

New Challenges in Medical Library: From shelf to PDA

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Abstract

The UABMS (Universitat Autònoma de Barcelona Medical School) has set up a new project: to create a platform to help final-year students in clinical placements. Because these sessions involve dealing with real patients in university hospitals, it is essential for students to be able to respond quickly in cases where they may be unable to find answers to their doubts and queries. We consider the PDA (Personal Digital Assistant) to be a good solution; as it would enable easy access library to documentation, such as catalogues, data bases, digital journal, eBooks, etc in the field. The final objective is to make mobile devices a usual consultancy tool.

Background

The aim is to create a platform to help final year medicine students in clinical placements. Nowadays, these students work in hospitals visiting real patients with the assistance of a professor. Response time is a determinant factor, and it is essential for students to be able to provide patients with quick answers. Patients trust physicians and future physicians, but if they feel students are unsure about their illness or seem insecure, this could negatively effect on their recovery. Patients must trust their physicians, and physicians must generate a sense of security. It can sometimes be difficult for students to achieve such a relationship, because without the possibility of consulting medical literature or clinical guides to answer patients' questions, they may not make the right diagnosis.

Students need to improve their clinical skills and create a trusting doctor-patient relationship. To do so, students must improve their self-confidence and gain a better understanding of the practices being carried out. Current manuals do not solve their real needs, and are not available to them when they are visiting patients in hospitals. Our students found that one solution is to write their own pocket handbook as an aid in their clinical work. They wrote a short report and presented it at the Educational Innovation Workshop held at the UABMS in April 2006. The idea received an enthusiastic response and the students asked for help in developing it. Led by the Medical School's Dean, the initial project developed into an authentic Educational Innovation Project in collaboration with the Medical Educational Unit.

Students are implicated in writing the educational material and therefore learn much more. Commercial publishers offer some materials, but none of these have involved the joint participation of the students and the faculty. The students' work consists in filling in teachers' preformatted forms. There is one form per clinical speciality. This form contains several sections, a brief description of the illness, aetiology, clinical features and treatment. Teaching Units are the equivalent of a clinical speciality, such as Cardiology, Neurology, Dermatology, etc. Every Teaching Unit is made up of fifteen to twenty clinical cases, and may be illustrated with photos to help students make their diagnoses. After the students have filled in the preformatted forms, teachers and hospital residents check all of the work done and validate it. A teacher coordinator then arranges for the material to be revised and approved for publishing in an eBook. The Computer Services and Learning Resources Centre transform all the documentation into iSilo format as a PDA reader. This conversion is carried out using a *handicraft* method. This has led to a minor problem: an "end to end" publishing system needs to be found to improve the efficiency of reduce the time required to publish materials in PDA format, but we believe this issue will be resolved very soon. The Computer Services' priority right now is to find a good "end to end" publishing system.

After writing the first Teaching Units, the Computer Services and Learning Resources Centre carried out a pilot trial with fifteen students for three weeks. The feedback from the students and teachers involved was very good. The results were excellent, and the attitude of students to using PDA in their clinical practices was positive.

Introduction

In view of the results of this pilot trial, we believe PDAs offer a good solution as they enable easy access to library documentation, such as catalogues, databases, digital journals, eBooks, etc. The final objective is to make mobile devices a usual tool in consultations. The PDA was first designed as an electronic agenda, but people are now discovering many more advantages of these portable devices. They are indeed a good solution for libraries. This project is an educational innovation that we believe could prove helpful to final year students. Students and teachers are making a pocket handbook, an eBook that can be consulted by PDA, which contains the essential requirements for working in clinical placements. It has been designed for students, but could also be a good opportunity for libraries. PDA could offer a new user service, whereby library users could access resources without needing to go to the library in person.

By implementing mobile devices, we seek to introduce new technologies into the learning process and promote the use of these technologies as everyday tools for solving users' questions. We aim to make an easy, practical, schematic, visual and complete appliance for accessing medical resources in digital format. This is our contribution to the further education of medical students that are fully immersed in the learning process. Students will be able to question reference librarians, and access the library catalogue and documentation in order to solve problems, doubts and fundamental queries.

Description

The next step is for the Computer Services, Learning Resources Centre and Medical Library to work together to enable PDAs to be used to access the digital library for information and medical resources. Mobile devices provide flexibility in terms of time and place. Information and knowledge can be accessed anywhere at any time, and this is a good opportunity for libraries. We are in a position to exploit mobile technology to provide new services and improve existing ones by working together to support and carry out the School of Medicine's project. This project is not limited to drafting and adapting teaching materials to be used in clinical practice, but aims to give greater support to students. We recognize this after seeing the results of the surveys -test was very positive- conducted after the first pilot trial . The deployment phase of the project, and following successful results which showed the needs are changing and the opportunity to create new services.

Objectives

The three departments involved have proposed the following work objectives:

- Creating a web portal to provide access to all medical resources related to mobile systems, tools and services required to perform clinical practice. To provide visibility, quick and easy access to educational materials created for PDA.
- Developing user training sessions for students and teachers
- Promoting the use of mobile devices for students and teachers
- Contributing and adapting teaching materials to the EEES

Work Plan

Computer Services is beginning to develop a web portal for PDA support with explicit content that will provide all the resources available for mobile devices in a single environment. The web portal is geared towards students, and its main function is to be a repository for all material created for PDA and an easier way to access selected, internal or external, links that are of interest to students. This site will enable accessing and downloading material. In the downloading process, the versions of materials to download as well as the html environment define the type of mobile device necessary.

However, as the project has progressed, it has become clear that it is necessary for the editors to update the material and for the teachers to correct it. So, we created a portal to a Content Management System (CMS). Publishers can modify the material was developed by Learning Resources Centre circuit. for different mobile devices.

As these upgrades are very important, a web portal to an RSS feed system has been

acquired that allows students to subscribe to receive information on the latest developments.

The security of accessing a teaching repository such as *Autonoma Interativa* or *DDD* (Digital Documental Deposit) is guaranteed by the students' *NIU* (University Number Identification) and password.

What are the features of the web portal for PDA?

- It provides access to all essential medical information and ensures access security.
- A range of tools and utilities for mobile devices are available on the Internet.
- It provide visibility through a list of links to resources from the Medical Library for mobile devices.
- It makes guides and manuals available to all students to facilitate using new materials.
- It provides a forum for consultation and FAQs using mobile devices.
- It lists PDAs available for loan.
- It provides management software that enables publishers to update and modify information in the web portal. This ensures that it is always up to date.
- Syndication of contents, so that students are informed at all times of developments.

Technical requirements

To meet all the needs of the web portal, and follow the guidelines of the strategic plan of the e-university, the site has been developed with free software, licensed under the GNU, and has the following elements:

- Content Management System (CMS) Joomla for creating templates and adequacy of the system to validate the students through the LDAP corporate directory.
- Apache Web Server 2.0

- Server database Mysql

Creating new services

This project is also a good opportunity for the Medical Library. The project will be concluded during the next academic year, 2008-2009. Clearly, using PDAs in clinical practice will create new requirements for students. The Medical Library has thought this through and created some new services for students designed to meet emerging needs. Students would need mobile devices in order to conduct clinical practices, but these small devices are expensive and sometimes beyond the economic reach of students. After making the first tests with students, although the overall response was positive, as the device allows timely consultation to clear up doubts in front of patients without actually showing insecurity, students were concerned about the price of these small devices, which is outside most students' price range. Therefore, from September 2008 the Medical Library will implement the following services:

- **Loaning PDA devices:** The new PDA loan service will enable students to perform their clinical practice without problems. The Library will acquire a certain number of mobile devices, making it possible to loan devices at clinics during clinical practices.

The library already loans laptops and USB sticks to facilitate students' work. Loaning PDAs will be carried out in the same way as laptops: the user signs a document stating that they will use the device correctly and return it in perfect condition.

- **User Training:** The Medical Library will introduce a new course to help students use these devices. The training course teaches students how to use the device correctly as well as exploring the possibilities of downloading and viewing different types of bibliographic materials, such as ebooks, articles, bibliographic alerts, RSS syndication content, etc.

Further user training will shortly be provided in order to make it easier to use and handle the device.

- **Develop guidelines for users:** We have developed two types of guides:
 - Bibliographic resources, free access to UAB accessible from PDAs. Both free and commercial software are found here, such as access to the internal medicine handbook *Harrison's on line* - UAB has the English and Spanish edition in the digital version - ejournals and ebooks, as well as access to, MD Consult or PubMed and MeSH.
 - Technical support and use of PDAs.

Currently, consulting the UAB on-line catalogue is not technically possible. The UAB Library Services together with all Catalan public universities are part of *CBUC* (Consortium of Catalan University Libraries)¹, who are in the process of implementing a new computer system. All these universities can share bibliographic information and other resources since they have been working with the same *VTLS* computer system since 1991. It is time for a change, and for this reason we have chosen *Millennium*. The new system is in the final phase of its implementation, and will be operational in early June 2008. The new system allows various modules to be acquired. One of these modules is the *AirPAC* interface for consulting the library catalogue from a mobile phone, PDA, Tablet PC, Mobile Phone, and so on. Users can consult the catalogue, access their record to know when they have to pay fines, make reservations or cancel them, check the availability of copies, renew loans, and so on. The *AirPAC* interface has not been acquired. First the new system will be fully implemented and when it is functioning properly this possibility will be considered. The users, who need to be able to consult schedules and literature any time, anywhere will be the ones to decide whether UAB and the rest of the *CBUC* universities should implement this service.

Conclusions

The fact that the materials are created by students, and that they are involved in the follow-up and maintenance of this material, makes this platform a dynamic and useful tool.

The size of the PDAs and the way they can be used intuitively means they are of great help when medical students are in front of patients and need to find answers quickly. We believe that we can use this system to complete and extend the knowledge that students have to acquire during their university degree to go beyond classroom participation, and open the training field to provide more resources to increase students' knowledge.

We believe that the new services will be created next September 2008, such as loaning PDAs for clinical practice, training users and the new bibliographic resource guides and technical support, will be very well received by users. The new technologies will make it easier to access to bibliographic resources of the medical library. The mobile devices bring the information to the user and make it possible to search for information from anywhere at any time. The new technologies allow getting information from the shelf to the PDA.

Thanks to the new technologies, students will be able to learn across the network and there will undoubtedly be long term advantages for the new generation of professionals in the field of medicine.

¹ This Consortium is formed by the following University Libraries: Universitat de Barcelona, Universitat Autònoma de Barcelona, Universitat Pompeu Fabra, Universitat Politècnica de Catalunya, Universitat de Girona, Universitat de Lleida, Universitat Rovira i Virgili, Universitat Oberta de Catalunya, Biblioteca de Catalunya and the Department de Innovació, Universitat i Empresa. Comissionat per a Universitats i Recerca of the Catalan Government

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