Using Open Education Resources (OERs) in Blended Teaching: Is it worth it?

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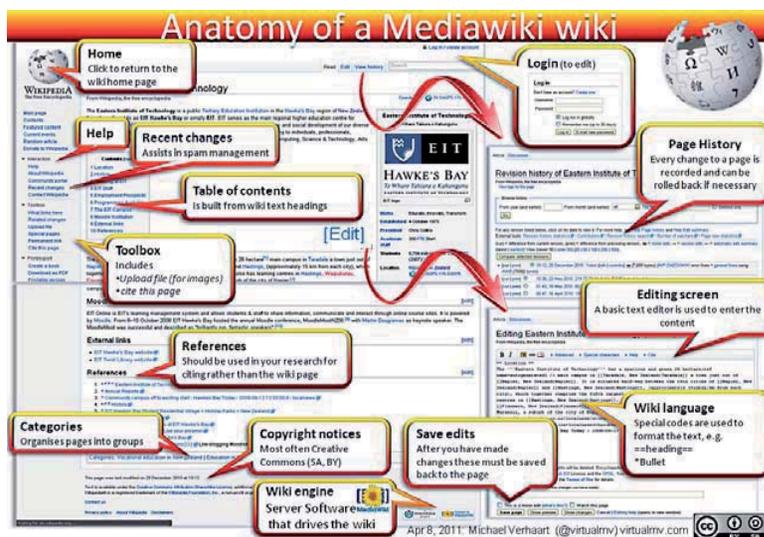
wiki:

http://www.virtualmv.com/wiki

Figure1. Anatomy of a MediaWiki wiki
(Source: http://www.virtualmv.com/wiki/index.php?title=Internet:Wiki CC SA BY)

Abstract

The Open Education Resource (OER) movement is gaining traction in New Zealand, notably Otago Polytechnic, and by some prominent institutions overseas. Using a wiki framework is a common way to develop OERs, notably wikiEducator and wikiversity.

This paper looks at the benefits and challenges of using a wiki as a tool for developing OERs. The discussion is based on a case study where a personal OER has been developed and used to deliver content in a blended teaching and learning environment. OER and the OER movement is covered briefly, and how wikis are an important tool to facilitate the construction of the OER. Using the case study wiki the benefits and challenges of using a wiki for developing OER are discussed, and whether the use of wikis in a blended teaching environment is worth it.

Keywords

Open Education Resources (OER), WikiEducator, virtualMV Wiki, wiki, MediaWiki, advantages, disadvantages, benefits, challenges, blended teaching

Introduction

Since 2008, the author of the paper constructed and delivered teaching and learning content using a MediaWiki based wiki called the virtualMVwiki (vMVwiki). This follows from an action research project

used in support of a Ph.D. thesis, (Verhaart, 2008) where the ability to supplement teaching content with student knowledge was explored.

The wiki is in the public domain (http://www.virtualmv.com/wiki), so is accessible by not only students but anyone on the Internet. A user identifier is required for editing and adding content, however, there is no restriction as to who can create one. The term used for content of this nature is "Open Education Resource" (OER).

Previous papers by the author have explored how the wiki has been used to manage and deliver the content, and how social media could be included. This paper takes a different track and looks at the research question "is adopting wiki technology to produce and deliver teaching and learning content worth it?"

The paper will briefly background OER and the use of wikis for OER. This will be followed a discussion of the challenges and benefits of using an OER wiki based on observations from the case study wiki, and supported in part by findings from others, in an attempt to provide a balanced answer to the research question.

Brief literature review

Delivering content in a manner where the resources are open to the world to both share and modify is a daunting concept, particularly in a "knowledge is power" and "competitive" environment. From an individual's perspective the content they develop may provide security in tenure, due to the exclusiveness of those resources. However, due to the widespread availability of the Internet, there is a significant movement where resources are being developed collaboratively and shared globally which requires a shift in thinking for educators developing content.

According to the (OECD, 2007) report "Giving Knowledge for Free", "*Higher education is facing a number of challenges: globalisation, an aging society, growing competition between higher educational institutions both nationally and internationally, and rapid technological development. OER is itself one of these challenges, but may also be a sound strategy for individual institutions to meet them. The trend towards sharing software programmes (open source software) and research outcomes (open access publishing) is already so strong that it is generally thought of as a movement. It is now complemented by the trend towards sharing learning resources – the open educational resources movement.*"

In a report to the William and Flora Hewlett Foundation, Atkins, Seely Brown, and Hammond, (2007) describe Open educational resources (OER) as: "*teaching, learning and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use or re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials or techniques used to support access to knowledge.*"

In 2001, the Massachusetts Institute of Technology (MIT) announced the release of nearly all its courses on the internet for free access. As the number of institutions offering free or open courseware increased, UNESCO organized the 1st Global OER Forum in 2002

where the term Open Educational Resources (OER) was adopted. (Open Educational Resources:UNESCO, 2011)

OER includes learning content (courses, lesson plans and learning objects), tools (software supporting development, management and re-use of content) and implementation resources (the intellectual property licences that promote open licensing and other principles of best practice)."(OECD, 2007; Open educational resources, 2011)

Copyright and ownership is an important aspect of OER. A short paper by Barbara Chow, Director of Education Program at The William and Flora Hewlett Foundation on "Copyright and the development and re-use of OER" is being used as a resource for the UNESCO / COL international discussion forum on "Taking OER beyond the OER community" (Chow, 2010). An interesting point is raised in the paper is from a quote by Wayne Macintosh that "*in our research, we have no issue with sharing and building on the ideas of others, yet in our teaching there is a perception that we must lock our teaching materials behind restrictive copyright regimes that minimise sharing*."

OERs are normally "protected" using Creative commons licenses (refer to The CC licenses (2011) for a discussion on the various types). A second issue is which Creative Commons (CC) attribution to apply? In the paper "Open Educational Resources and Creative Commons Licensing (2009), "for an OER the recommended license is, the Creative Commons Attribution 3.0 (CC BY) license. Only the CC BY license endows OER with all of the fundamental attributes (e.g., freedom to share and combine resources while

giving the author credit) that are important for resources that comprise a global learning commons.

Wiki technology is a common way to deliver OER Content. Many of the principal OER repositories including WikiEducator and Wikiversity use a wiki framework utilising the MediaWiki engine developed for Wikipedia. The anatomy of a MediaWiki wiki is shown in Figure 1.

Coined in 1995 by Ward Cunningham, wiki means quick in Hawaiian (Louridas, 2006). "Wiki *is a piece of server software that allows users to freely create and edit Web page content using any Web browser. Wiki supports hyperlinks and has a simple text syntax for creating new pages and crosslinks between internal pages on the fly*" (Leuf & Cunningham, 2002).

Two notable repositories being Wikiversity and WikiEducator.

WikiEducator was initiated in 2006 by Wayne Mackintosh, and later that year financial assistance was obtained from the Commonwealth of Learning (COL). WikiEducator is a collaborative global community project working towards a free version of the education curriculum by 2015 (WikiEducator:about, 2011; WikiEducator, 2010, August 26)). WikiEducator is a global community resource, based at Otago Polytechnic, with servers hosted by Athabasca University (WikiEducator:Main Page, 2011).

"**Wikiversity** *is a Wikimedia Foundation project devoted to learning resources, learning projects, and research for use in all levels, types, and styles of education from pre-school to university, including*

professional training and informal learning" (Wikiversity:Main Page, 2011). On December 8, 2009 the Home Page indicated there were 11,705 learning resources, and by the end of May, 2011 this had risen to 15,855.

Based on the adoption of the wiki by the organisations mentioned, as a tool for knowledge creation and management, research into its suitability as a candidate to extend the "The virtual Me: A knowledge acquisition framework" (Verhaart, 2009) was undertaken. A MediaWiki based wiki, coined vMVwiki (http://www.virtualmv.com/wiki) was used to develop teaching and learning content for papers for undergraduate degree and diploma programmes.

Case study

Since 2008 the vMVwiki has been used to deliver teaching and learning to Diploma and undergraduate students, in a New Zealand Institute of Technology, and has been discussed in papers presented to the Distance Education Association of New Zealand (DEANZ) (Verhaart, 2010a) and Computing and Information Technology Research and Education of New Zealand (CITRENZ) (Verhaart, 2010b) Conferences. The actual wiki was used to deliver the presentation, rather than the more usual Microsoft PowerPoint delivery.

The following discussion outlines some of the challenges and benefits found from the use of the case study wiki, plus some observations made by others.

Challenges in using a wiki for teaching and learning

Technology issues
DELIVERING CONTENT IN THE CLOUD
This has probably been the most difficult of all problems to deal with. After doing an upgrade on MediaWiki, vMVwiki experienced significant technical issues. Trying to resolve the problems has been frustrating both as author and for the students, due to lack of access.

BREAKING THROUGH INSTITUTIONAL FIREWALLS
There is a considerable wealth of very useful content available on external sites such as YouTube and SlideShare. Unfortunately in many institutes block selected sites (such as YouTube), so this content is not available when students are in a face-to-face delivery mode..

SPAM AND VANDALISM
One issue that has surfaced more recently is the continual vandalism by spammers. So far this takes the form of a new account is created, a new disconnected page is generated and the spam placed onto the page. Occasionally, this migrated to vandalising actual content pages including the main page, and unfortunately is a significant time waster. The problem is not confined to the vMVwiki, with other wikis also dealing with the issue. Despite filters and other measures, manual removal of offending pages seems to be a common way of dealing with them.

CONTINUAL RE-EDITING
From a technology view each time a wiki page is edited a before image is created. With a lot of small edits (as

was the case with developing this paper) over 200 individual copies of the paper are stored in the database. While essentially text is stored which doesn't require significant storage, in a large wiki this could be an issue.

Content and context issues

INCLUDING EXTERNAL CONTENT

One of the benefits of OERs is that they can be re-used or re-mixed into your own content. One way that is proving very successful is the iFrame insertion. While this has many advantages, including handling the issue of copyright, there have been instances where the linked page has been removed, or the page has become protected. Further, some inserted pages include large page headers and significant advertising, so all you see is a banner ad rather than the content.

CONTENT OUT OF CONTEXT

As users have a wide range of abilities, an issue that surfaced in earlier iterations of the virtualME knowledge framework (before the wiki) was the problem of content out of context. For example, where should content be added if there is no wiki page? In the vMVwiki there has not been a noticeable problem, however, this could also mean students have not added an entry rather than placing the content in the wrong context. To some extent this is addressed through the individual user pages.

HAVING INCOMPLETE CONTENT

As a wiki allows for continuous editing, there is a temptation to create a filler or starter page. This can be problematic when students are expecting content but find the page incomplete. However, this could also be seen as an opportunity for students and users to add this content.

CONTENT CONTINUALLY CHANGING

From a learner perspective this can create frustration issues, especially for those students who prefer to print the content.

CONTENT OF VARYING QUALITY

The skill levels of the authors (users) can determine not only the reliability of the content but the way it is presented.

SOURCING CONTENT AND DIGITAL RIGHTS

One big issue is constructing the content and managing digital rights. Fortunately there are repositories of Open Content such as Wikimedia commons (http://commons.wikimedia.org/) that can provide a wealth of images. For the teaching vMVwiki much more attention to citing has been done, than probably would have been done if presented in a closed format. This is also observable in Wikipedia where the citings/references play an important part.

LEARNING WIKICODE

One of the strengths (and weaknesses) of MediaWiki is the necessity to use wiki-code. The advantage is that it is text based so easily edited in any web browser, however the cryptic syntax does take a little getting used to.

Academic staff issues

DEVELOPMENT TIME

Developing content in a wiki takes a significant amount of time. A wiki requires building the content in wiki-

markup, uploading images separately and changing formatting manually.

LOSS OF INCOME

Nancy George posted the following comment to the OER University (OERu) discussion forum "*Universities are also pressuring their academics to bring income into the institution to help them survive; therefore, … improbable that they… develop learning materials that could earn the institution money and then relinquish the right to that money.*" There has been significant discussion on this in the OERu discussion forum during May 2011.

LOSING CONTROL OF PERSONAL CONTENT

This is a more complex issue as it involves a philosophical concept which is very personal. A course on "Open content licensing 4 educators" run by WikiEducator (OCL4Ed, 2011) considers it in one way as "Is teaching a vocation or profession?"

A sticking point for many authors is the Non-commercial attribution, where another person is able to take the work and modify it in a commercial setting.

Student issues

RELUCTANCE TO EDIT

While the concept of adding and editing content by users of the site is the cornerstone of a wiki, actually getting users to actively change the content as opposed to passively viewing the content remains a challenge.

One of the students made the following comments "*I have some thoughts about student contributions to the wiki – barriers, perceived or otherwise. As a student, your wiki is referred to as Michaels Wiki, straight away setting a defining line in regards to ownership. I also think its a lot harder as a young person to realise that as a pupil you also may have something to contribute, we come from years of schooling where its teacher/learner with set roles. So to make that move from student receiver to student contributor is a big step. Getting the students to contribute as part of an assessment – excellent idea :) .* "

KNOWLEDGE OF THE USE OF WEB BASED TECHNOLOGIES IS REQUIRED

As the content is delivered on a web platform students must be competent at using web technologies to access the content.

ABILITY TO READ AND PROCESS SCREEN BASED CONTENT

Not all users are comfortable with reading content on-screen, and indeed in some instances students have produced complete hard copies of the content. From a personal perspective the author has found that dual monitors make the task of reading on-screen content significantly easier.

Benefits of using a wiki

Given that a wiki provides many challenges, what are some of the benefits?

Technology benefits

CONTENT IS AVAILABLE

As a wiki is cloud based, as long as you have access to the internet the content/teaching resource is available. When used to deliver content in a computer laboratory, students can have the content on their screens while following the projected presentation.

CONTENT IS BROWSER BASED

There are many advantages here. One of the design features of MediaWiki is that it performs well in most browsers. As it is browser based issues such as media compatibility are addressed by the browser. The text editor is fairly basic which has the advantage that changes to content can be done easily inside the browser.

CONTENT CAN BE VIEWED ON MANY DEVICES

As the number of device types increases and includes Personal Computers, Pad based computers (like Apple iPad), and mobile devices (such as smart phones), the ability to present content on all of these devices becomes more important. As MediaWiki is browser based effectively any device running a browser and linked to the Internet.

Content and context benefits

CONTENT IS ALWAYS UP TO DATE

As the content is stored in one place and can be updated directly as it is cloud based, students are always presented with the latest version of the content.

Another benefit is that the content can be used in many contexts.

CONTENT MAY BE RE-USED

As the content is in the public domain and for an OER usually comes with a Creative Commons licence (CC-BY) the content may be reused by other organisations and even translated into other languages. In Taiwan, the Opensource Opencourse Prototype System (OOPS) (OOPS, 2011) is translating OER courseware into Chinese, and is also an Massachusetts Institute of Technology - Open Courseware (MIT OCW) official translation affiliate .

Student issues

There are many benefits that students can gain through the use of a wiki. Guth (2007) identified several pedagogical benefits including;

COLLECTIVE AUTHORING: CRITICAL READING AND RESPONSIBLE WRITING

As the wiki entry is open to the peers and potentially the world this encourages a high quality of work.

COLLECTIVE OWNERSHIP OF WORK

Encourages the concept of sharing personal knowledge. However In Lund and Smordal's (2006 cited by Guth (2007)) wiki experience, "*learners did not immediately embrace any notion of collective ownership or epistemology.*"

WRITING AS A PROCESS AND KNOWLEDGE SHARING OVER TIME

Guth (2007) identified that this facilitates writing as a process rather than a product and, promotes the continued use of a wiki in different contexts.

BENEFITS OF PUBLISHING ONLINE

Guth (2007) also identified that wikis give students the opportunity to focus on issues such as referencing online sources and considering copyright issues of the multi-media content.

STUDENTS ARE FAMILIAR WITH THE ENVIRONMENT

As the content is delivered in an environment similar to wikipedia most students have used this interface.

STUDENTS CAN TAKE OWNERSHIP
Effective learning engages the students. As they are able to add and modify the content students can contribute in a real way to the material being displayed.

STUDENTS HAVE A BUILT IN PERSONAL NOTE SYSTEM
It is easy to add personal notes to the wiki via the personal user page which is accessible from every page.

PREPARES STUDENTS FOR WEB 2.0 TECHNOLOGIES
Student develop skills that can be used on other public wikis, and can participate in major international projects.

PROMOTION TOOL
Content in a Public wiki is openly available wiki so this provides a marketing platform for the institution. "*The educational experience at an institution is more than the consumption of educational materials*" (Mary Lou Forward, 2011, OERu discussion forum)

Do students actually use the wiki as a wiki?

A student commented as follows "*One of the attractions of using a wiki is that anyone with the necessary permissions can modify content on any page. Until we understand how to change content this is often a barrier to actually changing the content*". As such the small assessment items have been built into the papers.

Student feedback

Informally, feedback from students has been very positive. In a recent (May 2011) survey where 18 students in an Undergraduate degree Advanced Multimedia class were asked to give feedback, none commented that the wiki hindered their learning and 3 highlighted the wiki when answering the question "What aspects of the lecturer's approach best helped your learning?".

One of the adult students also provided the following feedback: "*Its easier for us oldies to think in terms of collaboration and contribution as we have had years of workplace experience behind us where you need to do exactly that to get anywhere. So for me, although initially the idea of actually writing something and putting it into the wiki for everyone to see was a scary thought, (the technology or learning wikitext not the problem) once that was overcome, it did achieve several things:*

1. *A chance to give something back :)*
2. *Enhanced my own retention by reworking and creating from the stuff I was learning*
3. *Personal space – building an online portfolio – you never know when it might come in handy and if whats in there happens to be useful for others...thats good too*
4. *Tidy up of categories* "

Future work

Investigations into using wikis as a way to manage open teaching and learning content is still in the early stages, and there are many opportunities for future research. Looking empirically at whether students actually find this useful and finding best practice case studies.

Feedback from a past student who has continued to assist with the wiki, was that somehow a community needs to be developed. They also indicated soliciting the help of students is problematic as they are

essentially transient, that is they do a paper and move on. … Future work could involve how to establish a wiki community.

As a follow up it would be useful to survey others using wikis to deliver content to compare their experiences to those of the author of this paper. This could be useful in developing a framework for content delivery using wikis.

Conclusions

As the Open Education resource movement expands and gains traction, more educators are going to be confronted with the prospect of considering technologies to distribute their content, the wiki way is one such technology. This paper looked at the challenges of using a wiki for teaching and learning and the perceived benefits based on a case study of a teaching and learning wiki that has been in use for four years.

So, to answer the research question "is adopting wiki technology to produce and deliver teaching and learning content worth it?" From a personal perspective there have been both significant challenges and benefits, and on balance neither comes out a clear leader. The time to develop and maintain the content the wiki way is probably greater than just developing in a presentation tool like PowerPoint, with considerations like the wiki markup, difficulties in presenting, restrictions in interactivity. However, the ability to modify on the fly, having content available wherever there is an internet connection, allowing students as well as others the opportunity to add or edit the content is also very appealing.

As an aside, this paper was developed in WikiResearcher (http://wikiresearcher.org/index.php?title=User:Mverhaart/CITRENZ/2011OER), in an attempt to see whether research papers could be successfully built using a wiki. Feedback during the construction was only received from two others, both colleagues. A post was put onto the Wikieducator discussion forum, and to date no comments have been received, however, there have been viewers of the page. Was it worth it?

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