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# CHOOSING THE RIGHT PLATFORM FOR OER PROJECTS

Meena Hwang

OpenCourseWare Consortium

meena@ocwconsortium.org

## Abstract

There are many technical decisions to be made in starting an open educational resources (OER) project, and a decision on what platform to use is one of the most preliminary and important considerations. OER projects have evolved rapidly in the past decade, and decisions about platforms reflect such developments. This paper reviews the platform choices made among OpenCourseWare Consortium members. The first generation of OCW required a simple content management system (CMS) or a learning management system (LMS) that could house all the content. As OCW moved on to encompass various functions aimed at richer user experiences, platforms evolved accordingly. This paper examines the progression of platforms for OCW projects and recommends methods for deciding on considerations for choosing a platform.

## Keywords

OER, OCW, open educational resources, opencourseware, platform, CMS, LMS

## Introduction

MIT's OpenCourseWare (OCW) project started in 2001, and it elicited considerable interest from academics around the world. With the goal of posting course materials from all courses offered at MIT, the project offered the world syllabuses, course calendars, lecture notes, audio and video files, and exam questions via internet. All the materials were hosted on a content management system developed in-house. In order to encourage more institutions to start OCW and to set a standard in producing and sharing content, the Hewlett

Foundation commissioned a project to build a content management system specifically for OCW. eduCommons developed through this process and was strategically promoted within the OCW community.

UNIVERSIA, a consortium of institutions from Spanish and Portuguese speaking countries, was one of the early OCW adopters. Deciding to use eduCommons for all its member projects, Universia then translated and customized the platform. eduCommons also became the choice for many institutions starting OCW around the world, from Japan to Russia. Around 2006, OCW platform requirements involved presenting a good 'snapshot' of a course, offering RSS and metadata function for discoverability, and standardization of OCW for future remix.

Open University UK took on another approach for their OER project around the same time—OpenLearn. They invested in customizing Moodle, the most widely used open source learning management system (LMS) in the world. OU's decision to use Moodle was based on the desire to build learning activities around its open content. Moodle would allow users of OpenLearn to sign up, form study groups and have discussions around the OERs offered on the website.

As many more institutions joined in the OER movement, the need for additional CMS functions began to surface. There was a need for more suitable for video hosting. There was a need for greater incorporation of community building. Institutions were now faced with having to choose a platform that best suited their

needs for functionality and scale.

## 1 Overview of Platforms

### 1.1 Factors to be considered

In 2011, members of the OpenCourseWare Consortium held a discussion on platforms. Developers from eduCommons, OpenUCT, OERbit, Connexions, NIXTY, and OpenLearn participated in the creation of a comparison chart for the different platforms and their functions. In the decade that has passed since the advent of the MIT OCW, more platform options have emerged than ever. However, implementation and choice among those platforms has become more difficult for an individual project. A platform has to provide a good user experience for both faculty content providers and for the users of that content. Not surprisingly, the discussants demonstrated different sets of priorities. For example, Glen Moriarty from NIXTY put upmost emphasis on course tools and learning outcomes. NIXTY is a platform allowing individuals to upload content and learners to create portfolios for keeping track of their learning activities. By contrast, Jenny Gray from OU UK put priority on publishing procedures such as flexible course organization and integration with an institution's authentication systems.

Before comparing and evaluating different platforms, therefore, the group devised a list of functions and other factors for comparison. Five categories emerged: infrastructure, content management, user management, learner tools, and assessment tools.

For infrastructure, factors of consideration were as follows:

- Programming Language/Platform
- Database
- OS Support
- Support level (hosting etc)
- Extensibility
- Programmer documentation
- Multilingual interface
- Current Languages Supported
- Support for Internationalization
- Customizable look and feel

- Internal backup and restore
- Standards supported
- Reporting
- Access to content without sign-on
- Search engine optimization
- Integration with institution authentication systems
- Hosted/ self hosted
- Uptime
- Security level
- Self-registration
- Accessibility User Interface
- Accessibility Support and Tracking for Content Creation
- Static Site
- Performance Metrics.

The list above mainly shows technical considerations. Preference may also depend on a project's experience of the technical support available for a given platform, and it is wise for an institution to consider how each platform fits its own capacity for technical support.

For content management, the following were selected as factors to be considered:

- Workflow (roles)
- Customizable Workflow
- IP Management support
- WYWIWYG editor
- Licensing choice support
- Level of ease for reuse
- Export support in range of standard compliant packages
- Import support in range of standard compliant packages
- Flexible course structures
- Multilingual content
- Support for courses that are paid-for
- Open and closed areas
- Offline-authoring
- Accessibility tracking
- Control of licensing at the asset level
- Marking up content as different sorts of assets (reading, video etc)
- Creation of web links
- Allowance for upload
- Custom home page/help/contact
- Editing/Changing/Refreshing OER
- Disclaimer on Submission.

For user management, the following factors had to be considered:

- User profiles
- Groups
- Customizable taxonomies

For learner tools, the following were pointed out as consideration factors:

- Integrated discussion forums
- Tagging/keywords
- Search
- Other interactive activities
- Personalized space
- Ratings and reviews of courses
- Learning pathways or other recommendation service
- E-portfolio
- Contextual help
- Other collaborative activities
- Peer support
- Knowledge mapping
- Learning Journals or blogs (course/user/site)
- Activity records
- Metadata export (OAI, RSS, RDF)
- Social bookmarking
- Widgets Inbound and Outbound.

And lastly, for assessment tools, the following were mentioned:

- Assessment engine
- Grading
- Certification
- Self-assessment exercises

Comparison for three platforms- Moodle, NIXTY, and OERbit – in the factors mentioned above can be found at <http://bit.ly/MFzWH8>.

Platform needs development progressed with the development of OCW. The first generation of OCW was about uni-directional content provision. Platform needs primarily involved displaying content so that users could find what they needed. eduCommons offered a platform which categorized course materials, generated

RSS feeds and managed metadata functions. Most importantly for members of the Consortium, once many members were using the same platform, interoperability of content would be an easy problem to solve. Concern for interoperability motivated many members' decision to start their OCW projects by customizing eduCommons.

People soon saw, however, that there were too many other factors that should be incorporated in the platform choice. The second generation of OCW projects were about collaboration and community. Many of the early-adopter institutions started by doing the processing content for their faculty. However, scaling up these projects had proven too costly. It was important that the faculty process their own material, and hence, platforms needed to incorporate a smarter work process, rights management and IP clearance, and an easier workflow that worked with faculty teaching styles. Meanwhile, multimedia and video were becoming increasingly important for OCW, presenting their own platform issues. This is when many Consortium members began to build their own platforms and to experiment with other CMS's.

In order to make OCW an institution-wide initiative, it would make sense to modify an LMS to be used as an OCW platform. Thus, some members experimented with Moodle, Sharepoint and Blackboard to make an 'open' version connected to the institution's existing LMS.

The University of Michigan was in the forefront of incorporating work processes to the OCW platform. Graduate students volunteered to create OCW materials for their professors, and a system called OERca was developed to allow these volunteers to review IP clearance. Although Michigan's OCW project was on eduCommons, the project allowed for variations in creating content. Faculty could build collaboration into their classes by using Wikimedia. Then Michigan moved onto building a Drupal based platform called OERbit, addressing many of the

needs arising from years of working on an OCW project.

Drupal also was the choice for the University of Cape Town. After thoroughly reviewing Wordpress, dSpace, Drupal, ePrints, and Plone, UCT decided to modify Drupal for their newly launching project.

More members began to use third-party platform services. The UC Berkeley Webcast project is a video project augmenting their own video platform with third-party services such as Youtube and iTunesU. MIT also began to use Youtube and the Videlectures.net platform for its videos.

An interesting attempt was made by Korea University, displaying all its content in a Second Life exhibition hall. Students could download course content and hold a discussion session on any particular course material by reserving a classroom.

An active search for that 'perfect' platform has been an ongoing process for many members. Now, there is a new generation of projects within the Consortium community for whom content utilization, not content creation is the key issue. This requires totally different approaches and technical requirements for OCW projects.

The NEXUS project from Indonesia is a government-funded project utilizing OER to grant certificates at a very low cost. An LMS provides for assessment. OpenStudy enables discussions around OCW course materials using Twitter. Netease is a video translation project, utilizing a microblogging system to allow for discussions. New types of OCW projects are evolving, and the discussion on OER platforms will take a different form in the very near future.

## 2. Further Considerations

The most important issue for many members now is fully promoting the potential of OER to create maximum impact. One very important factor not discussed in this paper, for example, is the use of mobile

platforms. Many people have been working on this issue, but it still requires quite a costly investment to develop options for multiple mobile phone operating systems. Because mobile platforms may change the way OERs are presented and used, however, the time spent thinking about them is well spent.

There are tens of thousands of course modules out there. How we utilize these valuable materials may dictate what kinds of platforms we need for further development.

## 3 References

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