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Introduction

If you teach, you've probably heard for years about the revolution the Internet would bring to teaching and learning. As with so many promises of revolution, the changes haven't materialized. Instead, a new suite of tools, called course management systems (CMSs), can be used to enhance your teaching by taking advantage of the Internet without replacing the need for a teacher.

What Is a Course Management System?

CMSs are web applications, meaning they run on a server and are accessed by using a web browser. The server is usually located in your university or department, but it can be anywhere in the world. You and your students can access the system from anywhere with an Internet connection.

At their most basic, CMSs give educators tools to create a course web site and provide access control so only enrolled students can view it. Aside from access control, CMSs offer a wide variety of tools that can make your course more effective. They provide an easy way to upload and share materials, hold online discussions and chats, give quizzes

and surveys, gather and review assignments, and record grades. Let's take a quick look at each of these features and how they might be useful:

Uploading and sharing materials
> Most CMSs provide tools to easily publish content. Instead of using an HTML editor and then sending your documents to a server via FTP, you simply use a web form to store your syllabus on the server. Many instructors upload their syllabus, lecture notes, reading assignments, and articles for students to access whenever they want.

Forums and chats
> Online forums and chats provide a means of communication outside of classroom meetings. Forums give your students more time to generate their responses and can lead to more thoughtful discussions. Chats, on the other hand, give you a way to quickly and easily communicate with remote students. They can be used for everything from course announcements to entire lectures. I know one professor who, unable to speak due to throat surgery, held his entire class using online chats and readings. Student workgroups can use online discussions for class projects.

Quizzes and surveys
> Online quizzes and surveys can be graded instantaneously. They are a great tool for giving students rapid feedback on their performance and for gauging their comprehension of materials. Many publishers now provide banks of test questions tied to book chapters. A professor teaching a marketing class at San Francisco State uses weekly mini-tests to keep students engaged with the lectures and reading. He then uses proctored online testing to give the final exam using the same question banks.

Gathering and reviewing assignments
> Tracking student assignments is an annoying and bulky task. Online assignment submissions are an easy way to track and grade student assignments. Also, research indicates that using an online environment for anonymous student peer reviews of each other's work increases student motivation and performance. One of my colleagues teaches a course where students review each other's written work at every stage of the writing process.

Recording grades
> An online grade book can give your students up-to-date information about their performance in your course. Online grades can also help you comply with new privacy rules that prohibit posting grades with personal identifiers in public places. CMS grade books allow students to see only their own grades, never another student's. You can also download the grades into Excel for advanced calculations.

While you could find or write programs to do all of these things on your own site, a CMS combines all of these features into one integrated package. Once you've learned how to use a CMS, you'll be free to concentrate on teaching and learning instead of writing and maintaining your own software.

Over the past five years, CMS systems have matured rapidly and are now considered critical software for many colleges and universities. The CMS market is now a multi-

million dollar market and is growing quickly. One of the biggest vendors, Blackboard, has recently gone public.

Why Should You Use a CMS?

Good question. After all, we've run classes for thousands of years without the use of computers and the Web. Chalk and talk is still the predominant method of delivering instruction. While traditional face-to-face meetings can still be effective, applying the tools listed above opens up new possibilities for learning that weren't possible just a few years ago. Currently, there is a lot of research into how to effectively combine online learning and face-to-face meetings in what are called "hybrid" courses.

Hybrid courses combine the best of both worlds. Imagine moving most of your content delivery to an online environment and saving your course time for discussion, questions, and problem solving. Many instructors have found they can save time and increase student learning by allowing students to engage the material outside of class. This allows them to use face-to-face time for troubleshooting.

Online discussions give many students the opportunity to express themselves in ways they couldn't in a regular class. Many students are reluctant to speak in class because of shyness, uncertainty, or language issues. The ability to take their time to compose questions and answers in an online discussion is a boon to many students, and instructors report much higher participation levels online than in class.

There are a number of other reasons to think about using a CMS in your courses:

Student demand.
> Students are becoming more technically savvy, and they want to get many of their course materials off the Web. Once online, they can access the latest information at any time and can make as many copies of the materials as they need. Having grown up with instant messaging and other Internet communication tools, online communication is second nature to many students.

Student schedules
> With rising tuitions, many students are working more hours to make ends meet while they are in school. About half of all students now work at least 20 hours a week to meet school expenses. With a CMS, they can communicate with you or their peers whenever their schedules permit. They can also take quizzes or read course material during their lunch break. Working students need flexible access to your course, and a CMS is a powerful way to give them what they need.

Better courses
> If used well, CMSs can make your classes more effective and efficient. By moving some parts of your course online, you can more effectively take advantage of scheduled face-to-face time to engage students' questions and ideas. For example, if you move your content delivery from an in-class lecture to an online document, you can then use lecture time to ask students about what they didn't understand. If you also use an online forum, you can bring the best ideas and questions from the forum

into your classroom. We'll discuss lots of strategies and case studies for effective practice throughout the book.

You probably heard all of this in the early 90s as well. So what's changed? Today, CMSs are more mature and easier to use than they've been at any time in the past. The underlying technology is becoming more robust, and programmers are writing good web applications. In the past, most systems were built as departmental or even personal projects and then commercialized. The two leading commercial packages, WebCT and Blackboard, both started out as small college projects and have since grown to be the market leaders.

However, market leadership does not automatically mean that a given application is the best, or most reliable, piece of software. In fact, the market leaders have struggled to manage their growth, and some would argue that product quality has suffered as a result.

What Makes Moodle Special?

Part of my day job is to administer a commercial CMS for a large university. I've been researching CMSs for a few years now, and I've become a huge fan of Moodle because it is open source, built on a sound educational philosophy, and has a huge community that supports and develops it. It can compete with the big commercial systems in terms of feature set and is easy to extend. Let's take a closer look at some of these advantages and why they are important to you and your institution.

Free and Open Source

The phrase "open source" has become a loaded term in some circles. For those who are outside of the techie culture, it's hard to understand what a weird and powerful idea this has become, and how it has forever changed the world of software development. The idea itself is simple; open-source simply means that users have access to the source code of the software. You can look under the hood, see how it works, tinker with it, or use parts of it in your own product.

So why is this important? For one, open source software is aligned with the academic community's values of freedom, peer review, and knowledge sharing. Just as anyone can download and use Moodle for free, users can also write new features, fix bugs, improve performance, or simply learn from looking at how other people solved a problem.

Secondly, unlike expensive proprietary CMSs that require hefty maintenance contracts, Moodle costs nothing to download and you can install it on as many servers as you want. No one can take it away from you, increase the license cost, or make you pay for upgrades. No one can force you to upgrade, adopt features you don't want, or tell you how many users you can have. They can't take the source code back from users, and if Martin decides to stop developing Moodle, there is a dedicated community of developers who will keep the project going.

Educational Philosophy

Martin's background in education led him to adopt social constructionism as a core theory behind Moodle. This is revolutionary, as most CMS systems have been built around tool sets, not pedagogy. I would call most commercial CMS systems tool-centered while Moodle is learning-centered.

Social constructionism is based on the idea that people learn best when they are engaged in a social process of constructing knowledge through the act of constructing an artifact for others. That's a packed sentence, so let's break it down a bit. The term "social process" indicates that learning is something we do in groups. From this point of view, learning is a process of negotiating meaning in a culture of shared artifacts and symbols. The process of negotiating meaning and utilizing shared artifacts is a process of constructing knowledge. We are not blank slates when we enter the learning process. We need to test new learning against our old beliefs and incorporate it into our existing knowledge structures. Part of the process of testing and negotiating involves creating artifacts and symbols for others to interact with. We create artifacts and in turn negotiate with others the meaning of those artifacts in terms of a shared culture of understanding.

So how does that relate to Moodle? The first indication is in the interface. While tool-centric CMS systems give you a list of tools as the interface, Moodle builds the tools into an interface that makes the learning task central. You can organize your Moodle course by week, by topic, or by a social arrangement. Additionally, while other CMSs support a content model that encourages instructors to upload a lot of static content, Moodle focuses on tools for discussion and sharing artifacts. So the focus isn't on delivering information, it's on sharing ideas and engaging in the construction of knowledge.

Moodle's design philosophy makes this a uniquely teacher-friendly package that represents the first generation of educational tools that are truly useful.

Community

Moodle has a very large, active community of people who are using the system and developing new features and enhancements. You can access this community at *http://www.moodle.org/* and enroll in the Using Moodle course. There you'll find people who are more than willing to help new users get up and running, troubleshoot, and effectively use Moodle. As of this writing, there are 4,000 people enrolled in the Moodle community and over 3,000 Moodle sites in 112 countries. The global community has also translated Moodle into 40 languages.

The Moodle community has been indispensable to the success of the system. With so many global users, there is always someone who can answer a question or give advice. At the same time, the Moodle developers and users work together to ensure quality, add new modules and features, and suggest new ideas for development. Martin and his core team are responsible for deciding what features are mature enough for official releases and where to go next. Because users are free to experiment, many people use and test new features, acting as a large quality control department.

These three advantages - open source, social constructivism, and community - make Moodle unique in the CMS space.

Feature Comparison

Moodle also stacks up well against the feature sets of the major commercial systems. I've been investigating alternatives to Blackboard and WebCT for over a year now, and I've been very concerned about feature compatibility between any alternative and the current systems. If instructors can't do what they've been able to do with their commercial system, they'll reject an open source alternative immediately. Moodle is the only open source system currently available that can compete with the big boys' features.

In fact, the educators in the developer community have given Moodle some features that the commercial vendors haven't even thought of. That's the advantage of an educator-driven, open source system versus a marketing-driven, for-profit system. In Table 1-1, I compare the features in the two leading commercial CMSs and Moodle.

Table 1-1. Feature comparison

Feature	Blackboard	WebCT	Moodle
Upload and share documents	Y	Y	Y
Create content online in HTML	N	Y	Y
Online Discussions	Y	Y	Y
Grade discussions / participation	N	Y	Y
Online Chat	Y	Y	Y
Student peer review	N	N	Y
Online Quizzes / Suveys	Y	Y	Y
Online Gradebook	Y	Y	Y
Student submission of documents	Y	Y	Y
Self-assessment of submission	N	N	Y
Student workgroups	Y	Y	Y
Lessons with paths	Y	Y	Y
Student Journals	N	N	Y
Embedded glossary	N	N	Y

You can see that Moodle already has all of the major features of the commercial systems, and a few that they don't. In the rest of the book, we'll discuss how you can use each of these features to enhance your teaching and provide your students with a powerful learning environment.