OKI THE INTEGRATION OF E-LEARNING SERVICES DEVELOPING FOR MOODLE AND SAKAI AT SAME TIME

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Summary

To obtain the definition of learning mobile scenarios related to these formats, an initial study was needed into the characteristics of Universitat Oberta de Catalunya users, both of its virtual students and lecturers, who also work as distance lecturers and who use information and communication technologies. Using the persona technique, the first step consisted of drawing up a questionnaire for both profiles that took into account their attitudes regarding academic life and the uses of new technologies.
There is a first group of mobile devices that are those with very small screens with bright colors and usually with connectivity. In this case, the information in audio format, even better if the audio is reinforced in some way with graphic elements. The e-book with e-ink screens are characterized by a 5", 6" and even 8" or 10" screens and most importantly very comfortable reading. The e-books are perfect to read papers and to even collect all our literature in a single device. So all you have to do is offer our content in formats that could be reproduced in this electronic equipment. This project create automatic formats from XML source, Videobook (mp4), audiobook (mp3), ebook (Epub and Movipocket).

The UOC, in English, Open University of Catalonia, is a completely virtual university founded ten years ago, in 1995, with more than 35000 students and which offers 19 official undergraduate degrees as well as several graduate programs. UOC's virtual campus is an integrated e-learning environment that allows students to pursue their studies completely online except for final exams, when appropriate.
All learning materials were written specifically for e-learning purposes. A total of 1,000 course materials were developed for UOC's students. As these materials had been created so long ago, when it was required to update and improved them we encountered important inconveniences: modifying their interface in order to increase accessibility and usability was extremely costly and by no means automatic.

1. BASIC ARCHITECTURE

1.1 Create content without format

The key part is to adapt a XML [18] format as the center format of the process. The editor then will transform the original work sent by the author into a XML file. It is also possible that the author deliver to the editor a document formatted using templates or written on an on-line platform. Both mechanisms facilitate the conversion to XML.

We can share our developments with other institutions that base their platform in DTBOOK or has adopted a similar strategy (see Fig. 1).

Figure 1.
Using one or other schema the editor tag the text in XML just after fixing errors and adapting the content to the final purposes. To carry out this work the editors can use the same tools that we recommend for the author: editor text templates or on-line platforms.

1.2 Audio book

In certain scenarios it is not feasible to read text. This is specially true when traveling by car or bus, but also is convenient for people with impaired vision. For all of them based audio content can be ideal. Two thing to take into consideration: the format of the solution and the generation of audio.

The student would actually receive a collection of mp3ses or similar files but there are still a better option: the DAISY[19] format. It is an standard in which people have been working in recent years and which has been specially designed for people with visual disabilities. The standard proposes a frame that incorporates both audio files and other information that specify the structure and synchronization between the text (which can also be incorporated) and audio.

There are the various market DAISY players and also software that runs in a computer desktop but both are only popular among people with visual disabilities so we decided to facilitate the access to the audio files from a simple HTML index that links with them. Our users can play content on audio mobile players and even the DC player of their car.

There are two ways to generate the audio file. The first is to hire a speaker and record their reading in a studio. Subsequently the track has to be cut into small pieces and the files required by the DAISY format have to be written. This is an expensive option and therefore not applicable to all the contents of a university unless a very high budget is available.

A second option is to use synthesis voice software that automatism the entire process. The TTS (Text To Speech) tools available in the market use different approaches to generate the output but those that are based on recordings of a speakers has achieved a very high quality.

1.3 Video Book

It is often said that designing for people with disabilities is designing for everyone. The argument being offered to prove that hypothesis is that we can all have a disability at some time in our lives. This is particularly true in mobile environments. It is virtually impossible to read a book while travelling by bus and it is even illegal to do so while we drive a car. In both situations what is wrong is the visual capability that is either busy with other issues or diminished.

For mobile environments is particularly interesting to test solutions specially created for people with visual disabilities. Thus the DAISY format, which includes voice recordings, seems to be an appropriate format. But after a few test we realized that people without a specially trained ear were unable to keep the attention beyond a few minutes.

A user without a trained ear needs reinforcement. That's why we create the Video Book format that combines content and audio. Video Book consists in a video in which the text is displayed as the audio progresses and the sentence currently told is empathized by means of a different background color. If for any means the listener loses the attention he has simply to look the screen and he immediately retrieves the thread of the content. It is a format that allows showing tables and images. It might not be an optimal format for a first contact with the material but it is good to review what has been read the night before. Perhaps the mobile environments, by their very nature are reserved for reinforcement rather than for learning.

To develop the product we have used an Openlaszo library that allows creating flash movies from a XML configuration file. Subsequently flash files are converted to mp4, and thus become playable in devices as the iPhone and others.

1.4 Format for e-books

Everyone says that we are in front of the often announced emergence of electronic book. This time it seems that the thing is real. The trigger for the current explosion of media appliances is the massive realize of devices equipped with electronic ink displays that allow a comfortable reading and have a great deal of autonomy.
[1] Currently we can find on the market several devices like Sony Reader, Hanlin of IREX Iliad capable to reproduce a large number of formats, including text, PDF, HTML, jpg and gif, even Microsoft Word. Others such as the Amazon Kindler that only accept proprietary formats. For the first group we have developed a couple of outputs: e-pub and MOBIPOCKET.

1.5 Conclusions

The work described in this paper was the starting point to begin the transformation of our 1000 learning materials. Now, using XML we can easily and iteratively work on the process of improvement based on usability and accessibility premises.
The commitment is to open all the developments to the opensource community in the form of an open-code project. Therefore, the success of the proposal will be measured by the use that the community makes of these products and formats. A great deal of effort has been invested in ensuring that the developments will be of interest to the educational community and also in providing a sufficiently common structure that enables everyone to use what strictly interests them.