

Needs Assessment Case Study: How Should a University Onboard Students into a Learning Management System?

By Jerrod Guddat, Gordon Hood, Cheri Lockett Zubak, and Krista Welch

Tales from the Field, a monthly column, consists of reports of evidence-based performance improvement practice and advice, presented by graduate students, alumni, and faculty of Boise State University's Organizational Performance and Workplace Learning Department.

Introduction

Have you ever taken an online course? If you have, you would be in good company. More than 5.5 million post-secondary students were enrolled in distance learning courses in Fall 2012. That number amounts to about a quarter of all students taking at least one course online (Department of Education, 2014). It is no wonder that about seventy percent of academic leaders believe that online learning is critical to their long-term strategy (Allen & Seaman, 2015).

In this environment, the university learning management system (LMS) has become an “integral, behind-the-scenes player” to course management (Lang & Pirani, 2014). The LMS is especially critical for fully online programs where instruction is delivered asynchronously through the web so that students can participate when and where they choose. For these programs, the LMS has become the technical backbone for course delivery, instructor facilitation, student interaction, and community building. Of the many LMSs used in higher education, Blackboard leads the market share at more than 50 percent (Lang & Pirani, 2014).

As online students in Boise State University's graduate program in Organizational Performance and Workplace Learning, we have experienced firsthand the benefits and challenges of a fully online education. Then, in the spring 2015 semester when we were enrolled in a Needs Assessment class with Dr. Don Winiacki, we had opportunity to conduct a needs assessment at a university to make recommendations to help improve onboarding of current and new university students into their new LMS. This article describes our approach.

The client

Mid-Atlantic State University (MASU) (pseudonym) is a public university located in the United States. The Department of Organizational Leadership and Development (OL&D) (pseudonym) at the university began a rollout of Blackboard to replace its previous use of a homegrown LMS to deliver courses for the OL&D distance learning programs. The decision to migrate to Blackboard had operational, tactical, and strategic bases. For example, as a web-based system, Blackboard is more in line with technological advances that students and instructors have come to expect from a commercial LMS. In addition, because MASU supports Blackboard throughout the university, adopting this LMS shifts licensing and support costs away from the OL&D Department.

Why conduct a needs assessment?

By the Fall 2015 semester, all courses offered by the OL&D Department were planned to transition from a home-grown LMS to the Blackboard LMS. The rollout of the Blackboard LMS presented an organizational need to prepare OL&D students to meet course objectives through this new LMS.

The purposes of the needs assessment were as follows:

- Objective 1: Identify Blackboard LMS tasks that would enable students to participate in and contribute to courses as required by the curriculum.
- Objective 2: Identify actionable solutions and support that would help students successfully execute those tasks in the Blackboard LMS.

Any solutions we recommended should be possible to implement within the resource limitations and authority of the OL&D department and support services at the university level.

A systematic approach to data collection and analysis

As a field of practice, performance improvement focuses on outcomes that are accomplished through a process that is both systematic and systemic. The flow of activity in the Society for Performance Improvement (ISPI) performance improvement/HPT model (Van Tiem, Mosely, & Dessinger, 2012) illustrates this process. This model proved important, at a high level, for helping us to choose appropriate tools to support data collection and analysis. Though this project was primarily operational, it also had tactical and strategic influences that we needed to consider, as described below.

Step 1: Align systematic data collection with a needs assessment process

According to Schensul and LeCompte (2013), data collection occurs in a continuum. The process is best accomplished by starting with more general and open-ended methods (for example, observations and exploratory interviews). Analysis of these data informs each subsequent phase of data collection, which in turn becomes more detailed and focused on factors that are critical to satisfying needs (for example, structured interviews and surveys). New discoveries during each of these phases of assessment can result in recursive looping through this continuum at successively deeper levels.

As an early step in our process, our team decided to follow this approach to data collection and analysis methods. We began by conducting open-ended interviews with the OL&D client, observing student behavior in the LMS, and monitoring a discussion area in an LMS course where students voiced challenges and concerns. We then moved systematically through more targeted interviews, eventually asking very specific questions about Blackboard tasks in a survey, as well as some open-ended questions to capture comments. The data collected on this survey prompted us to ask a mix of targeted with some open-ended questions in follow-up interviews with students. We integrated this approach with the identify – analyze –decide process for a needs assessment (Watkins, Meiers, & Visser, 2012, pp. 46-53), as illustrated in Figure 1.

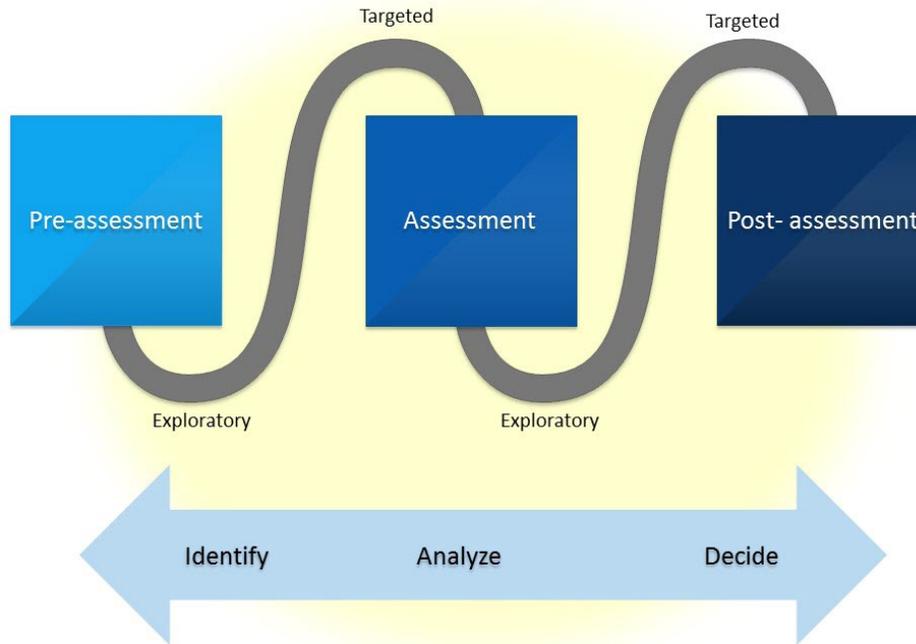


Figure 1. Exploratory to focused data collection and assessment continuum.

Step 2. Ask the question: Is there a performance problem?

Three faculty members with Blackboard experience piloted courses in the LMS during the Fall 2014 and Spring 2015 semesters. Based on their experiences and student feedback, faculty expressed concern over student readiness for coursework with Blackboard. The rollout of the Blackboard LMS presented an opportunity to prepare OL&D students to use Blackboard in a way that would allow them to address objectives in this new LMS.

From the data collected as described above, we identified a perceived gap. To verify that a problem did indeed exist, we used Harless’ 13 Questions (1973) as a framework for asking questions while triangulating data from the variety of sources we previously described. Table 1 outlines the actual versus desired performance that resulted from this analysis.

Table 1. Defining the Gap

	Target Population	Performance	Standard
Desired Performance	What we want OL&D students...	...to do is to perform tasks in Blackboard...	...in a way that results in successful accomplishment of course requirements.
Actual Performance	What OL&D students...	...are doing now is using Blackboard...	...but are unable to jump right into the course requirements without first figuring out how to use the LMS.

Step 3. Adopt a systematic and systemic approach to cause analysis

We used the Behavior Engineering Model (BEM) (Gilbert, 1978) to provide an exploratory framework for cause analysis and the Synchronized Analysis Model (SAM) (Marker, 2007) to help us to identify interventions at various organizational and individual/worker levels. As a result, we moved back and forth between the BEM and SAM as we considered barriers to performance (Figure 2). This process reflected the recursive process that we had identified for data collection.

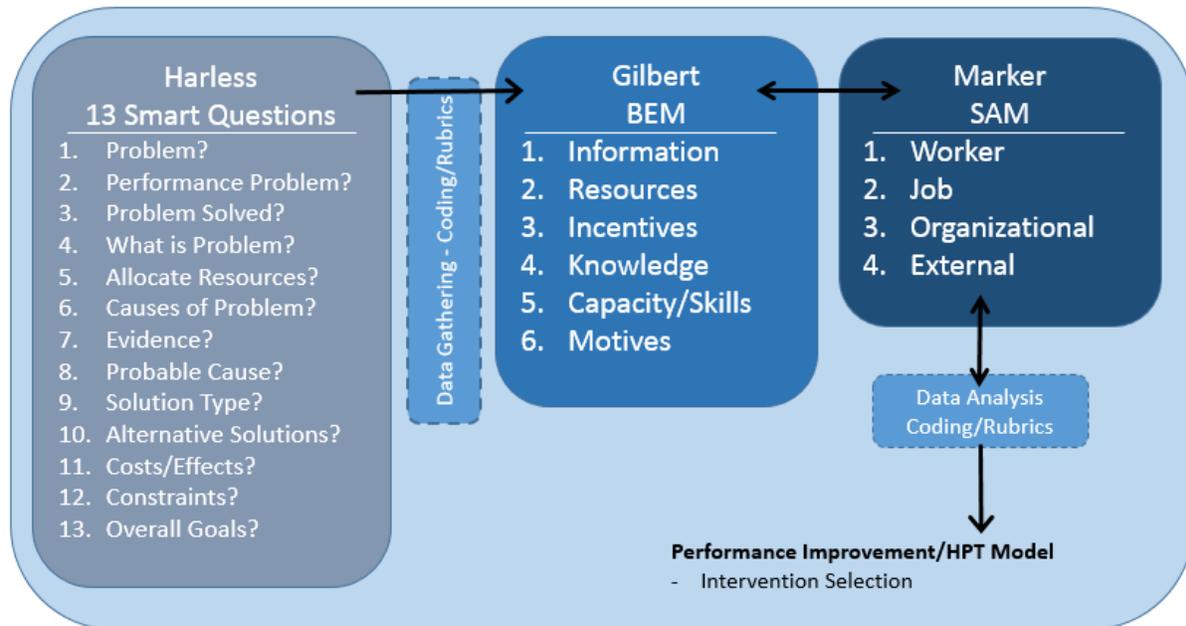


Figure 2. How we used several frameworks to analyze the data.

Identifying interventions and recommendations

As our data collection matured, we began to more clearly understand needs, formulated potential interventions, and, from those, weighed each potential interview to determine the most appropriate recommendations.

Step 4. Address Objective 1 - An actionable list of tasks

Through task analysis (Watkins, Meiers, & Visser, 2012), we identified a list of tasks that students must be able to perform to successfully complete course activities. To create this list, we triangulated data gathered by:

- Discussing successful Blackboard practices with a focus group of experienced Blackboard users: In this focus group, we identified the tasks required of these users during their combined 52 credits taken through Blackboard.
- Observing the tasks OL&D students asked about and those tasks for which professors provided resources (such as job aids) in the actual course.
- Reviewing the tasks in the homegrown LMS orientation that have a similar function in Blackboard.

- Monitoring the tasks students discussed in an open forum called “Blackboard Suggestion Box” that we set up in one of the classes.
- Interviewing faculty and students about their experiences and expectations for use of Blackboard.
- Distributing a survey to collect data about perceptions of current OL&D students with experience using Blackboard.

To make the task list actionable, we first verified the task list with the three instructors who had piloted courses in the LMS. Then we developed a multicriteria analysis to weight the task list based on a series of factors (as shown in Table 2). These factors gave us an overall total for the importance of a task, which helped us to prioritize the list (see Figure 3).

Table 2. Coding the “Importance” of a Task

Importance	How	Scale
Frequency	How often in the semester a student must complete this task?	Scaled from rarely (0) to each time the course database is accessed (3).
Timing	When in the semester a student must complete this task?	Scaled from after the first two weeks (0) to before the course begins (2).
Potential to affect grade	Does the ability to do this task directly affect a grade?	No (0) or yes (1).
Ability	Do students feel they can do this task independently (without any form of assistance) early in the semester?	Calculated as a ratio: Total number of respondents divided by the number who stated they could complete the task without assistance at the beginning of the semester.

Task	Technology		Importance				Ability (Survey)	Overall Total	Intervention
	Bb	Other	Frequency	Timing	Potential to Affect Grade	Importance Total			
Basic navigation									
Access the course	X		3	1	1	5	1.08	6.08	Orientation In Context
Navigate the course (walk through the user interface, procedures/concepts/glossary)	X		3	1	1	5	1.18	6.18	Orientation In Context
Navigate between courses	X		3	1	1	5	1.09	6.09	Orientation In Context
Find your weekly assignments	X		2	1	1	4	1.18	5.18	Orientation In Context
OPWL course									Orientation

Figure 3. Excerpt of the Blackboard task list.

Step 5: Address Objective 2, Interventions to support making the task list actionable

Determining task priority was key to our second objective, which was to identify actionable solutions and support that would help students successfully execute the tasks in the Blackboard LMS.

As a result of our BEM/SAM exploration, we identified a set of interventions to support student performance at the point of need. We then developed a set of criteria for weighting the interventions and prioritized the intervention by average rating (see Table 3).

Table 3. Prioritized List of Interventions

Priority	Intervention
1	Provide a performance support approach to course orientation (beginning in startup week) with ongoing contextual support.
2	Develop a “common enough” Blackboard template to help students form a mental model of course structure without limiting faculty course design needs.
3	When communicating the switch from the homegrown LMS to Blackboard LMS, relate the change in LMS to student professional goals.
4	Develop an OL&D Blackboard support portal as a central knowledgebase for job aids and videos.
5	Begin the onboarding process with a Blackboard orientation (“boot camp”).
6 (alternative)	Skip the Blackboard orientation and begin with a course orientation and knowledgebase.

Step 6. Make recommendations

Based on our previous analysis, we recommended the set of interventions in sequence as shown in Figure 4 that we thought would provide the highest quality learning experience for OL&D students.

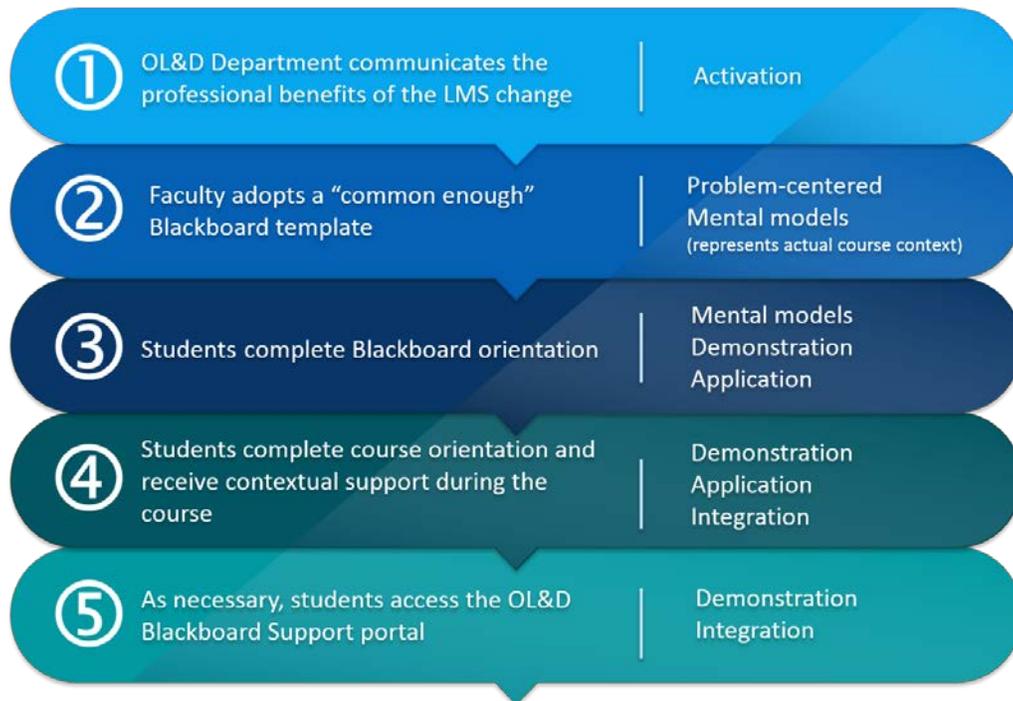


Figure 4. Team recommendations for improving performance during Blackboard onboarding.

This path supported the OL&D mission of providing high-touch coaching for Blackboard. It also supported students in becoming comfortable with high-priority tasks – such as understanding OL&D course structure, navigation, and posting – before adding the pressures of course activities. As a result, students would be better able to contribute to discussions and other course activities right away, which were critical course goals for all instructors.

An alternative recommendation was to roll out the program without a Blackboard orientation. Instead, support would begin with a course orientation along with the other support in the previous recommendation (removing step three from the list in Figure 4). This alternative balances instructional and organizational issues, but has risks such as: (1) students must learn Blackboard while engaging in course activities and (2) less experienced faculty would not be able to rely on students having a base knowledge of Blackboard.

Results to date

After receiving our recommendations, the client began working with the MASU Learning Technologies Office (LTO), the group that supports Blackboard users across the entire university. LTO felt the team's recommendations had broad applicability for all university students, not just those in the OL&D department. During the first phase of implementing our recommendations, LTO produced and rolled out a set of Blackboard supports and job aids for each item in the task list we developed. LTO made these job aids available on a common website for Blackboard support and through links that appear in every Blackboard course. These job aids formed an anchor for each of the other recommended levels of support:

- Announcements about the migration to Blackboard included references to these support materials.

- Design of courses was consistent with the way Blackboard tasks were referenced in these support materials.
- Prototyped orientation materials referenced these support materials.
- Support materials are always accessible within the context of a Blackboard course.

The results have demonstrated a measurably positive impact on student performance in using Blackboard. For example:

1. On the first day of Fall 2015 classes, the Blackboard student help website received 10 times more page views than the best previous semester. (This increase could also be the result of more courses using Blackboard for course delivery.)
2. Blackboard student help resources saw more web traffic in the first week of class this fall than the entire spring semester.
3. For the first time ever, student help articles are in the top 10 articles viewed across all LTO resources.
4. The Blackboard help desk has received fewer phone and email support requests. In particular, the number of high-cost support requests has reduced.
5. Students in the OL&D department are reporting fewer difficulties with Blackboard.

Summary

By following the systematic and systemic process for conducting needs assessment that we learned in the needs assessment class, our team of graduate students in the Organizational Performance and Workplace Learning graduate program at Boise State University was able to provide advice that added value to the LMS onboarding experience for Mid-Atlantic State University and its students. The client also partnered with the Learning Technology Office at MASU, who produced a key component of our recommended interventions that served as an anchor for other interventions. The Learning Technology Office at MASU has conducted a preliminary analysis of evaluation data, which indicates that these interventions have been successful in accomplishing goals of the OL&D department at MASU and also had positive impact on student support services for the university and its students overall.

References

- Allen, I., & Seaman, J. (2015). *Grade level – Tracking online education in the United States*. Babson Survey Research Group and Quahog Research Group. Retrieved from: <http://onlinelearningconsortium.org/read/survey-reports-2014/>
- Department of Education (2014). Enrollment in distance education courses, by state: Fall 2012. Retrieved from: <http://nces.ed.gov/pubs2014/2014023.pdf>
- Gilbert, T. F. (1978). The behavior engineering model. In *Human competence: Engineering worthy performance* (pp. 73-107). New York, NY: McGraw-Hill Book Company
- Harless, J. (1973). An analysis of front-end analysis. *Improving Human Performance: A Research Quarterly*, 4, 229-244. doi:0.1002/pfi.4160260204
- Lang, L., & Pirani, J. (2014). The learning management system evolution. *Research bulletin*. Louisville, CO: ECAR. Retrieved from: <http://www.educause.edu/ecar>
- Marker, A. (2007). Synchronized analysis model: Linking Gilbert's Behavior Engineering Model with environmental analysis models. *Performance Improvement*, 46(1), 26-32. doi: 10.1002/pfi.036

- Schensul, J. J., & LeCompte, M. D. (2013). *Essential ethnographic methods*. United Kingdom: Alta Mira.
- Van Tiem, D. M., Moseley, J. L., & Dessinger, J. C. (2012). *Fundamentals of performance improvement: Optimizing results through people, processes, and organizations* (3rd ed.). San Francisco: Pfeiffer.
- Watkins, R., Meiers, M., & Visser, Y. (2012). *A guide to assessing needs: Essential tools for collecting information, making decisions and achieving development results*. Washington, D.C.: The World Bank. Retrieved from <http://www.needsassessment.org>

Bios



Jerrod Guddat

Jerrod Guddat is the Online Instruction Community Coordinator at BYU-Idaho where he seeks to create the BYU-Idaho experience and culture in an online environment. Jerrod will complete his Master's degree in Organizational Performance and Workplace Learning in Spring 2016. Jerrod may be reached at guddatj@gmail.com.



Gordon Hood

Gordon A. Hood is an active duty Lieutenant Commander in the U.S. Coast Guard, currently working as a performance analyst and consultant at Training Center Yorktown, Virginia. He has previously served in various leadership positions aboard ships, most recently as executive officer of a buoy tender in Kodiak, Alaska. Gordon is a 2015 graduate of the Organizational Performance and Workplace Learning program at Boise State University. He can be reached at gordon.a.hood@uscg.mil.



Cheri Lockett Zubak

Cheri Lockett Zubak has an extensive professional history as an explainer and problem-solver for corporations in a variety of industries. She is currently employed as a Senior Learning and Performance Analyst at Vertex, Inc., where she works with staff to provide products and services that support improved customer performance. Cheri will complete her Master's degree in Organizational Performance and Workplace Learning in 2016. You can reach Cheri at cherilockettzubak@gmail.com or through LinkedIn (<https://www.linkedin.com/in/workwrite>).



Krista Welch

Krista Welch is an active duty Lieutenant in the U.S. Coast Guard. Over the past 10 years, she has served in various mission areas, most recently as a Marine Inspector in Hampton Roads, VA. Krista is 2015 graduate of the Organizational Performance and Workplace Learning program at Boise State University. She can be reached at krista.l.welch@uscg.mil.