

- 1) I log-in to “Buzzport” and click on “Registration – OSCAR” link which gives me the list of options available. Here, I click on “Student Services & Financial Aid” link that shows “Registration” as one of the options. The “Registration” link provides the resources I need to register for classes. I then have to click the “Look up classes” link to search the list of classes being offered that semester. Next, I need to select the appropriate semester, department and campus type, then click the search button to see the list of classes that I can register for. From this point on, I have two options – I can either select the classes I want and click the register button or note down the CRN numbers for the appropriate classes, go back to the “Registration” screen, select the “Add or Drop classes” link, input the CRN numbers and click “Submit”. If I need to remove the classes that I have already registered, I have to go to the same screen and remove classes. I don’t feel direct engagement anywhere in this process as I’m not in control of the semantic objects required to accomplish my goal of registering for classes. I would like to redesign the interface such that as soon as I log-in, I should see a link called Register. Once I click that link I should see the list of classes available for me to register along with all relevant information on the left side of the screen and to register all I should do is move them to the right side of the screen. Similarly, if I want to remove classes I should be able to move them from the right side of the screen to the left side. The analogy is equivalent to a shopping basket where we take an empty basket and add the items we wish to buy in that basket. Such an interface will certainly reduce both the semantic distance, because I know exactly what options are available, and articulatory distance as I can accomplish my goal in fewer number of clicks i.e. in less time. Also, I don’t need to remember the CRN numbers which I solely use only to add classes. In addition, I know exactly what courses are available for me to register and can’t try to register for a course that is not applicable to me.
- 2) As a financial analyst, I use Excel a lot for financial modeling and analysis. When I started my career, I lacked the efficiency to build models. This is because I used both the keyboard and mouse to access the options from the toolbar. For example, rather than using ctrl – x and ctrl – v to cut and paste, I would navigate through the menu options to accomplish my tasks. This process took away my thoughts about the model and led me get lost in finding the right menu/options. There were times I would forget the logic I wanted to implement, by the time I figure out the right menu choices. In short, most of my efforts were focused on learning how to use Excel rather than building a financial model to analyze the cash flow or net income of a business. However, over these years I have learnt various short cut keys to accomplish my tasks quickly and thus hardly use the mouse now to navigate the menu options. I use the keyboard exclusively and don’t even realize using that because I have learnt the short cut keys by heart and use them at ease. Now, I feel like I am in direct command of my financial models as I am able to translate my thoughts into actions effectively using the short cut keys. I don’t focus on the tool anymore and feel like I am directly manipulating the elements of my financial model. I would like to redesign the interface so that every time someone uses a menu option the corresponding short cut key should appear on the screen and the user should be able to create a list of all such short keys and save that. Every time the user opens Excel, the list of all the short cut keys already saved should automatically appear on the screen. In addition, the user should be able to customize that list by adding or deleting short cut keys. Moreover, based on what keys other users have used in the past, Excel should also recommend short cut keys and give the option to either ignore or append to the already saved list. This will certainly reduce the steep learning curve that I went through, if not eliminate it totally.

- 3) While driving the visual feedback I get helps me steer the car appropriately and make sure that it stays on the middle of the road. In addition, it helps me gauge how far I have travelled and estimate how long more I have to reach the destination. Moreover, I can find out how fast I am driving by looking at the speedometer and compare the same with the posted speed limits on the road to take any corrective action, if needed. Also, the visual feedback helps me understand how much fuel has been consumed until that point. The auditory feedback helps me stay aware of what's happening around me – someone could honk or even rear end my car which can create a huge sound. Moreover, the auditory feedback helps me identify if the brake pedals are wearing out, as they usually make a screeching sound, if so. The haptic feedback I get helps me secure the steering wheel appropriately, when taking turns, in particular. My car has heated leather seats, so an important haptic feedback that I get is the warmth of the seats. I would like to get visual feedback about the distance between my car and the vehicle ahead of me. This will help me understand if I am too close to that vehicle and take actions accordingly. As for auditory feedback, I would like my car to intimate me with beeps or alarms if I exceed certain speed limit. This will make sure that I stay within the speed limit and avoid any accidents. As someone who drives a lot, I prefer to sit in the most ergonomically comfortable position. I would like to set this position beforehand and every time my posture doesn't match the already set position, I would like to get haptic feedback in the form of vibrations so that I can position myself comfortably. Moreover, I should be able to customize this feature for multiple drivers. Sometimes I get stuck in traffic so badly that I end up spending hours in the car and a bad weather makes this even worse. In such conditions, I often feel nausea and have noticed that some of my family members feel the same way as well. It would be great to have the chemoreceptors provide feedback about any vomiting that might be triggered because of prolonged sitting in the car.
- 4) As someone who drives quite a bit every day, I often find myself exceeding the speed limits. Though my car does a good job of providing visual feedback in terms of the speed of the car, I have found that the feedback is not enough. Even a simple task such as driving requires multiple cognitive tasks – making sure that the car stays on the road, looking at the speedometer to be aware of the current speed limit and observing the posted speed limit on the road to see if any corrective action is needed. Therefore, it would be useful if feedback is provided via different modalities. For example, looking at the speedometer and comparing with the posted speed limit involves only the visual modality. The auditory modality is not being used in this case and would help the driver if auditory feedback in the form of beeps or alarms are provided every time the current speed is greater than the posted speed limit in that region. This would also eliminate the risk of taking the eyes off the road to look at the speedometer.

I have a Samsung smart TV that I use to watch videos on the internet. My 3.5 year old son likes to watch some of his favorite videos on the big screen. Our TV does have the capability to access number of online channels such as YouTube, Netflix, and Hulu and so on. However, the challenge is in searching for the video using the remote provided by Samsung. The remote is not conducive to searching by text because the text has to be typed one character at a time and appropriate directional key need to be used to move to the correct position of the text. If the search text involves more than one word then the space key has to be pressed to create an empty space between texts. This puts way too much burden on the user and the interface should certainly offload some of this effort from the user. The goal here is to watch the videos as we wish and not

spend time in searching for the same. The interface could be redesigned to either have voice enabled search or something that enables entering the search text much like how we would write on a pad.