The University of Alabama in Huntsville

CM 452: User-Centered Design

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Canvas Navigation Usability Report & Design

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EXECUTIVE SUMMARY

This report explores the redesign of Canvas LMS, a course management system with the focus user base of this report being students, professors, and other administrators within the higher educational system. Particularly, this report focuses on redesigning the navigational features of Canvas, to improve the accessibility of the software, as well as its users' productivity. In the long run, this will prove beneficial, and therefore the right strategy for the organization, as it can increase consumer retention and acquisition, cut costs, and increase overall profits.

The report starts with a description of Canvas LMS as a product, in terms of its use, its customers and other unique features it offers to its users; it also provides a simple overview of the Canvas LMS interface, as would be experienced by a user. It goes on to a contextual inquiry section that provides information on the research environment and user testing, which helped highlight pain points of the product's user experience, as well provide potential solutions. Building on the conclusions derived from the contextual inquiry, the report goes on to list the necessary user, system, and content requirements, which will serve as the basis for building a prototype in which the observed pain can be solved.

The next and final phase of the report involves the process surrounding the development of a prototype, showcasing the redesign of Canvas LMS. It starts from the ideation stage, in which multiple solutions and redesigns are proposed but shut down as limitations are exposed, and then leads into the final prototype. In addition to this, the report provides feedback procured from user testing of the prototype, which can be implemented in further iterations of these updates to the product.

INTERACTION DESCRIPTION

This report focuses on the highly used course management software known as Canvas. It is mostly used by colleges and universities all over the world to aid both professors and students in organizing their courses, assignments, projects, and other academic responsibilities all in one convenient place. Canvas provides many functionalities, such as a calendar populated with daily academic tasks, an internal email feature, a convenient mobile phone application, and many more.

To go into more detail about the software's interface, the landing page of Canvas is its 'dashboard' page, in which most of its functionality is displayed. On the far-left corner, there is a vertical bar, which contains Canvas' major features, such as 'Account', 'Dashboard', 'Courses', 'Calendar', 'Inbox', 'Help', and 'History'. By clicking on the icons of these features, students can gain access to their relevant coursework, messages from professors and classmates, as well as get help on how to navigate through the Canvas software in case they are not familiar with it. This vertical bar is always present no matter what page a student navigates to. On the 'dashboard' page, in the middle, there are usually courses arranged into neat squares that can be color coded or edited to the student's desire; while on the far right, there is a 'To Do List', which highlights all upcoming assignments and right below that is a 'Recent Feedback' section that shows grades on the most recent assignments.

This report places an emphasis on the software's navigational features, particularly in terms of its usability for students in higher education institutions. As a result, our design focus is on creating an efficient navigational pathway that increases the ease and speed of access to Canvas academic resources for students

Environment

Overview & Key Findings: The environmental analysis for this contextual inquiry included observing settings in which users interact with Canvas navigation tools. This study prioritized visual, auditory, and tactile factors of the users' environment due to their relevance in the chosen settings. These differences were taken into consideration when analyzing data which ensures explanations for any outlier data points that may occur. **The inquiry's data shows that Canvas features support learning in various settings due to limited user effects from environmental distractions.**

Locations: Two specific locations were chosen at UAH's campus because of the high volume and variety of environmental conditions and users. **Morton Hall** is the UAH facility designated for the College of Arts, Humanities, and Social Sciences and provided a more studious product usage setting. **Charger Union**, the UAH student union, allowed users to interact in a busier and more social setting. These locations were both visited on weekdays because of the higher volume of students compared to weekends. Morton Hall was visited on a weekday afternoon due to high amounts of students going to class. Charger Union was visited on a weekday evening because of the influx of post-class students.

Factors: This study prioritized users' visual, auditory, and tactile senses because of these factors' potential to alter users' navigation of Canvas. **Visual factors** included device brightness, overhead lighting brightness, device size, and OS type (Mac/Windows). **Auditory factors** took into consideration noise type (conversational/object/silence) and noise levels. Finally, **tactile factors** involved GUI interaction type (touchpad/touchscreen/mouse) and device inclination (flat /non-flat surface).

Example: The claim that environmental factors do not severely affect Canvas user productivity is supported because only one user verbally confirmed being distracted due to another person attempting to engage in conversation during the task analysis. Despite this interference, the user proceeded to complete the task immediately after the distraction.

Application: This redesign takes into consideration the existing Canvas features that promote online learning in many different learning environments.

Users

The user analysis involved gathering information about Canvas users that has potential to influence their interaction with Canvas. The data in this study consisted of collecting user demographics to distinguish any potential data discrepancies caused by these factors. **The average user in this study was 21-year-old, white, upperclassman, transfer student that has high levels of technology access and is highly experienced using Canvas. However, it is important to note that Canvas users come from different backgrounds and vary in race, age, gender, and socio-economic status that may impact product usage abilities. Therefore, accessibility must be integrated for many different types of users.**

<u>**Identity Demographics:**</u> This type of demographic explains potential influence on product usage based on users. These factors are important due to technological learning gaps that may occur within different social groups.

- Age: 75% of users are 21 years old; 25% are 22 years old
- Race: 75% of users are white; 25% are Latino
- Gender: 50% of users are women; 50% are men

<u>**Situational Demographics:**</u> This type of demographic accounts for data trends in relation to external demographics that may coincide with product usage. Users with different experiences may have more difficulties using Canvas due to external factors in their lives. These should be taken into consideration to make Canvas accessible for all users.

- Experience Level: 50% of users have high Canvas experience levels; 50% have medium or low experience levels
- Year in College: 50% of users are fourth years; 50% are third years
- Transfer Status: 75% of users are transfer students from community college
- Technology Access: 100% of users have high amounts of technology access

Business Objectives

This redesign aims to increase Canvas usability through redesigns that **promote accessibility and productivity**. Providing accessible and productive features will create user satisfaction, which will increase customer satisfaction and profits, while also contributing to the growing online learning community that increases global education and knowledge.

REQUIREMENTS

User Requirements

The user shall be able to:

- **Control their account settings**. These settings may include profile settings, display settings, accessibility settings, and notification settings

- **View published content** such as course information and feedback, university-specific information, and Canvas support.

- **Interact with course content** such as submitting assignments, viewing feedback/grades, watching lecture videos, and contributing to online discussions.

- **Identify the specific purpose of each navigation tool.** For example, users may identify that the inbox tool is used to send messages.

- **Navigate to a relevant subsection of the system to complete a task.** For example, users can navigate from the dashboard to specific content in an individual course

Functional Requirements

The system must:

- Comply with federal higher education FERPA laws
- Have secure user data management
- Be able to integrate with other third-party applications
- Have cloud-based access for students
- Be able to support relevant file types and sizes
- Be able to assign users a role
- Have interactive elements that support virtual learning

Content Requirements

Content should include:

- Brand approved and standardized logo, color palette, fonts, written tone & voice usage
- Easily identifiable and labeled navigation tool/icon usage
- Indicated site hierarchy for users
- Easily adjustable and accessible auditory content features
- Search functions for navigation ease

IDEATION

Alternative Designs Considered	Final Designs Implemented
A sitemap was considered for user navigation indications	Breadcrumbs were used for the redesign instead due to their existing use in Canvas. Familiarity is important for user productivity; thus, the sitemap feature was switched to breadcrumbs.
In the Inbox tool, the same rounded rectangle design for the homepage's search bar was considered	A straight-sided rectangle search bar was used for inbox content instead to different the differing search functions.
Including a link in the Canvas logo that leads to the Dashboard page was considered to replicate the Canvas website.	It was decided to leave the logo with no link since it was redundant by performing the same function as the dashboard button.
	The Courses and History navigation tools were removed from the vertical navigation bar due to users not being able to easily identify their function.
	A search bar was included to help users navigate the entire website, which is consistent on every page of the website.
	Toggle switches for notifications and grades were added on the home dashboard page due to their consistent usage and importance for students.
	The ability to view grades on the dashboard bento cards was included on the web version due to the consistent usage and importance of this feature.
	The cancel button for composing an email was removed to reduce redundancy. The exit button on the "compose message" box already performs the same function.

User Tasks

Users will complete three tasks on the redesigned prototype for testing and refining purposes. These tasks include:

- Using the Inbox tool to send a message to Dr. Candice Lanius about the final grade in CM 452
- Using the Account tool to change settings. The "due date" settings should be sent through emails "immediately" and the push Heuristic Evaluation notifications should be disabled. The "grades" setting should be sent though emails "weekly" and push notifications should be enabled.
- Using the Dashboard tool to submit an assignment. The assignment "item 1" should be submitted by uploading from a device.

User Testing

User 1 Experience and Feedback: This user was able to follow the prompts and flow of navigation quite easily; however, they had issues in identifying the initial icons to start the 'sending messages' task and 'changing notification' tasks. This might be in part be due to user's unfamiliarity with performing such tasks in canvas; however, this shows that it would be beneficial to the prototype to provide clearer paths of navigation and instruction. User 1 explicitly stated that they "do not usually send emails to their professors so I don't even know where to start from really." User 1 also highlighted an important point that even though we included a search bar as a new and very important feature of our prototype, we did not implement it in user testing. As a result, the search bar tool was implemented in changing notifications task to highlight its importance.

User 2 Experience and Feedback: This user was able to follow the prompts very easily and did not have much issue completing the tasks. However, user 2 experienced slight confusion when changing their notification settings; they were confused as to why the notifications toggle was on the home screen and then appeared again in the settings screen; they also wondered if it would be possible for the notifications label on the home page to lead directly to the notifications setting page. This feedback was taken into consideration and implemented into the prototype. User 2 also provided feedback on 'submitting assignments' task; they felt that the structuring of assignments by 'module' and by 'date' would inevitably lead to the same organization of assignments, and therefore felt that it was redundant to have both structural arrangements for assignments. User 2 explicitly said "Modules are generally arranged by date, then it just has the same organization as sorting by date, but if the purpose of modules is to group the assignments by the section of the course, then it would be okay."

User 3 Experience and Feedback: This user was able to complete the inbox task quickly and correctly. The user said the Inbox navigation was "a very easy transition." They also specifically mentioned liking the smaller window of previous messages so they could focus on composing the message. When asked to change their notification settings, the user initially clicked on the notification toggle on the dashboard instead of the account navigation tool. They eventually found the

more advanced notification settings under the correct tool but commented that "I'm used to seeing the notification setting in the dashboard where the [notification] button was, so I thought that was the setting." While completing the assignment submission task, user 3 expressed liking the most recent assignment showing on the course homepage and the clickable breadcrumbs that led them back to the previous page.

User 4 Experience and Feedback: This user completed the inbox task with ease. They liked this inbox design better than Canvas now because "it's more simple and less confusing because of the button layouts." However, when asked to complete the notifications task, they portrayed confused facial expressions until they eventually realized the notification toggle on the dashboard did not lead to the more complex notification settings for this task. Once they found the settings and tried to click the notification text on the left, they said "I didn't realize I had to turn the notification button on in this tab so I could access the other notification settings." During the third task of submitting an assignment, the user was enthusiastic about the breadcrumbs at the top leading them back to the previous page saying, "I like this feature because it shows which page I'm going back to instead of having to click the back button to find it." However, when they clicked the submit button, they didn't realize the assignment was successfully submitted because "the message saying it was sent wasn't right in the middle."

User 5 Experience and Feedback: This user completed the inbox task with little difficulties, only mentioning that they don't use the inbox feature because "my professor wants us to directly email him instead of messaging him on Canvas." When asked to change the notification settings in the second task, the user expressed confusion about where these settings would be located, saying, "I thought the notifications would be linked on the dashboard where it had to button to turn [the notifications] on and off]." Once this user found the settings, they were able to complete the rest of the task with ease. User 5 completed the final assignment submission task easily, commenting "I like this version a lot better because I don't have to keep clicking the back button to find my way around the course."

Changes Implemented

- The search bar tool was implemented in changing notifications task to highlight its importance.

- The notifications label on the home page was changed to lead directly to the notifications setting page.

- The message indicating that an assignment was successfully submitted was moved to be more visible for user confirmation.

- The notification toggle on the left side of "user name's profile settings" was removed because the toggle already exists on the dashboard