CS-639 Building User Interfaces, Fall 2019, Professor Mutlu

Assignments — Week 02 | Design | Think-aloud + Ideation

In this assignment, you will practice the "empathy" method that will give you the most bang for the buck in terms of understanding user needs, preferences, and behavior. The think-aloud protocol involves (1) identifying users who represent your target group of users, (2) identifying/developing tasks that represent the functioning of the target system, (3) observing users as they perform the tasks, (4) analyzing your data to develop design insight, and (5) ideating design solutions that are informed by the insight you developed from your data. Imagine that you are given the task of redesigning UW–Madison's course search and enrollment system and follow the process below to perform a think-aloud and ideate for solutions.

Think-aloud

Step 1. Identify users. Who are the users of the UW–Madison course search and enrollment system? Describe below the characteristics of this user group, identify one person who might be willing to take part in your user research, and ask the person for their interest/availability. (If the person you identified is in this class, it is acceptable to swap roles.)

Most of the users of the course search and enrollment system are the undergraduate, graduate and international exchange students. However, there may have some non-student users including advisors, peer advisors, and school consoler who give suggestions and help student to plan their course schedule.

The characteristics of the user group are:

- Most people have some level of knowledge about how to use digital equipment
- Can access the information from difference channel including phone, tablet, and laptop
- Various fields of study, students are from over 100+ difference majors and have different course requirements

Houqi Li is the person who takes part in my user research. He is a senior student double majoring in Computer Sciences and Math. This semester will be his last semester and he is taking classes for his computer science major and general social science requirements. Since he joined UW-Madison 3 years ago, he’s familiar with the course guide and not sure many functions in the new course search and enrollment system.

Step 2. Identify tasks. Study the course search and enrollment system and make a list of the main tasks that users of the system might be performing using the system. Rank your list in terms of importance (simultaneously considering impact, frequency, prevalence) and identify the top three tasks. Describe each task in 1–2 sentences in a way that your users can understand.

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1. Add one class that interest you to current schedule and then generate a new schedule without any time conflicts
   (**Description**: Find a class that fits to your interest first, and then add to your schedule. You need to make sure the class does not have any conflicts with your current schedule)
2. Find an open section computer science class that will meet your software & hardware major requirements
   (**Description**: Use the course search & enroll app to find a list of open seat computer science course, and then make sure to find a class to fit your software & hardware major requirements)
3. Swap any of your current enrolled class with Economics 101
   (**Description**: After trying out for the first week, you found the Economics 101 class is more interesting, and you want to swap any of your current enrolled class with it)

Step 3. Perform think-aloud. Hold a think-aloud session with your representative user. First describe to your user how the think-aloud will work (refer to the reading and class notes), describe the tasks one at a time (answer any questions you might have), and ask them to perform each task while they say out loud what they are thinking.

> **Pro tip:** If you see your user performing the task but not speaking, probe them by asking what whey are thinking or reminding them that they should be describing.

As you observe your user performing the tasks, take notes (using the other sheet) of important actions, problems they encounter, confusions they might voice, and so on. For anything that stands out, after each task, ask your user why they did that or said that. Your observations and notes will form your data. Include your data below.

First Task

- **Houqi first found his interest course by using the search text box. However, results did not match to his interest.**
- After it, Houqi used the subject area to find a list of computer science course and then found one that fits to his interest.
- **After adding to the cart and generating the schedule, Houqi found the size of the schedule cannot fit to his screen and cannot be changed.**
- **Houqi used the time under section list to compare with his current schedule in another tab which took a longer time to find a non-conflict section.**

Second Task

- After finding a list of the computer science course, Houqi typed “hardware & software” under the search box. However, those are not the course which satisfy the hardware & software CS major requirements.
- Houqi asked me and tried to use google and wisc.edu to find the CS major requirements and it took about 5 minutes.

- **Then, Houqi compared the open section computer science course list in enrollment system with the course requirements listed on the CS department website.**

Third Task

- Houqi easily found the Economics 101 course from the enrollment system
- Houqi did not select the section first, since he did not know which one best work for his schedule
- **Houqi took a while to find the swap option which is under "…" tab.**

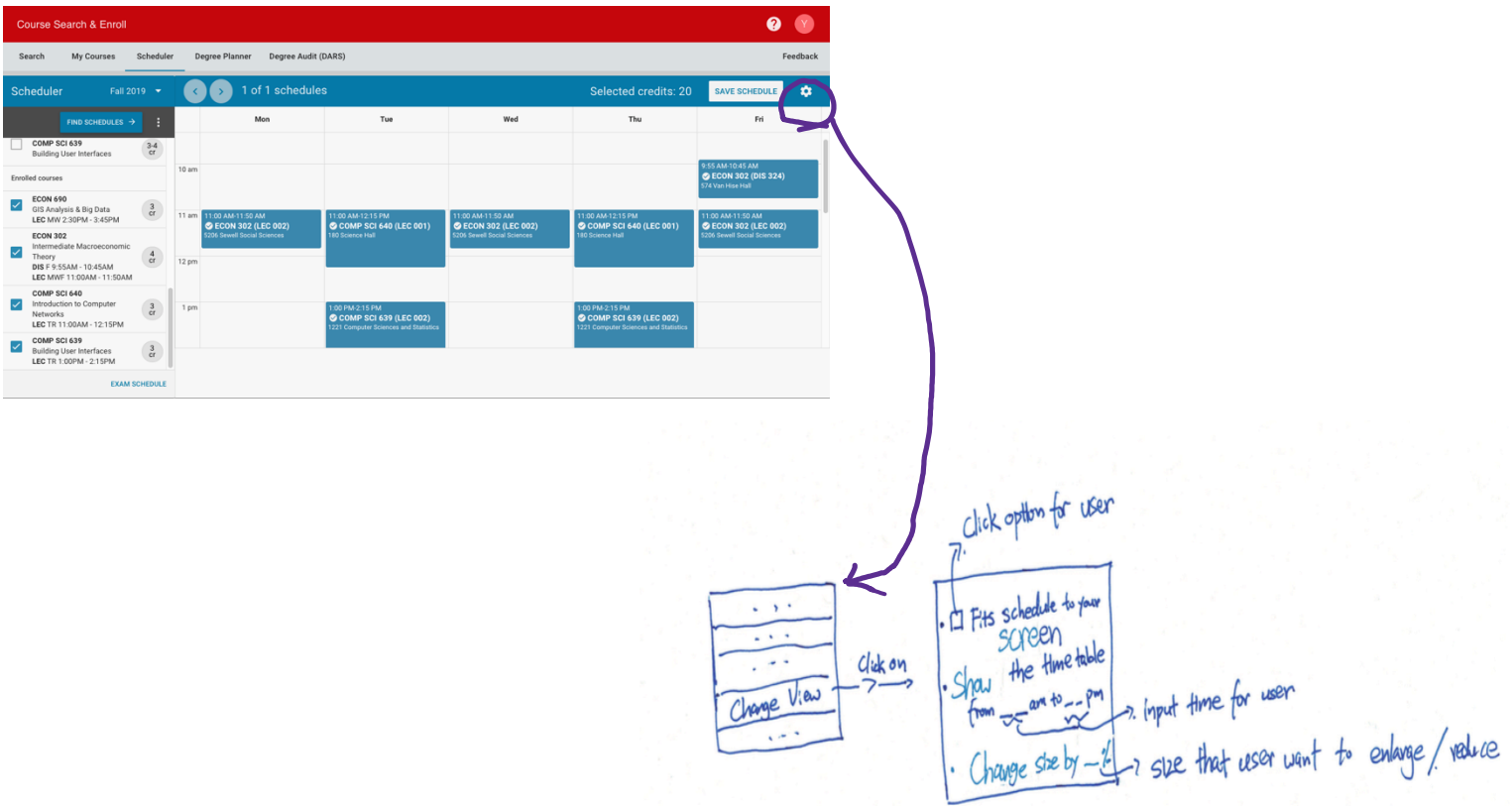
Step 4. Create insight. In your data (e.g., notes), highlight where you saw significant breakdowns in functioning, need for better functioning, or user preferences that would require an alternative design. Make a list of your findings as design recommendations.

The bold font notes under step 3 are the functions that would require an alternative design. The following is a list of design recommendations that I came up through the user experience research:

1. Give an option for students to change the size of the schedule to fits into the screen since student may have different type of the laptop. **(Came up from task 1)**
2. After adding course to cart, automatically filter out the sections that are conflict with current schedule. **(Came up from task 1)**
3. Make sure the search box not only works for course title, but also for the course description or content. **(Came up from task 1)**
4. Give students an option to see their current enrolled schedule on the right of the page. **(Came up from task 1)**
5. Add a tab or a link for students to find out their major class requirements inside all their major class description or title. **(Came up from task 2)**
6. Assign swap option a button to make more obviously instead of putting under more options. **(Came up from task 3)**

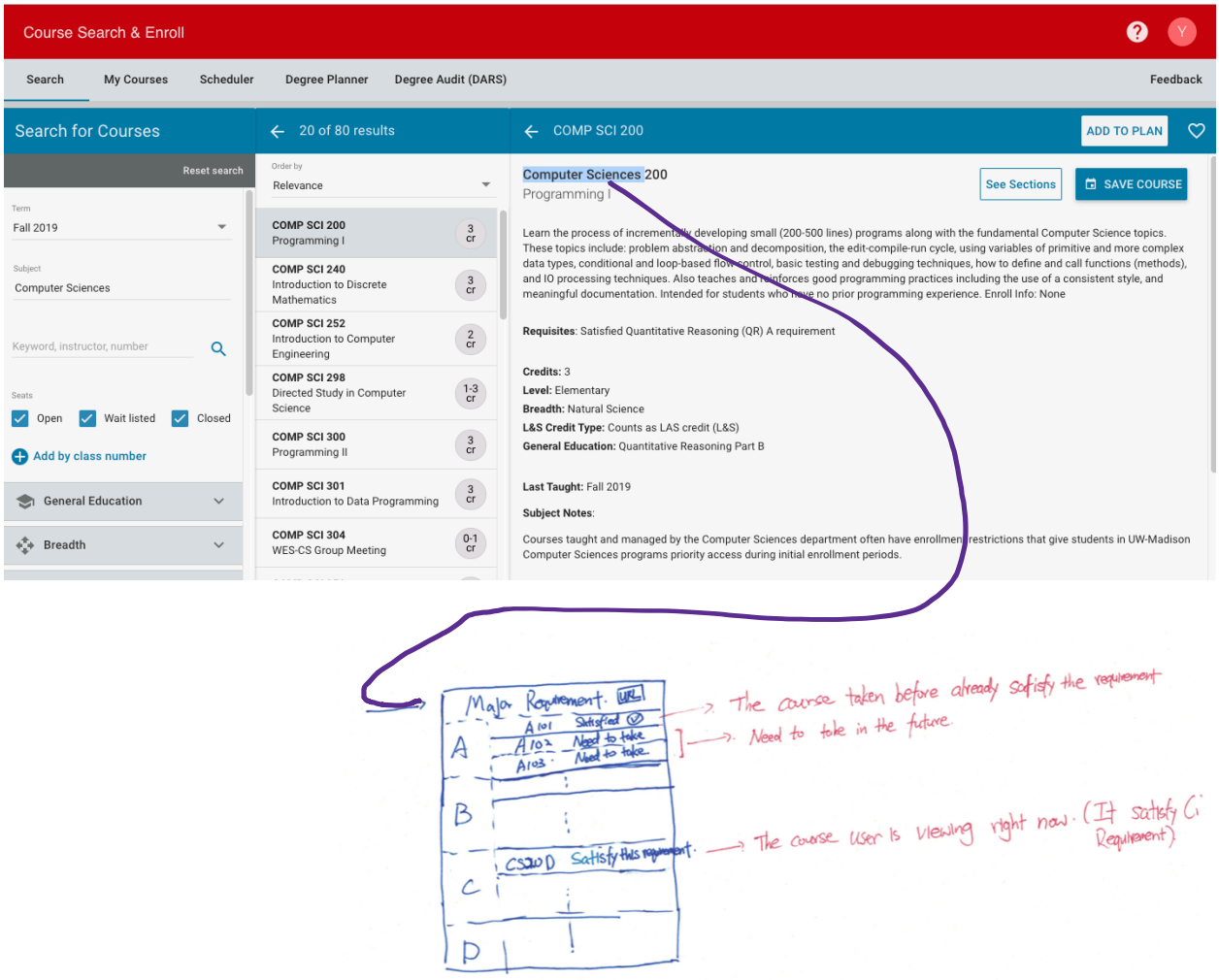
Ideation

Step 5. Ideate. In this step, hold a brief ideation session individually. First focus on generating ideas, and then critique these ideas in terms of how well they address the problems you identified in your think-aloud. Include sketches of two of your ideas below. Remember that these should be conceptual designs and not wireframes or illustrations, focusing on the core idea of a design and not on design elements. You can draw on paper, take a photo, and include the photo below; draw on a tablet computer and carry over the image here; or draw using the drawing tools of a word processor. Remember, these should be very simple drawings just to convey the idea.



1. (From Design Recommendation #1)
   The first design is that add a change view option to the schedule table. With this feature, the user can apply to fits schedule to the users' screen. In addition, it also gives the option to show the time between certain intervals (for example: from 10:00am to 5:00pm). Moreover, if users want to view the schedule in a different way, they can change the table size through enlarging or reducing.

   Since the way to display the schedule is fixed and there's no way to change the size or time interval of it, it makes a hard time for students to view all classes in a single screen without scrolling. In addition, students who use tablets, mobile have different resolution on their screen. Thus, it's important to make sure all the user can have the same experience no matter what device they are using. From think-aloud with Houqi, I found he ignored the classes on the bottom of the schedule due to the display. Thus, giving flexibility on displaying the schedule will help students to view and print the schedule more easily.



2. (From Design Recommendation #5)
   For the second design, I'm adding a function which similar to DARS, but having more potential than DARS. After clicking the computer science title, it will pop up a table which shows the major requirements and add-on features. In this case, the users will not only know what requirements that they have already satisfied, but also, they will know what course they need to take in the future for the rest of the requirements. The most important feature is that, user can know the requirement which the current selected course satisfy (For example CS 200 satisfy C requirements). If the information is not enough, the user can also click the URL to find with more major requirements information from department website.

   Through the think-aloud, I found Houqi did not know the location to find the major requirements. Then he took about 5 minutes to find out the information he needs. If we can embed the major requirement into the course search and enrollment system, it will not only save students time on finding out their requirement but also it will save advisor time since the student can know the progress and what course they need to take through using this new feature.