

Using Course Management Systems to Foster Faculty Development
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The use of online course management systems (CMSs) offers an opportunity to integrate faculty development with course design by creating instructional design aids for faculty as part of the CMS. The idea has already been tested at three community colleges with positive outcomes for both faculty and students. Sakai, a new, open-source CMS offers the promise of providing a structure in which pedagogically sound guided processes, "assignment makers," and other course design tools can be added by developers, instructional designers, and faculty at colleges and universities throughout the country. Examples of such tools include the Verbinator <studenthub.org>, automated templates for creating Classroom Assessment Techniques, interactive lecture templates, and study skill assignment makers.

As with all innovations, the early adopters of digital technologies (Rogers, 1996) were important to its development. In education, early adopting faculty led the way in creating interactive course webpages, computer-mediated lectures, software programs to support course content, and the first online courses. At present, most campuses are turning their time and attention to assisting mainstream faculty (Moore, 2002) in creating hybrid and online courses (Ragan, 1999) and in using various course management systems (CMSs). Technologists and instructional design consultants are busily assisting faculty in becoming proficient at using the campus' chosen CMS(s) and in adapting their courses to function well within the new delivery mechanism. Online instruction tools that only a few years ago were cumbersome, time-consuming for faculty, and difficult to use for students now have evolved into sleek systems that are user friendly for both faculty and students. This ease of use can provide time for faculty to concentrate on the instructional enhancements that the technological innovation makes possible, and some faculty are doing so. What is being overlooked is the opportunity for improving instruction by building features into the CMSs such as instructional design aids and skill development modules to assist faculty as they create courses using the CMSs.

When faculty are asked how their use of a CMS is helpful to their teaching, their first response usually has to do with administrative, organizational, and communication details, e.g., the ease with which the system lets them organize class rosters and grades, post syllabi and lecture notes, and create online discussion groups. The secondary responses often expand on aspects of the same categories. For example, faculty may identify the "expanded communication" possibilities and then discuss how online communication brings out the voices of the more reflective students who tend not to participate in classroom discussions or gives the instructor the opportunity to post to the class answers student questions. While these are important, there is much more that a CMS can contribute to the instructional design of courses, course materials, and assignments in ways that will enhance not only student learning, but the professional development of faculty as well. The idea of student and faculty skill-building using a CMS already has been pilot-tested and the results evaluated in a project that was developed through a federally funded project described in the next few paragraphs.

The CMS prototype called Gyrus was introduced to community college faculty in the late 90's. It was presented as a resource-rich, course-creation environment with accompanying online guided processes for student learning. The main purpose of Gyrus was stated as assisting faculty in easily producing pedagogically-sound online courses and course materials that incorporated study skills and guided processes for learning (Ferrer, Pike, Nicholson, & Ronkowski, 2001). To maximize its use, Gyrus-created course materials were easily exported into CMSs such as BlackBoard, WebCT, and others in use at that time. The learning materials and a few of the faculty resources developed for Gyrus have been improved and continue to be available at <studenthub.org>. Here students can find information and guided processes on these and other skills. The searchable site offers a study environment that assists students in increasing their academic knowledge and skills through activities such as study skill exercises, Internet tutorials, self-assessment tests, vocabulary exercises, and links to self-scoring tests on learning style preferences.

In addition to learning aids for students, Gyrus provided a guided process or “syllabus maker” for creating syllabi that assisted faculty in writing measurable learning goals, editable study skill assignments, an interactive lecture template, online resources on teaching and learning, templates for creating various types of interactive assignments in which faculty received student written responses in a flexible database, and examples of problem-based and other types of learning modules. Although faculty found Gyrus difficult to learn and cumbersome to use as a CMS, its pedagogical, student-centered base inspired them to view teaching and learning in expanded ways. For example, they began thinking in terms of learning goals in addition to their teaching goals. They began putting more responsibility on students and provided lessons and assignments that were more student-centered. At the end of one year of using Gyrus, faculty in three community colleges reported higher student grades, reduced drop out rates in their online courses, and changes in their approach to both online and face-to-face teaching. The results are more specifically stated as follows.

1. Grades assigned to students in course sections that used Gyrus-authored assignments were significantly higher than grades assigned to students in sections of the same courses taught by the same faculty members before or concurrent with their exposure to Gyrus. Persistence, too, was higher in these sections.

2. Participating faculty reported that exposure to the pedagogical aspects of Gyrus, through both the hands-on training and the system itself, positively affected the way they conceived, prepared, and offered instruction in all their classes, both on-line and on campus. They viewed it as an important source of professional development and reported it as improving their pedagogical skills (Ferrer, M & Ronkowski, S.A., 2004).

These results suggest that pedagogical tools including teaching strategies, assignment templates, learning skill templates, and pre-made student study skill assignments and exercises can serve to promote both faculty development and student learning. Yet, commercial course delivery systems are only just beginning to add pedagogical resources for course development and none have yet incorporated the kind of assignment makers and guided process developed for the Gyrus environment.

A substantial number of higher education institutions are considering, or are committed to, adoption of the Sakai CMS. Sakai is an open-source, collaboratively developed CMS that is “free to use, free to develop” (see <sakaiproject.org>). It allows its user community to create whatever features and learning modules interest them for their own use or for sharing with the Sakai community. The promise of Sakai is that by offering an open-source, enterprise -level CMS based on an open code base and APIs, it will provide a framework upon which academic developers all over the world can and will build additional features. Ultimately, this can provide faculty members and developers alike with an extensible, flexible environment within which to create the next generation of teaching and learning resources, modules, and “makers” that can assist faculty and students alike—much like those successfully used in Gyrus. One of the fundamental premises of the Sakai development team has been “let a thousand flowers bloom,” that is, provide an environment in which numerous developers could build fifty discussion tools, thereby giving faculty members many more options from which to choose, especially compared to commercial course management systems.

An example of a Gyrus-type pedagogical aid that could easily be created for use within Sakai is a discipline-specific group of examples and templates for applying Bloom’s Taxonomy of cognitive skills (Anderson, Krathwohl, Airasian, Cruikshank, Mayer, Pintrich, Raths, & Wittrock, 2001; Bloom, Hastings, & Madaus, 1971) to homework assignments, discussion questions, and exams. The <studenthub.org> site already provides an automated analysis of verbs so that students can copy an assignment into the text-box of the *Verbinator* and see what level of cognitive skill is required, and then, can call up an explanation of that skill level, complete with examples and skill development exercises. The *Verbinator* can also be used by faculty for feedback and reflection on the cognitive level of assignments before they give them to their students (Ferrer & Ronkowski, 2000).

Another aid could make use of Classroom Assessment Techniques (CATs) (Angelo & Cross, 1993). Such an aid could not only introduce the idea of on-going feedback to both students and instructors, but also offer templates for creating CATs in various disciplines and provide discipline-specific examples. This would be a relatively easy aid to create given that web links could be made to many existing sites that offer CAT information and examples.

More complex examples of teaching aids include such items as assignment “makers” that lead faculty, especially new faculty, through a step by step process for creating measurable learning goals, interactive assignments, feedback mechanisms, exams that teach, and much more. Interactive lecture makers could help faculty create face-to-face as well as online lectures that foster and even require student participation. Generic skill building assignment templates could be used as-is or provide a means whereby faculty could make them course specific with little time or trouble.

Some of the faculty, technologists, and instructional designers at colleges and universities who will be adopting Sakai may be interested in forming a group to work on these sorts of pedagogical aids and in so doing, create a new level of instructional development on a nation-wide basis. The beginning of such an effort can be found at the University of California, Santa Barbara and it is hoped that others will join the effort with their creative energy and desire to improve education in ways that do not require a significant burden on faculty time and workload.

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