Taylor Blaine Startin
Assignment P2
CS 6750 – Human-Computer Interaction
Georgia Institute of Technology – OMSCS – Fall 2016
09/05/2016

1. Typically, a user will login into Buzzport, go to Registration, find Add or Drop Classes, select the term to register for, and then search for the classes that they want to add. Once they've found the classes, they can either gather the CRN or check the box to add the course and click "Add Course(s)". Please keep in mind I wrote the above from memory as I am not allowed to add/remove courses at this time.

   If I were to modify the procedures to invoke direct manipulation, I would have invoke the ability to add and drop courses in a similar manner to how one drags and drops files into new folders. By having one UI next to the other, you can view the courses currently registered for, and drag new courses onto your screen that you want to register.

   This gives two direct benefits. The first benefit is the ability to easily register for classes by dragging them to the left into your "Registered Courses" area. The second benefit this provides is for a student to be able to see the current courses they are already registered for while picking the next course they would like.

2. My coffee machine is a good example of an interface that has become invisible to me by learning. My wife and I bought a Cuisinart Grind and Brew coffee machine a few years back that grinds the coffee for us before it brews it. We love it, but at first it was very difficult to use. It would beep at us when we tried to brew coffee and didn't have all of the parts put back together that were required, plus we couldn't quite figure out how to clean it at first.

   Now, I understand what parts need to come out in order to clean it properly. I know exactly which parts go where and how to reassemble the machine so that it doesn't beep at me. Without looking, I know whether or not I've put enough water in for the next daily grind.

   If I were to make the design a little easier in order to make it more of an invisible interface, I would probably allow a disposable filter to replace the washable filter. This filter could be used in place of the washable filter and be thrown away quickly without having to scrub it (although this would create more waste). I would also have the ability to dump the grounds and disposable filter without having manually remove them for each pot of coffee.

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3. While driving a car, I use visual perceptions all the time. If a warning about my oil level or tire pressure shows on the dash, that's something I can see. I also have visual alerts when I see an oncoming deer in the road and I realize I need to stop. If I hear a squeal in my engine, I am using my auditory senses to know something is wrong even if I don't know it's the timing belt. If the alignment is going out on my car, I can feel the car pull to the left or the right using my haptic senses.

   I believe I could give more a visual stimulus when something is wrong, such as a readout that says "Oil Low" or "Fix Timing Belt". I could also give haptic stimulation by vibrating the steering wheel or the seat in order to alert the driver of nearby dangers. Perhaps adding audio to these issues could be of use, literally telling the driver of any events, malfunctions, or dangers.

   I'm not entirely sure how we could add taste or smell into the process. Perhaps by having the car emit a terrible smell when the car malfunctions, the driver would pull over and quit driving until the issue is resolved.

4. *The five tips are great ideas but could be violated. Using Amazon Video, I can actually describe both how the two tips of reducing clutter and giving the user control of pace are violated. While watching movies on Amazon Video, a user is able to tap the screen. Once they've tapped, they are presented with three buttons that are centralized and give the user control of pace. On the side, they are presented with information about the movie and also the actors that are in the current scene. For the control of pace issue, I often tap the screen when I didn't mean to and the screen is overlaid with controls and outside information. Instead of watching the movie, I'm now forced to look at this information. Perhaps moving the controls to the bottom of the screen without blocking my view of the movie would help to give a user control of pace while watching my movie, along with adding an information icon that allows me to view information about the actors. This also would fix the issue of emphasizing essential content while minimizing clutter. I know that some people want to have information on actors in a scene, but an additional information icon could provide that.*

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Due: Sunday, September 11th, 2016, by 11:59PM UTC-12 (Anywhere on Earth). This assignment is based on lessons 2.3 (Direct Manipulation and Invisible Interfaces) and 2.4 (Human Abilities).

Assignment Instructions

Answer the following four questions in a maximum of 300 words each; if you supply more than 300 words, the grader will stop reading at the 300th word, and you will not receive credit for anything written after that. Clearly delineate where each answer starts and ends. You are encouraged but not required to complement your responses with diagrams, drawings, pictures, etc.; these do not count against the word limit, though any captions, text in tables, etc. does.

1. The current process that Georgia Tech uses for enrolling in classes is not very direct. First, briefly describe one of the processes by which people look up and enroll in classes at Georgia Tech (~50 words). Then, describe a redesign of the system that more significantly direct manipulation (~125 words). Finally, describe two specific benefits of this redesign beyond general usability (~75 words).

2. Select an interface (besides driving) that you use on a regular basis that has become invisible by learning; that is, an interface that you used to spend a lot of time thinking about, but now ignore in favor of focusing on the task. First, describe the components of the interface you used to think about a lot while using it (~75 words). Then, describe your thought process now, and especially explain why you no longer have to spend as much time focusing on the interface (~75 words). Finally, briefly describe how you might redesign the original interface to get you to the point of invisibility more quickly (~100 words).

3. Take the example of driving a car. In the lectures, we discuss three types of human perception that are commonly used in user interface design. Describe how each of these three types of human perception are used to give the driver feedback while driving a car (~25 words each). Then, for each type of human perception, design how it could be used to give the driver feedback about something that does not currently use that modality (~50 words each). Finally, briefly name a different kind of human perception outside these three, and name one way it is or could be used for feedback to the driver (~25 words). For the purposes of this question, you can assume an older, simple car; you will not be penalized for designing a "new" feature that actually already exists in some advanced or high-end cars.

4. In the lecture, we give five suggestions for reducing cognitive load in interface design: using multiple modalities, letting the modalities complement each other, giving the user control of the pace, emphasizing essential content while minimizing clutter, and offloading tasks from the user onto the interface. Select two of these tips. For each tip, select an interface from your everyday life that violates the suggestion. Briefly describe the interface (~25 words) and the violation of the tip (~25 words), and then describe a redesign of the interface that would incorporate the tip into its design (~75 words).