An Interactive Studio: E-learning in Design Firms in Ankara and Istanbul

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Abstract—In the last century, a rapidly growing technology leads to emerge new business areas in plot of business sectors. Computers and computer related other devices being used in educational institutions in education sector has entered new technological era. The information to be presented here is based on the experience gained from the course SMTS2009 in 2009 and the structure of design firms in Ankara and Istanbul.

Index Term—ankara, design, e-learning, istanbul

I. INTRODUCTION

In the last century, a rapidly growing technology leads to emerge new business areas in plot of business sectors. Computers and computer related other devices being used in educational institutions in education sector has entered new technological era. In the last 20 years of studies especially on the internet have a positive growth and increasing rate of having computers, the spread of the internet in society, the internet reveals as a supportive training tool. Internet which is started to be used as a tool to support education has become a training method over time and has been described as e-learning. E-Learning in the design studio environment will be an important step towards more effective architectural learning based on the changes and improvements in the world of architecture both in national and international contexts. In 2006, Accompanied with the experience of Istanbul Technical University, Suleyman Demirel University, in 2007 Yildiz Technical University and as an interdisciplinary experience with the Fine Art Faculty of Anadolu University, this project will be an outstanding opportunity to integrate e-learning technologies to the field of architecture as well. The aim of this paper is to introduce the development process of the creative studio in terms of creative environment thanks to recent technological developments. The information to be presented here is based on the experience gained from the course SMTS2009 in 2009 and the structure of design firms in Ankara and Istanbul. The purpose of initiating e-learning in SMTS2009 and Architectural Design Firms are the provision of a highly interactive studio environment independent of time and place. It may also provide an opportunity for participants and instructors to make use of the infrastructures learned and developed during the application as well as to widen their uses in future.

A. Teget Mimarlik

The first one of these companies is Teget Architecture firm. The head of the firm, architect Mehmet Kutukcuoglu, has several works with international architects such as Frank Gehry. They follow recent developments on internet and computer technology and culture. There is a team of e-learning management. The tasks of the team is to establish foreign and domestic meetings via internet. His last project is a building for YKB academy. This project was selected as 2009s best educational structure.

Fig. 1. Teget Mimarlik

Hardware and software of Teget Mimarlik[1] They prefer to use autodesk’s butterfly project which is a sub product of autocad. This product provides options that allows two remote users to manipulate the project. The software also

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provides implemented communication between remote users. The staff learned to use the software by e-learning opportunities that provided by the firm.

B. Yeni Mimar.com

The staff of the firm followed the recent development of the internet age. For example, some of the staff responsible for e-learning based works. They elaborate representatives’ chosen from architecture schools nation-wide online [2].

C. Habitat Turkey, www.habitatturkey.com [3].

This is an internet based design company. International meetings and e-business held by the company via the internet. ICT based work done by certain individuals who trained online. They keep the virtual training program online. They have research and development unit.
D. Proje Muhendislik Planlama (PMP A.S.)

PMP was established in 1992. Especially in the early 1990s spreading of computer usage in designing works mastering, estimate and other Project management services, has opened the way of effective use. PMP contributed to the process with the database based on a special computer program prepared by itself and realized a remarkable increase in the level of information. PMP cooperates with investors and contractors with the project’s feasibility to be tested, the planning, design coordination, use the resource efficiently, technical and administrative control, budgetary monitoring, metering and estimate studies, tender documents preparation, work programs.

- E-Consultancy:
  E-Consultancy is provided by MSN and e-mail.

- E-Learning Status and Duration:
  PMP has been giving e-consulting more than ten years via the Internet. Apart from this, a copy of the work is electronically to the employer.

- Software and Hardware Used in E-learning:
  Standart software and hardware are used. Communications and e-consultancy services electronically via MSN and e-mail can be realized.

- E-Learning Tools:
  No special tools are used.

- E-Learning Team:
  All employees at the company officials who own area of expertise is on line with e-consultancy service.

- Mobile-Learning Use Situation:
  Mobile learning is not available.

E. Emre Arolat Architects

They provide e-learning opportunities to some staff of the firm.

II. E-LEARNING USE OF SCOPE IN THE WORLD OF TURKISH ARCHITECTURE

E-Learning has had a place because of providing benefits in every business sector. In this part of the article, some points such as how much and how architectural companies in Turkey use e-learning tools, software, hardware and if they have e-learning team or not will be examined in five architecture companies.

A. FGA Mimarlik

FGA Mimarlik was established in 1997 in order to take responsibility for Allplan Architectural CAD system sales, training and support in certain regions. FGA has been working as the distributor of Allplan Architectural CAD program since 2005. In addition, FGA provides support services for users in company animations, photo-quality presentations and also the architectural design work that must be completed in the short term.

- E-Consultancy:
  E-Consultancy is provided the company’s web site through web browser and programmes such as Skype and MSN.

- E-Learning Status:
  FGA Mimarlik has been giving e-learning consultancy through its web site since 2008.

- Software and Hardware Used in E-learning:
  The training programs such as Nemetschek Allplan, Maxon Cinema4D, On-Site Photo, SCIA Static ve RPC and their software programmes are used.

- E-Learning Tools:
  E-Learning is given with video lectures provided that the student cannot find or understand the information in the videos, they may receive support through consulting experts.

- E-Learning Team:
  E-Learning team consists of two architects and a technician have been assigned to give efficient process..

- Mobile-Learning Use Situation:
  Mobile Learning is not being used as active and primary method.

FGA Mimarlik E-Learning System: Member Login

User name and password is performed by entering FGA Mimarlik web page for members. Page is as follows.
Home page: After you register your user name and password, entry is completed. Login to members if requested after the tab using, members can access special training video.

Education videos: When member’s tab is entered, the visual special window opens as shown below. By selecting it from the special issue, it can be accessed to the video narration [4].

The bottom of the page as can be seen in the following visual, education is the top headlines. By selecting another desired top title, education/information content available through video.

E-Consulting and E-Communication

Members of the tab, located under the “Members Only” ‘online information and support line’ tab by entering e-consulting and e-communication services are possible to access. On Web page tab, Skype and Web-Msn features are available. Besides to receive electronic advice from FGA Mimarlik, classic msn program and e-mail can be used.

B. Myra Yapı Teknolojileri

Myra Yapı was founded in 2005 by young entrepreneurs of the period without ignoring the human element from the vision, all the possibilities of using technology in the sector in order to come to a better place in this sector. Today it operates in architectural design and construction field.

- E-Consultancy:
  E-Consultancy services are provided through MSN and e-mail.

- E-Learning Status and Duration:
  Mayra Yapı Teknolojileri, which was established in 2005, provides e-consulting via the Internet.

- Software and Hardware Used in E-learning:
Standart software and hardware are used. E-Consultancy services electronically via MSN and e-mail can be realized.

- E-Learning Tools:
  No special tools are used.
- E-Learning Team:
  All employees at the company officials who own area of expertise is on line with e-consultancy service.
- Mobile-Learning Use Situation:
  Mobile learning is not available.

C. Neva Mimarlık

Neva Mimarlığı was established in 2001 with the philosophy of researcher, functional, innovative, original and unique work to make permanent.

- E-Consultancy:
  E-Consultancy services are provided through e-mail.
- E-Learning Status and Duration:
  Neva Mimarlık, which was established in 2001, provides e-consulting via the Internet.
- Software and Hardware Used in E-learning:
  Standart software and hardware are used. E-Consultancy services electronically via MSN and e-mail can be realized.
- E-Learning Tools:
  No special tools are used.
- E-Learning Team:
  All employees at the company officials who own area of expertise is on line with e-consultancy service.
- Mobile-Learning Use Situation:
  Mobile learning is not available.

D. Cagdas Mimarlık

Cagdas Mimarlık has been established to respond to the needs of architectural design in Bakirkoy region.

- E-Consultancy:
  E-Consultancy services are provided through e-mail.
- E-Learning Status and Duration:
  Cagdas Mimarlık provides e-consulting services since 2005 via the Internet.
- Software and Hardware Used in E-learning:
  Standard software and hardware are used. E-Consultancy services electronically via MSN and e-mail can be realized.
- E-Learning Tools:
  No special tools are used.
- E-Learning Team:
  All employees at the company officials who own area of expertise is on line with e-consultancy service.
- Mobile-Learning Use Situation:
  Mobile learning is not available.

III. TURKISH ARCHITECTURE/ E-LEARNING COMPARISION

Five architecture and construction services companies offering e-learning use have been analyzed. In this section the company’s e-learning use of options will be compared to the visual table.

### TABLE I
E-LEARNING FIELDS OF USE

<table>
<thead>
<tr>
<th></th>
<th>E-Contact</th>
<th>E-Consulting</th>
<th>E-Education</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGA Mimarlık</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mayra Yapı Teknolojileri</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMP A.Ş.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neva Mimarlık</td>
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<td></td>
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<tr>
<td>Çagdas Mimarlık</td>
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<td></td>
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</tbody>
</table>

As shown in Table I e-communication and e-consulting services are provided by all of the companies. Yet, e-education service is offered by only one company.

### TABLE II
HARDWARE USED IN E-LEARNING

<table>
<thead>
<tr>
<th></th>
<th>Standart PC</th>
<th>Web Cam</th>
<th>Other (Special Devices)</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGA Mimarlık</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mayra Yapı Teknolojileri</td>
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<td>PMP A.Ş.</td>
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<tr>
<td>Neva Mimarlık</td>
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<td></td>
</tr>
<tr>
<td>Çagdas Mimarlık</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In Table II companies e-learning hardware have been investigated. None of the companies providing visual communication device, do not use webcams. While companies of all transactions made through standard computer equipment, FGA benefits from different hardware to increase the efficiency of design and architecture courses to offer students the effective use of courses.

### TABLE III
SOFTWARES USED IN E-LEARNING

<table>
<thead>
<tr>
<th></th>
<th>E-Mail</th>
<th>MSN</th>
<th>Skype</th>
<th>Web Browsers</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGA Mimarlık</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mayra Yapı Teknolojileri</td>
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<tr>
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<tr>
<td>Çagdas Mimarlık</td>
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<td></td>
</tr>
</tbody>
</table>

In Table III e-learning software that the companies use has been investigated. All of the companies use e-mail. In the meantime, MSN program has been using by majority in the fields of communication, information, consulting. A single company seems that communicate through Skype and web browsers.
TABLE IV
TOOLS USED IN E-LEARNING

<table>
<thead>
<tr>
<th></th>
<th>E-Book</th>
<th>E-Test/E-Exam</th>
<th>Video</th>
<th>E-Consulting</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGA Mimarlık</td>
<td>✗</td>
<td>✗</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mayra Yapı Teknolojileri</td>
<td>✗</td>
<td>✗</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMP A.Ş.</td>
<td>✗</td>
<td>✗</td>
<td>✗</td>
<td></td>
</tr>
<tr>
<td>Neva Mimarlık</td>
<td>✗</td>
<td>✗</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Çağdas Mimarlık</td>
<td>✗</td>
<td>✗</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In Table IV companies e-learning tools have been investigated for their use. As seen in the table, all of the companies give e-consulting services. FGA Mimarlık use video during e-learning education. Tools such as e-books, e-test are not used by the companies.

TABLE V
E-LEARNING TEAM

<table>
<thead>
<tr>
<th></th>
<th>Architect</th>
<th>Engineer</th>
<th>Technician</th>
<th>All Employee</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGA Mimarlık</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Mayra Yapı Teknolojileri</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PMP A.Ş.</td>
<td>-</td>
<td>-</td>
<td></td>
<td>✗</td>
</tr>
<tr>
<td>Neva Mimarlık</td>
<td>-</td>
<td>-</td>
<td></td>
<td>✗</td>
</tr>
<tr>
<td>Çağdas Mimarlık</td>
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<td>-</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table V is created as a result of the investigation of the distribution of the company’s e-learning team. In this study 80% of companies for a e-learning services have not established a special team and all employees in accordance with their own expertise have been authorized the use. Only FGA Mimarlık regulates e-learning team consisting of two architects and one technician to use e-learning [6].

TABLE VI
MOBILE LEARNING STATUS

<table>
<thead>
<tr>
<th></th>
<th>Using</th>
<th>Not Using</th>
</tr>
</thead>
<tbody>
<tr>
<td>FGA Mimarlık</td>
<td>-</td>
<td>✗</td>
</tr>
<tr>
<td>Mayra Yapı Teknolojileri</td>
<td>-</td>
<td>✗</td>
</tr>
<tr>
<td>PMP A.Ş.</td>
<td>-</td>
<td>✗</td>
</tr>
<tr>
<td>Neva Mimarlık</td>
<td>-</td>
<td>✗</td>
</tr>
<tr>
<td>Çağdas Mimarlık</td>
<td>-</td>
<td>✗</td>
</tr>
</tbody>
</table>

As noted in Table VI, all researched companies do not use mobile learning as a primary and active method [7].

IV. CONCLUSION

In Turkish architecture, e-learning has been using in areas such as communication, information sharing and e-consulting in high rate. However, a large proportion of the company use neither necessary software nor hardware to provide more effective and quality of these services [8]. Moreover, in Turkish architecture, e-learning is not very widespread education method of using educational status. Therefore, use of any tools such as e-books, e-testing and videos is extremely limited. Mobile learning also is not used effectively in our country. Turkish architecture and construction companies that managed to take Project and application works worldwide should take advantage of competitiveness not to stay behind all the benefits of speed electronic learning [9].

Knowledge Management can be defined as knowledge creation, sharing, writing in text, storage and when it is needed to reuse the processes and activities e-learning through practical application tools [11].

E-Learning platform, thus not only an education, but also is a tool for the realization of inter-company information sharing.

We examine the design firms in Ankara and Istanbul in these categories:

- E-activities
- E-consultancy
- E-communication
- E-learning tools
- E-learning team
- Mobile- learning

The firms use the e-learning activities mainly for “e-consultancy” and “e-communication”. “Work based learning” is the focused point of the firms. The majority of firms prefer “a team who activate e-learning” as the opportunities of internet based work for the staff. Visionary thinking and innovative approaches for design firm need collaboration with other partners. Architects today cooperate in a global environment and commit to sustainable patterns of their design, to contribute to global progress by means of the human-made environment. E-learning will support the structure of the “global design firms”.

Fig. 12. http://www.elearnspace.org/Aritcles/elearningcategories.htm, accessed may 2010.[10]
REFERENCES


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She worked in private architecture design firms in Ankara between 1988-1995 and then has been working for Anadolu University in Eskisehir since 1995. She has publications in several indexes such as API, ISI_AHCI, ISI_SSCI, CSA, EI, Avery Index, IEEE Computer Society and international workshops in ISI_PROCEEDINGS and book (+chapter)s and one international award on CAD. Her researches based on Virtual Design Studio and Knowledge Modeling for Conceptual Architectural Design Process: Library Buildings, 2003 and Virtual Design Studio, 2006 & 2007 & 2009 & 2010. She was a member of several international scientific committees such as ICIW2009-IEEE, EurIPIA’8, UIA2005. She has also undergraduate lectures and graduate lectures in Department of Architecture, Anadolu University, Turkey.

Assoc. Prof. Dr. Tokman has a membership in professional societies such as Design Research Society, Environmental Design Research Association. She has an achievement award on CAD in 2005. She was a reviewer and author in ICIW2009, Venice, Italy by IARIA-International Academy, Research and Industry Association.