

Blackboard | User Analysis

May 2, 2002

team:

Sean Carton

LeSales Dunworth

Alysen Espersen

John Fritz

Ray Nosko

Table of Contents »

Testing Methodology	1
Results Summary	2
User Test Findings	
Students	5
Instructors	10
User Profiles	17
Task Scenarios	
Students	18
Instructors	19

Testing Methodology

All tests were conducted at the University of Maryland Baltimore County (UMBC), with the exception of the first student test, which was conducted at the University of Baltimore. All participants were volunteers. There was no form of payment or compensation.

The test team consisted of a facilitator or moderator who orally assigned the pre-established tasks, and an observer who took note of user actions, errors committed or generated, estimated time for completion, and user reaction to the experience both physical and verbal. Test participants were asked to "think aloud" as they navigated the site and completed tasks. This method allows for a more accurate interpretation of the participant's actions. At least half of the tests were videotaped for closer analysis.

The test protocol was more heavily weighted toward the qualitative aspects of the experience rather than detailed quantitatively measured tasks such as time-for-completion, error recovery times, eye tracking, or other highly controlled tasks. We tested 5 students and 4 instructors at various stages of experience with Blackboard. Since these two user groups have different needs and vastly different levels of task complexity, we prepared task scenarios for each.

As participants entered the testing room, they were greeted by the test team. They were then placed in front of a computer to complete the tasks. Once the test began both observers and facilitators refrained from interrupting or otherwise verbalizing during the course of the usability test. The facilitator would clarify or repeat the tasks if necessary, but he/she did not answer questions or direct participants

during the course of the test. At completion, participants had the opportunity to ask questions of the team and give their opinions of the system, test, and experience.

Results Summary

Overall, users liked the Blackboard interface and found it easy to learn and use. Even if they weren't sure about some functions, the consistent navigation supported a "process of elimination" to either find the information users needed or ask for help knowing they'd ruled out the most likely options first.

Still, a few tweaks would seem to improve the application, especially from a scalability perspective. Ease of use creates more demand, but Blackboard does not seem to have sufficiently taken this into account for key audiences and functions.

Reduce inefficient tasks

Obviously, faculty spend more time with the application than students, not only because they're adding content to course sites, but also because they con-

trol critical functions such as enrollment, document sharing, grading and de facto tech support. With so much riding on their effective use of Blackboard, several faculty complained how repetitive and boring some tasks were:

1) Enrolling more than one student in a course or group. Sure, faculty can batch enroll students—if system administrators will allow them to also create the student's user id & password. But this would create havoc in a large database in which students might have more than one course. Once a student is enrolled, however, it would be ideal if a faculty member could batch enroll groups he or she created for the course, something they can't do now.

2) Downloading, uploading and deleting more than one paper from the Digital Drop Box—one faculty member literally saves this for a Friday "beer"

night because "it's a mindless task" and takes 5-6 hours to handle papers from the 200 or so students in the course. Simple steps like adding the student's user id to the time & date stamp provided in the Digital Drop Box summary of each uploaded file might eliminate a file management strategy employed by several faculty: manually entering the student user id into the file name of the document they review.

3) Managing faculty's own content. Apart from having far too many confirmation receipts and warnings that require them to hit "OK" to continue, if faculty want to move uploaded content into a folder in a different section of the course shell, there is no way to do so. Once a document is added, faculty should be given a drop down list of available folders in the site that they can move it to.

4) Gradebook problems—While many faculty said students like being able to check their grade, the faculty found it cumbersome and inflexible. Adding grades for more than one student stumped a few, but this was due more to lack of experience with the tool. Still, almost all faculty wished the gradebook could be imported AND exported to and from Excel.

Improve wording of key menus & functions.

When students experienced difficulties with Blackboard, more often than not it was because they misunderstood important menus and functions:

1) "Tools" is too vague a menu heading for critical functions, such as grades, the Digital Drop Box or their personal information. While it is easy to discover through trial and error in their first course, several students said there was

nothing intuitive about this menu heading. And while Blackboard does provide faculty with alternate menu labels in its preset navigation, there is no such option for two critical functions—grades and Digital Drop Box—that may be very important at key times during the course term.

2) Send vs. Drop as metaphors for managing files—while it was not observed in testing, many students reported they'd had problems with the Digital Drop Box. Either they didn't realize they needed to send a file they'd just dropped (uploaded) into the Digital Drop Box, or they didn't even realize who owned the drop box. Many students thought they were posting files to the instructor's drop box, when in fact it was their own drop box, but they needed to send the files to the instructor's drop box.

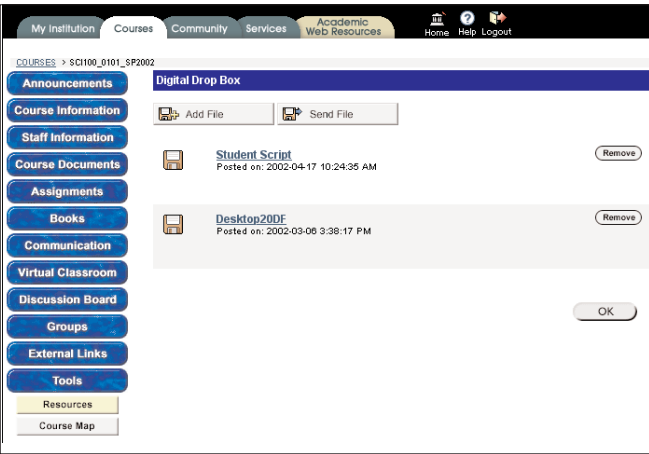
3) Confusion over Assessment & Pool Manager—while few faculty reported actually using Blackboard to administer tests and quizzes, when asked to do so for the usability test, many had difficulty figuring out where to start.

4) Editable navigation—one of Blackboard's strengths is its consistent navigation. However, some faculty would like more control of menu labels. Specifically, a foreign language instructor would like multi-language support for navigation items. Other faculty expressed a desire to be able to add a main menu label. Blackboard provides a range of options for button names, but perhaps a "wild card" button would give faculty the flexibility they need.

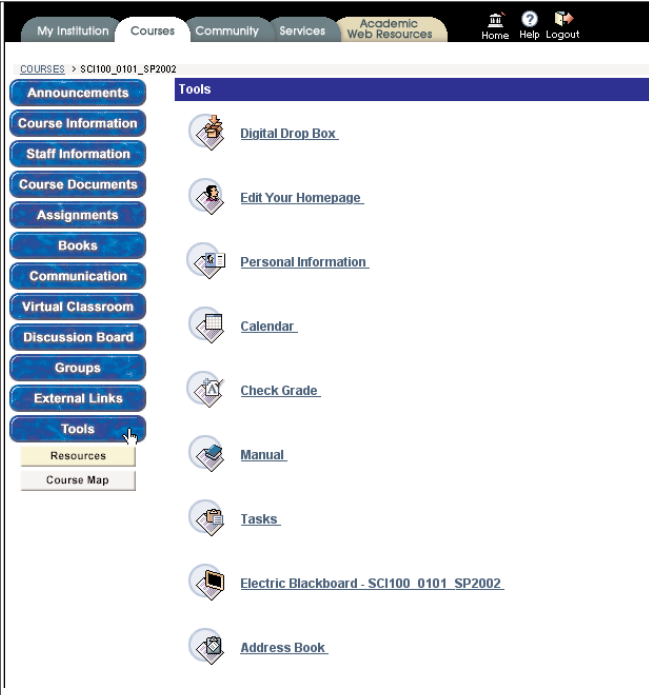
Overall, UMBC users found Blackboard to be an effective tool and easy to use. However, a better understanding of critical tasks and attention to wording would improve the application, minimize support needs, and generally make Blackboard a more scalable enterprise solution.

SEVERITY KEY	
Description	Definition
Unusable	The user either is not able to or will not want to use a particular part of the product that has been designed and implemented.
Severe	The user will probably use or attempt to use the product, but will be severely limited in his or her ability to do so. They will have great difficulty in circumventing the problem.
Moderate	The user will be able to use the product in most cases, but will have to undertake some moderate effort in getting around the problem.
Irritant	The problem occurs only intermittently, can be circumvented easily, or is dependent on a standard that is outside the product's boundaries. Could also be a cosmetic problem.
Good	Tested users displayed no indication of difficulty while performing task.

User Testing Results | Student | Digital Drop Box

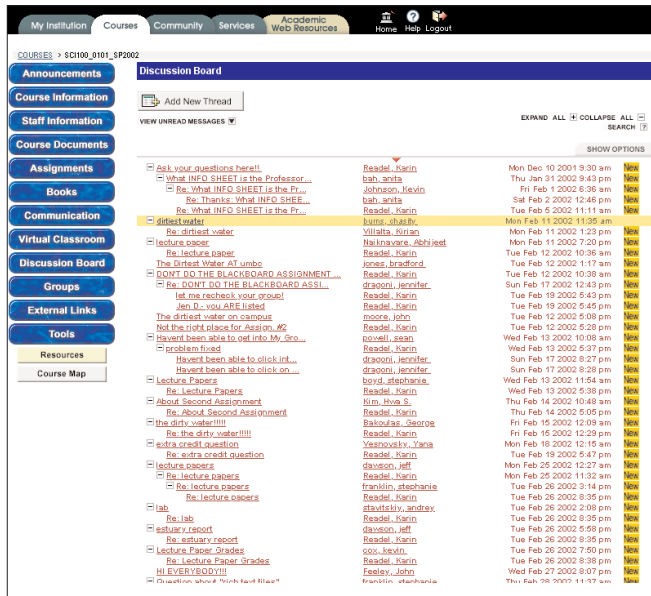
Object	Observation	Rating	Recommendation
 A screenshot of a web application interface for a "Digital Drop Box". The interface has a dark header with navigation links: "My Institution", "Courses", "Community", "Services", "Academic Web Resources", "Home", "Help", and "Logout". Below the header, there's a breadcrumb trail: "COURSES > SC1100_0101_SP2002". A left sidebar contains a vertical list of blue buttons: "Announcements", "Course Information", "Staff Information", "Course Documents", "Assignments", "Books", "Communication", "Virtual Classroom", "Discussion Board", "Groups", "External Links", "Tools", "Resources", and "Course Map". The main content area is titled "Digital Drop Box" and contains two file entries. Each entry has a file icon, a title, a timestamp, and a "Remove" button. The first entry is "Student Script" posted on 2002-04-17 10:24:35 AM. The second entry is "Desktop20DF" posted on 2002-03-06 3:38:17 PM. At the bottom of the main content area, there is an "OK" button. Above the file entries, there are "Add File" and "Send File" buttons.	<p>Students had difficulties using the Digital Drop Box properly. In most cases, students hit the submit button only to add the file to their drop box. However, they were under the impression that hitting submit sent the file to their instructor. It was not clear that they needed to hit send at the following screen in order to submit the file.</p> <p>The confirmation message to inform students that files will not be sent was ignored.</p> <p><i>Note: In the Group File Exchange, users receive this same confirmation warning to send a file they just added. However, there is no "send file" button in the group file exchange.</i></p>	UNUSABLE	<p>The language may need to be reconsidered so that students understand that by submitting, they are only adding files to their personal "drop box." A title such as "my folder" may make this more clear. Digital Drop Box seems to imply someone else's inbox or bin.</p> <p>The submit button should send files to the instructor at the first click, which is what students assumed happened. Having to submit or send twice did not fit the students mental model for sending files. Generally, students only use the drop box to send documents to the instructor, so one has to wonder if the "Add File" button is needed.</p>

User Testing Results | Student | Tools Language

Object	Observation	Rating	Recommendation
	<p>Throughout testing, we noted significant visual confusion regarding the "Tools" button. Due to its ambiguous label, users frequently ignored this button and proceeded to try more familiar areas or terms. Many students eventually clicked on the "Tools" button when unable to locate information, such as grades, personal information and the Digital Drop Box in other areas.</p>	<p>SEVERE</p>	<p>Ambiguous labels leave too much open to interpretation and can lead to confusion or wasted time, as users will not understand the label, its context, and its implementations when clicked. Descriptive labels help users determine the meaning and importance of items and provide essential guidance.</p> <p>Creating a more meaningful, intuitive name for the "Tools" button may help students understand and remember what can be found there. Allowing instructors the option to move frequently accessed functionality, such as Grades and Digital Drop Box, to the main navigation may also prove to be beneficial.</p>

User Testing Results | Student | Discussion Board

Object



Observation

The use of Discussion Boards and Group Discussion Boards was confusing to many students. They seemed unclear as to where class discussions and assignments were to be turned in, despite the instructors' directions.

They seemed overwhelmed when coming to a particularly active discussion board.

Rating

MODERATE TO SEVERE

Recommendation

Create a stronger hierarchy of information so that the page can quickly be scanned.

Provide multiple levels of configurability in order to hide some features from novice users. E-mail notification of changes to Discussion Board (new postings, replies, etc.), as well as the ability for students to track their own discussion threads, might help students stay engaged in the discussion.

Also, clearly differentiating "Group Discussions" from general class discussions would be helpful. Perhaps instructors should have the ability to rename group functions as "Lab" or something similar.

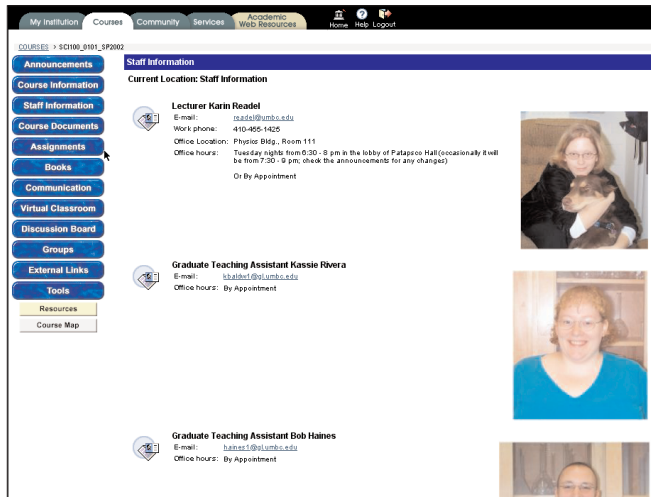
User Testing Results | Student | Navigation

Object

Observation

Rating

Recommendation

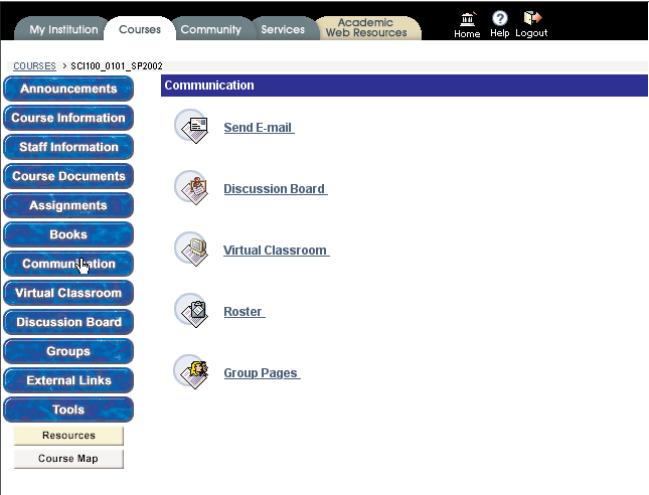


Some students went directly to "staff information" instead of "communications" in order to e-mail the instructor.

MODERATE

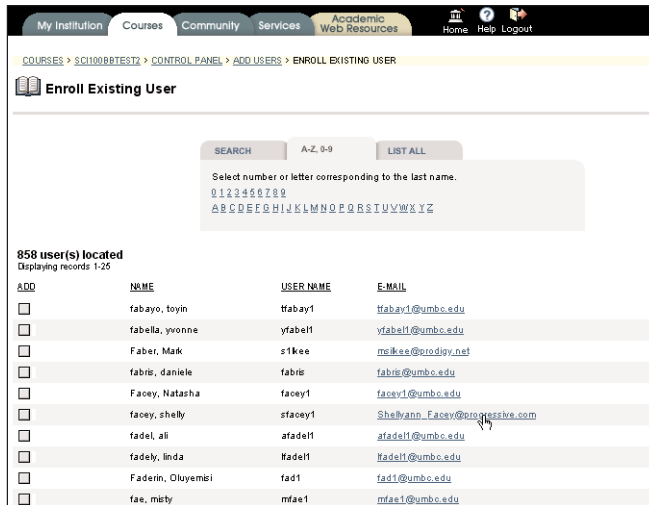
Provide a clearly-labeled "e-mail" or "contact instructor" button on the main navigation.

User Testing Results | Student | E-mail

Object	Observation	Rating	Recommendation
 A screenshot of the Blackboard course navigation menu. The top navigation bar includes 'My Institution', 'Courses', 'Community', 'Services', 'Academic Web Resources', 'Home', 'Help', and 'Logout'. Below this, the course ID 'SC100_0101_SP2002' is displayed. The main navigation area consists of a vertical list of blue buttons: 'Announcements', 'Course Information', 'Staff Information', 'Course Documents', 'Assignments', 'Books', 'Communication', 'Virtual Classroom', 'Discussion Board', 'Groups', 'External Links', and 'Tools'. The 'Communication' button is highlighted. To the right of this list, a secondary menu titled 'Communication' is open, showing options: 'Send E-mail', 'Discussion Board', 'Virtual Classroom', 'Roster', and 'Group Pages'. At the bottom of the navigation area are 'Resources' and 'Course Map' buttons.	<p>Students mentioned that they usually open an external e-mail application in order to e-mail the teacher or correspond with classmates instead of using e-mail features within Blackboard.</p>	IRRITANT	<p>Students probably use external applications for e-mail because they are familiar with the interface. This means they can quickly perform tasks because there is little learning that needs to take place. Therefore, a solution may be to provide an e-mail interface within Blackboard that more closely mirrors the most frequently used e-mail applications.</p>

User Testing Results | Instructor | Adding Multiple Users

Object



Observation

It was not evident to instructors that they could add multiple students at once. Most thought they had to add one at a time and navigate back to the Control Panel main page, instead of to their user list, after adding each student. Instructors noted that this was cumbersome and frustrating.

The system allows searches by last name or list all (over 11,000 distinct users at UMBC). This is impractical since the instructor is presented with the first 20 users, followed by more than 1,000 links to pages containing user names.

Some faculty tried to guess where they might find a student in this list. They narrowed the choice by sorting the list alphabetically, but this still returned a list of several hundred users. Many faculty used this "guessing" strategy with smaller "list all" results when adding enrolled students in groups. Only one faculty member—an expert user—added users by unique user id.

Rating

SEVERE

Recommendation

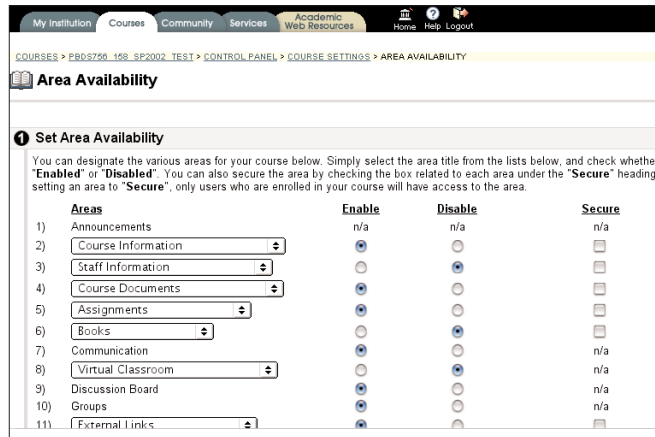
Provide more evident labels and functionality to add multiple students.

Blackboard currently allows instructors "batch" enroll rights, but like earlier versions, this function is still tied to creating a new user's id and password which is bad for system integrity. If a faculty member has to create a new id just to enroll a student, then students would either have multiple user ids, or their user ids would be constantly overwritten.

Interestingly, Blackboard abandoned this simultaneous create/enroll individual users function of earlier versions, but kept it in the batch enroll function they gave to faculty in the current version. Blackboard might want to consider separating creation of user ids from enrollment altogether. This would allow faculty to enroll only their distinct class roster from the entire Blackboard database, and would eliminate a routine need that only system administrators can provide now.

User Testing Results | Instructor | Editable Navigation

Object



Observation

Feedback from a Foreign Language instructor exemplified limitations of providing pre-made navigational elements. Such instructors found that mandatory use of the available buttons in Blackboard to be hindering, as they expressed the desire to have more flexibility to change the button titles to a non-English equivalent for instructional purposes.

Rating

MODERATE

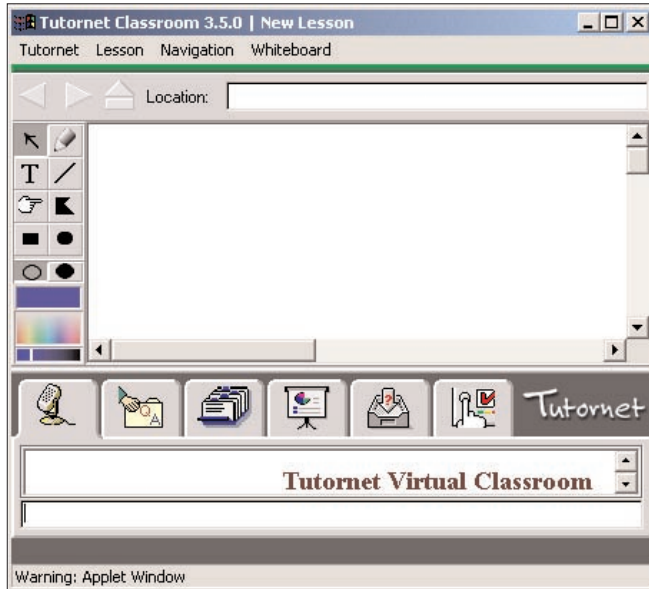
Recommendation

Provide multiple-language support of Blackboard interface, selectable in configuration screen.

Another option may be to provide greater flexibility in configuration options to re-name buttons and other interface elements. However, this would give naming convention control to instructors and may cause problems such as inconsistent hierarchy and ambiguous categorization. Both of these problems could impede usability.

User Testing Results | Instructor | Virtual Classroom

Object



Observation

Instructors did not find the Virtual Classroom functionality to be useful. Instructors found that using such a tool is unproductive with large classes. Other instructors felt that many students wouldn't have the ability to use or access such interactivity due to limited compatibility with various browsers and platforms. Instructors also felt that there was very limited space for typing in conversations and very little space to read the chat messages.

Rating

MODERATE

Recommendation

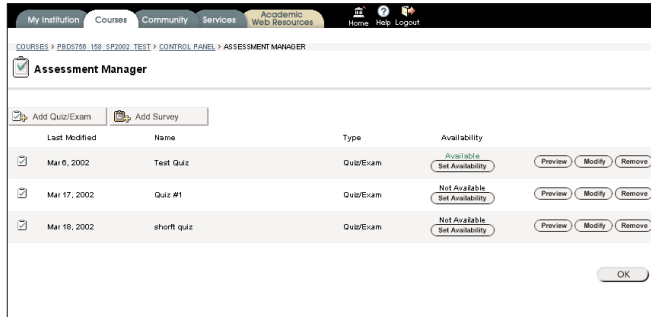
Make virtual classroom more stable across multiple browser and platform configurations.

Some instructors felt more field space is necessary for users to be able to type and view posted messages. A larger area for the in-progress chat is also needed to prevent frequent scrolling of content.

In an online only environment, the virtual chat feature would be unusable because it loads slowly and inconsistently across multiple platforms.

User Testing Results | Instructor | Assessment Manager

Object



Observation

The Assessment Manager functionality within Blackboard was frequently misinterpreted and ignored by instructors. They could not identify the function of the "Assessment Manager." When asked to create an online quiz for students, few instructors could locate where to accomplish such a task.

Rating

MODERATE

Recommendation

Using terminology that typical instructors are familiar with may eliminate such an important feature from being over-looked by users.

Assessment Manager, was not intuitive to users. It does not give a clue as to the functionality because it does not fit the users' mental model or way of speaking. Consider providing a more descriptive and familiar name such as "Quiz Builder."

User Testing Results | Instructor | Gradebook

Object

The screenshot shows the Blackboard 'Spreadsheet View' of a gradebook. The interface includes a navigation bar at the top with tabs for 'My Institution', 'Courses', 'Community', 'Services', and 'Academic Web Resources'. Below the navigation, there are buttons for 'Add Item', 'Modify Item', 'Remove Item', and 'Export Gradebook'. A filter section allows users to filter by last name and item type. The main table displays the following data:

Change Item Order	Academic Integrity Video Public Service Announcement	Best Water Sites Survey	First Assignment for SCI 100 Spring 2002 Survey	Osmosis Quiz Quiz	Reading quiz Quiz	quiz 1 2/2/02 Exam	Total Points	Weighted Percentage
ma_husa-well (read)	-	-	-	-	-	-	0	
muh_pyle (read)	-	-	-	-	-	-	0	
Points Possible	N/A	N/A	N/A	10	4	100	114	
Weight	N/A	N/A	N/A					0%

At the bottom left, there is a legend for item status: Completed, In Progress, No Information, Needs Grading, Grading Error. An 'OK' button is located at the bottom right of the table area.

Observation

Instructors did not find the Blackboard grade book useful. Some instructors felt that they could not be flexible with grading, such as having various activities account for different portions of the grade (i.e., participate=20, final=10). Therefore, some faculty reported that the grades produced by the Blackboard grade book often confused students.

Also, several instructors wanted to import, as well as export, the gradebook to/from Excel.

Rating

MODERATE

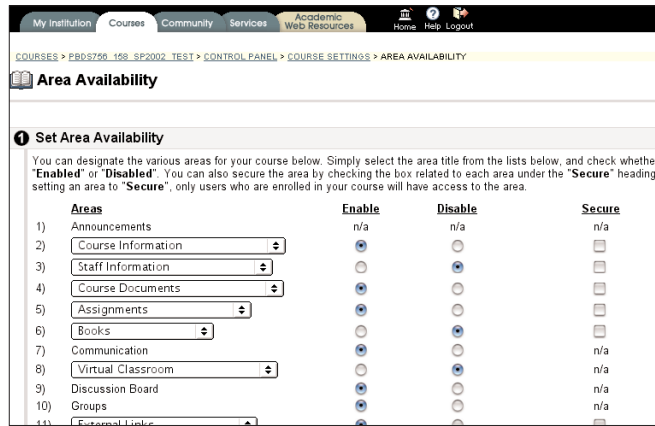
Recommendation

Provide functionality for “weighting” of grades across the semester. Additionally, Blackboard may want to consider providing additional functionality for factoring in letter grades—to counter faculty concerns about the gradebook “points” system confusing students.

Allow import and export functionality.

User Testing Results | Instructor | Advanced Options

Object



Observation

Instructors questioned some of the available options when adding information to their Blackboard site. Most instructors ignored option settings and maintained the default. However, they expressed curiosity about the options they never use and don't fully understand. One Instructor repeatedly questioned the functionality of the make visible option, asking why anyone would not want to make the content that was being added visible.

The amount of options and functionality seemed to intimidate many instructors.

Rating

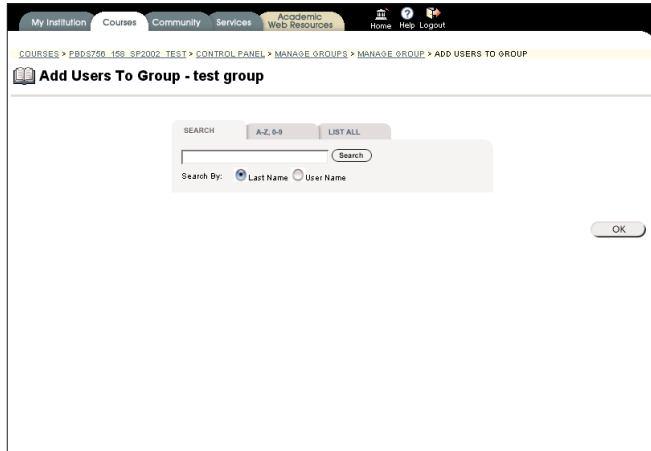
MODERATE

Recommendation

Better training may alleviate confusion. Provide alternate levels of configuration/views ("Simple" and "Power User") that hide configuration options from users who don't want to see them. This may help novice users with navigation, but should be tested to make sure. Also, context-sensitive pop-up help screens might help users where they need it. Additionally, interactive "wizards" that walk novice users through setup would help users get the most out of the program. Finally, it may help not to put navigational/successful-completion feedback messages in red. Some instructors said whenever they saw red text, they thought they were doing something wrong.

User Testing Results | Instructor | Groups

Object



Observation

Instructors would add each new student individually—typically a time consuming process. Then, to create another group, instructors would have to back out all the way to the beginning of the “Manage Groups” section to begin adding a new group, repeating the process again. This task was so onerous that one instructor reported that she had to hire a grad assistant to handle setting up the lab groups at the beginning of the semester.

Rating

MODERATE

Recommendation

Make the bulk addition of students from a course listing more intuitive by providing a check-box menu of enrolled students and then allowing the instructor to add students to groups by checking a box next to the group they want to assign the student to. In addition, instructors should be able to create multiple groups before having to assign students to them.

User Profiles

Students

Marni

Graduate student, Psychology
Bb Experience: no classes yet, but using it for a Graduate Student Association survey

Darnell

Undergraduate, Computer Science
Bb experience: competent. Has used it for a few classes, works on the IT help desk.

Stephanie

Undergraduate, Anthropology
Bb Experience: one class this semester

Hye (female)

Graduate Student,
Information Systems
Bb Experience: two classes

Joesph

Undergraduate,
Computer Science
Bb experience: third class using Bb

Instructors

Karin

Geography
Bb experience: Expert, several classes, many with enrollment > 200 students

Adriana

Modern Languages
Bb experience: Advanced beginner, a few classes

Don

English
Bb experience: Advanced beginner, a few classes

Mark

Chemical Engineering
Bb Experience: Beginning, but a very savvy computer & web user

Student Task Scenarios

1: You aren't sure if you have a homework assignment due the week of February 18th, but you need to find out. [language + navigation]

2: You aren't sure if the outline or final assignment is due the week of the 18th. Find out if any of your classmates know. [discussion board]

3: You have just completed your first written assignment for a class (Pond Water-on the desktop). Turn it in to your instructor using this online tool. [testing upload and Digital Drop Box functionality and language]

4: You have an idea for your final project, but you want some feedback from your instructor before you begin. [testing one-on-one communication—email]

5: A classmate told you about a reference document on the course site

titled "How to write a Lab Report." You want to use it as a guide as you write your own lab report. [course documents-language]

6: You find the lab report reference is going to be helpful for lab reports throughout the course. Add it to the project folder on your desktop for easy access. [We can create one. Testing download]

6a: You decide to take a paper copy with you to the library for a quick reference. Make a paper copy of the reference. [they won't really be printing, just going through the motions]

7: It is approaching mid-semester and you want to find out how you are doing in the course thus far. Find your average to date. [grades]

8: Your instructor has added several links to the site that are rele-

vant to the course information. See if one of those links will provide information for your final report, Maryland's Rivers.

9: Your instructor has asked everyone to make their home addresses and phone numbers available on the site. Add your contact information. [edit personal information]

Instructor Task Scenarios

1: Setting Up a Course

Now that we're in, your first task will be to set up a course in Blackboard. For the purposes of this test, we have created a course called SCI 100 "Water: An Interdisciplinary Study" (test course). It is a course that involves both quizzes and papers so your students will be asked to complete online assessments as well as to submit papers to you for review. In addition, your students will be asked to participate in the discussion boards on a regular basis.

Don't worry about remembering all this: we have provided this piece of paper that has the information about the items needed to set up this new course. You should input the information about yourself and feel free to set the settings in the way you normally do. Feel free to refer to online help at any time and don't hesitate to ask me if you don't understand something. Tasks to complete at this stage are:

1a. Add the five new students to the course.

1b. Create the 2 new groups.

1c. Enter the 2 new key dates on the Course Calendar.

1d. Post information about a new required course book.

1e. Post the listed external link.

1f. Post the Syllabus (see file named "syllabus.doc" on desktop)

2: Document Management, File Upload

Now that you've set up the system, let's say that you'd like to give your students their first assignment. How would you do that? We've provided the information for this first assignment on the sheet provided.

2a: Document Management, File Download

Your students have read your assignment and have used Blackboard to

submit their assignments to the Digital Drop Box.

We've already loaded several student assignments into the Digital Drop Box. Please open one of the assignments as if you would if you were receiving an assignment from a student.

2c: Teacher-to-Student Communication

You have reviewed the assignments in the Digital Drop Box. You want to contact Crystal Abbot to let her know she has forgotten to include a bibliography for her assignment. Contact Crystal to let her know to revise her assignment before the next class.

3: Grading: Entering Grades

It is now just after the mid-term exam and you need to input grades for your students. Here's a sample paper grade book [hand subject grade book] where

we've placed the scores for several assignments and the mid-term exam. Please enter the grades for your students.

3a: Grading: Grade Reports

Good! Now you'd like to see how your class is doing overall before you meeting with the Chair of the department. Prepare a copy of the class grade report to bring to the upcoming meeting.

4: Discussion Board: Setup

You've made student participation in the discussion board a mandatory part of your course. In your first class you had a rousing discussion on the new Commons. Go ahead and get the discussion rolling on the site by setting up the discussion board for a new topic. Please ignore for now any discussions you already see on the site.

4a: Discussion Board: Participating

Let's go back to some of those discussions up on the board. It looks like some students are asking for some guidance from you regarding Assignment #2. Go ahead and respond to one of the students.

5: Assessments

It's time to give the class a short quiz on the site. We've provided the questions and answers on this sheet of paper [hand subject test paper]. Please add the test to the site. Feel free to set it up in any way you see fit.