

LAMP White Paper

Selecting a Learning Management System: Sakai VS, Moodle

second in a series of three

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January 6, 2011 Revision 3 Project Number: 606



Making a Choice

When it comes to selecting a Learning Management System, institutions have choices. The first white paper in this series deals with the choice between commercial systems such as Blackboard or ANGEL and open source systems. In this white paper, the assumption is that the institution had decided to pursue a strategy of using an open source product. Now the choice is between two viable open source options, Sakai and Moodle. While both products are open source and both have their strengths, there are significant differences between them that deserve consideration.

User Community

Proponents of Moodle often cite the amount of traffic on Moodle's web site¹ or the number of Moodle installations as proof of the product's superiority. It is true that Moodle has a large number of installations. As of the end of 2010, Moodle reported² over 50,000 installations of the software. Sakai reports its installations by institutions that are actively using the software. As of the end of 2010, that number was 350³. How are we to understand this apparently huge gap? Cleverly, Moodle has built into its software an automatic feature that reports each installation to the central Moodle web site. Sakai has no such reporting, relying instead on institutions that implement the system self-reporting their activity. Thus Moodle provides a graph of the number of systems installed over time. (And, to its credit, Moodle periodically checks to make sure that the installations still exist and adjusts its numbers down if it finds an installation that no longer exists.) Sakai, on the other hand, doesn't present a graph of numbers, but provides a list, by institutional type, of those institutions that are actually and actively using Sakai. With Sakai you know exactly which institutions are actively using the software (and that are willing to report that they are using it). With Moodle, you know how many times the software has been downloaded and installed — but that could include a teenager wanting to explore open source software on his home computer.

This brings us to the first defining difference between the two systems: the communities that use them. While Moodle is certainly used by larger institutions (Moodle reports Moodle.org itself as the largest Moodle user, followed by the Open University in Great Britain and Hocmai.vn in Viet Nam, in the number two and three slots), it tends to be used in smaller installations, such as K-12 schools or by individuals or departments within a larger organization. Sakai is clearly focused on institutions and on higher education, as evidenced by the organization's reporting of active institutional installations and by memberships in the Sakai Foundation (more on this in the next section).

¹ http://www.zacker.org/sakai-project-vs-moodle, but note that some of the statistics quoted on this site are simply incorrect, especially identifying Sakai has having an install base of only 35

² http://moodle.org/stats/

³ http://sakaiproject.org/organization-list



Coordinating Organization

Moodle got its start in a very grass-roots way, and these origins lend a certain appeal to Moodle. The software tends to be easier to install (thus its appeal to individuals or to small organizations). As a whole, the Moodle community of users is loosely organized.

Sakai, on the other hand, got its start when four institutions (MIT, Princeton, University of Michigan, and Indiana University) got together and decided to collaborate in writing a learning management system that would replace each institution's current and aging home-grown course management software. Funding from the Andrew W. Mellon Foundation and the Hewlett Foundation, along with significant contributions from the four initial institutions, gave Sakai its start. From the beginning, Sakai was intended to be a well-organized framework that would grow and scale well and that would meet the needs of large institutions as well as smaller ones.

Part of the initial funding went to endow the Sakai Foundation which oversees the development of Sakai today. That funding continues through institutional memberships⁴ in the Foundation. The Sakai Foundation is small (there are currently eight staff members⁵, most of whom are part-time) but it serves a critical role as the focal point for all Sakai activities around the globe. It is important to understand that the Sakai Foundation does not "control" Sakai – Sakai is, after all, an open-source product leveraging the expertise of hundreds of contributors throughout the world – but it does provide a central repository for development work, the coordination of development work and quality control of new releases, and direction-setting for product development in the future.

This is a second major difference between Moodle and Sakai. Sakai has the Sakai Foundation that serves as a critical hub for development of the software; Moodle has no analogous organization. Moodle is a much more amorphous group comprised of caring and dedicated people, but without an organized, guiding entity to focus their work.

Technical Approach

From its inception, Sakai was designed to be a *framework* into which pedagogical tools could be independently developed and installed. The framework can be thought of as a set of organizing principles and structures, along with clear guidelines for interfaces, both between software modules and with the user. Thus, while Sakai modules (or tools, as they are referred to) are developed semi-independently by contributors around the world, those same tools appear seamless to the user in terms of how they operate. Further, the tools function well together because the framework provides precise ways in which tools should interact with each other.

The Sakai Foundation has an on-going role in the technical approach as well. First, the Foundation coordinates development efforts, not by dictating what tools should be developed or who should do the developing, but more through communication and by helping coordinate developmental efforts. Sakai has little in the way of tool redundancy or overlapping development work because of this.

⁴ http://sakaiproject.org/foundation-membership

⁵ http://sakaiproject.org/foundation-staff



Second, the Foundation coordinates conversations about future directions of the product. The current work on Sakai 3 (the so-called Sakai Open Academic Environment or OAE⁶) is an excellent example of the Sakai community's work, coordinated through the Sakai Foundation, to develop an even more flexible, customizable framework. This kind of direction-setting and conversation-facilitation does not happen without deliberate action by the leaders in the Sakai community.

Again, the differences between Sakai and Moodle, while perhaps not immediately apparent to the average user, are dramatic once one peers "under the hood" of the two platforms. Where Sakai has a structure and a framework, Moodle is a much looser collection of parts and pieces⁷. Moodle will have multiple modules with essentially the same purpose from which the user may choose. Each will have its own approach and idiosyncrasies. This difference alone makes Sakai more enterprise-ready and Moodle more applicable to small, independent applications.

Scalability

Because of the design differences between Sakai and Moodle, their scalability is markedly different. Moodle can scale, of course. The Online University using Moodle reports over 700,000 users and Hocmai.vn reports over 500,000. However, of the 50,000+ installations reported on by Moodle.org, over 17,000 (34%) of them have ten or fewer users. Over 30,000 of them (60%) have fewer than 100 users. At the other end of the spectrum, only 78 installations boast more than 50,000 users.⁸

Contrast those statistics with the Sakai Community, which includes institutions like Virginia Tech, University of South Africa, Georgia Tech, Indiana University, Rutgers, Stockholm University, University of California Berkeley, University of Michigan, Johns Hopkins, Stanford, Boston University, Wake Forest and Yale.⁹ One is hard-pressed to find a Sakai implementation with fewer than 10 users, let alone 100.

The point is that, while it is possible to create a large installation with Moodle, it is not commonly done. On the other hand, Sakai is routinely scaled to encompass all students at many well-known and large institutions. Simply put, Sakai is enterprise ready. The question to ask is whether the institution desires a comprehensive Learning Management System for the entire institution, or does it desire a system that can be implemented in small pockets here and there, with no overarching strategy for institution-wide implementation. If the aspirations are smaller, perhaps for a single department, Moodle is a fine choice. But if the desire is for a truly institutional system, Sakai has the proven track record.

⁶ http://sakaiproject.org/welcome-sakai-oae

⁷ http://docs.moodle.org/en/Development

⁸ http://moodle.org/stats/

⁹ http://sakaiproject.org/organization-list



Development Community

The development communities for both Moodle and Sakai are world-wide and dedicated. Both groups desire to produce product enhancements that will meet the needs of users. The differences sharpen, however, when one considers again the role of the Sakai Foundation and the absence of such a coordinating body for the Moodle community.

Through its work, the Sakai Foundation coordinates the development being done around the world.¹⁰ As noted above, the role of the Foundation is certainly not to dictate what work gets done, but to facilitate the conversations that result in broad development directions and to serve as a clearing house for communication about on-going development work. It is not uncommon, in the Sakai community, for institutions to partner with each other on developing a new tool. For example, four institutions worked together to create the Evaluation System tool for campus-wide course evaluations and surveys. One hears frequently of Sakai institutions collaborating on development work.

The Moodle development community tends to be more based on individual efforts than on institutional or collaborative projects. For example, the Moodle.org site lists 276 individuals (not institutions) as "Moodle developmers."¹¹ This is not to say that institutional work and collaborative work do not occur in the Moodle development community. It is simply to say that the collaborative approach is virtually the only way Sakai development efforts proceed.

Both development communities take great pride in their work and have a highly vested interest in the results of their efforts being used. Both development groups come from the communities they serve. (Contrast this with development for commercial systems such as Blackboard or ANGEL. See the first LAMP white paper in this series, Commercial vs. Open Source, for more on this subject.) If there is a difference between Moodle and Sakai in this area, it is that Moodle developers, as a whole, tend to have a more individual focus while Sakai developers tend to have a more institutional focus.

Quality Control

The Sakai Foundation plays a critical role in the quality control of each new release of Sakai. It coordinates the testing of each new release done by a variety of volunteer organizations, even to the degree that a member of the Foundation staff has the title of Quality Assurance Director.¹² The Foundation serves as the clearing house for bug reports and bug resolution during the quality control phase of each new release and thereafter. It must give the go-ahead before each new version of Sakai is released.

¹⁰ https://jira.sakaiproject.org/secure/Dashboard.jspa

¹¹ http://moodle.org/mod/cvsadmin/view.php?cid=1

¹² http://sakaiproject.org/foundation-staff



The Moodle community invites participation in its quality control process as well,¹³ but the approach lacks the comprehensive coordination available to the Sakai community. The Moodle.com page devoted to testing of the product leads off with the statement, "This page is currently under construction. More testing plans will be added."¹⁴ Moodle does use a bug tracking system¹⁵ similar to the one used by Sakai.

Pedagogical Approach

While programmers may care very much about the technical specifications and framework of one product over the other, the real emphasis needs to be placed on how the products can be used for teaching and learning. Thus it is important to examine the pedagogical approach of both.

Moodle's pedagogical approach is clearly guided by a "social constructionist pedagogy."¹⁶ According to the Moodle web site, "everything you read, see, hear, feel and touch is tested against your prior knowledge and if it is viable within your mental world, may form new knowledge you carry with you." The constructionist pedagogy "asserts that learning is particularly effective when constructing something for others to experience." Clearly Moodle has a specific pedagogical approach which, to the designer's credit, they are very clear about.

Like its technological approach, Sakai's pedagogical approach is that of a framework. Rather than dictating a single pedagogical approach, Sakai has chosen not to be an arbiter of educational philosophy but rather to provide the most flexible pedagogical framework possible that allows the instructor to choose a learning design he or she believes suits the needs of students and the learning demands of the course itself. This approach allows those concerned about the improvement of teaching and learning to have the most flexible platform possible to work with. The metaphor of *tools* is particularly apt here: Sakai provide a framework into which instructors select and place tools for various pedagogical purposes. A variety of tools for communication, discussion, assessment, resource management, administration and more are available to be used or not as the desired learning outcomes would suggest. Thus where Moodle has a clear and singular pedagogical approach, Sakai offers a flexible framework to accommodate many different approaches.

Collaboration

One of Sakai's strengths, built into the software from the beginning, is support for collaboration. From its inception, Sakai was structured to be both a course management system and a system to support collaboration. Thus many tools within Sakai, indeed the structure of Sakai itself, lend themselves to open-ended, project oriented work that is not tied to a particular semester or to a particular group known as an "instructor" and "students." Thus the current release of Sakai is

¹⁴ Ibid.

¹⁶ http://docs.moodle.org/en/Philosophy

¹³ http://docs.moodle.org/en/Development:Tests. This page on the Moodle site notes, "When we have enough test plans, we would like some help from the community to test each new Moodle release. ... This test plan is far from perfect, please feel free to correct any mistake or add some scenarios."

¹⁵ http://docs.moodle.org/en/Tracker



labeled a "Collaborative Learning Environment" rather than a "Course Management System" or even a "Learning Management System." Many instructors make use of Sakai's collaborative features for teaching (e.g. creating collaboration sites for students to do project work together). But we also see such diverse non-traditional uses as supporting an accreditation review, facilitating a strategic planning dialog, organizing student government activities, or inter-institutional collaborative course development. This support for collaboration is a unique feature of Sakai.

To say that Moodle does not allow collaboration would go too far. Many software systems are used in unorthodox and creative ways to support collaborative purposes. Suffice it to say that collaboration is not Moodle's core intent nor was it particularly designed to facilitate effective collaboration.

Hosting Options

The third white paper in our series examines the choices for hosting a system such as Moodle or Sakai. See that paper for more information. Both Moodle and Sakai can be hosted externally using a "cloud" computing model. However, there are some subtle differences.

Moodle's major hosting provider in the US is Moodlerooms¹⁷. Two other US-based hosting providers are also listed on the Moodle web site¹⁸, ClassroomRevolution.com and Remote-Learner USA, but these are minor players in this space. The Moodle software is copyright by and individual, Martin Dougiamas, but is licensed under the GNU General Public License. This license does not allow for commercial derivations. The net effect is that the options for hosting with Moodle are more limited.

Sakai was originally conceived to allow, even encourage, commercial derivations. Thus, while Sakai is licensed under the Open Source Educational Community License 2.0¹⁹, Sakai's licensing is described as a "permissive, commercial-friendly license."²⁰ As a result, there are more options for Sakai. For example, one of the three main hosting providers, rSmart²¹ markets its own commercial derivation of Sakai. Another provider, Unicom²², focuses on support and hosting as well as providing some customization services. LAMP uses The Longsight Group²³ for its Sakai hosting. There are many things we like about Longsight, but one is that any customization that is done by Longsight is automatically donated back to the open source community. The philosophy of Sakai to allow and support both completely open source and commercial derivative products encourages a lively and dynamic community.

- ²⁰ http://sakaiproject.org/foundation-licenses
- ²¹ http://www.rsmart.com
- ²² http://www.unicom.com
- ²³ http://www.longsight.com

¹⁷ http://www.moodlerooms.com

¹⁸ http://moodle.com/hosting/

¹⁹ http://opensource.org/licenses/ecl2.php



Conclusions

Both Moodle and Sakai are fine, viable learning management systems. An institution would not go wrong choosing either one. However, we believe that looking into the future will help determine which system is the best fit. If the future will be a smaller implementation, perhaps a single department in a larger college or a very small institution, Moodle is a good choice. It is probably easier to maintain.

But if the future includes an enterprise-wide deployment, or a desire for an evolving technology framework and toolset, or a desire to maintain pedagogical flexibility, or the comfort of affiliating with a product that has a self-funded, on-going coordinating body, Sakai is the obvious choice. Sakai was the choice LAMP made in 2006 and we haven't regretted it.

About Us

LAMP²⁴ (the Learning Asset Management Project) is a unique consortium of colleges and universities that share a single instance of Sakai. We boast over 12,000 active users and have been active since 2006. We are self-funded; our membership dues cover our costs for each year. We offer not only Sakai, but faculty development workshops to our members, tier 1 and tier 2 support, and additional software such as plagiarism detection software and live video conferencing systems.

In 2008 we won the Mellon Award for Technology Collaboration. In giving us the Award, the Committee noted that LAMP "has shown the higher education community that it is possible for institutions having limited resources to install, operate, and sustain even the most sophisticated software, provided that they work together to meet their common challenges."

A second consortium, the LikeBerea Consortium²⁵, mirrors the LAMP consortium in structure and purpose but focuses on member organizations which are Christian seminaries and missions organizations.

Martin Ramsay conceived the LAMP and LikeBerea consortia, brought them, with the help of many other colleagues, to fruition, and is now the Director of both consortia. He frequently writes and speaks about consortial collaboration and about Sakai, and invites those organizations interested in Sakai or in joining LAMP or LikeBerea to contact him at support@lampschools.org.

²⁴ http://www.lampschools.org

²⁵ http://www.likeberea.org