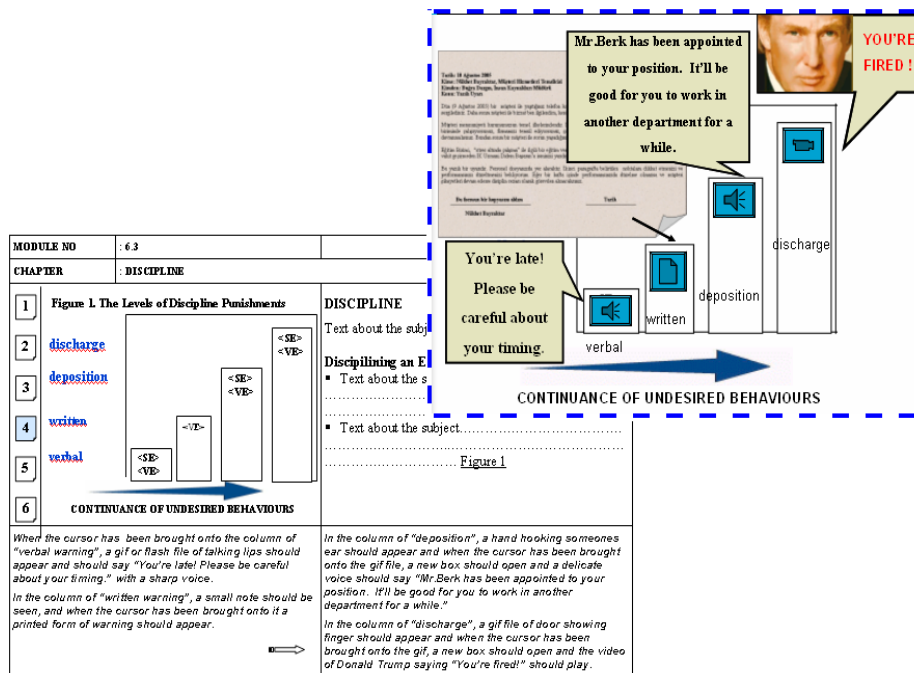
In "the design of modules" stage, IBM Lotus Learning Space 5.0. Program will be used. Learning Space 5.0 is a software with user-friendly interface that provides to constitute on-line courses, to manage them, to communicate the contents to students and to check out the courses. Finally, after preparing the summarized formats within the framework of the mentioned standards and limitations above, the scenario plan showing course content and screen flows with written texts and visual expressions has been arranged following the instructional texts. LMS (learning management system) will also provide glossary, notebook, reading room, print, download and help options. Glossaries and online dictionaries are the most preferred web-assisted functions in terms of perceived usefulness in the communities whose mother tongue isn't English. Notes, powerpoints and multimedia projects are following the glossaries. (McNaught&Lam, 2005, 610). In our project HR terms, reading room, print and download options are planned to be used in an efficient way.

The new information and communication technologies such as web journal/blog, podcasting, wiki, e/pop are supposed to be used in the near future of Turkey. The infrastructure and limited bandwidths are needed to be developed and the instructors need to be more enthusiastic with the instructional technology use both in and out of the classroom. Podcasting is a new concept and an alternative delivery for any content including the educational ones which can be thought as university lectures. It is a combination of *iPod* (Apple's popular audio player)

Table 2. Notation sample ¹

<i>Italic</i>	=	<i>guideline for designers</i>
Normal	=	just the text
<u>Underlined</u>	=	<u>link to any document or web page</u>
<u>Italic bold underlined</u>	=	<u>link to attachment</u>
<SE>	=	sound effect
<VE>	=	visual effect
<1>	=	1 second blank

Figure 2. Scenario screen sample



and broadcasting (Elliott, 2006; Crofts, Dilley, Fox, Retsema & Williams, 2005; Jardin, 2005). Podcasts, audio podcasts, video casts can be played on any computer, and downloaded to almost any portable music player (Toole, 2006). E/pop is a new video conference method that lets instructors and students not only see each other but also lets them send documents and mails, see the others' desktops on their own screens and use it interactively. This technology is especially ideal for small group courses.

The HRM course is planned to be opened as an e-course in 2007-2008 fiscal year after the web design team transfers the scenario to web. The preparation process requires the interaction and exchange of ideas between instructor, subject field specialists and web design team so we're looking forward to hear the participants' contributions and criticisms.

REFERENCES

- Asirvatham, S. (2000). Beyond the distance barrier. *Journal of Property Management*. September/October, 65, 42-46.
- Bersin, J. (2003). What works in blended learning. *Learning Circuits*, July. Retrieved October 15, 2006 from: <http://www.learningcircuits.org/2003/jul2003/bersin.htm>
- Campbell, G. (2005). There's something in the air: Podcasting in education. *Educause*. Review. November/December. Retrieved December 30, 2006 from: <http://www.educause.edu/ir/library/pdf/erm0561.pdf>
- Chapman, D.D. (2004). Review: Preparing learners for e-learning, Edited by George M. Piskurich. San Francisco: Pfeiffer, 2003. *Human Resource Development Quarterly*, 15, 3, fall, 351-357.
- Coné, J. (2002). E-learning: how to spot the good and discard the bad. *Strategic HR Review*. July/August, 1, 5, 19.
- Crofts, S., Dilley, J., Fox, M., Retsema, A., & Williams, B. (2005). Podcasting: A new technology in search of viable business models. First Monday, 10, 9. Retrieved December 30, 2006 from: http://www.firstmonday.org/issues/issue10_9/crofts
- De Cenzo, D. A. & Robbins, S. (2001). *Human Resource Management*. (7th edition) USA: John Wiley&Sons.
- Derouin, R. E., Fritzsche, B.A. & Salas, E. (2004). Optimizing e-learning: research-based guidelines for learner-controlled training. *Human Resource Management*. Summer/Fall, 43, 2 & 3, 147-162
- Dessler, G. (2005) *Human Resource Management*, (10th edition), New Jersey: Prentice Hall.
- DMI educates with e/pop (March 2006). E-learning age.
- Elliott, W. (2006). The audiocast diaries: reflections on radio and podcasting for delivery of educational soap operas. *International Review of Research in Open and Distance Learning*, December 7, 3, 1-11.
- Eren, E. and Donduran, M. (2005). Bilgisayar destekli mikro iktisat eğitimi: bir uygulama. *İktisat Eğitimi:Ulusal İktisat Sempozyumu*, Ankara:İmaj Yayinevi, 189-205.
- Hummel, H.G.K. (2006), Feedback model to support designers of blended learning courses. *International Review of Research in Open and Distance Learning*. December, 7,3, 1-16.
- Inoue, V. C. (2004). E-learning: all that we need for keeping us updated, *Technology and Learning and Development*, October.
- Jardin, X. (2005). Podcasting killed the radio star. Wire News. Retrieved December 30, 2006 from: <http://www.wired.com/news/digiwood/0,1412,67344,00.html>
- Kovaleski, D. (2004). Blended learning in focus, *Corporate Meetings&Incentives*.
- McNaught, C. & Lam, P. (2005). Building an evaluation culture and evidence base for e-learning in three Hong Kong universities. *British Journal of Educational Technology*. 36, 4, 599-614.
- Morrison, G. R., Ross, S. M. and Kemp, J. E. (2001). *Designing Effective Instruction*. (3rd Edition). New York: John Wiley and Sons.
- Shulman, L. S. (2002). Making differences: a table of learning. *Change*. November/December, 34, 6, 36-44, retrieved December 04, 2006, from <http://www.carnegiefoundation.org/publications/sub.asp?key=452&subkey=612>
- TAP goes blended. (2006)., *E-Learning Age*, March.
- O'Toole, G. (2006) Multimedia-casting syndication for educational purposes considerations of a podcast for use in higher education. *British Journal of Educational Technology*
- Troha, F.J. (2002) The Right Mix: A Bulletproof Model For Designing Blended Learning", *USDLA Journal*, May, 15, 5.
- Yalabik, N. (2004) Turkish inter-university project; e-campus, Distance Education Workshop, April 30, Mersin, Turkey.
- YTU e-yildiz project (2003). *Lecturer handbook*, Retrieved December 25, 2006, from www.e-learning.yildiz.edu.tr

<http://e3learning.edc.polyu.edu.hk>
http://www.wiredred.com/epop_products_epop.html

ENDNOTE

¹ The notation for the scenario work is constituted by the researcher.

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