

A close-up photograph of a person's hand in a white shirt pointing towards a large, glowing blue button labeled 'Upgrade' on a computer keyboard. The button has a white arrow pointing left. Other keys visible include curly braces, square brackets, and double quotes. The background is a soft-focus view of the keyboard.

Upgrade ←

Sakai 11 Upgrade Evaluation

Executive Summary

The Sakai 11 upgrade had both successful elements and places where things did not go as expected or intended. The training provided to the Duke community on how to use the new version of Sakai was very effective, and people generally liked the new features in Sakai. The two main areas where people expressed dissatisfaction were related to communication and technical problems. There were more technical problems with Sakai than anticipated, and this was especially burdensome for people and programs that rely on Sakai to deliver significant portions of class content. When people reported these problems, they did not always feel that they received clear communication about how and when the problem would be fixed. Finally, the timeline for the upgrade was very short. While this was largely due to the fact that the final version of Sakai 11 was released very close to the upgrade date, similar projects should allow for a longer testing and training period when possible. Future upgrades to Sakai at Duke should be smaller in scope and conducted more frequently to reduce the burden on users.

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Recommendations

In August 2016, Duke's Center for Instructional Technology (CIT) and Office of Information Technology (OIT) launched Sakai 11, an upgrade to the existing instance of Sakai 9. This report evaluates that upgrade using retrospectives written by CIT staff, and interview and survey data from stakeholders and people who attended Sakai workshops. The main finding of this evaluation is:

Small, incremental upgrades should be applied several times a year rather than launching large upgrades that require downtime and involve major changes

Details:

1. The extent to which the upgrade was successful varied significantly based on the degree to which a Sakai user is reliant on the platform being functional at all times in order to successfully teach
 - a. Most faculty and staff found technical problems and downtime to be annoyances that they could work around during class time
 - b. Departments and schools with fully online programs found that technical problems caused immediate and significant negative impacts that could not be worked around

Recommendation: Coordinate with programs that rely heavily on Sakai to plan for support needs and coordinate a testing schedule to test their unique use cases

2. Most communication was effective, especially training on Sakai, but communication about the technical problems was not always effective
 - a. The Sakai workshops and training videos were well received and noted as being very effective; the staff supporting Sakai were generally very knowledgeable and responsive
 - b. Several people relayed the experience of reporting a technical problem and not getting clear information about how and when it would be resolved; this was due to the decision to prioritize fixing problems over communicating about problems

Recommendation: Future LMS upgrades or changes should include a communications campaign developed in consultation with CIT's Communications Manager

3. Testing by CIT was extensive, yet the version of Sakai that was released by the Sakai community had more technical problems than anticipated.

Recommendations:

- *Ideally, testing should begin after the platform is fully built, with a code freeze limiting development to fixing technical problems discovered during testing; this is not always possible with an open source product*
- *Critical features should be tested by Duke even when other schools in the Sakai community are primary leads for testing such features*
- *Testing was the main way that the staff at CIT that support Sakai learned about new features and functions in Sakai; if this continues to be true, all staff supporting the platform should be required to attend most or all testing sessions*

Overview

The structure of this report follows the general temporal sequence of events in the Sakai upgrade and is divided into the following sections: 1) communication, 2) testing the new version, 3) providing training on the new version, 4) releasing the upgrade, and 5) providing on-going support.

Communication

Communication related to the Sakai upgrade generally fell into one of three categories: 1) planning the upgrade, 2) preparing the Duke community for the upgrade, and 3) resolving problems after the upgrade. These communications were mostly successful, although the unexpected volume of technical problems between August and October resulted in gaps in communication. Communication is one topic often mentioned by staff in their written retrospectives as something to improve upon, as shown in the word clouds in Appendix 1.

Planning the Upgrade

It became clear during early communications that different IT directors, deans, and other administrators had different time and resource constraints that limited when an enterprise upgrade could be scheduled. For example, early- to mid-summer is when Trinity A&S faculty use Sakai the least, but the School of Nursing runs one continuous summer semester and cannot have Sakai offline during that time frame.

A key lesson learned from these conflicting restrictions is that large, enterprise-level upgrades are difficult and are likely to have a negative impact on some group or department. To respond to this, the Sakai team plans that future upgrades will be “dot releases” that happen twice a year and do not require significant downtime or involve major changes.

Preparing for the Upgrade

In advance of the upgrade, several communication channels were used to let the Duke community know that the upgrade was going to happen in August. These included Sakai announcements, announcements in the CIT newsletter, physical signs at CIT and on Duke busses, digital signage across campus, emails to over 50,000 people (students, faculty, and staff) who used Sakai in the past 4 years, and targeted emails to campus leaders. OIT managers also engaged their stakeholders through targeted communications.

Communicating about the upgrade was generally very successful. While a few people contacted CIT on the day of the upgrade because they did not realize Sakai would be unavailable, it was not a large number of people. One potential way to increase engagement with Sakai-related communications around future upgrades is to work with the CIT Communications Manager to identify ideal communications time frames for different groups. For example, deans and administrators need to

start receiving communications very early in the upgrade planning, while end users do not.

Resolving Problems

Because of the volume of technical problems in the initial release of Sakai 11, the decision was made to prioritize resolving problems over communicating to the Duke Sakai community about the problems. This decision was made due to limited resources; only 1 FTE person was dedicated to fixing technical problems in Sakai following the upgrade, although she received significant support from Longsight, Duke's development partner on the project. As a result of this decision, some people using Sakai felt that there was insufficient communication about known issues and how they were being resolved.

Because this happened due to resource constraints, the only way to remedy it in future upgrades would be to allocate additional staffing resources to communication. However, because future upgrades will be small, incremental upgrades with far fewer changes, this is unlikely to be necessary. When doing smaller upgrades, it should be possible to maintain a wiki or other repository of the status of known problems.

Several of the people who had the most critical feedback about the technical aspect of upgrade noted that the communication they received regarding technical problems was open and transparent, something they appreciated. Transparency and integrity when communicating about mission-critical tools is essential, and was done well by the Sakai team. People felt that they received honest answers about the technical problems, even when those problems took longer than ideal to be resolved.

Testing

Testing was done weekly by any CIT staff members who wanted to participate and with occasional participation by external volunteers. OIT staff also assisted with testing throughout the summer. The actual testing process of following a script and making notes when Sakai did not respond in the manner that the script described worked well. Several people who participated in testing were novice Sakai users and were able to follow the testing scripts without a problem. However, the novice users did note that they were not always sure that they were seeing the outcomes they should be seeing. In those cases, it was essential to have Jolie T. present during testing to distinguish between actual bugs and places where the build was not complete.

Several groups across Duke use Sakai in novel use cases that were not identified during the testing phase and hence were not tested prior to launch. The Sakai team largely relied on the Academic Technology Consultants at CIT to identify these unique use cases and test them. This process could be made more explicit by documenting such cases on an on-going basis in a repository. An alternative would

be to invite support staff from schools and departments that use Sakai heavily to participate in testing.

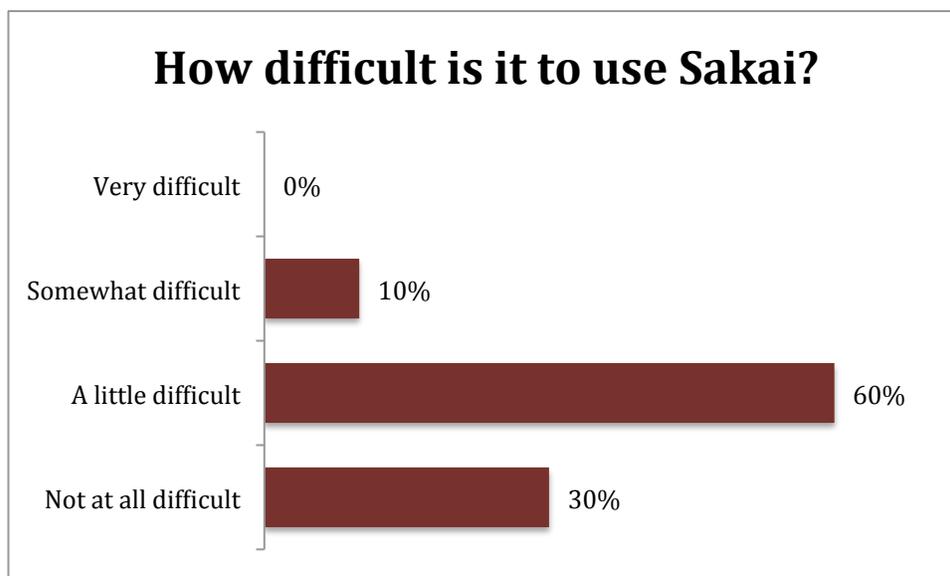
Training

Ten people who attended a Sakai workshop filled out a survey giving feedback about that workshop; 56 total people registered for a workshop and between 35-40 attended. Six attendees subsequently volunteered to participate in feedback interviews at the end of the fall semester, about three months after the upgrade.

Nine out of the ten workshop attendees surveyed reported that they practiced using the new features in Sakai during the workshop. This was one of the things several people identified as being the best part of the workshops – that they could work hands-on with the new version of Sakai while getting help from an expert. For example, one person commented:

Seth made it easy to follow and he helped to highlight several key features that I will begin to use immediately in my course sites. In fact, I got quite a bit done on a fall course site during the workshop itself, thanks to Seth's guidance.

Over half the survey respondents used Sakai to communicate with students and distribute readings and the class syllabus. Only a couple of people reported using Sakai for more labor-intensive activities like facilitating class discussions or administering tests. Most people said that they felt Sakai was fairly easy to use, as shown below.



The only challenge that internal CIT staff noted in regards to training was that the last week before the upgrade required a lot of work to finish the training videos and

support website. These tasks could not be done earlier because Sakai was not out of development as early as expected. The videos have been successful; the Sakai 11 Overview video has over 1,200 views.

Functionality

The main area in which the upgrade did not go as planned was in the actual functionality of Sakai 11 once it was released. In spite of extensive testing, there were many more technical problems than anticipated. Some reasons for this include:

- Some unique use cases were not identified or tested during the testing phase so bugs were not identified before launch
- The large number of features that changed as a result of the upgrade created many opportunities for problems
- Some functions and features in Sakai were not fully developed until just prior to launch so there was insufficient time for testing
- Because Sakai is open source, several universities were responsible for testing different features; Duke was not responsible for testing the Gradebook where the majority of problems were found

In hindsight, many of the technical problems were difficult to anticipate, and it was reasonable to assume that the platform would be more functional before it was released. Additional testing of some features, in particular the Gradebook, could have potentially identified some of these problems before the upgrade.

As a result of the technical problems in the initial launch, some faculty and support staff lost confidence that Sakai would function as expected even after the major problems were remedied. As a result, some people began duplicating effort, such as keeping student grades in both Sakai and a spreadsheet. Another faculty member recounted asking students to upload presentations to Sakai and also bring a copy to class on a flash drive in case the files on Sakai became inaccessible. While creating back-up copies is a good practice, the fact that people began doing this specifically in response to their lack of trust in the reliability of Sakai is concerning.

Some people who support many Sakai sites experienced a large number of problems and, as a result, question whether there are sufficient resources at Duke or in the Sakai community to support the platform in the future. Communication and outreach efforts in the spring semester should explore ways to rebuild confidence among those who experienced technical problems during the initial launch. Specifically communicating about future plans to avoid major changes by doing frequent small upgrades is advisable.

Support

Not all people at Duke who contacted CIT about Sakai during the fall semester were seeking help with technical problems. Many people simply wanted to learn how to use a new or changed feature on the platform. Twenty-one people came to CIT's open office hours to learn how to do something in Sakai. CIT also responded to 172 emails or phone calls from people with questions about Sakai. In some cases these were questions that simply needed to be routed to the OIT helpdesk, but in other cases people were seeking help creating sites, adding lessons or resources, or building assessments.

In a small number of instances, CIT staff members were unable to help someone looking for help because the CIT staff member did not know how to use a particular tool or because they were unaware whether something was a technical problem or a limitation of the platform. To prevent this in the future, one option would be to conduct train-the-trainer style workshops for CIT staff. Another option would be to require people supporting Sakai to attend a significant number of testing sessions.

Conclusion

The overarching lesson learned from the Sakai 11 upgrade is that, due to the differing needs of people and groups at Duke that rely heavily on Sakai, doing major upgrades of the LMS is not recommended. Going forward, CIT plans to upgrade Sakai with smaller upgrades on a more frequent basis. This will provide the following benefits:

- Sakai will not be offline for any significant period of time, thus limiting disruptions to fully-online programs
- Smaller upgrades will feature fewer functional changes, reducing the volume of potential technical problems
- Minor upgrades twice a year will facilitate planning testing and training for end users and support staff, both internal and external to CIT

Other than the large volume of technical problems, the upgrade was generally successful. CIT communicated effectively about the upgrade; the recommendations in this report are intended to improve an already-effective communications approach. The testing that was done proved to be effective at identifying problems; testing will be expanded in future upgrades to include more use cases and tools. The training resources provided to the Duke community were well received.

