



## Design and Implementation of Dynamic Web Portal in Health Education

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**Abstract** – Education portals are now used to disseminate learning content. However, many users are not aware of the different types of education portals. Some may consider a web portal as no different from a web site. In terms of educational health web portal it is sometime different. An effective educational health portal should be easy to use and understandable. An educational health portal should contain sufficient amount of educational and useful related contents. Moreover, there is need to improve portal in terms of dynamic design, contents and tools for building and accessing to information. The purpose of this study is to explore the dynamic design and efficient use of educational health web portal by students and teachers. In our study we found that dynamically designed web portals are the cost-effective, dynamic and a useful for up to date use of information and communications technologies in support to health education, knowledge and research.

**Keywords** – Health education web portal, dynamic portal development, virtual classrooms

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## **1. Introduction**

Wide spread use of the internet has increased the number of education portals on the Web. A lot of organizations host and provide education portals for various education levels. Portal is a Web site that combines various content and provides a variety of services such as engines, directories, news, e-mail and chat rooms. Portals provide a customized gateway to Web information. The portal concept could be further developed to support the task performance (teaching and research) of academics (Pienaar, 2003).

The Health Education Portal is a resource that allows easy access to learning materials for both students and teachers. The portal brings together several teaching web based utilities under one single login allowing to see all of the curriculum. Although electronic resources support the curriculum, it should be emphasized that the learning experience chiefly involves people. These are lecturers, students, tutors and clinical staff in hospital and general practice. The existing system needs to share the volume and categories of information and make accessible to members is very limited. The accomplishments, plans programs and activities are difficult to disseminate to members as well as to publish with up to date information to other communities dynamically. It could be said that only a limited number of individuals access easily to updated information about the organization.

Dynamic web portals are currently being used for various reasons mainly for information dissemination and publication to a wider audience, education, launching campaigns, and advertising organizations (Siosan,M., et. Al,2010). A dynamic website or database driven website enables to update the content without the need to involve the web designer / web developer again.

## **2. Web Portals**

A portal links the pages/screens together; it takes information from diverse/different sources and presents them in a unified way. A portal is an environment through which a user access to web-based information and tools from a single Internet location (Farooq and Mir, 2010). A web portal is built upon layers of services and component modules. The framework facilitate the integration of data, provide access to relevant content, and incorporate to organize teaching materials that users use (Siosan,M., et. Al,2010).

Azar et al (Azar et al., 2008) state that there is no definitive categorization of the types of web portals. Strauss (Strauss, 2002) categorizes web portals as “Horizontal Enterprise Portals” and “Vertical Enterprise Portals”. Horizontal portals cover different domains/areas but vertical portals maintain their focus on a single domain/area and covers all aspects. In other words a horizontal portal can target different companies/area that are identical or totally change where as a horizontal portal is an entry point for users to a particular domain having common interest (Farooq and Mir, 2010).

New applications and capabilities can be added to existing resources within the architecture. Moreover, the portal should be programmable and flexible that the information can be dynamically selected from various sources. The ability to exchange data among applications and provide application integration enterprise-wide is a fundamental component of a successful web portal (Weng,et All,2010).

## 2.1 Educational Web Portals

Education portals refer to portals that provide educational services to their users. Such portals consist of three main components: a community of practice, a body of knowledge, and services. There are three types of education portals:

**Networking Education Portal:** Provides users a point of access to various educational tools and facilities. It functions as a center of communication for the different types of users, thus forming a network among them.

**Organizational Education Portal:** Constructed for organizations to deliver educational material. It contains information about the organization, its philosophy, fund providers and members of the staff.

**Resource based Education Portals:** Provides access to various educational resources online. They contain search facilities, links to institutions as well as subscription services. They offer generic, subject specific resources and links to other education resources (Baba and Kaur,2006).

Common features of education portal are members section, functional navigation menus, resources, and references. Interaction in learning is a necessary and fundamental mechanism for knowledge acquisition and the development of both cognitive and physical skills. Multimedia elements should be used sparingly. Contents presented are suited to the various groups for effective interaction between users and the system. Special attention are given to the following aspects:

- Quantity of information presented
- Grouping and highlighting of information
- Screen display standardization
- Usage of multimedia elements and navigability (Baba and Kaur,2006).

## 2.2. Health Education Web Portal Features

A web portal for Health Education serves as an integrated gateway to the website and provides a single point of contact for online delivery of services to the health education people. As most of the students and health professionals use web resources for seeking information, doing research and communication, so dynamic web portals are becoming important (Moody, 2005).

The integration of existing health education curricula should be the result of a well-devised plan that begins with a needs assessment and concludes with the decision to use e-learning.<sup>32</sup> Although some institutions have tried to use e-learning as a stand-alone solution to updating or expanding their curricula, it is best to use an integrated strategy that considers blended learning. In undergraduate health education, e-learning offers learners materials for self-instruction and collaborative learning. E-learning materials suited for competencies can be integrated into the education of residents and fellows, replacing and supporting lectures and other synchronous methods of instruction. Asynchronous e-learning can be effectively used during demanding clinical rotations, especially when duty hours are limited (Ruiz,At all, 2006).

In continuing medical education, physicians can attend medical e-conferences using e-learning. The complexity and breadth of medical education content, together with the scarcity of experts and resources make e-learning a reasonable proposition. Many medical schools and health care organizations are already producing e-learning materials that could be in reach of educator and learner. An all-inclusive e-learning solution with the institution and learner at the centre is comprised of three core components:

1) Infrastructure; 2) Services; 3) Content.

The infrastructure refers to the application-level software that allows all aspects of learning (from classroom to web) to be created, managed, delivered, and measured. The e-Learning infrastructure builds on classic networking and enterprise infrastructure services and standards, such as IP-based networks, web browsers and database repositories. At the application level, three primary sets of technologies can be integrated to provide an infrastructure framework for delivering the complete suite of e-learning services limited (Ruiz, et All, 2006). These components include the Learning Management System (LMS), the Learning Content Management System (LCMS), and the Virtual Classroom (Sharma, At all, 2012).

### 3. Dynamic Web Portal Development

A dynamic web page is any web page which has content that is changed by a program or script at the time the page is requested. Where frequent modification/updating of web content is necessary, a dynamic website is preferred. Dynamic Website Development is built around a database. The content can be changed anytime. A web programmer or web developer is not required to do changes (Siosan, M., et. All, 2010). Dynamic web pages can also change their content based on what user do. If the information stored in the database changes, the web page connected to the database change accordingly and automatically without human intervention (Rose India Technologies, 2012).

Gülhane Health Education Web Portal interconnects web based applications. These applications are built with open source software and authoring tools. Before education and ongoing training programs were in traditional style and were only supported by power point documents. There was a need for a new, technologically modern and usable web based supported educational utilities. Upon these necessities it was decided to build a web portal to support education. The steps were as follows :

**3.1. Needs Assessment:** First, in order to create course materials in web it is required to train teachers, their assistants and web coordinator of departments. Secondly we had to choose a content management system and other programs and open source software. Thirdly it was required to set up hardware and infrastructure. Fourthly the time period for the project. And lastly a secure access system should be used for privacy, copy right and security.

**3.2. Planning:** After analyzing the needs we planned to do requirements. First of all we chose Moodle as content management system. With Moodle PHP and MYSQL were chose. And also we planed to translate Moodle interface into Turkish Language. For synchronous courses we chose Openmeetings. For building departments' web pages dynamically we chose Joomla open source platform. In order to train people who will use

the system according to their roles. we planned Moodle, Joomla and basic web design trainings. And also a token based certificated internet access system was decided to use.

**3.3. Realization of the portal:** According to chosen open software, hardware devices such as servers, network connections and other utilities were installed. Software and platforms were installed and tested too. Every teacher and assistant were trained for eight hours per person about using Moodle, and content design principles, Openmeetings and basic web design. Department web coordinators were trained eight hours per person about Joomla and basic web design. All students were trained for using Moodle and portal four hours per student.

After training Web coordinator, departments created new version of their web pages and uploaded to Joomla sever in five weeks time. Department web coordinators upload, edit, delete and maintained their web pages by themselves dynamically. For content management system all teachers and assistants created course contents according to course design principles an upload directly to Moodle server. Course uploading, student enrolling and other works are continuous works for them.

A secure internet access system was developed and a USB token was given to every person who will use the portal. Security and tacking is possible with this system.

**3.4. Dissemination and Maintenance:** All people in the school were given necessary right to access the portal according to their role. For every people there is a user account, password and certification utility. In the beginning of using the system there were some problems both technical and managerial but all were solved. Technical Guidance and help documents were prepared in Turkish and published for users.

#### **4. Conclusion**

Education portals combine various content and provide a variety of services to be used as a gateway. After development educational web portals it is difficult to keep them updated. Specially, information in health education content changes and completes its lifetime in short time. Thus it is required o update materials, information and services dynamically without help of web designers and IT professionals. The old system was not dynamic, but in our dynamic design we trained teachers, staff, web coordinators in order to create and upload content dynamically whenever required by using open source Learning Management System (LMS), design platforms. These gave us chances to disseminate wide use and updated portal for our university. An educational health portal should contain various useful content and services. We concluded that dynamically designed web portals are cost-effective, dynamic and useful for up to date use of information and communications technologies in support to health education, knowledge and research. For a successful dynamic educational web portal, needs assessment, planning, realization of the portal, training and a continuous dissemination and maintenance are required main steps.

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