

## Chapter 6

# Developing a Dynamic and Responsive Online Learning Environment: A Case Study of a Large Australian University

**Janet Buchan**  
*Charles Sturt University, Australia*

### ABSTRACT

*Charles Stuart University adopted the open source software, Sakai, as the foundation for the university's new, integrated Online Learning Environment. This study explores whether a pedagogical advantage exists in adopting such an open source learning management system. Research suggests that the community source approach to development of open source software has many inherent pedagogical advantages, but this paper examines whether this is due to the choice of open source software or simply having access to appropriate technology for learning and teaching in the 21<sup>st</sup> century. The author also addresses the challenges of the project management methodology and processes in the large-scale implementation of an open-source courseware management solution at the institutional level. Consequently, this study outlines strategies that an institution can use to harness the potential of a community source approach to software development to meet the institutional and individual user needs into the future.*

### INTRODUCTION

Charles Sturt University (New South Wales, Australia) adopted the open source software, Sakai, as the foundation for the University's new, integrated Online Learning Environment called *CSU Interact*. Sakai was implemented in 2006 as a platform for research and project collaboration by

selected schools, divisions, and research centers, and then subsequently at the end of 2007 across the entire University for learning and teaching. No major distinction is made here between 'e-learning' and 'learning and teaching' because the university supports blended and flexible learning and 'e-learning' is an integral part of the design of learning experiences that can include multiple modes of delivery. The move to Sakai underpins the future of learning and teaching at the university and

DOI: 10.4018/978-1-61520-917-0.ch006

represents a significant investment of resources, human and financial. This study outlines some of the challenges and successes of the project management methodology and processes which oversaw the successful large-scale implementation of an open-source courseware management solution at the institutional level.

The implementation of an open source system is only the beginning. In today's climate of rapidly changing educational technology, users demand that the online learning environment is indeed dynamic and responsive to their needs. Having entered the Web 2.0 technology era relatively late, it appears that there is indeed transformation taking place in learning and teaching across the university. Is this due to the choice of open source software, or simply having access to appropriate technology for learning and teaching in the 21<sup>st</sup> century? This study explores the question; 'Is there in fact a pedagogical advantage to adopting an open source learning management system?'

The views expressed in this paper are primarily those of the author. The views are the result of consistent reflection on the changing educational technology environment and evolving processes and university structures over the last few years (Buchan, 2008a, 2008b; Buchan, 2009a; Buchan & Swann, 2007; Buchan & Buchan, 2003). The aim is to tease out some of the pedagogical affordances of open source software and to draw as accurate a picture as possible from the point of view of a learning/educational technologist and manager who has a strategic role within project implementation teams on Sakai software and supports the instructional designers who have a hands-on role in assisting academic staff with the application of the educational technology in their teaching. The viewpoint is from the learning and teaching support perspective. However, it is acknowledged here that there are numerous key players from a number of Divisions who have been or are still involved with the evolution of CSU's online learning environment and it is the early strategic vision of key players within the

Division of Information Technology (Rebecchi, 2004b) that has set us on our current path.

For further reading, the change and innovation strategies used during the implementation of Sakai at CSU have been well documented (Uys, 2009). The official guide to Sakai Courseware Management (Berg & Korcusk, 2009) and the SakaiProject website (available from <http://sakaiproject.org/portal>) are also valuable and comprehensive resources for Sakai users.

## **BACKGROUND TO SAKAI**

*"Sakai is an open source, web-based, collaboration learning environment (CLE) that is focused primarily on higher education. It supports the activities of students, teachers, researchers, and Sakai administrators. Sakai is flexible and enables users to configure it for their own specialized audiences. Sakai is mainly a courseware management platform that provides users with learning, portfolio, library, and project tools..." (Berg & Korcusk, 2009. p.5)*

Sakai is a Collaborative Learning Environment (CLE), which extends the concepts of similar systems such as Learning Management Systems (LMS), Content (courseware) Management Systems (CMS) and Virtual Learning Environments (VLE). Sakai is distributed as free and open source software under an Educational Community Licence (Berg & Korcusk, 2009). The Sakai Project is based on a community source model. The understanding here is that 'open source' software is developed by a community of individuals while 'community source' software is developed by a community of organizations or institutions. The community source model is potentially extremely powerful when it is well coordinated and there is full institutional commitment.

There are many potential benefits of open source software in higher education (Joint Information Systems Committee, 2008; Whitehurst,

16 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/chapter/developing-dynamic-responsive-online-learning/46309](http://www.igi-global.com/chapter/developing-dynamic-responsive-online-learning/46309)

## Related Content

---

### OSS-TMM: Guidelines for Improving the Testing Process of Open Source Software

Sandro Morasca, Davide Taibian and Davide Tosi (2013). *Open Source Software Dynamics, Processes, and Applications* (pp. 59-78).

[www.irma-international.org/chapter/oss-tmm-guidelines-improving-testing/74663](http://www.irma-international.org/chapter/oss-tmm-guidelines-improving-testing/74663)

### Requirements to Class Model via SBVR: RECM via SBVR TOOL

Murali Mohanan and Imran Sarwar Bajwa (2019). *International Journal of Open Source Software and Processes* (pp. 70-87).

[www.irma-international.org/article/requirements-to-class-model-via-sbvr/233514](http://www.irma-international.org/article/requirements-to-class-model-via-sbvr/233514)

### A Multi-Step Process Towards Integrating Free and Open Source Software in Engineering Education

K.G. Srinivasa, Ganesh Chandra Deka and Krishnaraj P.M. (2021). *Research Anthology on Usage and Development of Open Source Software* (pp. 389-397).

[www.irma-international.org/chapter/a-multi-step-process-towards-integrating-free-and-open-source-software-in-engineering-education/286584](http://www.irma-international.org/chapter/a-multi-step-process-towards-integrating-free-and-open-source-software-in-engineering-education/286584)

### Open Source Software Basics: An Overview of a Revolutionary Research Context

Eirini Kalliamvakou (2007). *Open Source for Knowledge and Learning Management: Strategies Beyond Tools* (pp. 1-15).

[www.irma-international.org/chapter/open-source-software-basics/27807](http://www.irma-international.org/chapter/open-source-software-basics/27807)

### SBHDetector: A Fuzzy-Based Hybrid Approach to Detect Renaming and Shifting Between Versions

Ritu Garg and Rakesh Kumar Singh (2022). *International Journal of Open Source Software and Processes* (pp. 1-18).

[www.irma-international.org/article/sbhdetector/300752](http://www.irma-international.org/article/sbhdetector/300752)