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A Case Study Involving the Implementation of ExamSoft: Reflections and Lessons Learned

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ABSTRACT

This case study describes the implementation of ExamSoft, an enterprise-level academic technology for assessing students' performance, at a large College of Veterinary Medicine located in the United States. We describe the critical elements of the implementation with respect to managing multiple, and important, systems. We conclude by reflecting upon the implementation one year after initial launch and present our lessons learned. It is hoped this article will help other institutions planning to launch ExamSoft and other major academic technologies to both better prepare for implementation and enjoy a smooth implementation process.

Keywords: *Assessment systems; classroom technologies; multimedia; computer-based assessments; assessment technology; medical education; veterinary education*

INTRODUCTION

Many colleges and universities have adopted enterprise-level academic technologies for instructors and students to use for teaching and learning purposes. These technologies are largely categorized into three areas: online access to learning materials, online examination systems, or online delivery of videos. Implementing a major academic technology typically involves adequate time to plan, open communication with stakeholders, a detailed management of workflow, coping mechanisms in the event of mistakes and/or errors, and a team of staff personnel. Further, the implementation process typically includes integrating user authentication with the institution's user management system, making sure of all functions of the technology are working properly, pilot testing with sample cases and training users (e.g., faculty and students) to use the technology. Of course, different types of academic technologies coupled with thorough implementation processes require complicated calculations regarding time and resource allocations. Thus, based on the size of the implementation team (IT), the institution's leadership typically makes the critical decision regarding how best to implement the technology. The choice typically involves one of two decisions:

- Begin with a slow, partial-scale implementation that gradually increases until full-scale adoption, or
- Begin full-scale implementation all at once. The following case study describe a slow, partial-scale implementation of Examsoft, a sophisticated online assessment program, at a large college of veterinary medicine in the United States.

CASE OF EXAMSOFT IMPLEMENTATION

The decision was made by college administration leaders to unveil ExamSoft gradually by starting with the incoming class of first-year students. The logic underscoring this approach was multi-faceted. First, because the technology was so large and so important, there was a great deal of uncertainty as to how many problems/issues might arise and if staff demands could handle these issues in a timely, and effective, manner. Second, it was unclear exactly how much work the new technology would involve among staff personnel. Third, if adopted full-scale a total of 400 students and more than 45 faculty in the college would need to be able to use the technology within an 8 month period. The small-scale adoption instead involved only 100 students and 16 instructors. Fourth, a slow and gradual build would allow those responsible for the program the

opportunity to treat the implementation as a relatively small-scale pilot study of sorts. Finally, in the event of any negative unintended consequences, only one student cohort (among potentially four in the college) might experience any undesired issues.

Many factors were considered during implementation planning. The most salient included resource allocation, the roles of various stakeholders and effective communication strategies. Below, we describe how we approached each of these aspects.

Resource Allocation

The IT was specially formed to accomplish the mission of implementing ExamSoft. The Educational Support Services (ESS) department in the college selected one full-time staff as the implementation lead and the director of the department guided the project lead from planning to implementation. One additional staff member provided additional assistance on a part-time basis. The total staff time for this implementation was about 1.4 full-time employees (FTE). The director guided the IT lead in executing the implementation as well as stakeholders to support the entire implementation process (Fixsen, Blase, Naoom, & Wallace, 2009; Momoh et al, 2010).

As the IT was rolling out all of the detailed implementation steps, collective faculty training was not possible. Therefore, individualized training was provided to instructors who volunteered to learn and manage the new technology. The IT lead took on all the examination migration and management during Spring and Fall semesters. We referred to this as "proxy work" for the instructors who used the new technology for their exams. This proxy work was not calculated in the initial planning because the original plan involved having all instructors manage their own exams in the new technology.

Roles of Stakeholders

Our process involved five primary groups of stakeholders:

- The implementation lead,
- The information technology team,
- The college's administration (e.g., academic dean, department chairs, educational program directors, etc.),
- A college-wide education committee,
- The student services team, and
- The students.

The *implementation lead* drove the entire process of the implementation. This person managed all stakeholders, communication and training for using the technology. The tasks of the IT lead involved checking for compatibility between different kinds of computer hardware and operating systems with the technology, developing instruction for resolving any issues found from the compatibility check, providing orientation to students on how to use the new technology, developing policy for faculty and students relating to technology support, and providing workshops to train the faculty how to use the new technology (Keengwe, Kidd, & Kyei-Blankson, 2009; Kopcha et al, 2016).

The *office of information technology* coordinated with the IT in integrating new technology with the existing university system. The main integration was a single-authentication system between the two technologies. During this process, communication between the IT lead and the office of information technology often influenced the schedule of the implementation.

The *college administration* influenced decisions the IT made with respect to college-wide policy for faculty and helped the IT lead when communicating with faculty about new technology implementation.

The *college-wide education committee* was committed to excellence in education and included any faculty or staff members who either directly or indirectly was involved with any aspect of the technology's use. Within this committee, advisory recommendations about teaching, learning and implementation were offered. In the implementation process, this committee acted as a support group to the IT with many healthy discussions.

The *student services team* worked closely with the IT on student training for the new technology and coordinated efforts with students to arrange for computer check-ups on Orientation Day. The student services team also effectively communicated with students about the new technology.

The *students* were supported through training and installation of the Examplify software on their computers during orientation and through the provision of loaner computers and technology support during assessments.

Communications

The IT made clear the implementation plan and its scheduling with all stakeholders in the college. Communication methods were strategic so that stakeholders could easily follow the IT's plan. The IT lead was the primary communicator for any decision relating to the implementation. This was done in part because the IT lead had the most technical knowledge and was in the best position to predict any unintended consequences. Several steps to strategize communication included:

- Scheduling all events (e.g., student computer check-ups, meeting with the student services office, determining the amount of time for migrating exam questions, etc.),
- Setting up a webpage of each event and/or calendar that could be shared with the college,
- Scheduling email distribution dates for each event,
- Planning for meetings with each department's faculty, and
- Preparing for informal hallway conversations with anyone in the college asking about the implementation.

Any scheduled events were immediately communicated to stakeholders. These communications involved clear explanations and provided links to any information previously sent. Moreover, all scheduled events were communicated at least three times with purposeful intervals between each communication. Developing policy about the new technology implementation was not recommended because practices and workflow may change over time as a result of a technology failure, personnel change and/or schedule conflicts. Lastly, the IT team worked on communication planning with members of the college administration and student services to ensure all communications were robust and effective.

Reflections and Lessons Learned

Overall, we would judge the implementation a success. However, there were several issues that we wish we had anticipated prior to implementation. These issues largely consisted of faculty training and improving exam item quality. More specifically, with respect to faculty training we found our implementation plan was too aggressive to bring all faculty on board. As such, we were unable to offer training for faculty groups. As noted previously, only those instructors who volunteered to use the program in the first year participated in training and each session had to be performed on an individual basis due to the very busy schedules of faculty.

It also became very apparent that faculty training needs to be supported by department chairs, and perhaps mandated that all faculty take part. Learning a new technology of this scale inevitably requires a considerable amount of time. With an already burdensome workload for faculty, adding training for a new classroom technology would be a major inconvenience, one that could potentially be met with resistance as well due to opportunity costs lost (e.g., lost time working on research, writing grants, etc.). If possible, we recommend faculty be rewarded in some capacity. Rewards might include something as simple as recognizing those who dedicated the time and energy to become competent users of the technology.

With respect to improving exam item quality, many lessons were also learned. Anytime teaching and learning content is migrated it presents an opportunity to sort exam items by aligning them with standards and/or teaching strategies. Developing a design document for aligning teaching strategies, activities and learning outcomes with assessment questions to be migrated over could be tremendously valuable for faculty and administration alike. Another consideration is for IT teams to work closely with assessment professionals and psychometricians to review the items being migrated for quality control purposes. Because faculty typically are not trained to write exam items, this migration period presents a timely opportunity for item content to be reviewed and item quality improved (Royal & Hedgpeth, 2017).

As noted previously, our college leaders elected to begin with a slow, gradual rollout of ExamSoft that involved only 100 first-year students and 16 instructors. In hindsight, we likely could have successfully rolled out the implementation for all 400 students spanning the four program years, but this approach may have required additional staff resources and political support from department chairs. In particular, a carefully orchestrated effort would needed to have been made to ensure faculty compliance with attending training sessions as the prospect of providing individualized training to 45 instructors is not feasible. Of course, the more the technology is used the more

opportunities there are for issues to arise. It is impossible to know if the additional numbers of students and faculty would have actually resulted in additional complications, but one should anticipate problems and stand at the ready to respond when they occur.

An additional complication (albeit an anticipated one) was that faculty had for years been using Moodle as their primary assessment system for administering computer-based exams and quizzes. Because we did not move to a full-scale implementation all at once, it meant that most faculty would continue to press on with Moodle. Thus, those responsible for the implementation of ExamSoft also had to shoulder the burden of being responsible for the oversight of Moodle and resolving any associated issues. Having the same staff manage two assessment systems simultaneously was a major challenge, and at times a major distraction. Because so much time was devoted to the management of two assessment systems, many other worthwhile projects that fell under the purview of the ESS group had to be postponed. Therefore, it is difficult to truly evaluate which implementation approach (a small-scale or full-scale) would be best. We contend that both approaches can be successful with proper planning and anticipation of potential problems.

CONCLUSIONS

Implementing a major technology such as ExamSoft is a tremendous undertaking. Institutions may choose to implement a new technology in either a slow, small-scale manner or an aggressive, large-scale manner. Regardless of the strategy used, it is important to have a strong implementation plan in place and anticipate as many problems as possible. We hope the information presented in this case study will be helpful for others implementing new enterprise level technologies at other institutions to achieve the best outcomes possible.

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