

# Chapter 12

## Open for Social: How Open Source Software for E-Learning can Take a Turn to the Social

**James Laffey**  
*University of Missouri, USA*

**Matthew Schmidt**  
*University of Missouri, USA*

**Christopher Amelung**  
*Yale University, USA*

### ABSTRACT

*Online learning in K-12 and higher education has been growing rapidly, and open source software has the potential to improve the quality of e-learning. This paper describes how FOSS enables turning e-learning from a potentially restrictive and narrow framing of the education experience to an emergent and social experience. The authors identify several key elements of the FOSS model that position open source initiatives to contribute to the emergent and social nature of experience in e-learning. The authors also describe several challenges to developing FOSS in a community of educators for e-learning. These elements and challenges are illustrated in a brief case report about the development of an open source software system called Context-aware Activity Notification System (CANS). CANS (<http://can-saware.com>) is a notification system that integrates with collaborative work and learning systems and is designed around the importance of awareness of user activity, a user's social context and personal notification preferences.*

### INTRODUCTION

Nearly 4 million students were enrolled in at least one online higher education course in 2007 (Allen & Seaman, 2008). This number represents a 12% increase over the previous year. In addition to on-

line courses, web-facilitated courses and blended courses (courses that meet face-to-face but have portions of content delivered online) are spreading across campuses (van Rooij, 2009). As an example, at the University of Missouri-Columbia (MU), thousands of courses—representing tens of thousands of student enrollments—use online course management tools each academic year. In

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the Fall 2005 semester, 83% of all MU students enrolled in at least one course that blended face-to-face instruction with online learning through the use of a course management system (CMS).

While lagging somewhat behind the growth in higher education, online education in K-12 is also growing rapidly. Based on a national survey of school district administrators, the Sloan Consortium estimates that over one million K-12 students were engaged in online learning in the 2007-8 school year (Picciano & Seaman, 2008). This number represents a 47% increase from the 2005-6 school year. The report recognizes a special value of online courses for small rural districts in that online courses can provide access to courses that cannot be made available because of teacher shortages or other limiting factors. However, the range of students opting for online learning spans those seeking Advanced Placement courses, those with special needs, those choosing home schooling, those needing credit recovery and those who for some reason do not fit well in traditional school settings. Clayton Christensen, author of "Disrupting Class" (Christensen, Horn & Johnson, 2008), predicts that by 2013 10% of all K-12 school enrollments (with approximately 53 million K-12 students in the US) will be online and that by 2018 the number will be 50% of all enrollments. As another indicator of growth, the fifth annual "Keeping Pace Report" (Watson, Gemin & Ryan, 2008) notes that, as of Fall 2008, 44 states offer significant online learning opportunities for students with 34 states providing state-led programs.

Online courses have great potential to improve access to education. Positive reports of online learning success show its impact and potential, such as relative equivalence in test-result outcomes with face-to-face learning courses (Talent-Runnels, Thomas, Lan, Cooper, Ahem, Shaw & Xiaoming, 2006). However, while online learning is far advanced from traditional correspondence courses, concerns remain about a diminished social experience in online courses that may

be detrimental to both the student-to-instructor and student-to-student relationships needed for sufficient engagement and retention of online students. (e.g., Yang & Cornelius, 2005; Berge, 2001; Bower, 2001; Hara & Kling, 2000). Indeed, this lack of social interaction was found to be a factor that depresses student satisfaction in online learning (Arbaugh, 2000). Consequently, dissatisfaction with online learning may be seen in high rates of attrition of online students. Chyung (2001) found that online learners who dropped out perceived that their online learning environment was not engaging, had low levels of confidence while learning at a distance and had low satisfaction levels for the instructional processes used in the online learning environment.

Today's approach to online learning is implemented through CMSs, of which proprietary systems, such as Blackboard and Desire2Learn, and open source systems, such as Moodle (<http://moodle.org/>) and Sakai (<http://sakaiproject.org/>), represent popular applications. These CMSs implement ways for instructors to give and control access to information about a course (syllabus, assignments, grades) and about the subject matter (instructional resources). They also provide some facilities for direct interaction through discussion boards and chat rooms. Such approaches help manage the course and the information of the course but are very limited in how they support the interaction, coordination and cooperation needed to do course activity. Students today use Twitter, YouTube, Facebook and many other social networking applications (Dunlap & Lowenthal, 2009) and are accustomed to their online experience being a social experience (Caruso & Salaway, 2007). Given that a large portion of students use social networking sites daily (Caruso & Salaway, 2007), it is easy to envision many of these students multitasking with Skype and Facebook and other applications while working in their CMS. Indeed, a qualitative study (Goggins, Laffey & Tsai, 2007) of how members of small groups cooperate in online courses found that multitasking while doing

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