



LON-CAPA Student Users Usability Evaluation Report

April 27, 2006

Casey Rudden

Principal Investigators:

Sarah Swierenga, PhD, Director, Usability & Accessibility Center
Michael Elledge, Assistant Director, Usability & Accessibility Center
Jeff Grabill, PhD, Co-Director, WIDE Research Center

Michigan State University
Usability & Accessibility Center
Kellogg Center, Garden Level
East Lansing, MI 48824-1022
(517) 353-8977

Prepared for

Gerd Kortemeyer & Felicia Berryman
LON-CAPA Group

Table of Contents

Acknowledgements.....	2
I. Summary.....	3
II. Background.....	3
Introduction.....	3
Objectives.....	3
Product.....	3
Participant Profile.....	4
Hardware and Settings.....	4
Severity Ratings.....	4
III. Experimental Design.....	5
Evaluation session protocol.....	5
Testing room setup.....	5
Metrics.....	6
IV. Results.....	7
Task Summary Table.....	7
Task 1 Results – Clear Critical Messages.....	8
Task 2 Results – Find and Answer Homework Questions.....	9
Task 3 Results – Send Professor Message.....	10
Task 4 Results – Upload File.....	11
Task 5 Results – Submit File to Project.....	13
Task 6 Results – Print Homework.....	14
Task 7 Results – View Grades.....	15
Task 8 Results – Log Out.....	16
VI. Next Steps.....	17
Attachment 1 – Moderator’s Guide.....	18
Attachment 2 – Consent Form.....	19
Attachment 3 – Demographic Questionnaire Information.....	20
Attachment 4 – LON-CAPA Student Evaluation Task Scenarios.....	24
Attachment 5 – Results by Task.....	27
Attachment 6 – Post-study Questionnaire Results.....	30
Attachment 7 – Selected Screen Shots from the LON-CAPA System.....	37

Acknowledgements

We sincerely appreciate the contributions of JoDee Fortino for handling the logistics for the study and providing technical support. We would like to thank Amy Diehl for her aid in compiling the data.

I. Summary

This document describes the usability evaluation results involving participant reactions to the LON-CAPA course management system. This evaluation was conducted March 29-April 3, 2006, at the MSU Usability & Accessibility Center. The website was evaluated in one-on-one usability sessions with 12 participants who were undergraduate students, including experienced and inexperienced LON-CAPA users.

Overall, participants, regardless of experience level, had difficulty reaching the correct location to accomplish a task, but once there, were usually able to complete it. For example, participants had trouble locating the homework but not submitting answers. (Note, however, that inexperienced participants also had problems navigating between homework problems.) Similarly, participants found it difficult to locate the portfolio and course projects. In general, all participants had significant difficulty navigating the menu and course contents.

Much of the problem appeared to be the application's labels, which were confusing to participants. For example, participants had difficulty understanding where and how to print homework, and how to send a course message. During Task 7, one inexperienced participant accessed a user-assistance feature (help), but, not finding information about how to access grades, quickly abandoned the effort.

Recommendations for addressing these issues in the LON-CAPA system are included in this report.

II. Background

Introduction

This document describes the concept usability evaluation results regarding user reactions to the LON-CAPA course management system. This evaluation was conducted March 29-April 3, 2006, at the MSU Usability & Accessibility Center. The website was evaluated in one-on-one usability sessions with 12 participants who were undergraduate students, including experienced and inexperienced LON-CAPA users.

The value of conducting this usability testing was to identify usability issues with the current site using a systematic performance-based approach.

Objectives

This evaluation was designed to answer the following questions:

- What aspects of the LON-CAPA user interface are hard to understand?
- How difficult is it for experienced and inexperienced LON-CAPA users to accomplish typical tasks?
- How do LON-CAPA users identify and perceive existing user assistance (help) features while performing tasks?

Product

We tested the live version of the LON-CAPA course management system (<http://loncapa.msu.edu/>), using a course developed by the LON-CAPA Support Coordinator for the evaluation. See Attachment 7 for selected screen shots of the evaluation-course site.

Participant Profile

The LON-CAPA Support Coordinator recruited participants for the evaluation using the LON-CAPA messaging system and contacts from undergraduate courses in a variety of disciplines. The compensation was \$35 for a 60-minute session.

There were a total of 12 participants. All participants were undergraduate students. Six were classified as experienced LON-CAPA users (having used the system for at least 2 courses) and 6 were classified as inexperienced LON-CAPA users (having never used the system before). Each group was made up of 3 females and 3 males, and an informal effort was made to vary the students across academic disciplines to gather feedback that might aid LON-CAPA's growth into wider academic communities.

Almost all of the participants indicated they use the Web every day (only one participant used the internet 2-3 times a week) to read news, find information about interests, check e-mail, do homework, and to perform research for school. The majority, 9 participants, were either equally or more familiar with the Windows system than the Macintosh system. Eleven participants used Google or Yahoo as their primary search engines.

Experienced LON-CAPA participants used a course management system, LON-CAPA or otherwise, an average of 3 times a week and inexperienced participants used one an average of 2 times a week. Most of the participants, regardless of experience with LON-CAPA, indicated that they use course management systems to view course syllabi, participate in on-line discussions or forums, send or view messages, access readings or homework, do homework, submit homework, take quizzes or tests, and check grades. Seven participants, spread evenly across the two groups (3 experienced, 4 inexperienced), also indicated that they use course management systems to schedule or keep track of activities, view PowerPoint presentations, play audio or video clips, upload an individual resources page, or collect data.

For more detailed information about each participant, refer to Attachment 3.

Hardware and Settings

Computer: Dell Optiplex, 6x280, Intel (R) Pentium (R) 4 CPU 2.80 GHz 7.79 GHz, 513 MB of RAM, 17" monitor, Windows XP Edition. The default screen resolution was 1024x768. The site was displayed in Internet Explorer 6.0 running over a T3 Internet connection.

Severity Ratings

The ratings are adapted from those defined by Mark Pearrow in his Web Site Usability Handbook.

Rating	Definition
1	Low Priority - a problem which effected less than 20% of Participants tested; need not be fixed unless extra time is available on project – should be given low priority.
2	Medium Priority – a problem which affected 20-35% of Participants tested; less important to fix– should be given medium priority.
3	High Priority - a problem which affected 36-50% of Participants tested; very important to fix – should be given high priority.
4	Very High Priority - a problem which effected over 50% of Participants tested – imperative to fix this before the product is released.

III. Experimental Design

Evaluation session protocol

The one-on-one sessions lasted one hour for each participant, and included several components:

- Verbal overview and description of the study – Participants were given a description of the general nature of the study and the order of activities included in the session. See Attachment 1 for the moderator’s guide.
- Informed consent form for human subjects – Each participant was asked to sign the Consent Form before they participated in the study. See Attachment 2.
- Demographic questionnaire – Participants were given a brief questionnaire to gather background information on their work and Internet experience. See Attachment 3 for the results.
- Task scenarios performance – Participants were asked to perform several typical tasks using the LON-CAPA system. During the tasks, participants were asked to think aloud and verbalize any confusion. This enables researchers to identify areas of difficulty, as well as patterns and types of participant errors. See Attachment 4 for the listing of task scenarios with associated probe questions. See Attachment 5 for a breakdown of the results by task. Screen resolution during the testing was 1024 by 768 pixels.
- Post-study questionnaire – A post-study questionnaire was administered to address specific aspects of the tasks and obtain satisfaction ratings. See Attachment 6.
- Post-study debriefing – Participants were debriefed at the end of the session and given a hard copy of the information.

NOTE: Selected screenshots can be found in Attachment 7.

Testing room setup

The usability evaluations were conducted at the state-of-the-art Usability & Accessibility Center, within University Outreach and Engagement at Michigan State University, East Lansing, Michigan. The facility incorporates cutting-edge technologies and multipurpose spaces within an aesthetically appealing and accessible business environment. Each of the rooms in the facility has multiple purposes and capacities, and all spaces protect the privacy of individuals and accommodate those with disabilities. Specifically, the usability testing room is equipped with three computers; digital video, audio, and screen recording equipment; a document camera; Internet connectivity; and white boards. The space includes an adjustable height workstation, and all computers have JAWS for Windows and Zoomtext assistive technologies for blind and low vision users. Mixing and other production equipment are used to create picture-in-picture output for live viewing, as well as recordings for later analysis and reporting. Clients observe the test activities from an observation room through live video and audio feeds to a projection screen.



Metrics

Key usability goals included effectiveness, which refers to how well a system does what it is supposed to do; efficiency, or the way a system supports users in carrying out their tasks; and satisfaction, which relates to the subjective responses users have to the system.

The quantitative measures included:

- percentage of tasks completed successfully
- types of errors
- mean time to perform a particular task

The qualitative measures included:

- participant satisfaction ratings (post-study questionnaire)
- verbal feedback during and after the session
- written feedback on the demographic and post-study questionnaires

IV. Results

Inexperienced users took substantially more time to complete each task than experienced users, ranging from a difference of 25% to over twice as long. In most cases, however, the paths taken and errors committed by each group were similar, so their results have been combined. When differences in participant behavior did occur, they are highlighted in the task summaries below.

Task Summary Table

Task	Exp. - Successful Task Completion	Exp. – Mean time to perform task successfully (in minutes)	Inexp. - Successful Task Completion	Inexp. - Mean time to perform task successfully (in minutes)	Combined - Successful Task Completion	Combined - Mean time to perform task successfully (in minutes)	Usability Severity Rating (1-4 with 4 as very high severity)
Task 1 (Clear Critical Messages)	6/6; 100%	0:25	5/6; 83%	0:50	11/12; 92%	0:37	1
Task 2 (Find Homework)	6/6; 100%	3:36	6/6; 100%	6:54	12/12; 100%	5:15	N/A*
Task 3 (Send Professor Message)	0/6; 0%	N/A	0/6; 0%	N/A	0/12; 0%	N/A	4
Task 4 (Upload File)	4/6; 67%	1:55	5/6; 83%	2:12	9/12; 75%	2:04	2
Task 5 (Submit File)	3/6; 50%	1:09	4/6; 67%	1:26	7/12; 58%	1:19	3
Task 6 (Print Homework)	5/6; 83%	1:32	2/6; 33%	3:55	7/12; 58%	2:13	3
Task 7 (View Exam Grades)	3/6; 50%	0:11	2/6; 33%	1:42	5/12; 42%	0:48	4
Task 8 (Log Out)	6/6; 100%	0:07	6/6; 100%	0:09	12/12; 100%	0:08	N/A

***Note:** Although participants successfully completed Task 2, performance lagged other tasks. See [Task 2 Results](#) for how to improve user experience.

Refer to **Attachment 5** for detailed performance results by task.

Post-Study Questionnaire Results

In the post-study questionnaire, participants rated both the individual tasks and the LON-CAPA system as a whole. The results for the individual task ratings can be found below in the task summaries. Overall, participants gave the system’s ease of use an average rating of 3.42 on a scale from 1-5, where 1 was ‘very difficult’ and 5 was ‘very easy.’ On how the system’s features met their expectations, they

gave an average rating of 3.08 on a scale from 1-5, where 1 was ‘not at all’ and 5 was ‘very much so.’ When asked about how easy LON-CAPA’s organization was to understand, participants gave an average rating of 3.17 on a scale where 1 was ‘very difficult’ and 5 was ‘very easy.’ Regarding ease of navigating through the site, an average rating of 3.58 was given for the same scale. And finally, when asked how useful they found the LON-CAPA system to be, participants gave an average rating of 4.33 on a scale from 1-5 where 1 was ‘not at all’ and 5 was ‘very useful’.

These results suggest that participants found LON-CAPA to be useful, although they had difficulty using the application. There is considerable opportunity for improvement, especially in the areas of application organization and features.

For detailed results from the Post-study Questionnaire, including satisfaction ratings, refer to **Attachment 6**.

Task 1 Results – Clear Critical Messages

Exp. – Successful Task Completion	Exp. – Mean time to perform task successfully	Inexp. – Successful Task Completion	Inexp. – Mean time to perform task successfully	Combined - Successful Task Completion	Combined - Mean time to perform task successfully	Usability Severity Rating
6/6	0:25	5/6	0:50	11/12	0:37	1

For the first task, participants were asked to clear their critical message(s).

- Eleven of 12 participants successfully completed the task, with an average task time of 37 seconds.
- Ten participants who successfully completed the task did so by clicking on ‘confirm receipt.’
- One participant, an inexperienced user, clicked on COM first, then viewed the critical messages folder and clicked confirm receipt at that point.
- One experienced participant clicked ‘confirm receipt’ and then proceeded to the COM page and deleted the message from the critical messages folder.
- The participant who did not complete the task gave up after 2 minutes and 15 seconds. This participant went to the COM page and viewed the inbox folder, expecting to be able to delete the message from there but could not find it: “I’m looking for a list, it’s not showing any messages.”
- The language on the buttons confused the participants. The participant who gave up stated, “I don’t see anywhere where you can clear it yet. I’m looking for a ‘clear’ button.” Others commented: “I didn’t know if it was going to delete the message when I clicked ‘confirm receipt,’” “Why does it say ‘receipt?’ You get those at the store,” and “Confirm receipt is not a term I’ve seen before.”
- Participants did not understand the purpose of a critical message or how it differed from other messages. One inexperienced participant was confused when critical messages appeared as the first screen: “I didn’t know if it was the homepage. I expected something else other than a message, like Angel has on the homepage, where the class schedule shows up.” The participant who gave up looked for the critical message in the messages inbox: “I’m looking for a list, it’s not showing any messages.” Another experienced participant said, “Sometimes when I get [critical messages] I’m kind of confused. I’m not sure how to reply to them. All I know is how to select the buttons that are there already.”

- One inexperienced participant was confused about the confirmation message: “I guess I’m done when the ‘no messages in folder’ message comes up.”
- Post-study Questionnaire: All participants gave this task an average rating of 3.83 on a scale from 1-5, where 1 was ‘very difficult’ and 5 was ‘very easy.’ Experienced participants gave it an average rating of 4.5, and inexperienced participants gave it an average rating of 3.17.

Recommendations

- Make the text on the buttons reflect user-goal oriented language, such as “click to move this message to COM,” or “click to clear this message.”
- Add an explanation of the critical message as it appears on the first screen after the user logs in.
- Add an explanation of what will occur when the user “clears” a message (e.g. that it is not deleted, but moved to a messages folder. This will be aided by the explanation of the critical message’s purpose).
- Make the confirmation message clear with respect to the action the user has just performed (e.g. ‘You indicated that you read your critical message, it has now been moved to [folder] in your messages.’ Or ‘...it has now been cleared from your home screen and moved to [folder]...’ Be sure to provide links to the locations described in the message.)

Task 2 Results – Find and Answer Homework Questions

Exp. – Successful Task Completion	Exp. – Mean time to perform task successfully	Inexp. – Successful Task Completion	Inexp. – Mean time to perform task successfully	Combined - Successful Task Completion	Combined - Mean time to perform task successfully	Usability Severity Rating
6/6	3:36	6/6	6:54	12/12	5:15	N/A

For the second task, participants were asked to go to the first homework problem that was due that week and submit an answer for each homework question there. The answers were provided for them in the questions.

- All participants successfully completed this task with an average time of 5 minutes and 15 seconds. This was by far the most time-consuming task for participants and reflected confusion by participants about how to locate the first homework question and then navigate to subsequent questions.
- In order to find the homework problems, 7 participants found the homework by browsing through the ‘navigate contents’ folders, and 5 participants used the ‘select action’ pull down menu option and chose ‘show me my first homework problem.’
- In order to navigate to the next homework problem, 7 participants used the arrow buttons to navigate to the questions throughout the entire task and 5 participants went back to the ‘navigate contents’ area to choose the next question (2 of those eventually used the arrow buttons to navigate to the next question).
- Inexperienced participants were confused about how to navigate to the next homework question, i.e., the function of the arrow buttons. One participant stated, “I’m wondering if I’m missing a link that would take me to the next question,” and after she discovered the function of the arrow buttons said, “It was easy once I noticed the [arrow] button. It didn’t say ‘next question’ so it didn’t pop out at me.” Others stated: “I don’t know how to get to the next question, so I’ll just go back,” “Am I supposed to go back to the navigation to do the rest of the homework?” and “I

don't know how to get back to the homework... It's really hard to go back to do another homework problem. It's really difficult to keep going back to this [navigation screen]."

- When browsing through the 'navigate contents' folders to find the homework questions, some participants were confused about how to locate the homework and distinguish it from other content: "I can't tell what homework is due," and "It's really confusing. There should be an icon for homework."
- Some participants were unsure about the meaning of the message, 'Not Open to be Viewed' after completing all of the homework problems: "I guess this [message] means that I have to wait until next week to start the homework," and "I assume that these are all the questions they want answered this week."
- Post-study Questionnaire: Participants gave this task an average rating of 3.58 on a scale from 1-5, where 1 was 'very difficult' and 5 was 'very easy.' Experienced participants gave it an average rating of 4.5, and inexperienced participants gave it an average rating of 2.67.

Recommendations

- Add textual and/or visual cues to help both users and course coordinators to differentiate types of course content, e.g. homework, reading, quizzes, exams, etc.
- Add a textual cue to or near the arrow button that is more obvious and better reflects the users' terms. For example, 'Go to next problem' would be better than "Click to go to next course resource." If necessary, add separate navigation arrows for the course content so that users can more easily navigate between problems.
- Replace the 'Not Open to be Viewed' message with something more meaningful to users such as: "There are no other questions to be viewed."

Task 3 Results – Send Professor Message

Exp. – Successful Task Completion	Exp. – Mean time to perform task successfully	Inexp. – Successful Task Completion	Inexp. – Mean time to perform task successfully	Combined - Successful Task Completion	Combined - Mean time to perform task successfully	Usability Severity Rating
0/6	N/A	0/6	N/A	0/12	N/A – no successful completions	4

For the third task, participants were asked to send a message to their instructor with a question about the first homework problem (previously completed in task 2).

- None of the participants successfully completed the task. The average task time for them to give up or complete the task with an error was 4 minutes. For experienced participants the average task time to give up or complete with an error was 3 minutes and 41 seconds, and for inexperienced participants it was 4 minutes and 14 seconds.
- Nine of the participants who thought they had successfully completed the task had actually committed an error.
- Three of the participants, 1 experienced and 2 inexperienced, gave up after an average time of 5 minutes and 46 seconds. Two of these stated that they would ask someone how to complete the task, and one stated that he would find the professor's e-mail address and send a message though webmail: "It sounded simple at first but I couldn't find a link to do this. Normally I wouldn't spend so much time on this because regular e-mail is faster."
- Seven of the participants went to COM from the Main Menu to complete this task.

- Many participants were confused about what was expected to go into the ‘username’ field under ‘send a message to users’ in COM. One participant stated, “I don’t know what username to use and don’t know who to send the message to.”
 - Two of the participants who completed an error stated that they would complete the task by typing the professor’s e-mail address into the ‘username’ field under ‘send a message to users’ in COM. This would have resulted in an error.
 - One participant entered her own username in the field and sent the message to herself. Another stated, “If you’re already logged into LON-CAPA why would you need to enter your username?...Oh, I need to know the professor’s username. I don’t know where I would find it...I would expect it to be here, under COM.”
 - Four participants went to the syllabus and clicked on the course coordinator’s username to send a message, but none of them were sure if this was actually their professor: “It says she’s a coordinator, but I don’t know if she’s the professor. I guess I’ll just send it to see.”
 - Also in COM, 1 participant replied to the critical message she had received for task 1, saying, “I don’t want to send a message unless something’s been sent to me...I don’t think I could send a message without having one to reply to...I don’t know the username so what I did was the best option.” She was also unsure if this was actually her professor.
- Three of the participants, 1 experienced and 2 inexperienced, posted a discussion to complete this task, committing an error as they acknowledged that this did not ensure that the message was sent directly to their professor: “I know this is how you post a discussion, but I’m not sure if this goes to the professor or not,” “I’m not sure if teacher got it...I’m thinking that I didn’t send it to the teacher but I just put in on the discussion board so that everyone can see it. So if someone wants to help me that’s fine but I didn’t complete the task of sending it to my instructor,” and “I don’t know if the professor would answer it, but I think it would get answered by another student.”
- One inexperienced participant posted a chat discussion, giving similar feedback as those who posted discussion posts above.
- One experienced participant chose FDBK on the homework problem first, but clicked on the check-box options ‘Question about resource content’ and ‘Contribute to course discussion of resource.’ When the message appeared on the discussion board he assumed that he had not correctly completed the task and moved on to COM, where he gave up.
- Post-study Questionnaire: Participants gave this task an average rating of 3.0 a scale from 1-5, where 1 was ‘very difficult’ and 5 was ‘very easy.’ Experienced participants gave it an average rating of 3.33 and inexperienced participants gave it an average rating of 2.67.

Recommendations

- Provide a specific and direct way for students to contact the professor and/or TA from within the LON-CAPA system, under COM or elsewhere.
- Give users the ability to send messages with an e-mail address as well as a LON-CAPA username, if possible.
- Explain what is expected in the username field, possibly giving an example.
- Provide users with a way to search for or locate member usernames.
- In the discussion area, add an explanation or documentation of the purpose and uses of discussion (e.g. who will be able to view and respond to a discussion, etc.)
- In the Feedback form, add explanations and possibly examples for all of the options provided.

Task 4 Results – Upload File

Exp. – Successful Task Completion	Exp. – Mean time to perform task successfully	Inexp. – Successful Task Completion	Inexp. – Mean time to perform task successfully	Combined - Successful Task Completion	Combined - Mean time to perform task successfully	Usability Severity Rating
4/6	1:55	5/6	2:12	9/12	2:04	2

This task asked participants to upload a file from the desktop of the PC to the LON-CAPA system (*see note in italics below regarding a task change*).

- Nine participants completed the task successfully with an average time of 2 minutes.
- The 3 participants who did not complete the task successfully gave up after an average time of 2 minutes and 45 seconds. Two were experienced participants and 1 was inexperienced.
- Five of the participants, 2 experienced and 3 inexperienced, spent the majority of their task time wandering through the system until they arrived at the portfolio and were cued by the ‘upload’ button. These participants were unclear as to the purpose of the portfolio: “It was a hassle until I found it. It would have been helpful to know that your portfolio is where you upload files,” “This is a portfolio. Umm, I guess I’ll just try uploading it to this because this is the only thing that seems to work,” “Oh! I found an upload thing. I didn’t know it would be there, I just expected it to be documents or something,” and “I didn’t know that the portfolio was, so I guessed and saw an upload button. It could’ve been easier if I knew or was told what the portfolio was, or if it said ‘upload.’”
- In contrast, four of the participants, 2 experienced and 2 inexperienced, went straight to the portfolio. One stated, “I would imagine this is a space to store files and access them anywhere I log in at.” *Another was the first participant, who was given a differently worded task than the other participants. His task read, “upload the file...to the portfolio” instead of “to the LON-CAPA system” as we changed it afterward. We felt the initial wording gave participants a system-oriented cue. We changed the wording to reflect user goals, rather than system goals.*
- Post-study Questionnaire: Participants gave this task an average rating of 3 on a scale from 1-5, where 1 was ‘very difficult’ and 5 was ‘very easy.’ This was the lowest rating among the tasks, indicating that participants found it most difficulty. Experienced participants gave it an average rating of 2.67, and inexperienced participants gave it an average rating of 3.33.

Recommendations

- Add a cue in the description of the portfolio space like the words ‘upload’ and ‘documents’ to help users understand its purpose.
- In the description of the portfolio space, add an explanation or documentation detailing the purpose and uses of the portfolio space.

Task 5 Results – Submit File to Project

Exp. – Successful Task Completion	Exp. – Mean time to perform task successfully	Inexp. – Successful Task Completion	Inexp. – Mean time to perform task successfully	Combined - Successful Task Completion	Combined - Mean time to perform task successfully	Usability Severity Rating
3/6	1:09	4/6	1:26	7/12	1:19	3

The fifth task asked participants to submit the file located in their portfolio to Project 1. *For 3 users the task was changed as they had unsuccessfully completed the previous task upon which this one depended. The task was changed to ask that participants submit the file located on the desktop of the PC to project 1.*

- The 7 participants who completed the task successfully did so in an average of 1 minute and 19 seconds.
- Two participants, 1 experienced and 1 inexperienced, who thought they had successfully completed the task had actually committed an error, doing so in an average of 1 minute and 51 seconds.
- Two participants, 1 experienced and 1 inexperienced, gave up, doing so after an average of 4 minutes and 29 seconds.
- Five of the participants initially looked in the portfolio space for a way to do this and 6 initially looked at ‘navigate contents’ for a way to accomplish the task. (This indicates a clear divergence between participants as they chose their initial starting places along those paths).
 - Some of the participants who first went to ‘navigate contents’ did so due to prior knowledge. One stated, “I’ve had to do this before, I know how to do it.” Another said, “I saw a project folder here earlier.”
 - Participants noted surprise at the discovery of their ability to submit files for an assignment directly from their portfolio: “Oh, and it says you can select it from your portfolio”; “Oh, from your portfolio!”
- One experienced participant used the search feature to search for the term ‘project,’ finding the project and completing the task that way.
- One experienced participant uploaded the file directly from the PC instead of from the portfolio, not following task directions. Another participant created a subdirectory within his portfolio named ‘Project 1’ and uploaded the file to it. Both attempts were termed “unsuccessful.”
- One experienced participant who did not complete the prior task successfully uploaded the paper to the portfolio in this task from the project page and then submitted it for the project. The participant indicated that this was a process she followed in the past as instructed by a professor to submit documents for assignments.
- One participant did not complete the task because of a system error. When selecting the file from the portfolio for submission and clicking the button, ‘Select checked files and close window,’ the window would not close and the file was not moved to the submission form (An ‘error on page’ message appeared in the lower left of the browser frame, which the participant noted: “There’s an error with the way I’m trying to do it and I’m not sure”). The participant then submitted the file directly from the PC to accomplish the task.
- Post-study Questionnaire: Participants gave this task an average rating of 3.25 on a scale from 1-5, where 1 was ‘very difficult’ and 5 was ‘very easy.’ Experienced participants gave it an average rating of 3.33, and inexperienced participants gave it an average rating of 3.17.

Recommendations

- Include documentation or an explanation, possibly within the portfolio space, of the various portfolio functions or how users can use their portfolio space and the documents within. For example, explain to users that they can submit these documents for assignments after they are uploaded and how to do so.
- As mentioned in a recommendation for Task 2, add textual and/or visual cues to help users distinguish between content. In this case, many users noted an ability to locate the assignment because of the folder name (“I saw a project folder here earlier.”). If a content name was less clear, a visual or textual cue to aid users in distinguishing between types of content might aid users in navigating among them.
- Fix the system error in the portfolio submission window.

Task 6 Results – Print Homework

Exp. – Successful Task Completion	Exp. – Mean time to perform task successfully	Inexp. – Successful Task Completion	Inexp. – Mean time to perform task successfully	Combined - Successful Task Completion	Combined - Mean time to perform task successfully	Usability Severity Rating
5/6	1:32	2/6	3:55	7/12	2:13	3

For this task, participants were asked to print the homework set that is due this week, which was the same homework set that they had completed for Task 2.

- The 7 participants who completed the task successfully did so in an average of 2 minutes and 13 seconds.
- Four participants who thought they had successfully completed the task had actually committed an error, doing so in an average of 4 minutes and 15 seconds.
- One inexperienced participant gave up when he couldn’t figure out how to print the complete homework set in one document, doing so after 4 minutes and 26 seconds.
- Participants were confused regarding the first set of printing options:
 - Five participants chose to print only the first question at first: “I’m assuming each of these is one. But I’m trying to figure out if it can display the whole thing that I did...I’m still trying to figure out how to show all of these so I can print them,” “I think it might print just this question but it wants the whole problem set...I figured it out now...” and “I’m confused by the options. I’m trying to decide between the first two buttons.”
 - Seven participants chose to print all of the problems first, and 2 of these participants had done this task before: “I knew how to do it from other classes.”
 - Two participants attempted to print each problem separately to accomplish the task.
- Most participants were not expecting a PDF document to be produced and were confused about what would happen after all of the printing options were selected.
 - Participants who did not expect the PDF to be produced stated: “Normally I’d click on this because I don’t know what that is,” “I didn’t know it was going to be a PDF,” and “I guess you download this and print it from your computer as a PDF.” One participant, before the PDF was produced, said that “It would be better if you could preview it before you printed it.”
 - Three participants, 1 experienced and 2 inexperienced, assumed the document started printing after all of the options were selected, instead of creating a PDF. One stated, “I’m assuming it’s printing right now.”

- Two participants, 1 experienced and 1 inexperienced, were confused by the instructions on the second step of print options (‘mark them then click "next" button’), after selecting to print all of the problems. They stated: “I don’t know if they want me to ‘mark’ them. They’re already selected, so I’ll leave them the way they are,” and “It says to mark them but they’re already marked.”
- Post-study Questionnaire: Participants gave this task an average rating of 3.67 on a scale from 1-5, where 1 was ‘very difficult’ and 5 was ‘very easy.’ Experienced participants gave it an average rating of 4.17, and inexperienced participants gave it an average rating of 3.17.

Recommendations

- Change ‘prepare a printable document’ under PRT button to ‘create a PDF to print,’ to give users an accurate idea of what to expect.
- Add explanation or documentation to the first set of printing options. For example, add an explanation to tell users the first option would only print the item they were viewing, and that the second option would print everything in the set.
- Add instructions and explanation to the first print options page to prepare users to create a PDF document, and include documentation on the PDF creation page explaining to users how to open up the document and print it from Adobe Reader.
 - Include a link to download Adobe Reader for those who do not have it.
 - Make the PDF link stand out on the page, for example, with a larger font size.
- Change the instructions on the 2nd page of printing options (after selecting to print all of the problems) to something like ‘uncheck [unmark] problems to exclude them from the PDF document’

Task 7 Results – View Grades

Exp. – Successful Task Completion	Exp. – Mean time to perform task successfully	Inexp. – Successful Task Completion	Inexp. – Mean time to perform task successfully	Combined - Successful Task Completion	Combined - Mean time to perform task successfully	Usability Severity Rating
3/6	0:11	2/6	1:42	5/12	0:48	4

The seventh task asked participants to view their grades for Exam 1.

- The 5 participants who completed the task successfully did so in an average of 48 seconds.
- Three participants who thought they had successfully completed the task had actually committed an error, doing so in an average of 1 minute and 27 seconds.
- Four participants, 2 experienced and 2 inexperienced, gave up, doing so after an average of 3 minutes and 25 seconds.
- Three participants found their score immediately in the Grades section. Each of these participants was an experienced user who indicated that they had done this task before: “I use this often too.”
- The majority of participants, 9 of them, went to ‘navigate contents’ to find their grades. From there, only 2 participants, both inexperienced, eventually found the Grades section from the Main Menu.
 - Most of these participants expected to be able to find their scores in the exam area of ‘navigate contents’: “I’m thinking somewhere it should say exam grade even though I can see what I got right and wrong,” “I’m not seeing a direct grade, just whether I passed or failed each

part,” and “It sounded simple, but I couldn’t find what I needed to find. I would expect it in the exams folder, under Exam 1.”

- The participants who browsed the Main Menu to find the information did not find a signal that cued them towards the Grades area. While looking at the Menu one participant said, “I’m looking for ‘grades’ or ‘evaluation,’ but I’m not seeing anything here.” Another stated, “It could have been easier if I’d have taken a look at the main menu closer...I was looking for something like ‘grades.’ Next to the grades button on the main menu it says ‘show problem completeness,’ but I noticed that the button says ‘GRDS’ which stands for ‘grades.’ That’s what type of cue I was looking for.”
- **Post-study Questionnaire:** Participants gave this task an average rating of 3.25 on a scale from 1-5, where 1 was ‘very difficult’ and 5 was ‘very easy.’ Experienced participants gave it an average rating of 3.83, and inexperienced participants gave it an average rating of 2.67.

Recommendations

- Change the description next to the GRDS button to include a cue word like ‘grades.’
- Add a link to the Grades section in the Navigate Contents area, and consider adding individual links from the content to the grades that they correspond to.

Task 8 Results – Log Out

Exp. – Successful Task Completion	Exp. – Mean time to perform task successfully	Inexp. – Successful Task Completion	Inexp. – Mean time to perform task successfully	Combined - Successful Task Completion	Combined - Mean time to perform task successfully	Usability Severity Rating
6/6	0:07	6/6	0:09	12/12	0:08	4

For the last task, participants were asked to log out of LON-CAPA.

- All participants successfully completed this task with an average of 8 seconds.
- Participants understood that the exit link logged them out of the system.
- Six participants indicated that when using a course management system, LON-CAPA or otherwise, they usually close the browser window when leaving the system.
 - Three of these participants stated that they usually log out when on a public computer.
- Four participants indicated that when using a course management system they usually log out of it.
- **Post-study Questionnaire:** Participants gave this task an average rating of 4.75 on a scale from 1-5, where 1 was ‘very difficult’ and 5 was ‘very easy.’ Experienced participants gave it an average rating of 4.67, and inexperienced participants gave it an average rating of 4.83.

Recommendations

- Users did not have any problems with this task, but if the security surrounding logging-out of the system is a concern to developers, instruction or documentation should be included on the site indicating this.

VI. Next Steps

This evaluation yielded much useful information on the usefulness and usability of the current LON-CAPA system interface for undergraduate students both with experience and no experience. Another usability evaluation is planned to gather feedback from course coordinators using the LON-CAPA course management system. A web accessibility compliance evaluation will also be conducted on this web application.

Attachment 1 – Moderator’s Guide

I. Overview of Study (3 minutes)

Thank you for agreeing to participate in our study. We are very interested in obtaining your feedback about the Workforce Background Check website. We are trying to understand how people interact with the site to conduct registry checks and criminal background checks.

In this session, I’ll ask you to complete several scenarios using the website. As you are completing each scenario, please speak aloud to let me know what you are doing. Point out anything you encounter that is unexpected or surprising. I’ll also ask you some questions after you have tried each of the scenarios and have you fill out a brief feedback questionnaire at the end of the session. Remember that this is an evaluation of the website’s ease of use and not of your individual performance. Do you have any questions at this point?

Before we get started, we have some paperwork to get through.

- Consent form **(2 minutes)**
- Demographic questionnaire **(5 minutes)**

III. Task Instructions and Task Scenarios Performance (45 minutes)

- Open the MWBC website from the favorites list to start the session.
- Adjust the webcam for each participant and turn on the Morae software.
- Read each task to the participant.
- Ask participants to inform you when they think they have completed the task or when they would like to give-up.
- During the task observe where participants went first and any problems they had finding, inputting, and interpreting the information.
- After each task ask the probe questions.

V. Post-study Questionnaire (5 minutes)

Facilitator asks participants to fill out the post-study questionnaire.

VI. Wrap up

- Ask participants to stop by the reception area to receive their debriefing document and parking pass.

Attachment 2 – Consent Form

Consent Form

MSU's Office of University Outreach & Engagement is conducting research to evaluate the usability and accessibility of a website. User testing sessions of the website are being conducted to gather this information. These sessions will be video taped to ensure accuracy of comments and to assist in application of the findings. The findings from these sessions will be used to guide changes to improve the usability of the website.

If you agree to participate in the research, you will be asked to review the website in the presence of a researcher, while being video taped, and share your thoughts and insights as you move through the site. Through this review, you will be asked to respond to an initial brief questionnaire. You will then be asked to verbally provide your first impressions of some web pages and will be presented with some tasks for reviewing the website. Finally, you will be asked to complete a brief questionnaire evaluating your overall experience. Your participation will take approximately one hour and you will receive \$35 compensation for your time and participation. No risk from participation is anticipated. The information that you provide, along with information from other people, will be used to improve the website.

Any information you share will be kept confidential; your name will not be associated with your data. The full videotapes will be seen only by the website evaluation team. However, highlight video clips may be shared with the website evaluation team and/or used for informational materials about usability and accessibility testing. Your privacy will be protected to the maximum extent allowable by law.

Your participation is completely voluntary. You may choose not to participate at all, may refuse to participate in certain procedures or answer certain questions, or may discontinue your participation at any time without penalty. Your decision to participate will not affect your relationship with Michigan State University, University Outreach and Engagement, or the person who identified you as a potential participant. Agreeing to participate and signing this form does not waive any of your legal rights.

If you have any questions about this study, please contact the researcher Sarah J. Swierenga by phone: (517) 353-8977, or mail: Michigan State University, Kellogg Center, Garden Level, East Lansing, MI 48824.

If you voluntarily agree to participate in this research, having your comments video taped, and have had all your questions answered, please sign below.

Participant's Signature

Date

Attachment 3 – Demographic Questionnaire Information

User	Area of Study/ College Major	How often do you use the internet?	Which web search engine do you most often use?	Which other web search engines do you use regularly?	Are you more familiar with Windows or Macintosh computers?	What do you typically look for on the internet?
Participant 1 Inexp., Male	Zoology	Every Day	Google	None	Yes	Musician updates, news about interests
Participant 2 Exp., Female	Micro-biology	Every Day	Google	MSN	Windows	Answers to questions I may have or for research about a topic I don't know about. Most of the time I look at my e-mail of do homework.
Participant 3 Exp., Female	Zoology	Every Day	Yahoo	Google	Windows	Information about aquariums, movie/tv show info, journal articles for school work
Participant 4 Exp., Male	Finance	Every Day	Yahoo	Google	Windows	Sports info, nutrition info, research
Participant 5 Exp., Male	Finance	Every Day	Yahoo	Google	Windows	Information for assignments, sports news, and checking e-mail
Participant 6 Exp., Female	Advertising	Every Day	Yahoo	Google	Windows	Research for school.
Participant 7 Exp., Female	Social work	Every Day	Mozilla, Yahoo	Google, MSN	Windows	School related things, research, TV shows updates
Participant 8 Inexp., Female	Psychology	Every Day	Safari	Explorer	Both, prefer Macs	I check e-mail and Angel, plan travel
Participant 9 Inexp., Male	Family Community Services	Every Day	Yahoo	Yahoo	Yes	Facebook, ESPN, homework

Participant 10 Inexp., Female	Political Science- Pre Law	Every day	Yahoo	Google	Mac	Speed, accuracy with information, detail
Participant 11 Inexp., Female	Criminal Justice	Every day	Google	Yahoo	Windows	News articles, research for school and directions or ways to get in contact with certain businesses
Participant 12 Inexp., Male	Lyman Briggs	2-5 times/wk.	Google	None	Windows	E-mail

User	What do you usually do when you visit a website?	In how many classes have you used LON-CAPA?	How often do you use a course management system, LON-CAPA or otherwise?	What course management systems have you tried?	What do you use course management systems, LON-CAPA or otherwise, to do?
Participant 1 Inexp., Male	scan the headings or find relevant information; immediately access the "search" and type in a keyword; other	None	2-3 times/wk.	My professor built his own website	view course syllabus; send or view messages; access readings or homework; schedule or keep track of activities; play audio or video clips
Participant 2 Exp., Female	scan the headings to find relevant information	More than 4	Once/wk.	LON-CAPA, Angel, Blackboard	view course syllabus; participate in on-line discussions or forums; access readings or homework; submit homework; check grades
Participant 3 Exp., Female	read all the navigation items then make a decision how to proceed; scan the headings to find relevant information; access the site map if one is available	More than 4	Every day	LON-CAPA, Angel	view course syllabus; participate in on-line discussions or forums; send or view messages; access readings or homework; do homework assignments; submit homework; check grades; play PowerPoints; play

					audio or video clips
Participant 4 Exp., Male	scan the headings to find relevant information; immediately access the “search” and type in a keyword	3	2-3 times/wk.	LON-CAPA, Angel, Blackboard	view course syllabus; access readings or homework; do homework assignments; submit homework; do quizzes or tests; check grades
Participant 5 Exp., Male	immediately access the “search” and type in a keyword	2	2-3 times/wk.	LON-CAPA, Angel	view course syllabus; access readings or homework; do homework assignments; submit homework; check grades
Participant 6 Exp., Female	scan the headings to find relevant information	2	2-3 times/wk.	LON-CAPA, Angel	view course syllabus; access readings or homework; do homework assignments; submit homework; check grades; play PowerPoints
Participant 7 Exp., Female	scan the headings to find relevant information; read the content on the homepage, then decide how to proceed; immediately access the “search” and type in a keyword	3	2-3 times/wk.	LON-CAPA, Angel	view course syllabus; send or view messages; do homework assignments; check grades; upload an individual resources page; collect data
Participant 8 Inexp., Female	read all the navigation items then make a decision how to proceed; scan the headings to find relevant information; read the content on the homepage, then decide how to proceed	None	Once/wk.	Angel	view course syllabus; participate in on-line discussions or forums; send or view messages; access readings or homework; submit homework; check grades; schedule or keep track of activities

Participant 9 Inexp., Male	read all the navigation items then make a decision how to proceed; read the content on the homepage, then decide how to proceed; access the site map if one is available	None	Never	Angel	view course syllabus; participate in on-line discussions or forums; send or view messages; access readings or homework; do homework assignments; submit homework; do quizzes or tests; check grades; play PowerPoints; collect data
Participant 10 Inexp., Female	scan the headings to find relevant information; immediately access the “search” and type in a keyword	None	4-5 times/wk.	Angel	view course syllabus; send or view messages; access readings or homework; do homework assignments; submit homework; do quizzes or tests; check grades; play PowerPoints; play audio or video clips
Participant 11 Inexp., Female	scan the headings to find relevant information; read the content on the homepage, then decide how to proceed	None	4-5 times/wk.	Angel, Blackboard	view course syllabus; participate in on-line discussions or forums; access readings or homework; do homework assignments; submit homework; do quizzes or tests; check grades; play PowerPoints
Participant 12 Inexp., Male	immediately access the “search” and type in a keyword	None	Never		

Attachment 4 – LON-CAPA Student Evaluation Task Scenarios

The following tasks will be attempted by experienced and inexperienced student users using the LON-CAPA system.

First, log into the LON-CAPA system using this fake MSU Net ID and password: [Net ID], [password]. For this evaluation, you are only enrolled in one course that is using LON-CAPA, called the Usability course.

1. Clear your critical message(s).

- Observation: Where do they go first?
- Observation: Problems locating this information?
- Probe: How was that task?
- Probe: Was it clear to you how to get the information you needed?
- Conditional Probe: If users access help, ask: How was the help feature in completing the task?

Time limit: 5 minutes

Success criteria:

- Click on “Confirm Receipt” or “Confirm Receipt and Reply.”
- If the second button is clicked, then the user will type and submit a message to complete the task.

2. Go to the first homework problem that is due this week and submit an answer for each homework question that is due. The answers are provided for you in the questions.

- Observation: Where do they go first?
- Observation: Problems locating this information?
- Probe: How was that task?
- Probe: Was it clear to you how to get the information you needed?
- Conditional Probe: If users access help, ask: How was the help feature in completing the task?

Time limit: 5 minutes

Success criteria:

Option 1:

- Click on “Navigate Contents.”
- In the drop-down menu, choose either action, “show me my first homework problem” or “show me my uncompleted homework,” and click “Go.”
- The homework is highlighted with red angle brackets, click that home homework link.

Option 2:

- Click on “Navigate Contents.”
- Click on/Expand the “Units” folder.
- Click on the homework problem with a yellow arrow to the left of it, with the test week as a due date.

Options 3:

- Click on the right arrow at the top of the page until the user has reached the homework question.

3. After submitting your answers to the homework questions, you decide to ask the professor a question about the first homework question. Send a message to your instructor asking which chapter the reading associated with that question was located in.
- Observation: Where do they go first?
 - Observation: Problems locating this information?
 - Probe: How was that task?
 - Probe: Was it clear to you how to get the information you needed?
 - Conditional Probe: If users access help, ask: How was the help feature in completing the task?

Time limit: 5 minutes

Success criteria:

- Follow either option for Task 2 (the previous task's) success criteria to get to the first homework problem.
- Once there, click the grey "FDBK" (feedback) button in the menu above the question.
- On the message screen, type the message, and possibly choose options by clicking check boxes, then click the "Send" button.

4. Upload the file named [usabilitypaper.doc] located on the desktop of the PC to your portfolio.

- Observation: Where do they go first?
- Observation: Problems?
- Probe: Any comments on that task?
- Probe: Was there anything you found confusing or misleading?
- Conditional Probe: If users access help, ask: How was the help feature in completing the task?

Time limit: 5 minutes

Success criteria:

- Click on "Main Menu."
- Click on the "Port" button.
- Click the "Browse" button next to "Upload file to current directory."
- Choose the file located on the desktop and click "Open" in the dialogue box.
- Click the "Upload" button.
- Repeat these steps for the second file.

5. Submit the file [usabilitypaper.doc], located in your portfolio, to Project 1, [The Metric System in the U.S.].

- Observation: Where do they go first?
- Observation: Problems?
- Probe: Any comments on that task?
- Probe: Was there anything you found confusing or misleading?
- Conditional Probe: If users access help, ask: How was the help feature in completing the task?

Time limit: 5 minutes

Success criteria:

- Click on "Navigate Contents."
- Click on/Expand the "Projects" folder.
- Click on "Project 1."
- Click on the "Select Portfolio Files" link.
- Check the box to the left of the file.

- Click “Select checked files, and close window.”
- Click on “Submit Answer.”

6. Print the homework set that is due this week (same as homework set in task 2).

- Observation: Where do they go first?
- Observation: Problems?
- Probe: Any comments on that task?
- Probe: Was there anything you found confusing or misleading?
- Conditional Probe: If users access help, ask: How was the help feature in completing the task?

Time limit: 5 minutes

Success criteria:

- Navigate to the homework as done in Task 2.
- Click on the “PRT” button.
- Select the radio button “Problems in Units.”
- Click on the “Select Portfolio Files” link.
- Click the “Next” button.
- Click the “Next” button.
- In the Adobe PDF window, select the print option

7. What is your score for your exam 1 grade?

- Observation: Where do they go first?
- Observation: Problems?
- Probe: Any comments on that task?
- Probe: Was there anything you found confusing or misleading?
- Conditional Probe: If users access help, ask: How was the help feature in completing the task?

Time limit: 5 minutes

Success criteria:

- Click on “Main Menu”.
- Click on the “GRDS” button.
- The exam score will be located in the table.

8. Log out of LON-CAPA.

- Observation: Where do they go first?
- Observation: Problems?
- Probe: Any comments on that task?
- Probe: Was there anything you found confusing or misleading?
- Conditional Probe: If users access help, ask: How was the help feature in completing the task?

Time limit: 5 minutes

Success criteria:

- Click on “Exit.”

Attachment 5 – Results by Task

TASK 1	Successfully Completed?	Error or Gave Up?	Time to Complete or Give Up
P2 - Experienced	yes		00:24.8
P3 - Experienced	yes		00:33.8
P4 - Experienced	yes		00:14.5
P5 - Experienced	yes		01:08.9
P6 - Experienced	yes		00:05.1
P7 - Experienced	yes		00:04.1
P1 - Inexperienced	yes		01:13.2
P8 - Inexperienced	yes		00:27.8
P9 - Inexperienced	yes		01:57.6
P10 - Inexperienced	yes		00:06.7
P11 - Inexperienced	yes		00:26.1
P12 - Inexperienced	no	gave up	02:15.6

TASK 2	Successfully Completed?	Error or Gave Up?	Time to Complete or Give Up
P2 - Experienced	yes		06:01.9
P3 - Experienced	yes		02:27.0
P4 - Experienced	yes		04:25.3
P5 - Experienced	yes		02:05.9
P6 - Experienced	yes		01:56.4
P7 - Experienced	yes		04:41.0
P1 - Inexperienced	yes		07:01.6
P8 - Inexperienced	yes		05:37.1
P9 - Inexperienced	yes		08:28.5
P10 - Inexperienced	yes		06:20.9
P11 - Inexperienced	yes		09:30.5
P12 - Inexperienced	yes		04:24.3

TASK 3	Successfully Completed?	Error or Gave Up?	Time to Complete or Give Up
P2 - Experienced	no	error	06:25.9
P3 - Experienced	no	error	02:51.0
P4 - Experienced	no	gave up	07:04.3
P5 - Experienced	no	error	02:54.1
P6 - Experienced	no	error	01:58.6
P7 - Experienced	no	error	00:52.5
P1 - Inexperienced	no	gave up	05:14.4
P8 - Inexperienced	no	error	02:04.1
P9 - Inexperienced	no	error	04:19.2
P10 - Inexperienced	no	error	06:12.6
P11 - Inexperienced	no	error	02:35.5
P12 - Inexperienced	no	gave up	04:58.7

TASK 4	Successfully Completed?	Error or Gave Up?	Time to Complete or Give Up
P2 - Experienced	yes		01:30.2
P3 - Experienced	yes		00:58.4
P4 - Experienced	yes		01:26.8
P5 - Experienced	no	gave up	04:46.3
P6 - Experienced	no	gave up	01:04.6
P7 - Experienced	yes		03:42.8
P1 - Inexperienced	yes		00:23.9
P8 - Inexperienced	yes		02:25.4
P9 - Inexperienced	yes		03:37.2
P10 - Inexperienced	no	gave up	02:24.1
P11 - Inexperienced	yes		03:22.5
P12 - Inexperienced	yes		01:10.1

TASK 5	Successfully Completed?	Error or Gave Up?	Time to Complete or Give Up
P2 - Experienced	no	gave up	02:53.3
P3 - Experienced	no	system error	02:50.3
P4 - Experienced	yes		01:09.4
P5 - Experienced	yes*		01:12.2
P6 - Experienced	yes*		01:06.0
P7 - Experienced	no	error	00:23.3
P1 - Inexperienced	no	gave up	06:05.3
P8 - Inexperienced	yes		01:22.6
P9 - Inexperienced	no	error	02:19.9
P10 - Inexperienced	yes*		01:04.7
P11 - Inexperienced	yes		02:15.7
P12 - Inexperienced	yes		01:02.1

*Task was changed as these participants were unable to successfully complete the previous task. See task discussion for further information.

TASK 6	Successfully Completed?	Error or Gave Up?	Time to Complete or Give Up
P2 - Experienced	yes		01:05.4
P3 - Experienced	yes		01:12.8
P4 - Experienced	yes		02:38.2
P5 - Experienced	yes		02:06.7
P6 - Experienced	no	error	01:43.5
P7 - Experienced	yes		00:36.8
P1 - Inexperienced	no	gave up	04:25.9
P8 - Inexperienced	yes		03:02.2
P9 - Inexperienced	no	error	01:56.2
P10 - Inexperienced	no	error	01:53.2
P11 - Inexperienced	yes		04:48.7
P12 - Inexperienced	no	error	03:24.9

TASK 7	Successfully Completed?	Error or Gave Up?	Time to Complete or Give Up
P2 - Experienced	yes		00:16.1
P3 - Experienced	yes		00:07.2
P4 - Experienced	no	gave up	04:09.2
P5 - Experienced	yes		00:09.2
P6 - Experienced	no	gave up	01:25.2
P7 - Experienced	no	error	01:09.7
P1 - Inexperienced	yes		01:54.1
P8 - Inexperienced	no	error	01:06.5
P9 - Inexperienced	no	gave up	03:33.7
P10 - Inexperienced	no	error	02:04.9
P11 - Inexperienced	yes		01:29.3
P12 - Inexperienced	no	gave up	04:32.7

TASK 8	Successfully Completed?	Error or Gave Up?	Time to Complete or Give Up
P2 - Experienced	yes		00:06.1
P3 - Experienced	yes		00:05.6
P4 - Experienced	yes		00:07.5
P5 - Experienced	yes		00:04.5
P6 - Experienced	yes		00:06.1
P7 - Experienced	yes		00:09.9
P1 - Inexperienced	yes		00:12.0
P8 - Inexperienced	yes		00:14.3
P9 - Inexperienced	yes		00:08.0
P10 - Inexperienced	yes		00:03.2
P11 - Inexperienced	yes		00:14.2
P12 - Inexperienced	yes		00:04.2

Attachment 6 – Post-study Questionnaire Results

1. How easy was clearing your critical message(s)?

	1 - Very Difficult	2 - Difficult	3 - Neutral	4 - Easy	5 - Very Easy	MEAN
Experienced				n=3	n=3	4.5
Inexperienced		n=2	n=1	n=3		3.17
Combined		n=2	n=1	n=6	n=3	3.83

Why?

Experienced:

- P2 – Easy – But I am not sure how to delete or if confirming the message actually deletes it.
- P3 - Easy – You just delete the message.
- P4 – Very easy – The two options were right on the screen when I logged in. Also, there was verification I had no new messages.
- P5 – Very Easy – All I had to do was click that I received the message.
- P6 – Easy – Directions on screen were pretty clear.
- P7 –Very Easy – It was the touch of a button.

Inexperienced:

- P1 – Difficult - Didn't see a “delete message” type link or application.
- P8 – Easy – All you had to do was confirm, then they were cleared.
- P9 – Easy
- P10 – Neutral – It was not very specific.
- P11 – Easy – It was displayed on the homepage as soon as you logged in.
- P12 – Difficult – I could not see the message that was checked.

2. How easy was completing and submitting your homework?

	1 - Very Difficult	2 - Difficult	3 - Neutral	4 - Easy	5 - Very Easy	MEAN
Experienced				n=3	n=3	4.5
Inexperienced		n=4		n=2		2.67
Combined		n=4		n=5	n=3	3.58

Why?

Experienced:

- P2 – Very Easy – It is very easy. You just hit the submit button after entering the answer.
- P3 – Very Easy – I do it all of the time.
- P4 – Easy – The problem set wasn't labeled but the “due by date” let me know it was homework that was due.
- P5 –Very Easy – Because all I had to do was answer the question and click submit.
- P6 – Easy – I found the homework quickly and once you start there is a “submit” button directly under the question.
- P7 –Easy – I have experience doing so...I just got confused in the beginning.

Inexperienced:

- P1 – Difficult – It was only hard to find where the homework was.
- P8 – Difficult – It was hard at first because I could not find where the homework problems were at.
- P9 – Easy – Straight forward.
- P10 – Difficult – It was hard to understand where my homework was.
- P11 – Difficult – There was no icon that was specifically for homework. It was under readings which was confusing.
- P12 – Easy – The folders were right there.

3. How easy was uploading files to your portfolio?

	1 - Very Difficult	2 - Difficult	3 - Neutral	4 - Easy	5 - Very Easy	MEAN
Experienced	n=1	n=2	n=2		n=1	2.67
Inexperienced	n=1		n=2	n=2	n=1	3.33
Combined	n=2	n=2	n=4	n=2	n=2	3

Why?

Experienced:

- P2 – Neutral – The task was not difficult, but it can be if you never used it before. I have never used it, but once I found the link it was just like other programs.
- P3 – Difficult – I’ve never used that feature before.
- P4 – Very Easy – There’s an option in the main menu for portfolio. The portfolio manager had an easy and recognizable interface.
- P5 – Very Difficult- I’ve never had to upload a file before.
- P6 – Difficult – I wasn’t sure on how to do it.
- P7 – Neutral – Didn’t know how, but once I figured it out it worked out fine.

Inexperienced:

- P1 – Very Easy – It was only a few clicks. Browse feature helped too.
- P8 – Neutral – As soon as I figured out that uploading was done in the portfolio, then the rest was easy.
- P9 – Easy – A space for uploading was already present.
- P10 – Very Difficult – there was no instruction on the webpage.
- P11 – Neutral – There was an icon for portfolio but they didn’t make clear that that was where you uploaded files.
- P12 – Easy – It was similar to other email systems.

4. How easy was submitting a file from your portfolio for a project?

	1 - Very Difficult	2 - Difficult	3 - Neutral	4 - Easy	5 - Very Easy	MEAN
Experienced	n=2			n=2	n=2	3.33
Inexperienced	n=1	n=1		n=4		3.17
Combined	n=3	n=1		n=6	n=2	3.25

Why?

Experienced:

- P2 – Very Difficult – I had no idea how to do it. I haven’t had to do it before.
- P3 – Very Difficult – I’d never done that before and couldn’t figure out quickly so I tried another way, which worked.
- P4 – Very Easy – The option was easy to find for the projects.
- P5 – Easy – Once I found how to submit a file, all I had to do was browse and find the file I wanted to submit.
- P6 – Easy – I had previously submitted files for my CSE class, so I was familiar with the matter.
- P7 – Very Easy – I have much experience with uploading in emails etc.

Inexperienced:

- P1 – Very Difficult – I could not find where it said submit for anywhere.
- P8 – Difficult – I had to difficulty finding the area to upload it for the project.
- P9 – Easy – Name the file as you please, then upload the document to this file.
- P10 – Easy – There were specific instructions.
- P11 – Easy – There was a link available that took you right to your portfolio files
- P12 – Easy – I just went into the project and pulled it out of my portfolio. It guided me well.

5. How easy was printing your homework?

	1 - Very Difficult	2 - Difficult	3 - Neutral	4 - Easy	5 - Very Easy	MEAN
Experienced			n=2	n=1	n=3	4.17
Inexperienced		n=1	n=3	n=2		3.17
Combined		n=1	n=5	n=3	n=3	3.67

Why?

Experienced:

- P2 – Very Easy – I have printed my homework many times before. All of the links are there and you tell the program what to print.
- P3 – Very Easy – Simple instructions
- P4 – Neutral – Had to make assumptions on what I was doing.
- P5 – Easy – I’ve never printed from capa before, but I just followed the directions, which were very clear.
- P6 – Neutral – It wasn’t sure how to print all the questions on one page.
- P7 – Very Easy – Done it many times with chemistry homework.

Inexperienced:

- P1 – Difficult – It was hard to print all the homework on one page.
- P8 – Easy – The print button was easy to find.
- P9 – Easy – Displayed options.
- P10 – Neutral – The “printable version” button was not obvious.
- P11 – Neutral – It was hard to get to the screen that shared all the questions and your answers.
- P12 – Neutral – After I saw the print button in the upper right hand corner, it was easy.

6. How easy was it to find your exam score?

	1 - Very Difficult	2 - Difficult	3 - Neutral	4 - Easy	5 - Very Easy	MEAN
Experienced	n=1		n=1	n=1	n=3	3.83
Inexperienced		n=3	n=2	n=1		2.67
Combined	n=1	n=3	n=3	n=2	n=3	3.25

Why?

Experienced:

- P2 – Easy – It was easy because I’ve used the link before and when looking at the results they are very clear and they give you a good idea of what your grade is.
- P3 – Very Easy – Done it often, easy to set up (link is readily available)
- P4 – Very Difficult – couldn’t find an option to display my actual grade.
- P5 – Very Easy – I’ve done this many times before.
- P6 – Neutral - I found the correct/incorrect answers but not an actual scene
- P7 – Very Easy – Look at the checkmarks under the heading of exam 1.

Inexperienced:

- P1 – Neutral – The “GRDs” on the button was the only clue that the grades might be there.
- P8 – Neutral – The exam portion of the website was easily accessible, then all you had to do was count up your score.
- P9 – Difficult – Didn’t tell you what your score was.
- P10 – Difficult – The checkmarks were not clear.
- P11 – Easy – The grade icon made it pretty self-explanatory.
- P12 – I found the other scores, such as lab report scores, but could not find the exam scores.

7. How easy was it logging out of the system?

	1 - Very	2 -	3 - Neutral	4 - Easy	5 - Very	MEAN

	Difficult	Difficult			Easy	
Experienced				n=2	n=4	4.67
Inexperienced				n=1	n=5	4.83
Combined				n=3	n=9	4.75

Why?

Experienced:

- P2 – Very Easy – It is just a tab at the top of the screen. However, I don't really use it a lot.
- P3 – Easy – I use a different browser and don't use logout, but the option wasn't hard to find.
- P4 – Very Easy – The option was always located in the top of the screen as exit.
- P5 – Very Easy – Just had to click exit.
- P6 – Easy – The exit button is noticeable and easy to find.
- P7 – Very Easy – Has to be done after each session.

Inexperienced:

- P1 – Very Easy – Just had to click exit.
- P8 - Very Easy – You only had to go to the main menu and press exit.
- P9 – Easy – Just a click of a button.
- P10 – Very Easy – The logout button was large and clear.
- P11 – Very Easy – There was an exit icon.
- P12 – Very Easy – It was just a larger font button that said “exit.”

8. Overall, how easy was it for you to use LON-CAPA?

	1 - Very Difficult	2 - Difficult	3 - Neutral	4 - Easy	5 - Very Easy	MEAN
Experienced			n=2	n=3	n=1	3.83
Inexperienced		n=2	n=2	n=2		3
Combined		n=2	n=4	n=5	n=1	3.42

Why?

Experienced:

- P2 – Neutral – Before coming here I would have said very easy, but this survey has pointed out that it is used for a lot more than what I use it for even though I use it a lot.
- P3 – Easy – The set-up of the system is very intuitive
- P4 – Easy – The majority of things are located in the main menu or have a button for, you just have to read the screen.
- P5 – Easy – I've used it before, but I still don't know how to use every aspect of it.
- P6 – Neutral – I know how to do something but not others.
- P7 – Very Easy – it's easy to learn and keep yourself organized.

Inexperienced:

- P1 – Difficult – The set-up and working was very “non-instructional.” The placement of items on the screen made noticing important details hard.
- P8 – Neutral – It was slightly complicated at first, but once I became familiar with the system it was easier.
- P9 – Easy – More advanced, faster.
- P10 – Difficult – Instructions and headings were not clear.
- P11 – Easy – After realizing exactly what was under each icon in the main menu it was easy.
- P12 – Neutral – It was my first time ever in the program.

9. To what extent did the features of the LON-CAPA system meet your expectations?

	1 – Not at all	2 – A Little	3 – Neutral	4 – Somewha	5 - Very much so	MEAN

			t met		
Experienced			n=3	n=3	4.5
Inexperienced		n=3	n=2	n=1	3.17
Combined		n=3	n=5	n=4	3.83

Why?

Experienced:

- P2 – Somewhat Met – When the program is working correctly I think it is good because you can turn in assignments from anywhere, you don't have to be in class. -
- P3 – Very Much So – It does what it is supposed to do.
- P4 – Somewhat Met – For someone who isn't computer savvy and familiar with online GUIs they might need more explanation.
- P5 – Very Much So – Everything I've been asked to do in Lon-Capa has been very easy.
- P6 – Somewhat Met – I think I would appreciate the features more if I knew how to use all of them.
- P7 – Very Much So – Good way for classes to do homework etc.

Inexperienced:

- P1 – A Little – The grading system was what I expected but other portions were difficult to use and understand.
- P8 – Somewhat Met – It seems to work, it got the stuff I needed to do done.
- P9 – Very Much So
- P10 – A Little – It was complicated to use.
- P11 – Somewhat Met – I thought it might be a little more like ANGEL.
- P12 – A Little – I thought it may be a little more user-friendly.

10. How easy was it to understand the way the site was organized?

	1 – Not at all	2 – Difficult	3 - Neutral	4 – Easy	5 - Very Easy	MEAN
Experienced		n=1		n=5		3.67
Inexperienced		n=3	n=2	n=1		2.67
Combined		n=4	n=2	n=6		3.17

Why?

Experienced:

- P2 – Difficult - When I was asked to do a task I don't normally do it was difficult to follow how to complete them although they were links on the first page.
- P3 – Easy - The design is simple. Given more time/the desire to do things a specific way, I think I could use all of the aspects.
- P4 – Easy – Menus and submenus, nothing overwhelming.
- P5 – Easy – There should be more tabs or links to make it easier to navigate through.
- P6 – Easy – It's clearly organized.
- P7 – Easy – A couple of things are in different places than I would have thought they would be.

Inexperienced:

- P1 – Difficult – Until finding the main menu option it seemed impossible to navigate. Even after finding it, symbols and wording inhibited navigation.
- P8 – Difficult – Things could be more clear and organized differently. I had trouble finding things.
- P9 – Neutral
- P10 – Difficult – The headings were not specific enough.
- P11 – Easy – The tab bars above explained where to find things. Most of the important things were under the main menus.
- P12 – Neutral - I did not understand how to send messages.

11. How easy was it to navigate through the site?

	1 – Not at all	2 – Difficult	3 - Neutral	4 – Easy	5 - Very Easy	MEAN
Experienced				n=4	n=2	4.33
Inexperienced		n=1	n=5			2.83
Combined		n=1	n=5	n=4	n=2	3.58

Why?

Experienced:

- P2 – Easy – It is easy because you just click one link after the other to search for whatever you are looking for.
- P3 – Very Easy – Same as 8. Basically, links are well-labeled.
- P4 – Easy – Most things had a button for the task.
- P5 – Easy – Tabs could be arranged differently to navigate easier.
- P6 – Easy - I had already used lon-capa so I knew how to use it.
- P7 – Very Easy – Step by step of where and how to go.

Inexperienced:

- P1 – Difficult – There were not enough links to places that were similar or related.
- P8 – Neutral – Navigating was much easier than actually finding what I wanted.
- P9 – Neutral
- P10 – Neutral – There were a variety of headings, just not exactly what I needed.
- P11 – Neutral – For being on the site for the first time it was more like “exploring” where to find each task.
- P12 – Neutral – I didn’t have to go many places other than the syllabus.

12. How useful do you find the LON-CAPA system to be?

	1 – Not at all	2 – Of little use	3 – Neutral	4 – Somewhat useful	5 – Very useful	MEAN
Experienced				n=2	n=4	4.67
Inexperienced			n=1	n=4	n=1	4
Combined			n=1	n=6	n=5	4.33

Why?

Experienced:

- P2 – Somewhat Useful – Because you can print your homework and answer the questions from anywhere. Plus, if you don’t understand something that’s in the textbook you can communicate with other people in your class or read extra notes that your teacher has available.
- P3 – Very Useful – The homework discussion boards are very helpful. I am not sure if I like the professors being able to read anonymous posts, though.
- P4 – Very Useful – I can submit homework, hold files, talk to other students in the class without knowing them. Makes getting homework done easy because I can do it anywhere.
- P5 – Very Useful – Doing online homework is easy and I like being able to check my grades whenever I can.
- P6 – Somewhat Useful – You can check your homework, notes, and exams on Lon Capa. It’s nice to have it all organized for you.
- P7 – Very Useful – To check grades and to do homework.

Inexperienced:

- P1 – Somewhat Useful – I would like to be able to see my grades.
- P8 – Somewhat Useful – I think I would find it useful if I had a class that incorporated it.
- P9 – Very Useful – It would take time for people to get used to the software.
- P10 – Somewhat Useful – Systems such as these are always helpful to stay organized and up to date.

- P11 – Somewhat Useful – It’s nice to have an online system where you can check your grades and retrieve important info from class.
- P12 – Neutral – Tough to navigate at first except for in the syllabus part.

Additional Comments:

- P1, Inexperienced – The color was very bland and annoying. Color scheme should be changeable.
- P2, Experienced – It makes it easier to communicate with your classmates.
- P3, Experienced – Even though I don’t use Capa for anything besides basic homework and messages, I found it very useful in the pretend course.
- P5, Experienced – Overall, I find Lon-Capa very useful and prefer it over ANGEL.
- P8, Inexperienced – A lot of kids I know say it took them at least a half hour to figure out how to use lon-capa, and I understand what they mean now, because I have been using the internet forever, yet I still found parts of lon-capa to be difficult.
- P10, Inexperienced – It takes some getting used to.
- P12, Inexperienced – It was tough to navigate at first, especially through the message and chat areas. But otherwise it may take a little time at first but I could find my way around.

Attachment 7 – Selected Screen Shots from the LON-CAPA System

Login Screen

LON-CAPA @MSU
The LearningOnline Network with CAPA

Accessibility Options

About LON-CAPA

User Authentication

Username:

Password:

Domain:

[Help](#)

Domain: msu
Server: msua8 (access)
Load: 1.9 percent
User Load: 15.00 percent

System Administration:
korte@lite.msu.edu

Server Administration:
raeburn@msu.edu

[Contact Helpdesk](#)
2.1.3-20060331

MICHIGAN STATE UNIVERSITY

The LearningOnline Network with CAPA

Critical Messages Screen

Main Menu	Launch Remote Control	Courses	Exit	LON-CAPA	
---------------------------	---------------------------------------	-------------------------	----------------------	--------------------------	-------------------------------------------------------------------------------------

Communication and Messages

UAC Subject14
No Role, Cumulative Privileges

 [Menu->Communication/Messages->Displaying Critical Messages](#) Communication and Messages


Critical Messages

From: [Felicia Berryman](#) (felicia@msu) Fri Mar 24 16:13:04 2006 (EST)
Subject: Exam 2 has moved to N100 BCC


Exam 2 on Thursday, April 4 at 7PM will not be in our regular classroom. The location has moved to N100 Business College Complex.


You have to confirm that you received this message. After confirmation, this message will be moved to your regular inbox


Course Main Screen


[Main Menu](#) [Return to Last Location](#) [Navigate Contents](#) [Launch Remote Control](#) [Courses](#) [Exit](#) [LON-CAPA](#) 


Usability - Student: Syllabus


 Go to the previous resource in the course sequence

Go to the next resource in the course sequence 

 Provide my evaluation of this resource


 Provide feedback messages or contribute to the course discussion about this resource

 Show catalog information

 Prepare a printable document


Course Documents

UAC Subject14
Student
Usability - Student




Uploaded Document - Syllabus

It is recommended that you use an up-to-date virus scanner before handling this file.

 [Click to download or use your browser's Save Link function](#)

Main Menu Screen

Main Menu [Launch Remote Control](#) Courses Exit LON-CAPA 

Main Menu UAC Subject14
No Role, Cumulative Privileges

COURSES	Choose the course to work on
PORT	Enter my portfolio space
VBKM	Use or edit my bookmark collection
CLDR	Course announcements and my calendar
COM	Send and receive messages
PREF	Set my user preferences
EXIT	Exit LON-CAPA

Navigate Contents Screen

Main Menu Return to Last Location **Navigate Contents** Launch Remote Control Courses Exit LON-CAPA 


Navigate Course Contents

UAC Subject14
Student
Usability - Student

  Sort by:

-  >Syllabus<
-  Lecture Notes
-  Readings
-  Units
-  Matter
-  Motion
-  Projects
-  Lab Grades
-  Exams

Portfolio Screen

Main Menu Return to Last Location Navigate Contents Launch Remote Control Courses Exit LON-CAPA 

Portfolio Manager

UAC Subject14
Student
Usability - Student


Upload file to current directory:

Create subdirectory in current directory:

[portfolio/](#)

Actions Name Size Last Modified

Grades Screen


[Main Menu](#) [Return to Last Location](#) [Navigate Contents](#) [Launch Remote Control](#) [Courses](#) [Exit](#) [LON-CAPA](#) 

Points Display

UAC Subject14
Student
Usability - Student

This may take a few moments to display.

Folder	Points Scored / Total
Units	0 / 6
Matter	0 / 5
Motion	0 / 9
Projects	0 / 40
Lab Grades	26 / 30
Exams	34 / 50
Exam 1	34 / 50

Total Points: **60**
Max Possible To Date  : **131**
Total Points In Course: **140**

Communication and Messages Screen

Main Menu Return to Last Location Navigate Contents Launch Remote Control Courses Exit LON-CAPA

Communication and Messages

UAC Subject14
Student
Usability - Student

Usability - Student -> Communication/Messages Communication and Messages


Make New Folder [Send Message to User\(s\)](#)

Folder: Show

New Messages

	Date	Username	Domain	Subject	Course
Open	Fri Mar 24 16:13:04 2006 (EDT)	felicia	msu	Exam 2 has moved to N100 BCC	Usability - Student

Courses Screen

[Main Menu](#) [Return to Last Location](#) [Navigate Contents](#) [Launch Remote Control](#) [Courses](#) [Exit](#) [LON-CAPA](#) 

User Roles

UAC Subject14
Student
Usability - Student

[General Intro ?](#) [Click here for help ?](#)

Select a Course to Enter

User Role	Extent	Start	End
Student	Usability - Student Syllabus Section/Group: 1	Fri Nov 4 08:00:00 2005 (EDT)	Sun Dec 31 20:00:00 2006 (EDT)
Currently selected.			
<input type="button" value="Select"/>	No role specified		