

# Reengineering UNITAR's Courseware Development Model

Zaid Ali Alsagoff

Head of Learning & Teaching Unit  
Universiti Tun Abdul Razak  
Malaysia  
zaid\_a@unitar.edu.my

## **Abstract**

*This paper examines some of the major courseware development, management, and improvement challenges facing UNITAR in the present and increasingly in the future, which include content development/management tools, up-to-date and relevant course materials, and most importantly a mindset change needed to make it happen. The paper will also propose an iterative collaborative courseware development model, where courses and courseware are continuously being edited, updated and enhanced, with a focus on making both the educators and students involvement in the development process more immersive, engaging, and self-determined. In addition to the course leader, tutors and students can also play a significant role in the decision-making and creation process of courseware. To enable a collaborative courseware development environment Moodle is considered as the main platform, as it provides a comprehensive set of user-friendly tools to dynamically create and manage content and activities online. This paper is basically a conceptual paper created to re-examine UNITAR's existing courseware scenario and propose a reengineered iterative collaborative courseware development model, which can also be applied to other higher learning institutions.*

## **1 Introduction**

Imagine that all UNITAR's courseware (hundreds) are simultaneously and continuously being developed, updated and improved, semester after semester. Every semester, each course is led by a course leader and a team consisting of tutors and 10-40 students supported by a relatively small "Learning & Teaching Unit" (LTU) exploring, discovering, discussing, reflecting, selecting and developing new approaches and resources to improve and enhance the existing courseware, as well as the whole learning experience of a particular course. Throughout this collaborative learning process, the development team will be using a host of conventional and eLearning tools, such as search engines, databases, repositories, online journals, blogs, wikis, portals, portfolios, RSS, etc. Not only are they learning about the assigned knowledge area or course, they are also very much involved in the continuous development process. They are taking an active role in enhancing the course, and being part of its history, where future generations can enjoy their contributions and play their roles in further evolving the course or knowledge area. This whole learning process will not only improve the courses, courseware and learning experience for each individual student, it will also encourage students' pro-active involvement in knowledge creation, improving their problem

solving abilities, leadership, communication and teamwork skills, and bring out the critical, creative and innovative mind in them. Also, by being part of the whole continuous development process, they will understand, communicate and collaborate better with the course leaders or tutors. They will also be motivated to know that their work (not like most assignments, which are usually only between the lecturer and student) will be appreciated by both fellow and future students (and even public, if allowed so). By being part of the knowledge development cycle, students will also appreciate the courses more, as they have contributed to it and played a significant role in making it better. Finally, UNITAR will of course benefit, by having a courseware that is continuously evolving, semester after semester.

## 2 Objectives

The main objectives of this paper are to:

- Discuss UNITAR's past and existing courseware development approaches and problems.
- Discuss current and future trends in courseware development tools and approaches.
- Propose a new iterative courseware development model.

## 3 What is Courseware?

Before clarifying what is meant by the word "Courseware" in this paper, here are a few definitions to reflect:

- "Computer-based, multimedia educational material providing interactive training sessions that may contain text, computer graphics, photographic stills, animation, sound and motion video." - Bitpipe Dictionary

- "Courseware is technology-supported teaching and learning material." - eTeach-Net
- "'Courseware' is a term used to describe software resources which are used for Computer-Assisted Learning (CAL) to mediate or support a course or module." – eLearning Guru Glossary

In addition to the three (3) "Courseware" definitions above, there are plenty of others that can be found through "Googling". However, none of the above mentioned definitions really fits or clarifies my understanding. So for this paper I will create a new definition, so that it is perfectly clear what I mean by courseware. In this paper, courseware is defined as: "*Any digitized content that can facilitate the teaching-learning process and/or learning outcomes in a course.*" By "digitized content" I mean that the content could be anything from a discussion going on in an online forum to full blown interactive multimedia, simulation or educational game. In other words, courseware can come in the form of plain text, PowerPoint slides, Word/PDF documents, HTML pages, Flash, Java, games, simulation, etc. The key here is that the digitized content facilitates the teach-learning process and/or learning outcomes and supports or is encapsulated within a particular course (e.g. Fundamentals of Strategic Management).

## 4 Current Courseware Development Scenario

Originally, courseware was envisioned to replace traditional lectures at UNITAR (Alhabshi, 2003), and be one of the core components of UNITAR's blended teaching and learning model, which also comprises of a learning management system (Virtual Online Instructional Support System, VOISS), tutorial meetings (Face-to-face and

real-time online tutorials), study centres, e-library, and Customer Relationship Management (CRM) support. Whether courseware ever actually was able to replace lectures can be argued, but the cost, time and manpower and approach applied in developing them, has given UNITAR numerous of problems from the very beginning until now.

Let's look at a real UNITAR scenario. The Faculty of Business Administration (FBA) has approximately 40 courses without courseware (August, 2005). With the past development, design and allocated manpower approach (2003-2005), UNITAR's Courseware Department (CWD) could only produce a maximum 20 courseware per year for all faculties. Based on these figures, it would take approximately two (2) years to complete all courseware, if CWD only catered to FBA. However, CWD also needs to cater to the Faculty of Humanities and Social Sciences (FHSS), Faculty of Information Technology (FIT), Center for Languages and General Studies (CFLGS), and Faculty of Hospitality & Tourism Management (FHTM) which in other words would take years. In addition to actually creating new courseware, they would also be required to update and enhance existing courseware, which with the past approach is simply not practical. However, September 2005, CWD was discontinued and UNITAR's top management took a bold step and decided that all course leaders are responsible for preparing course materials for their courses. They also recommended (much due to my persuasion and initiative) that course leaders' use Macromedia Breeze as one of the content development tools, in addition to the commonly used Microsoft Word and PowerPoint.

Has this been a successful adventure? Well, course leaders are preparing materials, but with the exception of a few, hardly anyone has taken up the challenge to create

courseware or course materials using Macromedia Breeze until today (1<sup>st</sup> June, 2006). Reasons have been varied covering everything from lack of time, no strategic plan, exhaustive workload, and speaking skills to the issue of techno phobia. Although, Macromedia Breeze can solve some of our content development and management needs, it certainly cannot solve all. Overall, Breeze is a useful tool (and that is why I initiated it), which can enable lecturers to develop interactive Flash-based multimedia content with reasonable ease in a PowerPoint authoring environment. It also has a good learning management system to manage courses, content and users. However, overall except for the Breeze authoring tool, the rest of its' features and tools do not support or promote the kind of online teaching and learning environment that is proposed in this paper. Though, we can and should continue to promote and facilitate the usage of the Breeze authoring tool, both among the educators and students to facilitate the development of interactive Flash-based multimedia content, which is uploaded and managed in the new proposed online teaching and learning environment. In short, the approach in promoting and implementing Breeze needs to be reengineered at UNITAR.

Also, UNITAR's existing course management system named VOISS (Virtual Online Instructional Support System) does not provide sufficient features and tools to integrate and build courseware in a convenient and user-friendly manner. Currently most course content is updated by lecturers posting it in VOISS's "Course Announcement" or "Additional Content" modules repeatedly every semester. In addition, with the help of the faculty IT executives' course content is usually uploaded to the server using the faculty designed courseware HTML template (known as Web Courseware 2). Also, the courseware developed by CWD (known as

Web Courseware 1), is not integrated with VOISS and is often not structured (inconsistency) according to the course plan of a particular course, potentially causing unnecessary confusion and frustration for the students. Overall, there is often a duplication of work and dependency on the Faculty IT executives or CWD (in the past) to manage the courseware. In addition to these issues, there are many other things that are not in place that needs radical improvement including an embedded content management tool (in VOISS), online quiz engine, monitoring and tracking capabilities, online WYSIWYG content editor, etc. Next, this paper will look into these issues and more, and propose tools and practical methods to deal with them in a convenient manner.

## 5 Courseware Development Models

In addition to our discontinued development model (CWD) discussed earlier, there are several other potential models UNITAR could adopt or combine, which include:

1. Outsourcing courseware development
2. Buying or subscribing to of-the-shelf courseware
3. Reusing/Adapting/Co-developing Open Educational Resources (OER)

### 5.1 Outsource Courseware Development

Outsourcing courseware development is one alternative to minimize the course leaders' workload. However, will course leaders be able to customize, update or edit the courseware when it is completed (reusable/editable learning objects)? UNITAR did previously (1999-2003) outsource much of its courseware development to United Multimedia (UMM), a wholly owned subsidiary of UNITAR. It was reasonably successful in terms of implementation, quality, and usage, but the cost was simply beyond affordability to

support all programmes and courses offered at UNITAR. Outsourcing courseware development is usually very costly, because universities have often dozens of programmes, and hundreds of courses to develop and manage. For example, Massachusetts Institute of Technology (2005) has approximately 1800 courses. Bersin (2004) highlights the typical costs per instructional hour are as follows:

Media/Tool	Cost to Develop (Per instructional hour)	Time Required to Develop
PowerPoint Alone	50-500 US Dollars	Hours
Breeze	100-1000 US Dollars	Few Days
Courseware	1000-35,000 US Dollars	Months
Simulations	20,000-75,000 US Dollars	Many Months

UNITAR used to pay UMM between 100,000 to 350,000 RM (Ringgit Malaysia) to develop one new web-based courseware for each course. UMM had different cost models for different types of courseware (Multimedia-intensive Vs Resource-based). Although, outsourcing could be good for consistent standards and quality, the cost for doing so could spiral out of control beyond affordability. Though, this approach might be useful for particular courses, where contents are complicated to develop, or when there is lack of subject-matter or technical expertise.

### 5.2 Buy or Subscribe to Off-the-Shelf Courseware

Another approach UNITAR could take is to actually buy individual or clusters of of-the-shelf courseware or simply subscribe to major repositories giving us access to 100s or 1000s of courseware, which are based on agreed upon license models. For example,

Skillsoft (2006), one of the top enterprise eLearning providers in the world, has more than 2000 online courses (in 15 languages) to offer in their catalogue. Due to increased competition from a growing number of eLearning providers, prices for courseware and online materials will increasingly drop, which is wonderful for the consumer. Actually, some of the off-the-shelf courseware may be cheaper to buy or subscribe to than actually develop. Especially, ICT (Information and Communication Technology) courses that need to be upgraded often would probably be better to buy or subscribe to. However, to find good courseware in the eLearning market for UNITAR's programmes and courses would be a considerable challenge. Though, as the of-the-shelf courseware prices drop, ability to buy smaller chunks (learning objects) increases (instead of full-blown courseware), and quality improves, many universities in Malaysia (and around the world) will take advantage of this cost and time effective option, and subscribe to these huge web portals offering all sorts of courseware packages (e.g. Thomson NETg). On the negative side, it might be difficult to find courseware that fully meets UNITAR's course or programme requirements.

### **5.3 Reusing/Adapting/Co-developing Open Educational Resources (OER)**

MIT OpenCourseware, Connexions, Kyoto-U OpenCourseWare, ParisTech OpenCourseWare, Tufts University OpenCourseWare, and Utah State University OpenCourseWare are just a few of an increasingly growing higher learning community willing to share their resources to anyone for academic and non-commercial usage.

The OpenCourseware or OER (Open Educational Resources) movement is one of the most explosive movements that will probably transform the global landscape of

learning in the future, enabling anyone from anywhere to access any academic content for basically free. For example, MIT OpenCourseware has more than 1,200 courses available under the Creative Commons MIT OCW licence (Attribution-NonCommercial-ShareAlike, with some exceptions), which anyone can use for academic use.

Jan Hylan (2005) cites "by Open Educational Resources (OER) initiatives we understand:

- 1) Open courseware and content;
- 2) Open software tools (e.g. learning management systems);
- 3) Open material for eLearning capacity building of faculty staff;
- 4) Repositories of learning objects; and
- 5) Free educational courses."

Today there are perhaps hundreds of OER initiatives (e.g. OER Index) around the world enabling us with a few clicks and key words to get access to endless of academic resources and tools, which we can use, reuse, repurpose, remix, and much more, saving us time, cost, and manpower allocation needed to develop courseware. Whatever model UNITAR uses, OER should be utilized if possible as core or supplementary materials for our courses.

## **6 Courseware Development Tools**

In addition to subscribing, buying, reusing, or repurposing existing courseware and content found on the Internet, course leaders will need to prepare course materials at some stage, and therefore will need to have tools to enable them in a efficient, effective and user-friendly manner achieve their development goals and objectives. Currently, most course materials at UNITAR are developed using Microsoft PowerPoint or Word, which is probably the same scenario in most other universities, too (unscientific estimate). In addition to these two tools,

UNITAR course leaders can utilize Macromedia Breeze for developing Flash-based interactive multimedia content, which until today has mostly been underutilized.

However, course leaders at UNITAR do not have a viable option or content management system to manage their contents online efficiently, except for VOISS, which has very limited features. In short, course leaders need a system that empowers them with user-friendly tools and templates to build and manage courseware and monitor students' progress, usage and assessment activities.

Currently, there are literally dozens of both commercial and open source learning management systems available (refer to UNESCO Free Software Portal), which could help us solve this problem. However, one open source courseware development tool or course management system stood out during my full-time research days in UNITAR's R&D department (2003 - 2005), and that was Moodle. Although, there are other tools with perhaps similar specs, it was simply superior in terms of learning institutions adopting or migrating to it successfully, user-friendliness, development and support community, pace of feature improvements, documentation, research reviews, and its' philosophy of learning, which is based on "social constructivist pedagogy". During my R&D period (March, 2005), I also did a simple comparison exercise to identify useful features (or modules) found in Moodle (1.4.3), which can be incorporated into VOISS. The result clearly showed that Moodle was superior to VOISS in terms of tools to support the online teaching and learning environment. Since then, Moodle (now version 1.6) has evolved tremendously with more value added features and benefits. Here are some of the features currently found in Moodle, not found in VOISS:

- Content authoring & management tools

- Learning activity management system (LAMS)
- Quiz authoring tools
- Monitoring and tracking (Content usage)
- Wikis (Collaborative content development).
- Glossary module
- Chat
- Polling & survey creating module
- Online resource module
- Peer-evaluation workshop
- Blogs & Journals
- And much more...

In addition to these features, more features are being added regularly due to its massive proactive and supportive global network of core and 3rd-party developers.

Creating similar features in VOISS would probably take between 1-2 years (unscientific estimate) with the current software team, if not more. Instead of wasting time, manpower, expertise, and cost, UNITAR can take a quantum leap by adopting/adapting Moodle, and over time integrate it with VOISS, so that they can compliment each other. The only major challenge perhaps is the integration process, as VOISS is based on Java technology, while Moodle is based on PHP. Though, other educational institutions have managed to deal with this, so I see no reason why UNITAR shouldn't be able to do so. Overall, UNITAR needs VOISS for the administrative tasks such as managing student data, online registration, course registration, examination results, CGPA, scheduling, student billing and so on. Though, for the actual online management of course content and activities, Moodle is simply superior on most fronts, and could compliment VOISS here, providing UNITAR with a comprehensive portfolio of tools to empower educators and engage learners.

## **7 Iterative Collaborative Courseware Development Model**

The new iterative collaborative courseware development model being proposed is about involving everyone participating in a course to play an active role in continuously improving every aspect of a particular courseware, including course notes, additional resources, online resources, FAQs, wikis, blogs, forums, glossary, learning activities and quizzes, etc. In short, any digitized content included that can facilitate the teaching-learning process and/or learning outcomes of a course. The key groups involved in ensuring that a particular courseware is continuously being developed, enhanced and managed are the:

- Course leader & tutors
- L&T unit
- Students
- Quality Assurance Clusters

Refer to section 10, to view a graphical diagram.

### **7.1 Course leader & Tutors**

At UNITAR, course leaders are responsible for preparing the course materials. To make it more collaborative, tutors should be invited to support course leaders in developing and improving a courseware, as there is a strong possibility that the tutor can contribute, due to his/her knowledge and experience in the subject matter. This approach could lessen the workload of the course leader, and accelerate the tutor's mastery of the subject matter, due to his/her involvement in the development process. As for how the tutor can contribute, may vary from tutor to tutor, but surely he/she can contribute in some ways, which will be discussed next.

For this proposed courseware development model to be successful, the course leader's commitment, dedication,

experience, knowledge, and interpersonal skills are important. Here, it is vital that the course leader takes self-criticism positively, as there is a whole team consisting of tutors and students (if possible) scrutinizing the courseware, his work and leadership. Therefore, the course leader should be open and enthusiastic about it, and not become self-defensive when students find mistakes or contents that are confusing. By being open and enthusiastic about tutors and students' involvement in improving the courseware, they will more likely be encouraged to participate full-heartedly. The course leader should also empower the tutors with the ability to facilitate improvements (e.g. allow them to add and edit contents) in selected areas in a course.

When implementing such a dynamic collaborative learning and development environment, it is crucial that the course leader works "smart" to ensure that the tutors and students' constructive feedback, projects, assignments and other course activities are not centred around one topic or section in a course, but covers all aspects of the course. For example, the course leader can assign groups of students to each topic in the course to scrutinize this knowledge area and give valuable feedback about how it can be improved, or one can ask them to explore the Internet for valuable course-related online resources. When giving assignments or projects, the course leader should make sure that the topics given are related to the course, as they can (if good) be embedded into the courseware as additional resources (or even core resources if possible), etc. Sometimes only a particular component of an assignment is worthwhile to be embedded into the courseware. Under such circumstances, it is crucial that the course leader (or tutor) filter out the quality resources and points, and embed it into the courseware if possible. It is also vital, that the course leaders, tutors or students do not plagiarize content. To minimize or avoid

such practices, software tools such as 'Turnitin' could be used. However, the course leader should set an example here, being a true professional appreciating originality and recognizing other people's work.

Overall, it is the course leader's responsibility to check the accuracy and relevance of all the new resources or suggestions from tutors and students over a semester. Then, on a semi-annually or annually basis the quality assurance cluster should carry out course evaluation to ensure that the course and courseware meets UNITAR and the industry's needs and requirements. It is also the course leader's role to filter out the quality resources from all the resources created or discovered by the other team members. However, it is also important that students' (in groups or as individuals) filter out what ever they find relevant first, before passing it over to the tutor or course leader to further filter and evaluate the resources' accuracy, relevance, and quality. Refer to section 10, to view a simple diagram illustrating how the knowledge filtering process could work.

## 7.2 Learning & Teaching Unit (LTU)

The LTU's role is to provide training and support to course leaders, tutors and students on Instructional Design, and how to use the selected courseware development tools (e.g. Moodle and Breeze). In addition, they should continuously facilitate knowledge sharing on available tools, instructional design, best practices, tips, etc.

## 7.3 The Student's Role

One may wonder how a student with perhaps no background knowledge of the course can contribute to the knowledge area or courseware. Actually, there are many ways they can contribute to enhance a course, including:

- Giving constructive feedback about course structure and content
- Identify problematic/confusing language and grammar issues
- Suggest/co-develop new sub-topics or resources (articles, websites, videos, etc)
- Suggest interactivity
- Participate in improving the presentation layouts of topics
- Suggest new course glossary items and visual elements
- Search and find online resources
- Populate the FAQs (through assignments)
- Do topic related assignments, which can evolve into supplementary or core resources of a course.
- Continuously ask questions and much more...

In addition to these examples, students can contribute in many other ways to enhance the quality of UNITAR's courses and courseware.

## 7.4 Quality Assurance Clusters

How do we know that a continuously evolving courseware is of quality? To ensure that the courseware quality is continuously maintained and improved, quality assurance clusters or groups need to be established to monitor, review and evaluate the improvements and changes that have been carried on a semi-annual or yearly basis. Who are the members of a quality assurance cluster? A quality assurance cluster should consist of people who are experts in the areas related to the course (IT, Business, Social Sciences, etc.), and also include people that are familiar with courseware and instructional design issues (e.g. LTU Unit). In addition, there should also be external members from the industry and preferably also other educational institutions to evaluate and verify on a yearly basis. Overall, there

must be some check-and-balance policy to ensure that quality is maintained and also improved over time. This policy can only be successful if there are quality assurance clusters that consist of a variety of experts, in addition to the course leader and tutors.

## 8 Concluding Remarks

To cope with the future courseware development demands and challenges, UNITAR must make important decisions in the near future on how to deal with it. Basically, UNITAR must find a solution or a combination of solutions that enables the University to develop quality courseware in an effective and efficient manner on a mass scale, without spending beyond its capacity. In terms of technology to enable our proposed iterative collaborative courseware development model, the Moodle platform would provide many of the features required to make this a reality. On top of that, the Moodle platform is open source and free. Therefore, expenditure can be used on training UNITAR staff (and students) and buying quality servers, instead of spending it on the software itself. In addition, Moodle is evolving very fast due its strong development team and worldwide support. In other words, UNITAR should take the quantum leap and adopt Moodle and eventually integrate it with VOISS. Though, having a good online courseware development system is not sufficient to really solve the many challenges ahead, especially the fast evolving knowledge and innovation economy. Therefore, this paper has also proposed a dynamic approach to courseware development that even involves active participation by tutors and students. This approach not only represent the voice of our customers (students), it also teaches the student that content is not something that should be digested or spoon fed without much after thought, but as something that should be analysed, evaluated, reflected,

discussed, benchmarked, and improved in the search for excellence. Excellence is not referred to as a static end product, but as a process towards reaching this goal. The whole idea of this new dynamic approach is not to focus only on improving or upgrading UNITAR courseware, but also encourage a more dynamic, practical, creative, worthwhile, beneficial, and enjoyable learning experience for students. By encouraging students' proactive involvement in understanding, constructing, and learning the course, we are helping the students discover their potential and nurture their critical, creative, and innovative thinking mindset. Finally, it is important to highlight here that the ideas and suggestions in this paper are still very raw, and will hopefully continue to evolve and improve, as more and more people share their constructive feedback and participate in making the proposed iterative collaborative courseware development model a reality. We simply need to open our minds to all the possibilities we have today, and most of our courseware challenges will eventually be dealt with efficiently and effectively in a collaborative, user-friendly, and cost-effective way.

## 9 References

1. Alhabshi, S. O. & Hakim, H. (2003). "The Virtual University: UNITAR. A Newly Created Institution." UNESCO, International Institute for Educational Planning (IIEP). URL: <http://www.unesco.org/iiep/virtualuniversity/files/unitar.pdf>
2. Alsagoff, Z. A. (2005). "Reflecting the Future e-Content Development Evolution in Higher Education". URL: <http://breeze.unitarklj1.edu.my/future/>
3. Alsagoff, Z.A. (2004) "UNITAR's Experience with Online Live Tutorials" Published in *IJCIM (International Journal of The Computer, The Internet and Management*, 2004) URL:

- [http://www.elearning.au.edu/research/elearning\\_conference\\_2004/index.html](http://www.elearning.au.edu/research/elearning_conference_2004/index.html)
4. Bersin, J. (2004). "The Four Types of E-Learning: When should you use PowerPoint or Breeze?" Bersin & Associates.
  5. Brogan, P. (2003). "Using the web for interactive teaching and learning". [http://www.ced.ntu.edu.sg/acedemia/vol\\_1/06/whitepaper\\_interactive.pdf](http://www.ced.ntu.edu.sg/acedemia/vol_1/06/whitepaper_interactive.pdf) [cited 21/11/2005]
  6. Courseware Definitions:
    - a. Bitpipe Dictionary - <http://www.bitpipe.com/tlist/Courseware.html>
    - b. eTeach-Net - <http://edutechwiki.unige.ch/en/Courseware>
    - c. e-Learning Guru Glossary - <http://www.elearningguru.com/gloss.htm>
  7. Hylan, Jan (2005). Open Educational Resources: Opportunities and Challenges. 2005: OECD-CERI. <http://www.oecd.org/dataoecd/1/49/36243575.pdf> [cited 13/04/2006]
  8. MIT OpenCourseWare (2005). "Our Story" Massachusetts Institute of Technology. URL: <http://ocw.mit.edu/OcwWeb/Global/AboutOCW/our-story.htm> [cited 14/04/2006]
  9. Moodle - A Free, Open Source Course Management System for Online Learning. URL: <http://moodle.org/>
  10. Open Educational Resources (2006). "OER publishing initiatives" UNESCO International Institute for Educational Planning's Community of Interest. URL: [http://oerwiki.iiep-unesco.org/index.php?title=OER\\_publishing\\_initiatives](http://oerwiki.iiep-unesco.org/index.php?title=OER_publishing_initiatives) [cited 14/04/2006]
  11. Open Educational Resources (Examples):
    - a. MIT OpenCourseware - <http://ocw.mit.edu/index.html>
    - b. Connexions - <http://cnx.org/>
    - c. Kyoto-U OpenCourseWare - <http://ocw.kyoto-u.ac.jp/en/>
    - d. ParisTech OpenCourseWare - <http://graduateschool.paristech.org/index.php?type=cours>
    - e. Tufts University OpenCourseWare - <http://ocw.tufts.edu/>
    - f. Utah State University OpenCourseWare - [http://ocw.usu.edu/Index/ECIndex\\_view](http://ocw.usu.edu/Index/ECIndex_view)
    - g. Stanford on iTunes - <http://itunes.stanford.edu/>
  12. Open Educational Resources (OER) Index: [http://oerwiki.iiep-unesco.org/index.php?title=OER\\_useful\\_resources](http://oerwiki.iiep-unesco.org/index.php?title=OER_useful_resources) [cited 27/06/2006]
  13. López, P. I. (2005) "e-Learning for Development: a model". URL: [http://www.ictlogy.net/ictlogy/articles/ismael\\_pena\\_elearning\\_for\\_development.pdf](http://www.ictlogy.net/ictlogy/articles/ismael_pena_elearning_for_development.pdf) [cited 21/11/2005]
  14. Skillsoft (2006). "About Us" URL: <http://www.skillsoft.com/about/default.asp> [cited 14/04/2006]
  15. Thomson NETg. URL: <http://www.netg.com/>
  16. Turnitin. URL: <http://www.turnitin.com/static/home.html>
  17. UNESCO Free Software Portal: [http://www.unesco.org/webworld/portal\\_freesoft/Software/](http://www.unesco.org/webworld/portal_freesoft/Software/)
  18. UNITAR Courseware Repository (CWR): <http://cwr.unitar.edu.my/>

## 10. Diagrams

\*External Authoring Tools (Examples): PowerPoint, Word, Excel, Breeze, FrontPage, Dreamweaver, Flash MX, Podcasting, Etc.

