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Learning in 3D virtual worlds and current situation in Turkey

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Abstract

One of the promising innovations in information and communication technologies is three-dimensional virtual world platforms like Second Life, Dreamworld and Active Worlds. 3D virtual worlds have a considerable importance and potential for creation of next generation learning environments. The main purpose of this descriptive study is to evaluate the educational capabilities of 3D virtual worlds and determines the educational usage of 3D virtual worlds in Turkey. For these purposes, features of 3D virtual worlds were evaluated in educational purpose, current educational usage of 3D virtual worlds in Turkey was investigated, and recommendations were presented with advantages and disadvantages.
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1. Introduction

Distribution of educational information changed in different aspect over many years. Today in support of communication technologies virtually distribution of information provides major advantages and opportunities for all stakeholders. Developments in information and communication technologies deeply impressed the individual's learning processes for a long time. Innovations in information and communication technologies have a vital importance for virtual learning applications (McGee, 2007; Robben, 2007). One of these innovations is three-dimensional virtual world platforms like Second Life, Dreamworld, There, Active Worlds and Meet Me. According to the world's leading information technology research and advisory company, Gartner (2007), by the end of 2011, with 500 different initiatives of Internet users will have an 3D virtual world application account, and this virtual world applications will dramatically affect teaching and learning in the immediate future. Supporting this prediction according to the experts in internet technologies, the next big thing for social network is going three-dimensional.

Three-dimensional virtual worlds offer the availability of different learning experiences that are not always possible to replicate in a physical classroom (Dickey, 1999). Like educational virtual reality applications, 3D virtual worlds have considerable implication potential for education by offering experiential learning activities. With some limitations, 3D virtual worlds offer the flexibility in time-space, self organized learning experiences, multi-sensory channels, and interactivity of multi-media learning.

In 3D virtual worlds, residents are allowed to participate in not only individual, but also group activities (Kurubacak and Canbek Goksel, 2008). 3D virtual world applications are new sophisticated social networks beyond

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the three-dimensional visual environment where individuals communicate with other, different communication networks created and communication networks connected to one another (Joseph, 2007). By provided learner-centered features and multi-media support for the creation of the learning environments 3D virtual world applications regarded as convenient learning platforms. In the last 5-6 years several educational institutions and organizations around the world have started to organize events in virtual worlds. But, situation in Turkey is considered still not high enough especially in terms of practical educational applications. Therefore, it is taught that there is a need to analyze the current situation in Turkey to create a clear point of view.

The main purpose of this study is to evaluate the educational capabilities of 3D virtual worlds and determine the current situation of 3D virtual world's usage in Turkey. For these purposes 3D virtual worlds introduced and the main capabilities of these environments investigated. Than common features of 3D virtual worlds evaluated for educational propose. Finally, educational usages of 3D virtual worlds in Turkey have investigated. To do this, related databases, statistics, Web sites, projects and researches have been reviewed.

2. Next generation learning environments: 3D virtual worlds

Today, in every field of our lives, an efficient information access and mobility has become a prerequisite for the sustainability of all systems. Considering this fact, Internet technology has become the fastest and the most proper media to gain access the required information worldwide, from our daily questions to scientific researches. Within this rapid development, most of compatible Internet applications have been specialized to ease information access and sharing. Since the Internet is in use by the year 1992, information retrieve in a global scope became much easier. Also educational resources in a wide range and varying quality could easily and freely be reached by people (Atkins, Brown & Hammond, 2007). The rapid increase in the number of Internet users motivated the growth of an enormously active web related industry.

The advancements in information technologies, software sector and telecommunication field have also influenced the traditional education contexture. Positive features of the Internet, such as easy and fast access and sharing opportunities, download and uploading capabilities, easy to find hardware and software requirements and utilization simplicity encourages the development of Internet based education methods as well. In course of time, the use of Internet as a teaching and learning medium became widespread and on-line serving of educational contents increased. Thus, sharing information and cooperation among academicians, institutions and corporations grew up also this attitude gave a chance to innovativeness. As part of innovations in information and communication technologies, three-dimensional virtual worlds have growing importance and potential for next generation learning environments. A 3D virtual world can be described as a genre of online community that often takes the form of a computer-based simulated environment. In these environments users can interact with one another and use and create objects.

Virtual worlds are intended for their users to inhabit and interact. 3D virtual Worlds are interactive environments, where the users take the form of avatars visible to others graphically. Usually these avatars are represented as two or three dimensional graphics but also can have a form of auditory or textual. In a 3D simulated world a person can manipulate elements and experience telepresence. This 3D world can be a reflection of real world or an imaginary fantasy world. Communication among users has ranged from text, graphical icons, visual gesture, sound, and rarely, forms using touch, voice command, and balance senses.

2.1. Learning in 3D virtual worlds

Today, considering the competition in the education field, the success criteria are mostly defined with the information transfer speed and the number of demanders accessed, who are not only the students but also the communities as large as possible. Hence, traditional lecturer-classroom-lecture approaches inevitably undergo a change so that several lecturers specialized on different subjects come together to guide the students. Many students from many different places wish to gain access the lecturers and information materials at different places. The most

proper way to handle this problem is creating an Internet Based Education (IBE) model. One of important IBE model is 3D graphical and Web3D virtual reality tools which need a better skill of techniques.

3D interactive environments provide constructivist learning activities by allowing learners to interact directly with information from a first-person perspective (Dede, 1995; Winn, 1997).To the Bruckman's (1997) investigation, Multiple User Object Oriented Domains allow for the emergence of knowledge-building communities by providing constructivist learning environments. Similarly according to Winn (1997) information taught in schools is often presented as "third-person symbolic experiences," whereas much of learns are through first-person nonsymbolic experiences. So, 3D virtual worlds can help bridge the gap between experiential learning and information representation.

In the scope of lifelong learning; 3D virtual world based solutions can be effectively used and adopted. In a 3D virtual world, a higher level of interaction, learning free from time and space can be obtained. To Dickey, (2003) use of 3D virtual worlds offers innovative and unique educational opportunities for both traditional classroom environments and distance education. Several educational institutions are now running virtual classrooms and discussion sections in worlds like Second Life. For example, The British Open University has a strong presence in Second Life, where it is developing social and community links for students as well as practicing teaching and learning.

3. Educational usage of 3D virtual worlds in Turkey and case for second life

As a developing country in Turkey, Internet accessibility and the use of Internet as an educational media is still new but growing rapidly like worldwide. When looking the situation in Turkey apparently there are various studies mostly individual. Some important of them are summarized below.

In their research Işık, Işık, and İnan (2008) suggest that 3D virtual worlds can be effectively used in distance education. Because the basic dynamic of the lifelong learning and 3D virtual worlds like self learning, free of time and space, individual liability and freedom of choice are appropriate. In other study Fırat (2008) purposed to evaluate Second Life in terms of authentic learning activities. For this purpose the capabilities of Second life evaluated within the context of ten characteristics of authentic learning environments. At the end of this study it has concluded that Second Life strongly supports authentic learning activities.

In his study Tüzün, (2009) present the development process of 3D virtual world applications like Hacettepe University Health Center orientation environment in ActiveWorlds. To the result of study, 3D virtual world applications are suitable for individuals in orientation of new place or events. Similarly, an interactive Second Life classroom environment created in 2007 on behalf of Computer Aided Training Unit from Anadolu University, Open Education Faculty. This classroom was also one of the first 3D virtual world classrooms that provide interactive multimedia lesson materials in Second Life from Turkey.

As an institutional study, The Council of Higher Education of Turkey has started a project about adopting the new communication technologies to education. The research was headed by The Scientific and Technological Research Council of Turkey with the participation of Middle East Technical University, Anadolu University, Open Education Faculty and Istanbul Technical University. The worldwide Virtual University practices were surveyed and the needs and motivations of Turkish universities for educational 3D virtual worlds were determined. The results showed that Universities try to strengthen themselves about use of 3D virtual worlds (Karasar, 2004).

3.1. Case for Second Life

Second Life is one of the most popular 3D virtual world applications today. Second Life is a three dimensional virtual world that entirely built by residents, which has become a trend with the Web 2.0 electronic social approach (Hargis, 2008). In only January 2010, 18 million accounts were registered in this environment. Until now a number of organizations including NASA, NOAA, NIH, JPL, NPR, National Physical Laboratory, UK, and other government agencies, universities, and museums have begun to appear in Second Life since 2005s. According to data from January 2007 active residents by country listed below in Table 1 (Hachmann, 2007).

Table 1. Active residents by country

Country	Percentages
United States	31.19%
France	12.73%
Germany	10.46%
United Kingdom	8.09%
Netherlands	6.55%
Spain	3.83%

As seen in Table 1 about 53 %, almost half of the Second Life users come from three countries. These are United States, France and Germany. In Many Eyes site (manyeyes.alphaworks.ibm.com) the number of active residents by country was shown on the world map. According to the map Turkey have 14th most active second live users after Austria in Europe by 0.51%. Active avatars from Turkey during last 6 months in 2007 are shown below in Table 2 (Frost, 2007). As seen in Table 2 the numbers of active avatars from Turkey are in an average increase during last six months of 2007.

Table 1. Active Avatars from Turkey during last 6 months in 2007

Months	July	August	September	October	November	December
Active Avatars from Turkey	1913	3098	3207	3617	2947	2273

The most

popular place from Turkey in Second Life is Turkey island. This place scopes 23 other places which have different purpose. Some popular of them are Turkish cities like Istanbul, Ankara, İzmir and Bodrum, Sultanahmet Mosque, teagardens and about 20 shopping center. However, none of these places or applications are related to the education.

Education in Second Life Second Life has recently emerged as one of the cutting-edge virtual classrooms for major colleges and universities, including Harvard USA, MIT (Massachusetts Institute of Technology) USA, The Open University UK. The universities that have a place searched in secondlife.com and reached about 600 place that related to universities or colleges. But it has not encountered any university from Turkey among these universities. But there are new useful applications from Turkey like Yogurtistan.

Yogurt Technologies are working a period of time on a new virtual world infrastructure name Yogurtistan financially supported by Golden Horn Ventures. Yogurtistan was opened on June 24, 2010. Yogurtistan is a 3D virtual world based on Adobe Flash, where users can play single or multi-player games, create shops, sell and buy goods and services with animated avatars. It is thought that this 3D virtual world has adequate potential to host the educational applications.

4. Conclusion and suggestions

As part of innovations in information and communication technologies, three-dimensional virtual worlds have considerable importance for next generation learning, instruction, students, educators and educational institutions. Today, supporting authentic learning experiences and community in a virtual environment has become the primary target of many institutions. The emerging virtual schools, universities and others are coming to take existing institutions' place by offer a realistic learning experience and take a strong interest in students themselves rather than their diplomas (Schank, 2007). In this study it was concluded that Turkish users began to interest in 3D virtual world applications, but not at a sufficient level. As of August 2010, there are many sites from Turkey like www.slturkiye.com, www.slturkey.com, www.slturkiye.org, video.slturkiye.com and these sites have approximately 10 thousand members. More important, there is a growing interest in academic agenda for educational usage of 3D virtual worlds. The situation of educational usage of 3D virtual worlds in Turkey is given below in Figure 1.
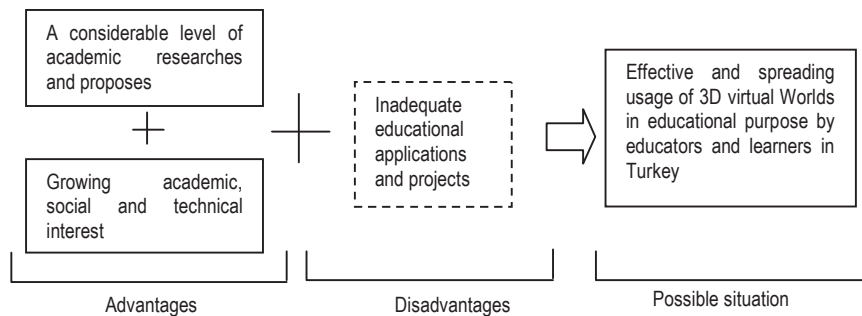

Figure 1. The situation of educational usage of 3D virtual worlds in Turkey

As seen in Figure 1, in order to widespread use of the 3D virtual worlds for educational purpose in Turkey there is need to projects and implementations for the development of educational applications in 3D virtual worlds. In spite a considerable level of academic researches related to the educational usage of 3D virtual worlds, practical educational applications are seemingly inadequate in Turkey. In order to cope with this problem and close the gap between academic researches and practical applications some suggestions can be given: first of all, careful examination should be carried out of the results of the academic researches, second, educational 3D applications should be widespread in accordance with the proposals obtained from the researches, and finally, universities should lead use of 3D virtual worlds in educational purpose.

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