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The Use of Open Course Ware Architecture as Open Learning Platform

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Abstract

The emergence of the concept of Open Course Ware (OCW) as a new platform in the field of educational technology has the singular characteristic which the OCW to be different than the electronic-assisted learning systems and the Internet as it was launched by the Open Education. The concept of sharing used by OCW has five characteristics, namely Offered Free, No register, Openly Lisenced, Accessable to Anyone, and Extraordinary Resources, where this technology is dedicated to the development and availability of learning resources freely independent learning where materials were distributed (shared) by the best experts in their field. Workflow implementation OCW site structure that starts from the Planning Tools involving the resources of the faculty or course, then build a Content Management System as well as to publish or distribute the content subjects.

Keywords : *Open Course Ware, Open Education, Site Architecture*

1 INTRODUCTION

World of science as the domain of public assets that can be accessed, shared, and reused hereinafter ready remedy to integrate and mediated by advances in information technology, is a powerful idea and if implemented in a comprehensive manner will have an outstanding effect in terms of teaching and learning in order to share knowledge to the general public. The concept of resource sharing knowledge is noble thoughts in which any organization, community, institution, or even individuals are able contribute to the learning resources both locally, regionally, and globally.

During this time, the concept of sharing that has been implemented and developed with assisted several learning-based applications such as e-Learning, m-Learning, Virtual Learning, Virtual Laboratory, and so is the one medium that can be used as a trigger in order to establish the paradigm of sharing resources learning. E-Learning technology has been shown to have a significant impact on the expectations of the people to get the desired learning resources not limited by time and place.

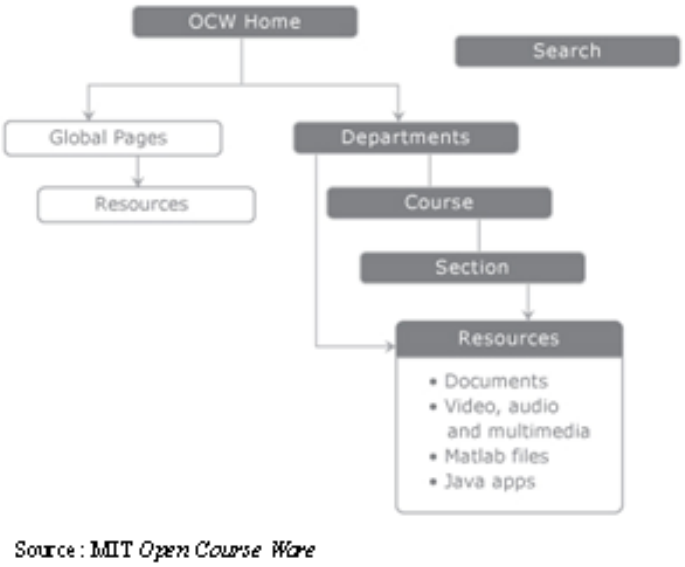

Figure 1: Open Course Ware Site Structure

Nevertheless, although the technology of e-Learning which has been assumed to be one of the media to disseminate and share knowledge to the public, conditioned that not all e-Learning providers open access rights and full service to the Learning Management System (LMS). Authentication System, which is enforced by almost all LMS, provides a perspective that learning resources in e-Learning systems are not fully open to the public.

The concept of Open Course Ware (OCW) as a new platform technology in the field of education have some common characteristics that differentiate with other learning management systems are **(1) Offered Free**, that is when an institution, organization, or community to use the concept of OCW declare the consequences of policy is to open all the learning materials to the public service, **(2) No Register**, with the system to disable authentication on the system intended to allow the public to directly access all the services directly learning resources, **(3) Openly Lisenced**, although existing resources OCW is open on the system, but organizers institutions must uphold the rule Creative Commons Lisenced (CCL). Where three aspects such as Attribution (credit given to the owner or work), Non-Commercial (not for commercial interest), and Shared-Alike (ready and willing to share with others the same way), **(4) Accessible to anyone**, because the open nature of the system then the OCW concept is certainly open and provide access to the widest possible space for the public or the public as long as they have access to the Internet, and **(5) Extraordinary Resources**, is one of the advantages and characteristics of the model OCW is a variant or file format diverse not only static (.pdf, .docx, .pptx, and so on) but also in other forms of multimedia formats. In addition, the OCW also has a standard for Learning Object also share such Material Syllabus, Reference, Reference Book, as well as Assignment.

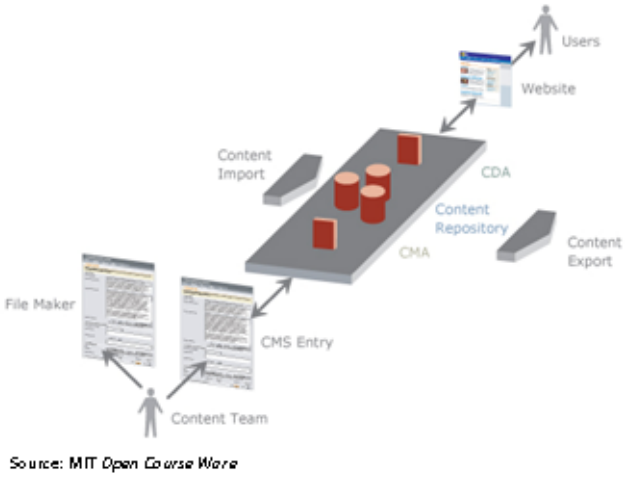

Figure 2: Architecture of OCW on high-level representation

2 LITERATUR REVIEW

2.1 Open Education System

Currently, the term open educational system (Open Education System) and Open Learning System has become one of the technological developments in the realm of education with significant devlopments. Not only concepts and models are evolving, but also the level of need for adopting this technology is the answer to the transformation of the education system in a long time embraced the conventional system. Furthermore, the development of the Internet in society must have a phenomenal impact that learning resources for this can only be accessed by the school but also the era of openness and sharing makes the concept of open education or open learning method as a new paradigm that ought to be implemented [6, 7, 8].

The concept of Open Education System has several characteristics or key principles in performing learning methods [1, 2], namely:

1. Placing the learner as ' driver ', where they have the right to control 'vehicle' by providing the freedom to choose what they want to learn, to anyone who wants to sit in question, by the way what activities they are implemented, in which the learning process will be implemented, and what kind of methodology to be adopted,

2. Giving control to the learner and ownership of the learning process that occurs, within the meaning of the word no intervention from any party that affect the freedom of the students to determine what aspects they want to learn and how to perform freely,

3. Develop and prepare instructional program based on the needs of the learners, namely the need to prepare the infrastructure and superstructure that allows each student who freely determine and control methods and aspects of learning,

4. Designing and preparing the material, content, and relevant teaching and learning

resources, models and learning methods should pay attention to aspects of special or unique characteristics of learners in implementing learning activities,

5. Using and utilizing various types and variations of instructional media on the market, as a tool that will help 'drive' learner in performing the learning activities,

6. Adopt full philosophy of teaching and learning, which in this context any person can act as the party or parties who learned to teach without dichotomy between two different domains such as community (teachers and students, lecturers and students, instructors and participants,

7. Changing role of teachers, lecturers, instructors, and learners, so that it becomes a community of mutual collaborationin the teaching and learning process.

2.2 Open Course Ware

Open Course Ware is dedicated to the development and availability of learning resources freely independent learning where materials were distributed (shared) by the best experts in their field. OCW includes a collection of learning materials such as lecture notes, reading lists, assignments, syllabus, study materials, tests, samples, as well ass simulations (Educause Learning, 2006). Higher education institutions involved in OCW initiatives in the United States, including the founder of the Massachusetts Institute of Technology, Johns Hopkins Bloomberg School of Public Health, and Carnegie Mellon, among many others. There is also a strong presence of international institutions with institutions participating in many regions, including Brazil, Columbia, Japan, Korea, Saudi Arabia, Spain, Taiwan, UK, and Venezuela, to name a few (OCW Consortium, 2009; OCW Finder 2007, Caswell, Henson, Jensen, & Wiley, 2008) [3, 4].

For students, some of the benefits that can be gained from the application of the OCW concept are as follows [1, 2]:

1. Increase the resource wealth of knowledge and content available for them to learn and improve their competence,

2. To equip students with the latest knowledge and because of the dynamic content to be shared (shared),

3. Opening up opportunities for students to get to know each other and establish networking among fellow academics with backgrounds and different communities,

4. Teaching students to be actively involved in the collective effort to enrich the content with updated knowledge.

While the application of the concept of OCW 's lecturer will bring the benefits of which are as follows:

1. Increasing popularity index lecturer in the scientific world because of the breadth of the community to access content that is developed,

2. Develop a network of academic faculty to various leading universities and world -class industry and science,

3. Accelerate and facilitate the achievement of the activities or academic responsibilities such as updating lecturer, Collucium implementation, organizing seminars / conferences / workshops, distribution of knowledge to society and others,

4. Provide an opportunity for faculty to get another source of income as a result of its popularity, as a pleanary speaker, research partners, as well as consultants,

5. Ensure the implementation of teaching and learning activities are transparent and accountable as part of a moral responsibility to the academic community and the wider community.

For a college or university will also benefit from the implementation of this program are as follows:

1. Shows the public and public lecturer and portfolio quality content will be developed by a college or university,

2. Increase the Webometrics ranking of universities respectively,

3. Improve the performance of faculty and students in teaching and learning,

4. Use it as a measurement and control (banchmarking) for the purposes of quality improvement,

5. Provide added value for the assessment or accreditation process conducted by external [5].

2.3 Architecture of Open Course Ware Users

Open Course Ware, in addition to having a philosophy of openness in terms of learning resource, this method uses the architecture of the user who made the concept is different from other open education system. The architecture is as follows (MIT OCW, 2012):

1. **Users Academic Staff**

   (a) Responsible: collecting and writing content includes metadata, reaching intellectual property rights, guarantees the performance of the learning, teaching and learning resources publish, and regularly conducts recent changes (update) the content.

   (b) Characteristics: Has the speed of access, including access to the content management system. item Requirement: Easy to use, rich content or content with a user-friendly interface.

2. **Faculty**

   (a) Responsible: verifying the contents or material resources and ensure content and approved the content to be published.

   (b) Characteristics: Centralized learning resources, have access to the Internet speed, and good performance for content access local area level.

(c) Requirement: Display site includes a navigation system has access to the target according to the needs of the user.

3. **Users**

(a) Responsible: conduct all activities in accordance with the goals and objectives of the content / content searchable.

(b) Characteristics: Distributed globally, Internet access speeds ranging from very slow (dial-up) to the fastest (broadband), use the flexibility of the platform such as browser type and operating system, and most importantly that the OCW is not required to access the system software additional.

(c) Requirement: Simple, easy to access, easy to understand interface, and fast in the download learning resource.

3 OPEN COURSE WARE ARCHITECTURE MODELLING

3.1 Open Course Ware Key Requirement

Functional requirements are categorized into the following areas, which refers to the matrix scope for detailed list of all the requirements under each category [4, 5].

1. **Course content maintenance**

(a) Ability to facilitate in creating and maintaining the course material,

(b) The ability to get into the course content using the templates provided, item Ability to upload (upload) documents and provide a link to each such document.

2. **Metadata**

(a) The ability to generate metadata by default based on the structure of the course and its work flow process (assignment),

(b) The ability to get into the course content using the templates provided,

(c) The ability to reduce or bequeath metadata automatically from the course to the existing section on resources,

(d) The ability to categorize metadata for operations, search and other uses,

(e) The ability to publish metadata in line with the course content.

3. **Workflow**

(a) The ability to define workflow assignment at each level of the course as part of the course structure),

(b) The ability to define workflow for differences in courses, programs of study and other global pages,

4. **Search**

(a) The ability to provide search services in both the basic and advanced levels,

(b) Ability to search within specific courses or also cross courses,

(c) The ability to conduct a search that is defined by metadata (title, author, keywords).

5. **Publishing**

   (a) The ability to perform content extraction beyond content management system (CMS) and publish in the form of HTML pages into a format that is set by the server,

   (b) The ability to publish courses and also globally pages,

   (c) Ability to supervise the publication through a scheduling system,

   (d) The ability to capture the track record of publications for courses including pages and folders publications globally,

   (e) The ability to cancel or eliminate publication.

6. **Import**

   (a) The ability to carry out the process of importing content from other systems using the Common Data Interchange Format (CDIF).

7. **Export / Archive**

   (a) The ability to extract the content of a Content Management System course generete and download the content into the system CDIF.

8. **Measurement**

   (a) The ability to perform external web tracking is used,

   (b) The ability to capture demographic information that is not recognized by the user,

   (c) The ability to record and capture usage statistics at each level of the page,

   (d) The ability to capture the type of browser and operating system used by the user.

9. **Surveys**

   (a) The ability to accommodate the interception of user and publish the results of the survey,

   (b) The ability to monitor the user interception ratio,

   (c) The ability to monitor the activation of the survey and non - activated.

10. **Reporting**

    (a) The ability to make beberepa types of reports according to the needs of the course.

3.2 Open Course Ware Site Structure

The diagram in Figure 1 is planning structure models Open Course Ware. Each course is made of one or more parts. Each section has a section home pages (HTML pages), more detailed HTML content pages and related resources (office documents, video files, audio files, multimedia files, MATLAB files, Java applets, and so on) [3, 4,5].

3.3 Open Course Ware High Level Architecture

In doing the design and manufacture of architectural OCW, some principle that OCW system can be run in accordance with its objectives, as follows:
Separating content delivery and management system,

1. There is no redundant content repository,
2. Single system for managing content,
3. Build open standards,
4. Support integration with faculty course management system,
5. Support integration with archived data faculties,
6. Addressing the fundamental system design issues such as scalability, flexibility, modularity, reliability, security, availability, interoperability, and performance.

In Figure 2, several key components of the architecture OCW is as follows:

1. Course planning application
2. Content management application (CMA)
3. Content repository
4. Content delivery application (CDA) item Content import and export functionality

Fifth OCW is a key component in the architecture in Figure 2, represents that in the effort to improve the quality of course content management required good planning before heading to the repository and other functions.

4 CONCLUSION

OCW concept that emphasizes knowledge sharing is the development of open education technologies that have been used by the media activists of learning via the Internet. These platforms have different characteristics to illustrate that this model truly offered free or too extraordinary resources. Architecture designed for this technology does require a structured plan to get towards the standardization of high-level planning archhitecture such subjects, repository, as well as import and export functions of the document.

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