

PROJECT OVERVIEW

Description of the design problem and constraints.

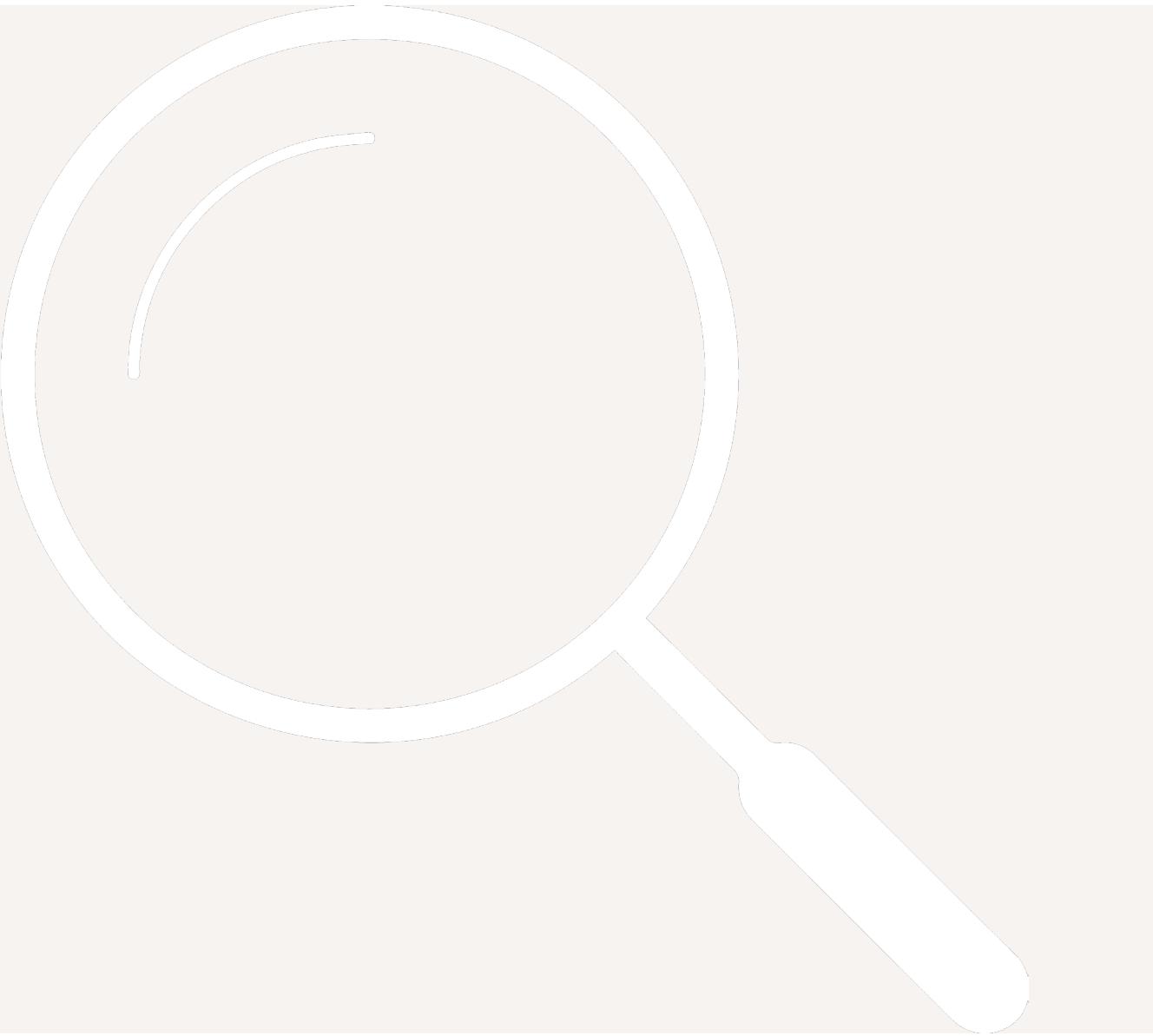
How can we help students prioritize work flow within Canvas? If students had more flexibility in organizing their work and more of a contextual understanding of how they are performing, this might help them better allocate their time. Beyond providing deadline information, Canvas does not have features or an information architecture that enables students to prioritize work flow. Tools for managing work flow may be especially helpful for students who are either (1) handling a large number of classes or assignments and/or assigned (2) projects with multiple stages. For example, Canvas does not have a to-do list feature, a way to tag or categorize content, or a way to visualize information (such as average amount of time spent working on certain assignment types or current grade averages on certain assignment types) about course content that might inform better time management and ability to achieve learning goals.

Constraints in solving this problem include time, finding students with a diverse experience working with Canvas (not all MHCID students), promoting solutions that are in synergy with the existing Canvas system, and keeping in mind the teacher's side of Canvas. Many problems users experience on Canvas seem to stem from the fact that it was designed for students,

exclusively, and so while I also am not focusing on redesigning for the instructor-side of Canvas, it is important to design with the instructor in mind, so that my adaptation does not compound the problem.

To get a better understanding of how students currently manage their work flow, I plan to conduct semi-structured interviews, a survey, and check the help forums to identify feature requests related to project management. To get a sense of some of the features that are used on successful project management software, I will conduct a competitive analysis. Finally, to evaluate the proposed design solution, I will conduct a usability test and/or focus group.

The students need the design solution to fit well with the rest of their Canvas experience and for this solution to help them, rather than distract them. Canvas needs the design solution to fit well with the rest of their system to minimize cost of redesign of other elements, and to avoid needing to re-train people who are already familiar with using their system. Fortunately, these needs are somewhat consistent. As a designer, I will be focusing primarily on coming up with a solution that suits the needs of students, but will keep in mind the needs of Canvas.



LMS SURVEY DATA

Findings from a 2014 survey conducted by Canvas.

Open Response

When 245 students were asked what features they would add to Canvas, common themes in responses included:

35 requested better scheduling tools, such as: a better calendar, time line of due dates, planner, time management tools.

25 requested addition of and/or increased customizability of notifications.

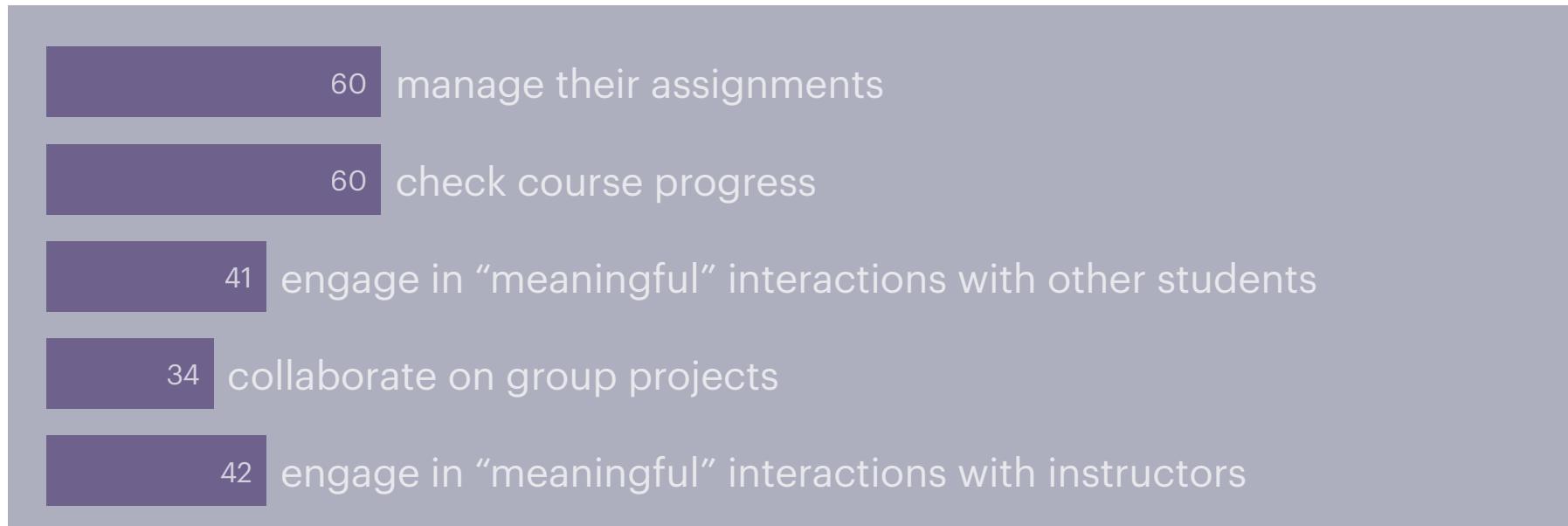
37 requested a more contextualized understanding of grades, especially for classes with grading curves.

19 requested more consistency of use across professors and/or restrictions on professors using additional sites to supplement Canvas

6 requested a more simplified and/or customizable home page

Multiple Choice

Percentage of students who are satisfied with using Canvas to...



Only 60% of students are satisfied using Canvas to manage their assignments or check course progress. Survey data have the obvious limitation that we cannot ask respondents to elaborate. While it is clear that there is an opportunity for improvement here, for example, further research must be done to better understand why it is that students are, on average, neutral or dissatisfied with these features. Relatedly, it is unclear what makes interactions "meaningful", and thus precarious to prescribe solutions before further exploration.

EXPERT INTERVIEW

A summary of key takeaways from an interview with subject matter expert, Tyler Fox.



Tyler is an Instructional Technologist at the University of Washington who trains and provides support to faculty using Canvas Learning Management System. Additionally, Tyler is a professor, providing him first hand experience in managing courses using Canvas.

Canvas has important advantages: it supports NETID login and single sign-on across other UW sites, such as Gmail and myUW; it is FERPA compliant, it has an open API and so it can be customized (e.g., UW decided to add 4.0 grading), and it does a great job of integrating with other widely used platforms, such as Google Applications. According to Tyler, Canvas is highly regarded in comparison to other Learning Management Systems.

Canvas comes with some serious drawbacks. Their mission is to "make the best learning management service for students," and as such, the faculty experience is not prioritized. Compounding the problem, in Tyler's experience in training faculty, he has noticed that they come from a wide range of experience with and comfortability in navigating unfamiliar technology. Some faculty members are overwhelmed by the features provided by Canvas, whereas others feel limited by the features of Canvas and supplement it with their own sites. Not surprisingly, this lack of consistency in use by faculty trickles down to the students, backfiring on Canvas's student-first approach. Additionally, Tyler explained that it is challenging to have a universal design solution that fits a wide range in courses - a chemistry class

might have very different needs than an English class, and so professors have to find unique ways to use Canvas that best fits the needs of the class, again, diminishing consistency across classes for students. Other issues for faculty include: inability to duplicate assignments, categorize similar assignments, create project-like assignments that have multiple stages/milestones/ due dates, lack of grading features for Speed Grader on iPad. For students, in addition to lack of consistency, Canvas does not have features to help students manage and prioritize their work flow and offers no customizability in organizing information on an individual basis (students cannot create a custom dashboard, for example).

Interestingly, Tyler does not use the Canvas messaging system or email for communication with his students, but instead prefers Slack for a number of reasons: (1) there is a lack of consistency in email notification settings across users, (2) unlike Slack, Canvas does not support mobile notifications, (3), he wants his students to feel more comfortable communicating and "goofing around," which the visual design of Slack better invokes, (4) he can recognize his students on Slack as names/pictures are more personalized, (5) he teaches design courses and so he wants his students to be familiar with using the latest collaboration platforms, like Slack, (6) Slack supports both synchronous and asynchronous communication, and (7) Slack is easier to index than the Canvas chat or discussion boards.

RESEARCH METHODS

Methods used to better understand how Canvas can help students prioritize work flow.

Method	Type	Strengths	Weaknesses	Notes
still-photo survey (IDEO)	primary / qualitative	visual evidence can help surface behavioral and contextual patterns, evidence is not biased by study as it is data that participant created without the study in mind	interpretation of patterns risk being incorrect because analysis is done without participant present, participants might only share photos they are comfortable with (e.g., in this case, they may be embarrassed to show photos of poor task management systems)	this method will be helpful in understanding feature gaps in Canvas task management tools. However, it is possible users will always prefer their own methods, even if Canvas were to incorporate similar versions (e.g., someone who makes to-do lists on paper, may not prefer to replace them with a digital to-do list provided by Canvas)
card sorting (IDEO)	primary / qualitative	figure out an information architecture that matches users' mental model of how content should be organized	results across participants may vary significantly, people categorize things differently for different reasons (e.g., animals could be sorted based on size, taxonomy, environment, etc)	this method will be helpful in adapting the Canvas design to have features that support project-based task management (e.g., will users prefer to group announcements under corresponding assignment?)
semi-structured interview	primary / qualitative	can ask participants to elaborate (unlike surveys), can prepare questions ahead of time, yet still be flexible and let conversation go in productive direction organically, participants can put thing in their own words (unlike surveys)	difficult to compare responses across participants, time-consuming to do (in comparison to surveys)	make sure to record audio or have laptop present to take notes (too difficult to hand-write quickly while asking and listening the questions)
competitive analysis	secondary / qualitative	will reveal which features successful task management software tend to have	will not be specific to the context of a student using those features in Canvas (e.g., just because designers like the ability to set due dates for tasks in Asana, doesn't mean students will want to in Canvas)	in addition to taking note of which features exist, for software that have the same features, assess which design of the same feature seems the most user friendly (e.g., is the to-do list in Asana or Evernote easier to use?)

PHOTO SURVEY

I asked UW students to photograph task management systems they typically use outside of Canvas. Photos can be viewed on the next page.

Methods

I asked 11 University of Washington students (8 MHCID students, 1 MBA student, and 2 undergraduate students) to send me a photo or screen shot of whatever task- or project-management systems they use to keep track of their coursework outside of Canvas. I also asked a few clarification questions when necessary. There are a few reasons I chose this method: (1)

photos can help surface behavioral and contextual patterns that people might not be aware of and thus not report in interviews or other self-report methods, (2) given that I am trying to modify Canvas, it is helpful to understand how students keep themselves organized outside of the constraints of the Canvas LMS, (3)these photos are reflective of real life behavior

and not a fake experimental task, (4) given that this redesign may involve altering the Information Architecture of Canvas, it is helpful to know how people tend to prefer to organize tasks in to-do lists.

Findings

Four students reported that they rely entirely on the tools provided by Canvas, including the automatically generated to-do list and calendar. Two of these students explained that they largely rely on memory, though. One of these students said that they actually own a full-featured task management system, but that it is too complicated for their needs. Four students reported using analog solutions: three use a day planner or journal and one uses sticky notes. Relatedly, two students create to-do lists in Evernote. Interestingly, of the students who generate their own task-management system, using either analog solutions or

Evernote, all seem to create to-do lists and further, they organize their tasks within those to-do list in a remarkably similar way: rather than listing tasks linearly based on due date (like Canvas does), they group tasks according to what course those tasks are for and then sometimes break down assignments further into tasks, within a course (e.g., for one student, under their Designing Interactive Systems class, they listed their reading assignment, and then further broke the reading assignment down by itemizing each reading). Further, five out of six of these students keep track of tasks unrelated to school in the same location (eg, next

to their to-do list for a class, they have a to-do list for chores or work). Interestingly, the student who used the sticky notes does not necessarily use this system as a means to organize or keep track of tasks, but instead, finds that writing down tasks on sticky notes helps them to feel less overwhelmed. One student explained that the reason the use Evernote is because they use it for all other note taking and it syncs well across their devices. This student also explained that they wish they were able to create their own assignments in Canvas and have them get crossed off on the calendar the same way.

Discussion

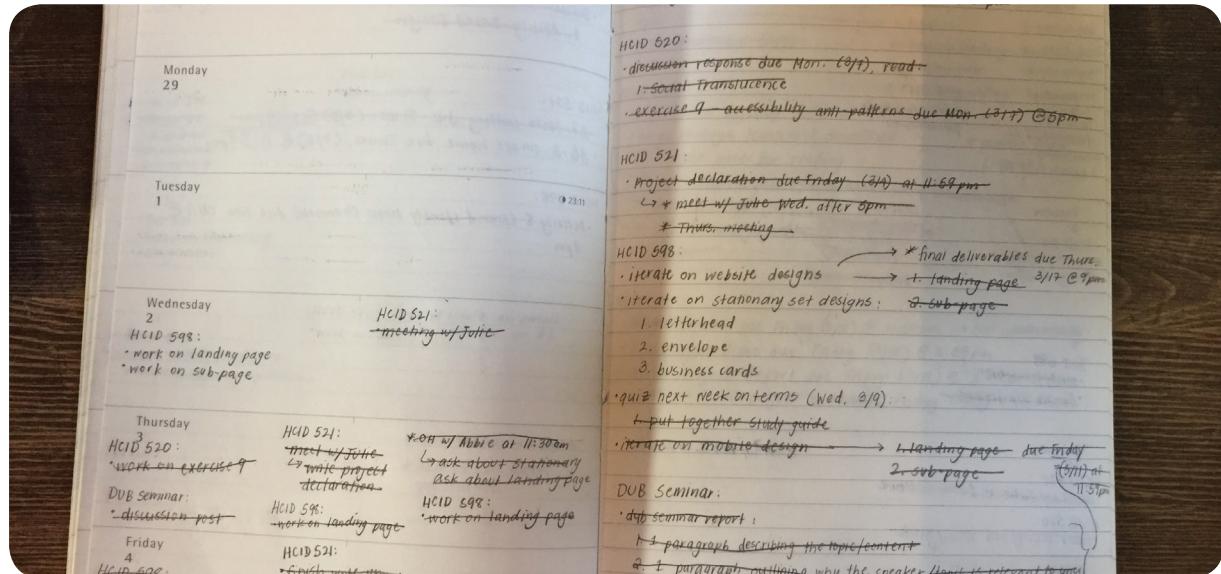
Based on these findings, if I were to implement a to-do list feature in Canvas, I would allow students to organize their tasks in a way that makes sense to them, create extra tasks within projects, and also to add tasks unrelated to their course work. One thing that

is unclear is whether those who have external systems (e.g., day planner, Evernote), would even want to use a to-do list within Canvas even if it was more functional. Additionally, I have yet to find out what is important to people when prioritizing their work

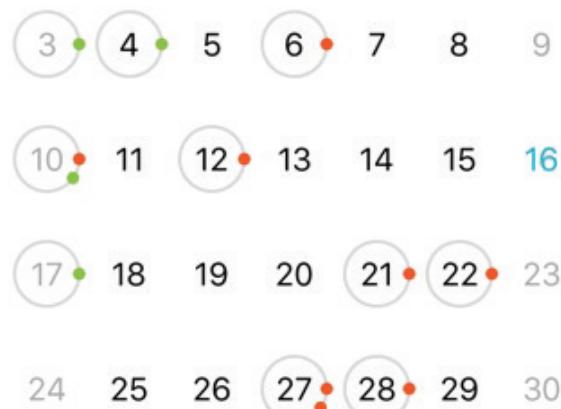
flow (is it due date, percentage of grade the assignment's worth, perceived difficulty?), all of which might be helpful in helping students to most productively manage their work flow.

PHOTO SURVEY

Here is a sample of photos students provided.

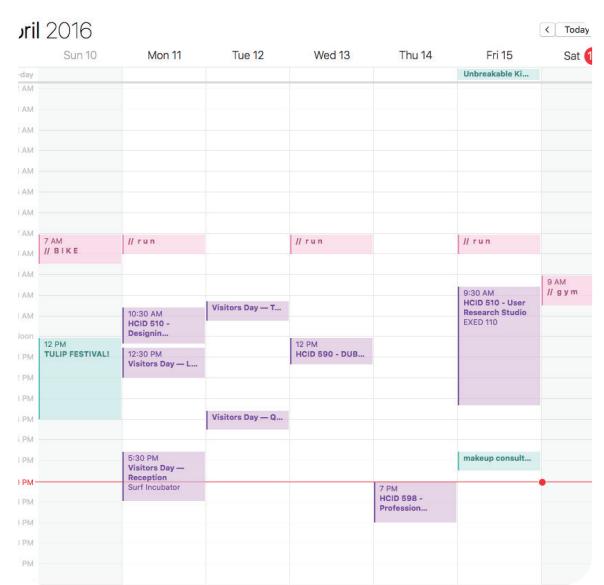
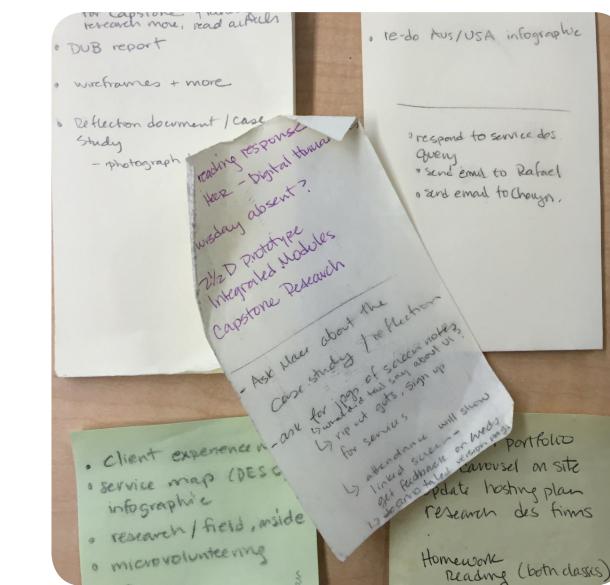
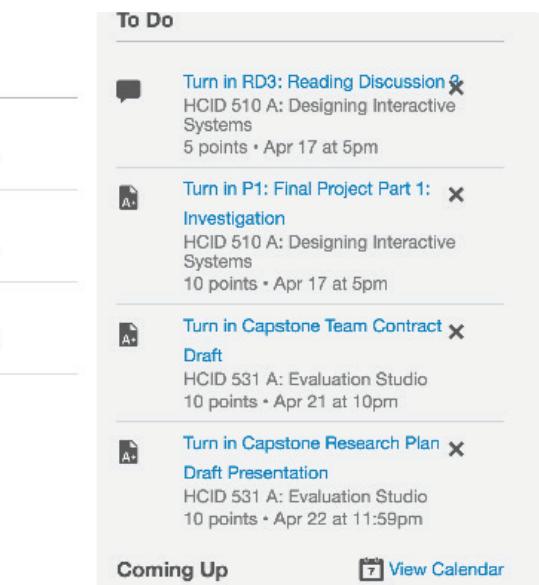
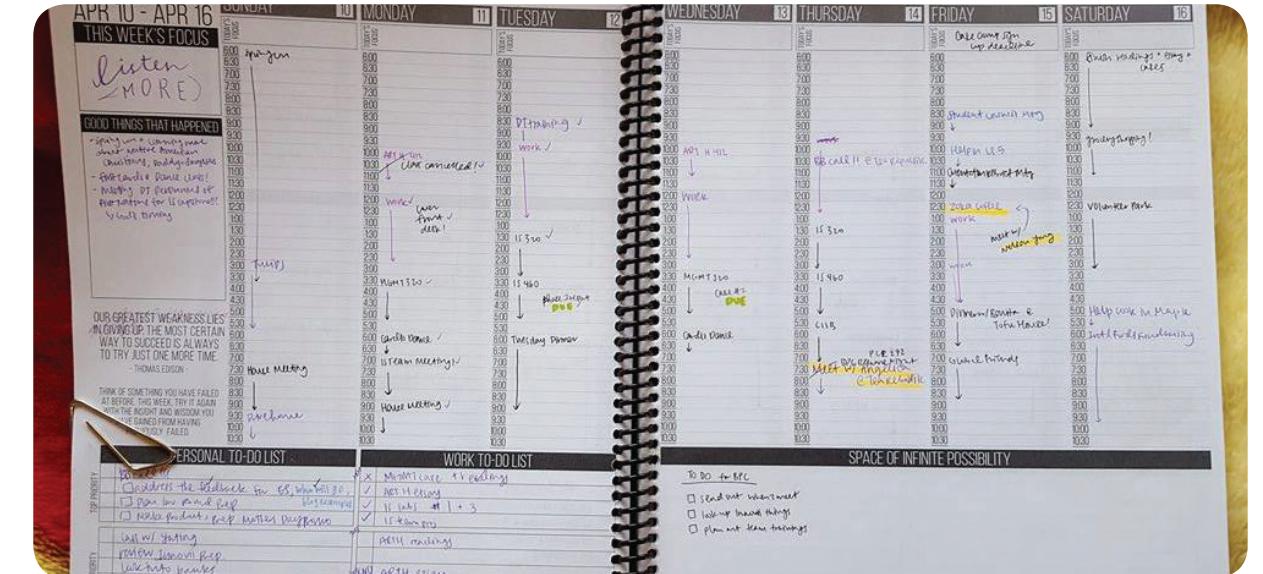
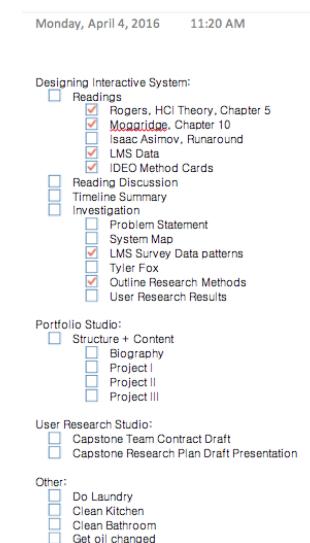


- CHI - Send information to travel agent.
 - Work on bio
 - Look at MHCI Calendar
 - send out new rent check(s) to Stephanie



- ESUDO (Capstone)
 - Review choices for capstone.
 - Vote on capstone choices
 - Review all capstone assignments

- IPM Problem set 1 (due Wednesday)



INTERVIEW

Main findings from an interview conducted with a student.
See Appendix A for interview questions.

Key Findings

Overall, the user expressed a lack of engagement with Canvas beyond the minimum required by their instructors, and confirmed interest in potential improvements to student engagement, such as more interactive assignment submissions and discussion boards.

They also took issue with the navigation structure and information architecture, with the latter being a repeatedly mentioned pain point and a priority over new features. They described this issue by saying that it "seems like you have to click through a million pages to find what you're looking for."

The user identified Slack, Google Calendar, Pages, and Evernote as favorable over Canvas for certain tasks that Canvas is currently designed for, such as typing discussion posts, and keeping track of their schedule.

They expressed a lack of interest in the current function of the discussion boards, stating that student engagement in discussions beyond the minimal amount required was "not the convention."

Regarding visual design, the user found Canvas to be unappealing, using words such as "ugly" and "not fun."

In Summary . . .

The user interview revealed an interest in certain strategies for making Canvas fun and engaging for students, identifying discussion boards as one area of particularly low engagement. They also confirmed the need for a simpler and more intuitive information architecture, which as an educational tool, should be the first priority.

USER TASK MATRIX

A depiction of how frequently students might engage with various features on Canvas, depending on whether their course is more project-based or lecture-based.

Method	Project-based	Lecture-based	Notes
Calendar (on Canvas or Google Calendar)	High	High	This feature is very nicely executed and seems extremely useful for students in any type of class.
To-Do List	High	Medium	This feature is probably more commonly used in a project-based class because it is auto-populated with assignments due and project-based classes tend to have a lot of upcoming assignments.
Discussions	High	High	Discussions can be used in so many ways, such as providing peer critique, discussing required reading, and posting questions for instructors.
Assignment Upload	High	Medium	Assignment upload may be more fully used in a project-based course, such as a design course, because it is a complex feature that is compatible with many file types.
Assignment Description	High	Medium	Reading an assignment description numerous times is more likely, the more involved the assignment is. In lecture-based classes, there may be more emphasis on assessments than assignments.
Quizzes	Low	High	Online quizzes are less likely to be incorporated into project-based courses.
Grades (numerical score)	High	High	Grades are likely to be used in any class type because they can be used to communicate performance in assignments, projects, presentations, assessments, and so on.
Grades (qualitative feedback)	High	Medium	Comments from an instructor or TA are more likely to be used on assignments that are less clear cut (e.g., essays or design projects require qualitative feedback, whereas multiple-choice exams might not).
People Collaborations	High	Low	The people feature is useful for assigning and collaborating on group projects.
Collaborations	Low	Low	Collaborations are likely more frequently used for projects, yet I have yet to speak with anyone who has ever used this feature.
Panopto Recordings	Low	Medium	Panopto recordings may be used in large, lecture-based classes.
Files	High	High	Files are useful for uploading reading assingments for students.
UW Libraries	Low	Low	I have yet to speak with anyone who has utilized UW Libraries through Canvas. This may be because so many journal articles can now be accessed directly online using a UW NetID.

Disclaimer: This matrix is based on a combination of personal experience and an interview with a student, not a representative sample.

UI SKETCHES

Rough visualizations of potential user interface changes.

The image displays three hand-drawn user interface sketches on a piece of paper with a pencil and ruler visible in the background.

Time Tracker

Potential designs for time tracking concepts. A circular timer could function as a manual punch clock, logging time into the assignment, which the user can then choose to submit anonymously alongside their work, to let instructors know how much time the assignment really took. A chart shows the student how much time they spent on comparable assignments in the past.

Discussion Board

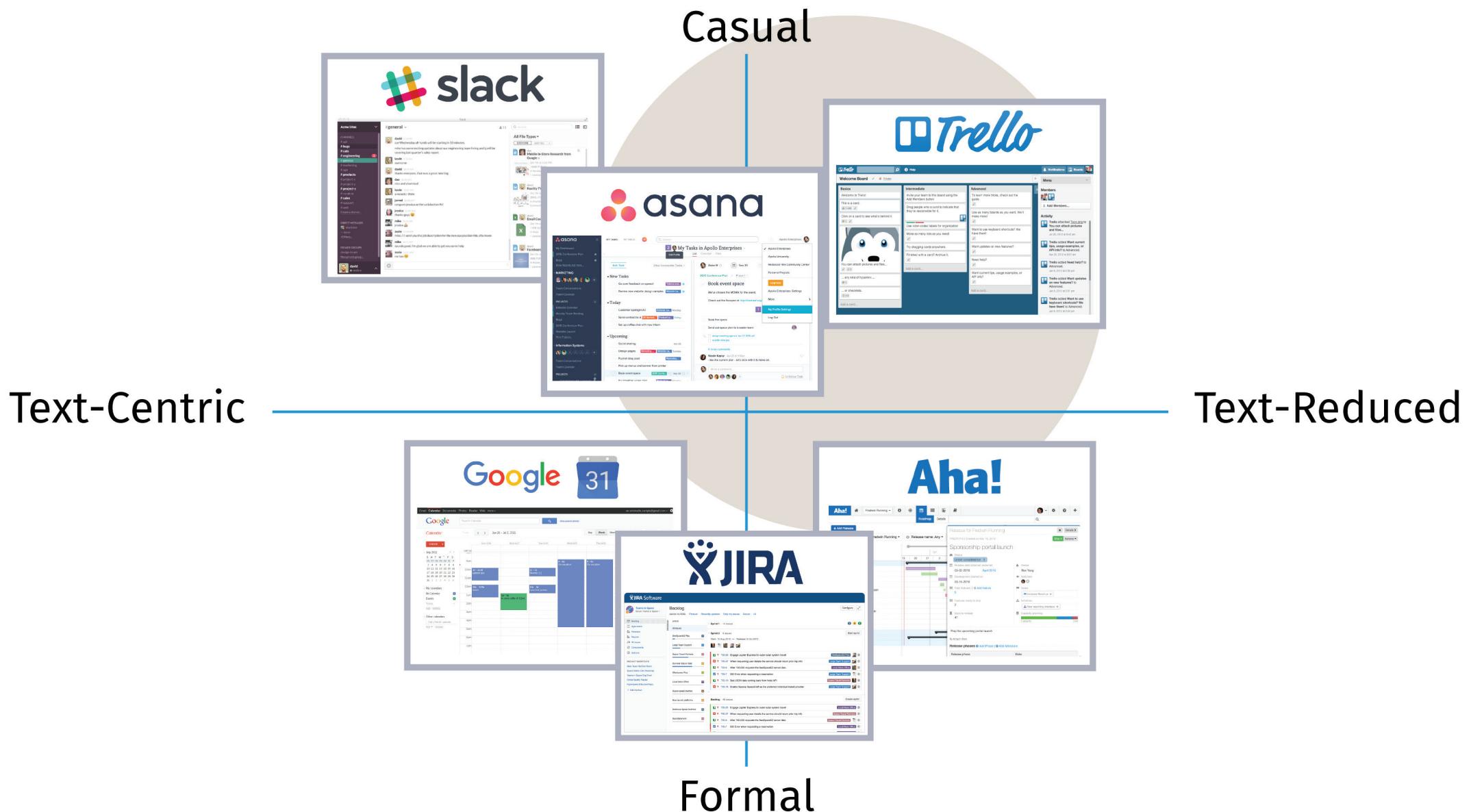
A reimaging of the discussion forum concept, where students annotate assigned readings directly and collaboratively, rather than posting their individual responses to a forum thread. Tools like highlighting, hyperlinks, and reaction emojis could enable students to engage with the material itself, offering a more interactive experience.

Peer Feedback

One layout for a news feed page, where students see assignments submitted by their peers for feedback and commentary. In this instance, students like and comment on an infographic submitted by one of their peers. Scrolling down would reveal other a. In the lefthand column, the student selects which courses and individuals they want to see in their feed.

STYLE MATRIX

Comparison of visual styles of project management/scheduling softwares, by tone and text usage. For the Canvas redesign, I would like to go with a more causal, text-reduced visual experience, to take out some of the formality and dryness Canvas currently has.



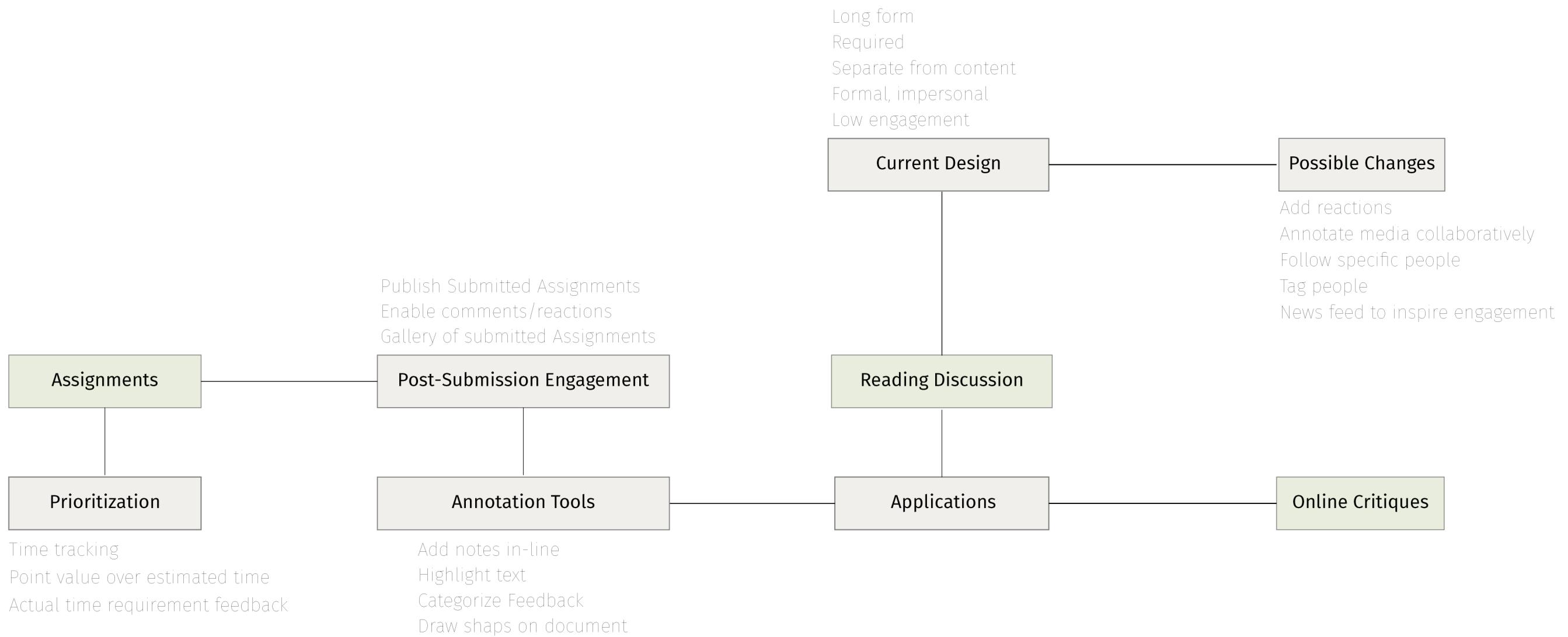
IDEATION METHODS

Methods used to explore and surface redesign opportunities and solutions for Canvas.

Method	Strengths	Weaknesses	Notes
experience map	better understand how a user might interact with Canvas under various situations and how their needs and mental states might change	difficult to do with a large number of users, largely based on self-report; a "typical" experience is not necessarily fully representative of all or even most experiences	this method will be helpful in understanding what the needs that users have of Canvas and how those vary (e.g., what they need from Canvas when submitting an assignment vs. what they need from Canvas when downloading readings)
persona	empathize with a population of users by conceptualizing them as individuals	need to be based on good research, may confound problems by grouping separate needs together to describe a single person, risk stereotyping	this method could be useful for empathizing with different student 'types' (e.g., the needs of a PhD student vs an undergrad)
matrix	compare possible features across various criteria, cheap, fast	difficult to identify relevant criteria as a basis for comparison, difficult to identify criteria that have two, objective opposites on a spectrum	this would pair well with a competitive analysis
mind map	easy, cheap, good way to explore and document connections between concepts, great as a first step in brainstorming	relationships between concepts can be difficult to interpret (e.g., just because two concepts seem related, doesn't mean the exact relationship is clear or even meaningful)	this would be a great first step in ideation (explore how findings may connect)

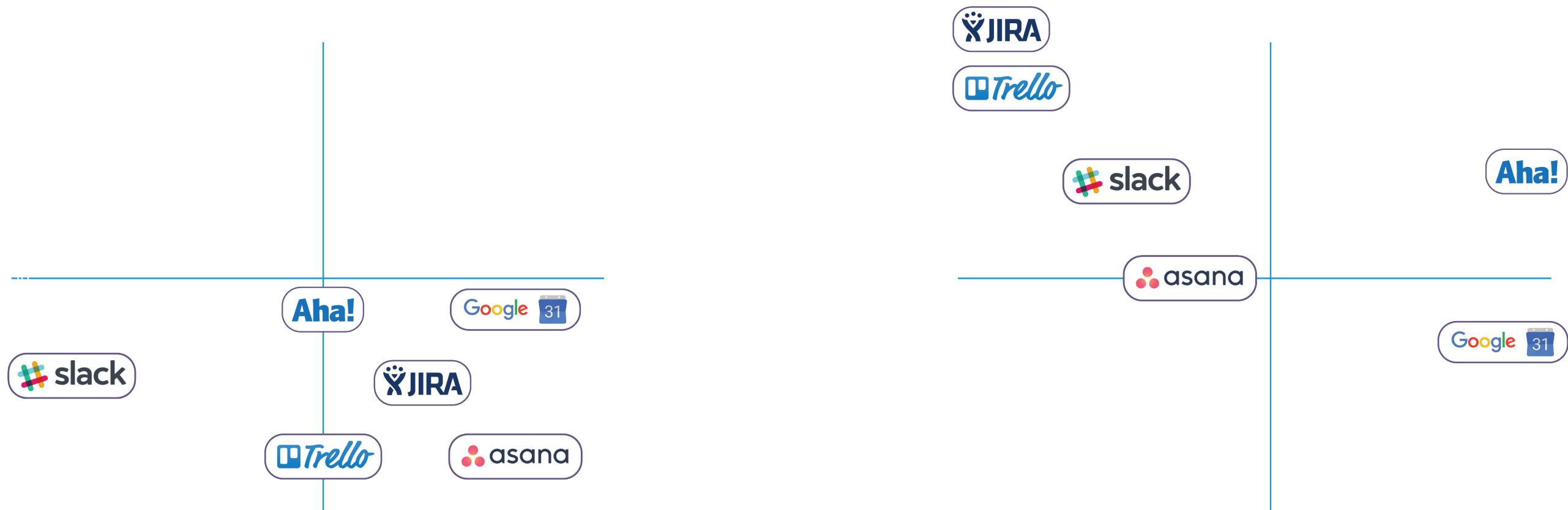
MIND MAP

Ideation method one: A mind map to explore potential solution spaces and interconnected concepts



MATRICES

Ideation method two: matrices comparing existing solutions across several different metrics, to explore strengths and weaknesses of other designs in a similar problem space.



HEURISTIC ANALYSIS

An investigation of Canvas to detect common usability errors.

HCID 531 A
Spring 2016
Home
Announcements
Assignments
Discussions
Grades
People
Pages
Files
Syllabus
Conferences
Collaborations

HCID 531 A > Files > Resources for Research Planning

Name	Date Created	Date Modified	Modified By	Size
Boyce_ConductingInDepthInterviews.pdf	Apr 9, 2015	Mar 28, 2016		156 KB
Clarkson_Arkin_HeuristicsHRI.pdf	May 1, 2015	Mar 28, 2016		131 KB
IDEO_HCD_ToolKit.pdf	May 28, 2015	Mar 28, 2016		34.4 MB
idmethods_poster.pdf	Apr 15, 2016	Apr 15, 2016	Linda Wagner	1.5 MB
ParticipatoryResearch.pdf	Jun 4, 2015	Mar 28, 2016		973 KB

View Course Stream

To Do

HCID 531 A
Spring 2016
Home

HCID 531 A > Syllabus

HCID 531 A: Evaluation Studio

Visibility of System Status

When downloading files from a course page, nothing on the page informs the user that the file has been downloaded. Canvas relies on the browser to communicate this, but in a large list of files, one could lose track of which ones have been downloaded. It would also be nice to get feedback from the website regarding which parts of multi-part assignments have been uploaded, or to see progress toward course completion.

Match between system and the real world

There are several examples of unclear or unusual word choices in Canvas' current design. "Course Stream" is not a term that I am familiar with, and therefore I do not know what to expect from that link. "Pages" is an unclear category; what is a page that is not a file or assignment?

Consistency and standards

Many instructors split general course information between "Syllabus" and "Home." The term "Home" is also conventionally used for the home page of the website, which in this case would be the "User Dashboard" page. This is further evidenced by the inclusion of a small home-shaped icon near the home link that brings the user to their user dashboard, not the course home. It would be more clear if they labeled each course's home page as "course home" or removed that page entirely, as it occupies a confusingly similar function as the syllabus page.

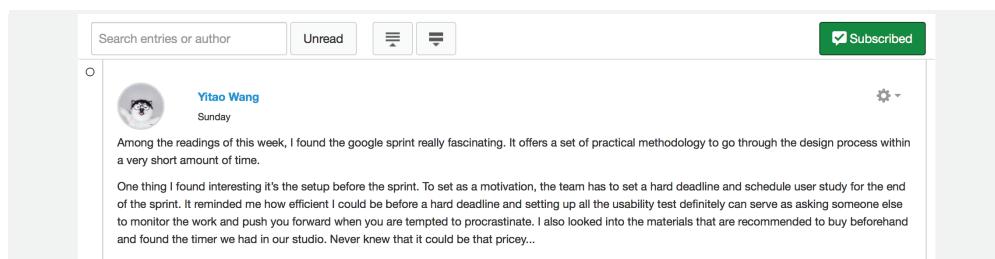
HEURISTIC ANALYSIS

An investigation of Canvas to detect common usability errors.



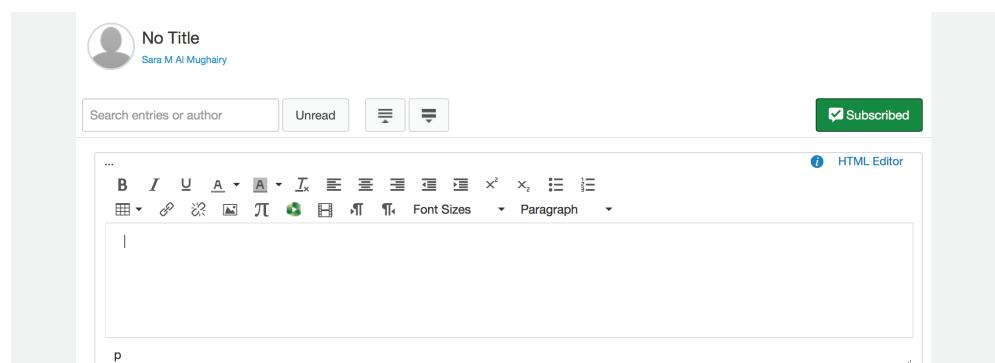
Error Prevention

Search boxes in pages like Assignments, Files, etc. could improve efficiency by using auto-focus on search, and reduce spelling error with completion suggestions, as Wikipedia and Google do.



User control and freedom

Most of the interfaces in Canvas' current design do a good job of providing clearly marked escape routes from current pages, as well as clear navigation showing how the user got to be where they are. Some of the longer pages such as the Calendar and Discussion forums lose sight of these elements as they go beyond sight of the header.

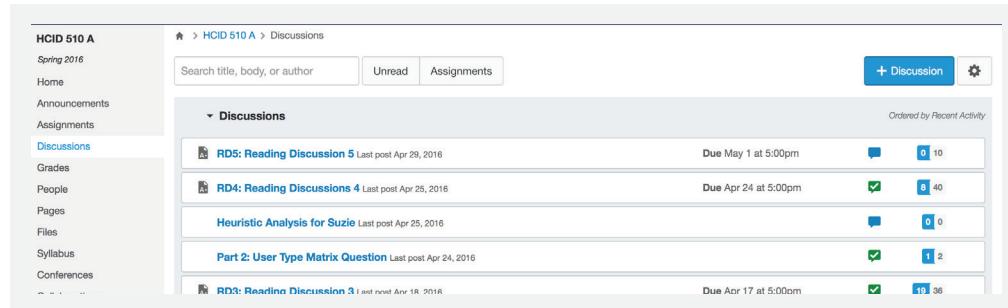


Recognition rather than recall

There is much room for improvement in the discussion forum section for anticipating user needs, and minimizing the burden of memory and backtracking. Namely, there should be a way to access the pages linked as discussion materials without downloading and opening them separately. If users could view these documents in the same page as the discussion response form, they could cite examples more easily, and not have to click back and forth between the material and the input.

HEURISTIC ANALYSIS

An investigation of Canvas to detect common usability errors.

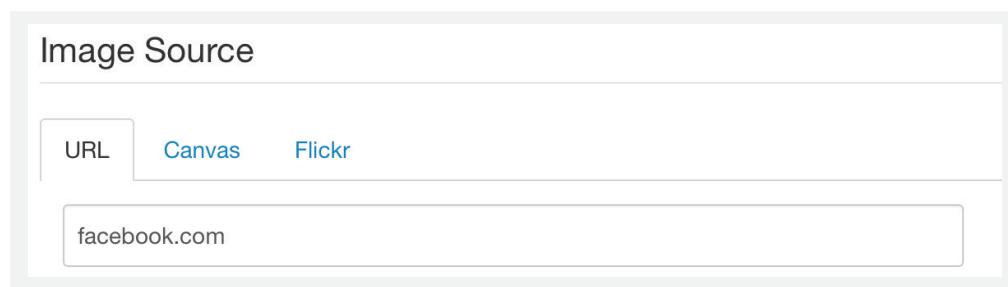


A screenshot of the Canvas course page for HCID 510 A, Spring 2016. The left sidebar shows navigation links for Home, Announcements, Assignments, Discussions, Grades, People, Pages, Files, Syllabus, and Conferences. The main content area displays a list of discussions ordered by recent activity. Each discussion entry includes the title, due date, and a small preview icon. The first discussion is titled "RDS: Reading Discussion 5" and is due May 1 at 5:00pm. The second is "RD4: Reading Discussions 4" and is due April 24 at 5:00pm. The third is "Heuristic Analysis for Suzie" and is due April 25, 2016. The fourth is "Part 2: User Type Matrix Question" and is due April 24, 2016. The fifth is "RD3: Reading Discussion 3" and is due April 18, 2016.

Aesthetic and minimalist design

I find the inclusion of a secondary navigational tree next to the main menu of the course pages to be extraneous. It largely repeats the exact same information displayed immediately to its left. Canvas also has a general problem with information prioritization and visual hierarchy. In the discussion page of a course, for example, it lists discussions by recent activity, instead of isolating/prioritizing whichever discussion is currently assigned. It also uses a blue highlight for almost everything, diluting its meaning or visual encoding ability.

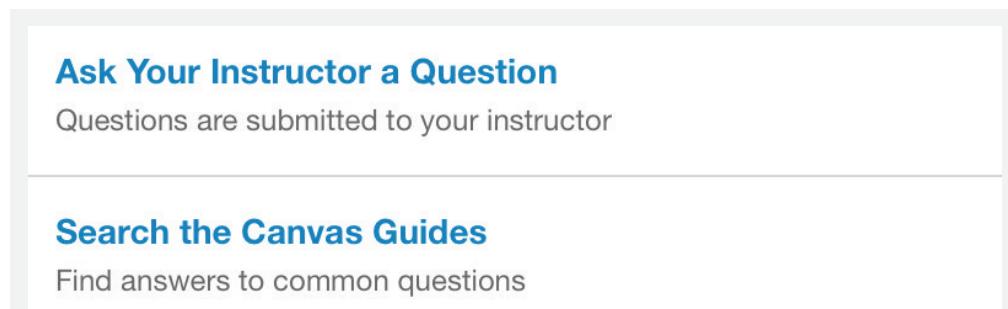
Image Source



A screenshot of a search results page. At the top, there are three tabs: "URL", "Canvas", and "Flickr". Below the tabs, the search term "facebook.com" is entered into a search bar. The results show a single result: "facebook.com".

Help users recognize and recover from errors

Certain instances do not prompt the user with warnings about errors, or even acknowledge that an error has occurred. Embedding an incompatible image link, for example, does not warn of or signal any error message. Instead, it allows the user to submit the image, and doesn't say anything when the image fails to appear. Starting a discussion post with no title, no content, and no options selected will actually post an empty discussion without protest.



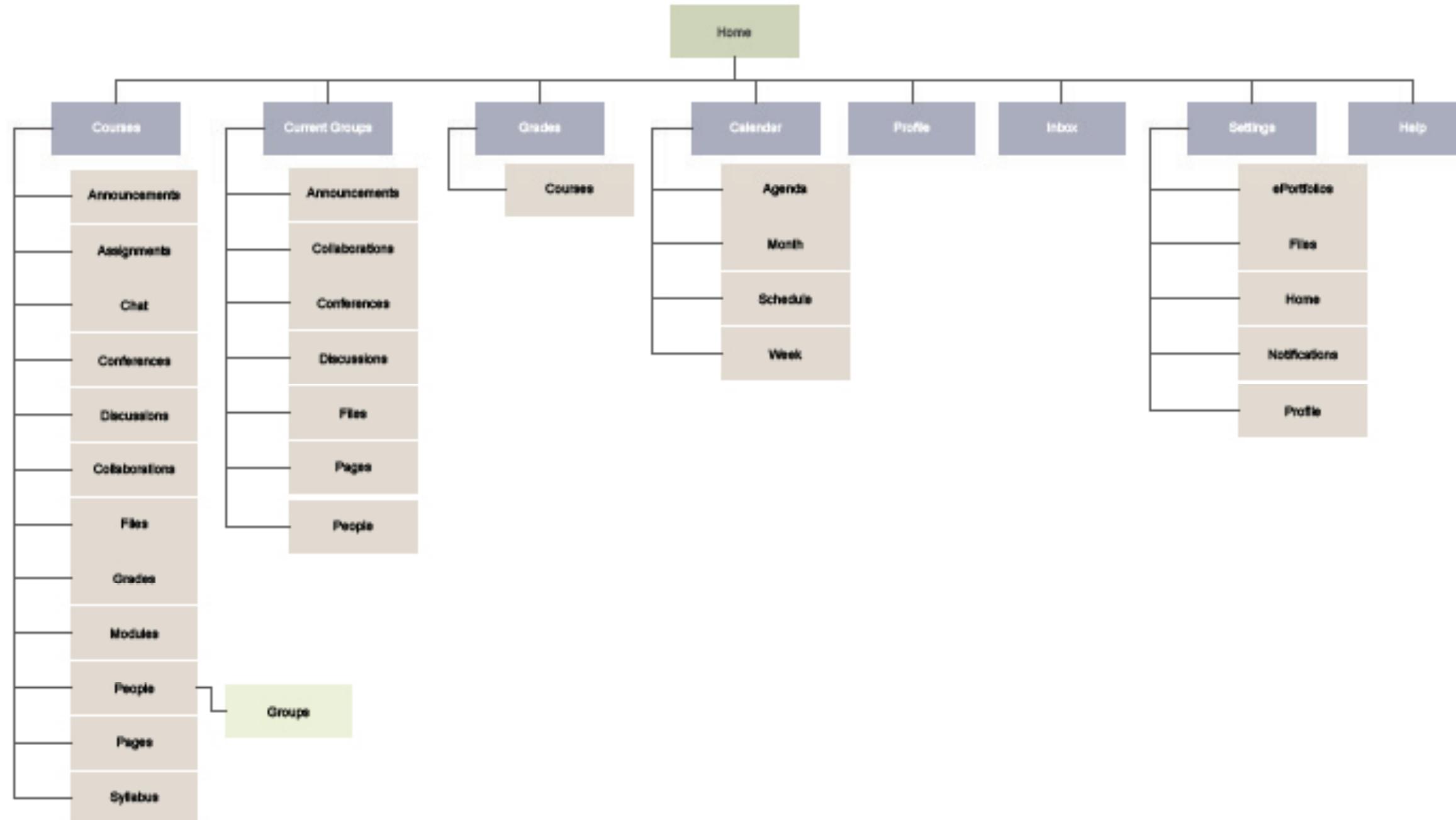
The screenshot shows two sections. The top section is titled "Ask Your Instructor a Question" and contains the text "Questions are submitted to your instructor". The bottom section is titled "Search the Canvas Guides" and contains the text "Find answers to common questions".

Help and documentation

The primary help menu suffers from a problem commonly observed in automated phone trees used by customer service call centers: It lists a finite number of options that the already frustrated user must now interpret and place their problem into. Some options, such as "ask your instructor a question" are available through other areas of the site. Clicking "Search Canvas Guides" leads the user to a different website, which is off-putting. The user has to go through two clicks and a menu to get to a search bar where they can type in a keyword.

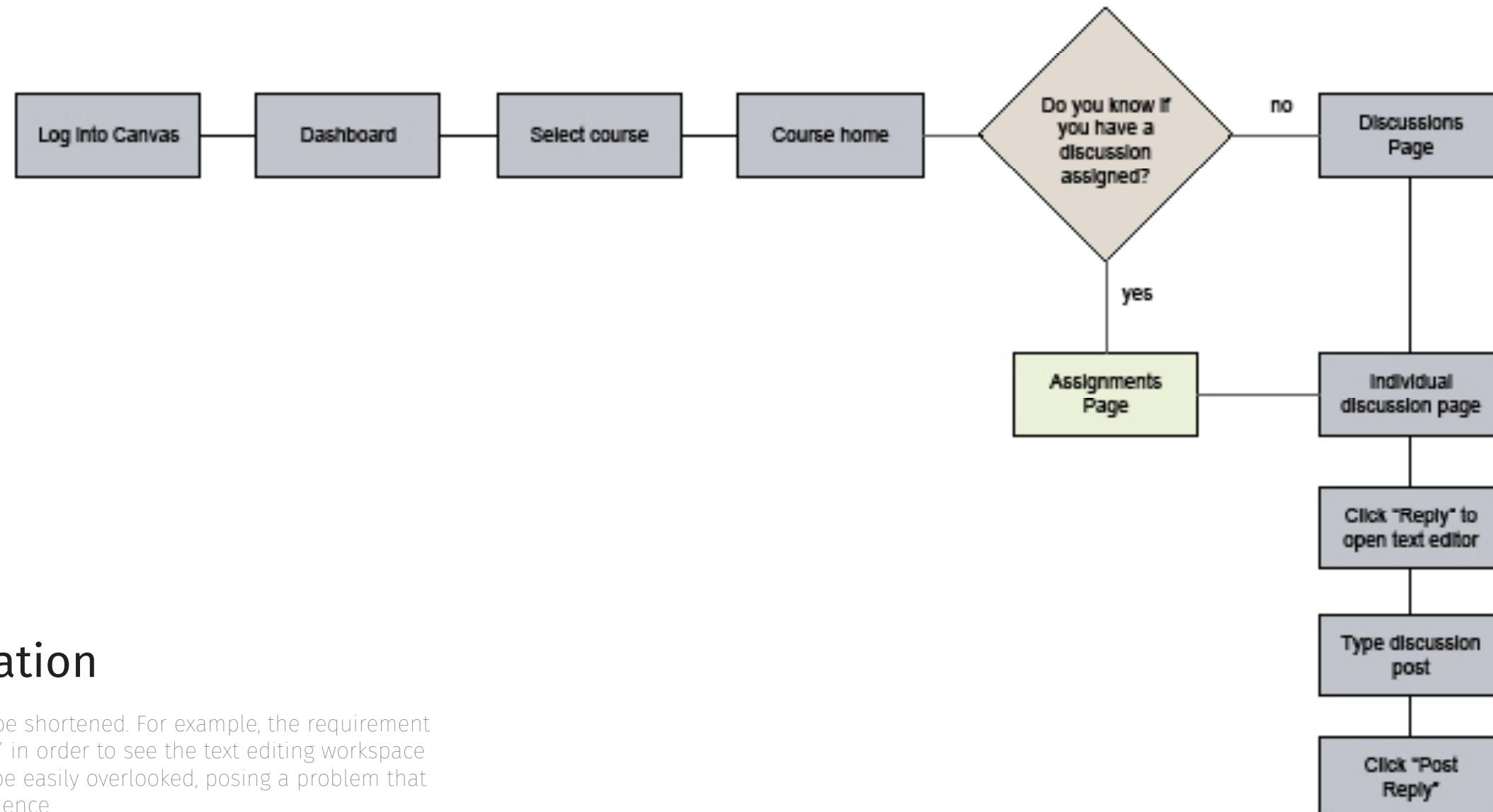
SYSTEM MAP

A map depicting the navigational flow of Canvas.



USER FLOW

This user flow depicts the steps required for a student to post a reply to a discussion post.



Recommendation

The number of steps can be shortened. For example, the requirement to click on the word "reply" in order to see the text editing workspace is superfluous and could be easily overlooked, posing a problem that need not exist in this sequence.

GOALS FOR REDESIGN

Preliminary user research informed the following goals for redesign.

01

Increase engagement in discussion forums by allowing students to annotate readings directly in Canvas and have their annotations be visible to other students.

Preliminary research surfaced a lack of deep engagement between students and Canvas. The 2014 Learning Management Service (LMS) Survey surfaced that only 41% of students felt that they were "engaging in meaningful interactions with other students" through Canvas. Semistructured interviews revealed that Discussion forums, an area that should be particularly rich with engagement, was noticeably bleak, with one participant stating that participation beyond the minimal amount required by instructors was "not the convention." This same student confirmed interest in potential improvements to student engagement, such as more interactive assignment submissions and discussion boards.

02

Create a more useful dashboard for the home page, making it quicker to view upcoming deadlines and navigate to course materials.

The existing home page on Canvas consists exclusively a Recent Activity list, an extremely poor use of real estate. In the 2014 LMS Survey open response section, 17 respondents complained of difficulty in finding or navigating information, further exposing the poor information hierarchy of Canvas. All 11 of the Photo Survey study participants reported heavily using the Canvas calendar feature to both keep track of upcoming assignments and to navigate to those assignments quickly. By simply adding the calendar to the home page, students can view upcoming assignments, deadlines, and access further details through a single click.

03

Increase post-assignment submission engagement by allowing students to publish assignment uploads and enabling them to "follow" each other's work.

Lastly, while I have yet to confirm this through objective research methods, I have noticed that amongst my cohort, after the deadline for the assignment is passed, students are often very interested in seeing each other's submissions to find out how others approached the assignment, suggesting that students may further engage with their education through Canvas if they had the option to make their submissions viewable to others. Further, students may be interested in 'following' the work of others that they are inspired by, and so I have added a news feed, where students will be able to see when someone they are following published an assingment.

View Interactive Wireframes Here:
<http://adobe.ly/23TOJQ0>

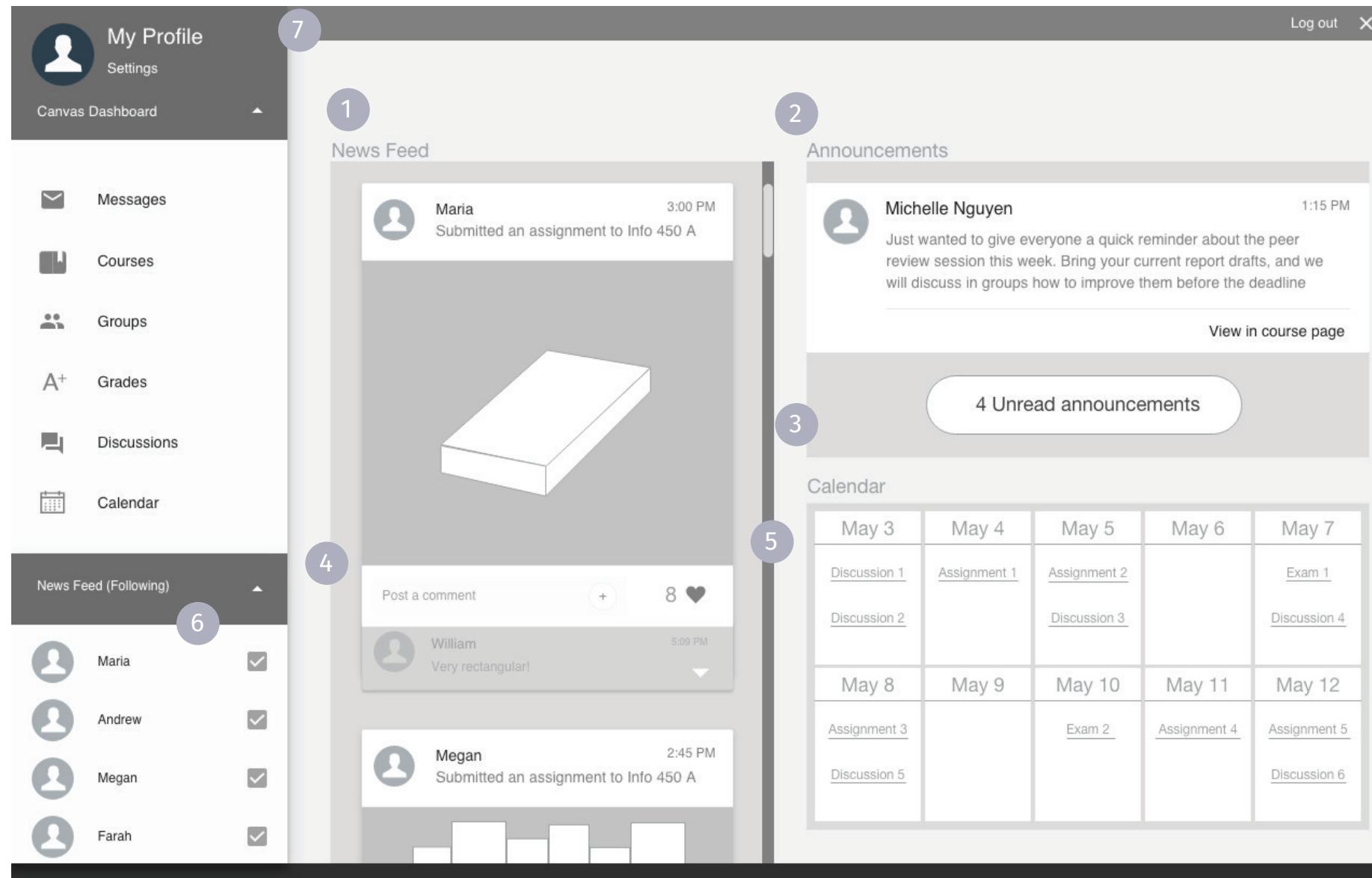
Try the following two Discussion feature sequences:

Home > Discussion 1 > Highlighter tool > Highlight first line in article > Save & Close

Home > Discussions > top discussion > Save & Close

WIREFRAMES

This is a wireframe of the redesigned dashboard / home page screen.



- 1 Students can view a news feed of recently published assignments by classmates they are following.
- 2 Students can view unread announcements, in order of recency. Clicking “4 Unread Announcements” takes students to the Announcements page.
- 3 Students can see a condensed version of the Canvas Calendar page directly on their desktop.
- 4 Students can post a comment or ‘like’ published assignments by other students they are following.
- 5 Clicking on the assignment/discussion links takes students to the corresponding assignment/discussion page.
- 6 By clicking on the check boxes, students can unfollow previously followed students.
- 7 Removed top navigation bar because the links were redundant, already existing on the left navigation bar.

WIREFRAMES

This is a wireframe of the course home page. Little changed on this page.

The wireframe shows a dark grey header bar with a light grey sidebar on the left. The sidebar contains a user profile icon, 'My Profile' and 'Settings' buttons, a 'Return to Dashboard' link (marked with a circled '1'), and a list of course-related links: 'Course Title' (marked with a circled '1'), 'Announcements' (marked with a circled '2'), 'Assignments', 'Discussions', 'Grades', 'People', 'Pages', 'Files', 'Conferences', 'Collaborations', 'Chat', 'UW Libraries', and 'Panopto Recordings'. The main content area has a dark grey header with 'Log out' and a close button ('X'). It features a large heading 'Welcome to the course!', a descriptive paragraph about the course syllabus, and sections for 'Week one' and 'Week two' with placeholder text.

1 Students can return to the dashboard by clicking here.

2 This navigation bar no longer has a link to the syllabus because many professors use the home page in lieu of the syllabus page, contributing to lack of consistency across classes. Now, professors will be forced to use the same page for the syllabus / other important course info.

WIREFRAMES

This is a wireframe of the course discussions page.

The wireframe shows a sidebar menu on the left with options: My Profile, Settings, Return to Dashboard, Course Title, Announcements, Assignments, Discussions (selected), Grades, People, Pages, Files, Conferences, Collaborations, Chat, UW Libraries, and Panopto Recordings. The main content area displays a list of discussions sorted by Date Posted. Each discussion card includes the title, due date, number of participants, and a callout icon indicating participation status. A dropdown menu at the top allows sorting by Date Posted or Date Due.

Discussion Number	Title of Reading	Due Date	Participants	Callout Icon Status
12	Discussion Number: Title of Reading	May 7 at 5:00pm	5/1/16	Empty
24	Discussion Number: Title of Reading	May 1 at 5:00pm	4/27/16	Filled (checkmark)
18	Discussion Number: Title of Reading	April 28 at 5:00pm	4/20/16	Filled (checkmark)
32	Discussion Number: Title of Reading	April 21 at 5:00pm	4/13/16	Filled (checkmark)
40	Discussion Number: Title of Reading	April 14 at 5:00pm	4/8/16	Filled (checkmark)
16	Discussion Number: Title of Reading	April 7 at 5:00pm	4/1/16	Filled (checkmark)

1 Students can sort by Date Posted or Date Due.

2 Students can see how many people have participated in a discussion.

3 Once the student has participate in the assignment, the callout icon turns is filled in and has a checkmark.

WIREFRAMES

This is a wireframe of the new Discussion feature, which is a live collaborative annotation tool, similar to Google Docs.

The wireframe shows a top navigation bar with "My Profile", "Discussion Number: Title of Reading", "Log out", and a close button. Below the bar is a toolbar with icons numbered 1 through 8: bookmark, hyperlink, question mark, comment, text, square, circle, and a pen. A "Save & Close" button is also present. The main content area displays the title "Nielsen Schmielsen" and author "By Contra Versial Author, Ph. D". The text content includes several paragraphs of placeholder text (Lorem ipsum) and a section titled "Ut tincidunt tortor". At the bottom, there is a footer bar.

1 This annotation toolbox is modeled after the pdf-viewing software, Preview. Students can select different annotation tools and use them to mark up the assigned reading. All annotations will be public. From left to right, the tools are as follows: bookmark to come back to later, add a hyperlink or upload an attachment, write a question, write a note that links to a line of text, write loose text (does not link to text in reading), markup the reading using square or circle shapes, highlight text, zoom in/out.

2 An example of highlighted text.

3 After student is done annotating they can hit the "Save & Close" button and it will redirect them back to the Discussions page.

RESEARCH PROTOCOL

A description of the usability testing methods, participants, and research questions.

Participants

For this study, I tested three UW students who I knew from other classes: A 4th year undergraduate student majoring in communications; A 4th year undergraduate student majoring in international businesss and entrepreneurship; and a 2nd year MBA student. The two 4th year students are 21 years old, and the MBA student is estimated to between 25-30 years old. I wanted to get a variety of majors and at different stages in their academic career in order get a more thorough understanding of the various ways in which Canvas may be used for various academic programs.

Methods

Prior to testing, I made sure participants passed the Screener described on the following page. All participants were tested one-on-one at a coffee shop and testing time took approximately 25 minutes per person. Participants were tested using an interactive prototype created in Adobe Experience Design (Xd). While testing, I took notes on printed copies of the wireframes. Additionally, I recorded participants mouse movements and clicks using the Xd screen recording feature.

Research Goals

The goal of this study was to evaluate whether my wireframes reflected my goals of redesign (described on the first page of this document) and given that my redesign is somewhat of a pivot from my initial research, which was about scheduling, I wanted to confirm that the features being added/changed were actually desirable.

Research Questions

1. Is the redesigned Discussion feature usable?

Do students like annotating a discussion article directly in Canvas? Do all of the annotation tools do what they would expect? Are they comfortable switching between annotation tools? Are there any missing features they would expect or desire to have in an online discussion? Do students anticipate being able to tag other students in comments and is it intuitive how to do so? Are they losing any functionality that they had with the previous discussion format in Canvas? Do they expect it to save their annotations automatically? Would they rather save each annotation and have it update real time or annotate everything at once and then save it at the end?

2. Could the same annotation features added to the Discussion be used for other parts of Canvas?

Would students like to use a similar set tools for online peer critiques? Would students like for professors to use a set of annotation features like this for grading and providing feedback on assignments.

3. Is the Information Architecture for the Discussion intuitive?

Do students understand how to navigate to the discussion, open it, edit it, and save it? Do students understand how to switch between annotation tools?

4. Is the layout of the new dashboard on the home page intuitive?

Does it use the real estate wisely? Are there any features students wish were or weren't available on the dashboard?

5. Do students like the idea of being able to “follow” other students whose work they like?

Do they like the idea of being able to make assignments viewable for other students? Would they want control over the visibility of each of their own assignments? Do they like the idea of ‘liking’ submissions from other students?

TESTING SCRIPT

This is the script that was used during usability testing.

Screener

[Answer to all 3 questions must be "yes" to be eligible to participate.]

1. Are you a student, here at the University of Washington?
2. Do you use Canvas for your classes?
3. Do any of your classes ever use the Discussion feature?

Informed Consent

While I don't have a formal consent form for you to sign, before we begin, I'd like to cover your rights associated with this study. As a participant in this research, you should know that:

1. You may stop or ask for a break at any time.
2. You may leave at any time.
3. You may ask questions at any time.
4. Everything you say will be kept confidential.
5. There is no deception involved in this study.

Do you have any questions about anything mentioned?

Great, let's begin.

Introduction

[introduce yourself and any other researchers or observers]

Hello, thank you for agreeing to participate in this study. My name is Sara and I am conducting this study as a part of a class project, to better understand how to improve the experience of using Canvas.

[details about what will be going on]

I've invited you here today to show you some changes that I made to the design of Canvas, and to find out what you like and dislike about it, what you find confusing or intuitive and so on. It's currently in its early stages of development so not everything you will see will necessarily work smoothly. Additionally, I have yet to create the visual design, so everything you will see here today will be in greyscale. The final product may use different fonts or colors, but the layout would more or less be the same, so if there is anything you find confusing about the structure of the design, please point it out. Our goal is to improve Canvas, so really, don't hesitate at all to let us know if there is anything that you think could be improved upon or if there is anything you don't understand. Relatedly, please be open about anything you do like as well.

[procedure]

The agenda for this session is as follows: first, we will talk for a few minutes about how you use certain features on Canvas. Then, I'll show you a prototype of some changes I've made to Canvas, and have you try out a couple of things with it and will ask you some questions about your experience. The session will take about 20 minutes.

TESTING SCRIPT

This is the script that was used during usability testing. Part 2 out of 3.

Part I: Warm up / Dashboard / 'Follow' Feature

[Have them sign into the existing Canvas home page so they can reference things as needed]

First, I want to ask you a few questions about your experience with Canvas so far.

1. What features do you use the most on Canvas?
2. What do you wish you could access directly from the home page?

Now, I am going to show you a new design for the home page.

[Pull up wireframe of home page]

Walk me through what you think each item on this dashboard is.

Probes (for **each** feature on the Dashboard):

1. Is this what you expect to see?
2. Does the menu name / title make sense?
3. What do you think would happen if you click here?
4. For the 'Follow' Feature on the dashboard, also ask:

Think of the last time you turned in a project-based assignment. Did you ask any of your peers to see what they had submitted for that assignment? If no, probe: Were you interested in what anyone else turned in? Can you think of any other assignments or course projects you've done where you have been interested in seeing what your peers turned in? If it was possible to view assignment submissions from other students, would you? Are there certain people you would be more likely to view than others? Would you make your submissions visible to classmates if you could? Would you want to be able to set visibility preferences for each assignment?

[point to heart on Following feed] What do you think clicking this heart would do? Probes: Would you use this feature? Would you want this information to be public?

Part II: Discussion Feature

[Have them navigate to an existing Discussion Forum on Canvas]

Now, I want you to walk me through your experiences using the Discussion Feature on Canvas.

1. Do any of your current classes make use of this Discussion feature?
2. How is the Discussion feature utilized in these classes?
3. (Only ask if they say they use it for responding to readings) Can you walk me through, step-by-step, how you completed your last Discussion assignment.

Probes: Did you download the reading? Did you annotate the reading directly? Where did you type your discussion response? If you did not need to submit a formal discussion response, would you use the same process? What do you like or dislike about the Discussion feature?

TESTING SCRIPT

This is the script that was used during usability testing.

Part III: Discussion Tasks

[Instructions for Tasks]

Now, I am going to show you the redesign of the Discussion feature and have you try to complete a few things. Remember that this is not a test, just a way to help me better understand what about the product needs to be fixed. As you attempt the following tasks, please think aloud, so-to-speak, giving a play-by-play narrative about what you are doing and why. As you think aloud, let me know if there are any features that aren't working for you, aren't straight forward, and also if there is anything you do like or find useful. Don't be afraid of being harsh or hurting my feelings, the whole point of this activity is to figure out what does and does not work.

[General Probes for the Tasks]

Do the names on the menu make sense? / Was that where you thought it would be? Is anything difficult to interpret? Does anything draw your attention or stand out at you? What was the first thing you saw when you got to each page? Does anything go against your expectations?

Task I

[Pull up the dashboard page of the wireframe]
Pretend you want to complete an upcoming Discussion that you know is due on May 3rd. Starting from this dashboard here, show me the fastest way to access that Discussion.

Task III

[Navigate to list of Discussions Page]
Starting from this Discussion Page here, pretend that instead of typing up a long form response, you were assigned to participate in a discussion by annotating the reading directly on Canvas. Go ahead and highlight the first line, and then submit the assignment. [It is complete when they click "Save"]

Probes: How might you switch between annotation tools? For each annotation tool, ask what they expect it to do. What do you think the Save button does? Would you prefer this over the existing Discussion feature? Why/why not? Would you still want to be able to submit longer form responses? How might you tag someone in a comment on this article? Would you be okay with completing this assignment entirely online (ie., not downloading/printing the reading for offline viewing)? Would you want the option to make some annotations private?

Task II

[Pull up the dashboard page of the wireframe]
Are there any other ways to find a Discussion?
Probe: What if you didn't know the deadline for the Discussion? [They should start by clicking on either Courses or Discussions and ending at the page for Discussion 1]

RESULTS

Findings from usability studies.

The screenshot shows the Canvas LMS interface. On the left is a sidebar with links: My Profile, Settings, Canvas Dashboard, Messages (4 notifications), Courses, Groups, Grades, Discussions (5 notifications), Calendar, News Feed (Following) (6 notifications), and a list of users: Maria, Andrew, Megan, Farah. The main area has three sections: News Feed, Announcements, and Calendar. The News Feed shows posts from Maria, William, and Megan. The Announcements section shows a post from Michelle Nguyen. The Calendar section shows a grid for May 3 to May 12 with various events like Discussion 1, Assignment 1, etc.

- 1 Make the calendar 7 days (not 5) and include the days of the week.
- 2 On the links to the assignments/ discussion, include the title of the course.
- 3 Make the word "Calendar" link to the Calendar page.
- 4 Add the Assignments page. Oops!
- 5 Make Discussions link have a drop menu listing courses so that students don't need to go to an entirely separate Courses page to select the course the discussion is in.
- 6 Remove triangle, it confuses people and is unnecessary.
- 7 Separate Announcements by classes or at least indicate class name.
- 8 List all unread announcements, instead of having the link "4 unread announcements". only show a preview of each announcement.
- 9 Have the News Feed take up less real estate - announcements and calendar are more important.
- 10 Turn number next to heart into link so you can see who liked the assignment.
- 11 Have an option to View All publications- not just the ones of students you are following.
- 12 Have an option to filter news feed by class and assignment.

RESULTS

Findings from usability studies.

The screenshot shows a course home page with a sidebar menu on the left. The sidebar includes options like My Profile, Settings, Return to Dashboard, Course Title, Announcements (circled in green), Assignments, Discussions, Grades, People, Pages, Files, Conferences, Collaborations, Chat, UW Libraries, and Panopto Recordings. The main content area displays a welcome message and course details. A green circle with the number 1 is positioned next to the 'Announcements' link in the sidebar.

- 1 Add Syllabus link back, and make course home page default to announcements. This solves two problems: inconsistency in how professors use home vs syllabus pages and showcases time sensitive information, Announcements.

The screenshot shows a list of discussions on a course page. The sidebar menu is identical to the one in the previous screenshot. The main content area lists several discussions with their titles, due dates, and participation counts. Green circles with numbers 2 and 3 are placed above the second and third discussion entries respectively.

- 2 Indicate if a Discussion has new responses that the student hasn't yet seen.
3 Need an intermediate page for discussion instructions before it leads to the actual discussion.

RESULTS

Findings from usability studies.



The screenshot shows a digital reading platform interface. At the top, there's a toolbar with various icons: a user profile icon, 'My Profile', 'Save & Close' (highlighted with a green circle), 'Discussion Number: Title of Reading', 'Log out', and a magnifying glass icon. Below the toolbar, there are numbered circles (1 through 10) corresponding to specific findings. The main content area displays a reading titled 'Nielsen Schmielsen' by Contra Versial Author, Ph. D. The text includes several annotations with numbers 8, 9, and 10. Annotation 8 is a long block of text. Annotations 9 and 10 are smaller snippets of text at the bottom. The right side of the interface shows a progress bar at 75% and a page indicator 'Page 1 of 6'.

- 1 Students expected each annotation to save automatically. Remove the Save & Close button and instead have each annotation automatically save.
- 2 Students wanted to be able to indicate for each annotation whether it was public or private.
- 3 Students want a option to download the reading in the following 3 ways: with all annotations (personal and from classmates), with their own annotations only, and with no annotations at all.
- 4 Students liked the bookmark link, but wasn't sure if it was public/private. and wanted it to be private.
- 5 Student did not understand distinction between question, comment, and note tools. Make a single tool, and then when students are writing a comment, allow them to indicate whether it is a question or a comment. Do not require it to be linked to text either way, but also support students selecting text to explain what the comment/question corresponds to.
- 6 Make the attachment tool part of the comments.
- 7 Like Google Docs, students liked the idea of each student having a different color if possible so that you can quickly go through and find comments/highlights from the same person.
- 8 Like on Kindle, students wanted to be able to see if something had been heavily highlighted by others.
- 9 Remove magnifying glass icon.
- 10 Add a comments/discussion section at the end of the article like online news sites do.

DISCUSSION

Broader findings, beyond concrete suggestions listed on wireframes on the preceding pages.

Discussion of Results

All three participants liked the idea of being able to publish their own assignments and view assignments published by other students. However, 2 out of 3 participants they said this would only be something they would want for classes that had interesting projects and that otherwise, it would be annoying. Perhaps this newsfeed feature should be something that students can toggle on or off.

Students really liked the idea of having the calendar on the home page, but wanted a few small changes (as described on the wireframe).

The redesigned Discussion feature got mixed reactions. While all three students preferred the approach of interacting directly with an article, rather than the way the Discussion is now, one student wanted to be able to read and annotate the article offline and felt this platform would end up being double work because they would want to markup the article on their own, offline, and may then be required to repeat the process online to fulfill requirements of the assignment. Another participant brought up that this approach would not work for all Discussion style assignments, and that Discussions are also used beyond commenting on readings (e.g., students use them to ask questions to teachers). All three students liked the idea of having their professors use similar annotation tools to provide feedback on their assignments. Only one student has done a peer critique before, but could imagine using the annotation tools to participate in online critiques.

Limitations

Overall, these results are limited because only three participants were tested. One thing that was surprising was that overall, the three students I tested seemed to use Canvas a lot less than MHCID students do and have fewer project-based assignments, meaning that the redesigns that made sense to me, may only be heavily utilized by certain majors.

What's Next?

Implement changes suggested on preceding Results pages. Test MHCID students or students of other majors that may be more likely to use the News Feed and Discussion features, and therefore provide more critical feedback. Create a higher fidelity mockup to assess the look & feel of the new features.

Survey Questions

Survey Questions and Notes

1. Do you use Canvas regularly? If so, about how often?
2. Overall, how would you describe the function of canvas? What does it do?
3. What do you like or dislike about using canvas?
4. In addition to Canvas, do you use any other programs to collaborate with your peers?
5. If yes, what are those programs, and why do you use them?
6. Can you login to Canvas? (have user login to canvas)
7. What are the most important things you use Canvas for, and how do you access those things?
8. Can you take me to one of your courses? (have user navigate to course)
9. How would you describe the home page of this course?
10. What are some of the things you would do on this page?
11. How do you feel about the navigation between courses? Do the courses relate or interact with each other?
12. Where would you go on the site to see what assignments you have coming up?
13. How do you usually decide which assignments to work on first?
14. Would you be interested in a new feature that helps prioritize your assignments?
15. Tell me about the calendar. (have user navigate to calendar). Do you use it regularly? If so, what do you like or dislike about it?
16. Does this calendar accurately reflect your workload? Why/why not?
17. (have user navigate to a particular assignment) In addition to the assignment description, is there a way to know how long this assignment will probably take to complete?
18. How long do you think this assignment will take?
19. How long does your instructor think it will take?
20. Would you be interested in a feature that helps instructors and students more accurately estimate the time it will take to complete their assignments?
21. Is there a class where you utilized discussions? Can you take me to an example of a reading discussion?
22. Do any of your classes use discussions? (have user navigate to a discussion) What for?
23. How would you describe using the discussion boards?
24. In general, do you think the discussions on canvas are interesting to read?
25. Do you ever engage with classmates' discussion posts by replying? Why or why not?
26. Do you or your classmates ever discuss the coursework outside of the discussion section of canvas? If so, where do you do that, and why not use the discussion board?
27. Are you familiar with reaction emojis? If so, when do you use them?
28. If canvas discussions had reaction emojis, would you use them?
29. Would you be interested in a new feature that lets you tag classmates, instructors, or other people, so that they can be notified of the discussion?
30. Now I want you to consider what happens after you submit an assignment. Are you ever
31. Are there particular people whose submitted work you would like to see specifically?
32. If submissions were publicly viewable, would you like or dislike that?
33. What if students and instructors could comment on your work publicly?
34. If assignment submissions were publicly viewable, but you could choose to make your own assignments private, would you? Why or why not?
35. Are there any other features not mentioned that you would like to see, or anything that already exists, but could be improved on?