Assignment P2

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1 QUESTION 1

1.1 Task 1 - opening my text editor

Definition—The task is opening my text editor (Sublime Text 3) to the specific directory I want to edit. The goal of task 1 is to have the correct directory opened in my editor. The interface for task 1 is within the context of my operating system, which is Mac OS. The interface is my keyboard, keypad, and screen. The object of task 1 is my laptop (Macbook Pro).

Directness and invisibility of interaction—This task begins with an open laptop already running my OS. In this context, I either have a blank desktop, or an open (perhaps multiple) windows with running applications. I am interacting with the object directly, manipulating it's interface via the keyboard/keypad. The distance from the object to the task is all via the OS, which has keyboard shortcuts, and a more traditional medium of finding an application through a file explorer/finder. Since I do this task nearly everyday, the interface is nearly invisible to me. This is because I use keyboard shortcuts (CMD + Space, search Sublime Text 3). Focusing on this task only becomes invsibile through repetition, and even getting to the final state of opening the directory you want still has friction. The application, by default, opens the last directory you had open. This can make the interface feel invisible. However if you need another directory, then you must find it by clicking through the entire directory tree (not ideal). The number of actions necessary for this task are minimal, so there wasn't a time where I thought about the subtasks in this interface significantly more.

1.2 Task 2 - buckling my seatbelt

Definition—The task is (to travel safe, via) buckling my seat belt in my car specifically, however, I will compare this to buckling my seat belt in other settings, too. The goal of task 2 is to have your seat belt buckled before you are in a position to be harmed by an accident. The interface for task 2 is the layout of

your seat, as well as surrounding indicators, such as a dashboard beeping reminder. The object of task 2 is your car (it's not driving, so I'm still obeying the rules of the assignment!).

Directness and invisibility of interaction — The task (fastening seat belt) is physically located within the object (car)? You are directly manipulating the object, since the task is attached to the object. In terms of invisibility, I spend little to no time thinking about this task. So little in fact, that sometimes I forget, and the indicator on the dashboard beeps/alarms when I forget. This is an intuitive reminder that I can immediately comprehend since the icon representing the task directly depicts the (piece) object the object, the person/seatbelt. The interface became invisible, however, this could be because of the amount of repetition involved with this task. The red beeping/alarming icon is so engrained into our action associated with driving that it has become second nature. This is contextual, since I recently flew in a plane and helicopter, both of which, I had to be reminded at some point by another passenger/flight attendent to fasten my seat belt (no beeping reminder). There was a time when I thought more about this interface, and that was prior to this beeping/alarm being universally consistent in all newer vehicles.

1.3 Task 3 - getting an espresso

Definition — The task is to select the espresso option and pour the espresso. The goal of task 3 is to have an espresso. The interface for task 3 is the computer screen of the coffee machine. The object of task 3 is the espresso maker, which is comprised of two containers filled with coffee beans, a computer screen, a milk deposit, and an internal component that does all of the grinding/steaming/etc.

Directness and invisibility of interaction — The interactions are made directly to the screen of the object? I am manipulating the object at a short distance (figuratively, since the screen is attached to the object) via the interface since the internals of how the espresso is made are all abstracted away from me. In terms of invisibility, I spent a couple subtasks thinking about the interface while performing the task: pressing the screen to navigate away from the lock screen, then slide (like an iPhone home screen) across pages of the desktop to find the espresso button, then clicking button and placing my cup underneath the spout. When I focus mostly on the task, the interface becomes invisible and the process

of stepping through the subtasks feels intuitive. When I first used this interface, I did have to think about the interface more. I would slide across all pages, looking for what's available and evaluating the options. With time, this interface starts to flow more naturally.

1.4 Task 4 - moving my desk up/down

Definition — The task is moving my electronic stand up desk from sitting to standing (and vice versa). The goal of task 4 is to either sit or stand at my desk. The interface for task 4 is a panel to the front right of the desk with a handful of buttons. The object of task 4 is my desk.

Directness and invisibility of interaction — My interactions are directly on the object. I am 100 percent manipulating the object directly. To do this, I would physically pull/push the desk top up/down. However, by clicking the buttons to go up and down directly on the panel attached to the desk top, I am interfacing directly with the object to an extend. In terms of invisibility, I spend absolutely no time thinking about this interface and have the impression I am interacting directly with the object. When I focus mostly on the task, the interface becomes invisible through good design. The was never a time I had to think about this task (zero learning curve).

1.5 Task 5 - saving a song on my Spotify

Definition — The task is to save a song on spotify. This task is analyzed in the context of already having the Spotify app open and a list of songs present on the screen. The goal of task 5 is have a song saved to your library (meaning it is available offline). The interface for task 5 is the spotify app. The object of task 5 is the smartphone (iPhone).

Directness and invisibility of interaction — The interaction is directly on the screen of the object. I iam manipulating the components within Spotify which are directly surfaced on the objects screen. In terms of invisibility, I spent a decent amount of time trying to find the actions within the interface. I have to click the three dots to the right of the row of the song I want to save. If I focus mostly on the task, the interface can start to feel less visible the more that I learn from it. Just recently I learned a shortcut to this action (swiping the row to the right). However, up until recently this was a task involving a not so intuitive list

of subtasks (an experienced user would recognize the three dots as an indication to more available actions).

2 QUESTION 2

The task I do on a regular basis is using my propane fueled BBQ to cook food. The goal of this task is to cook food. The components to this object comprise the propane tank, the grill, the BBQ's frame and cover, the propane knobs (front, middle, back) and igniter. The components I used to focus on was the sequence of engaging with each of these components. Sometimes I would toggle back-and-fourth between the igniter, knobs, and propane tank when the grill would not light.

Now, after having interfaced with this specific grill a handful of times, I have memorized and learned the internals to how this system functions. The grill must be supplied with propane to function. This is the base-line requirement, meaning the propane tank must be opened first. Then, the propane must be flowing through the valves, which is what the knobs mediate between the user and underneath the grill. Once the fuel source is being fed through the pipes under the grill, a spark must be made for a fire, so I spark the igniter. Having an in-depth knowledge allows you to grasp the intuition behind many grill's interfaces of the same construct.

5 tips: invisible interfaces—

1. Use affordances - Places where the visual design of the interface is how it is supposed to be used - **the grill does a good job of this.**
2. Know your user - Invisibility could mean different things - **new users may not have an in-depth knowledge of the inner-workings**
3. Differentiate your user - Provide multiple ways for accomplishing tasks to differentiate between users - **(N/A)**
4. Let your interface teach - Other than tutorials or manuals. Have your interface teach aspects of itself - **the interface teaches the user how the components work together**
5. Talk to your user - Ask them what their thinking while using an interface - **N/A**

This system could be redesigned to place the knobs in a fashion the better reflect

the fact they manipulate different sections of the grill. Placing the knobs on the grill hood could place them directly infront of the users face. Also, combining the fuel release (knob) in with the igniter (detecting whether there is a flame or not) and triggering the igniter if there is no flame will reduce the gulf of execution. Placing a light/signal on the grill hood indicating when the grill is lit will reduce the gulf of evaluation as well.

3 QUESTION 3

3.1 Task - using an advanced treadmill

including heart monitoring, calorie-counting, rate variation, etc. will be our selected task. Describe how each of these three types of human perception are used to give the user feedback.

3.2 Visual

Design how that type of perception could be used to give feedback about something (within your chosen task domain) that does not currently use that modality. For example, what kind of haptic feedback might you give a player in a game? What kind of visual feedback might you give a person on an exercise bike?

3.3 auditory

Design how that type of perception could be used to give feedback about something (within your chosen task domain) that does not currently use that modality. For example, what kind of haptic feedback might you give a player in a game? What kind of visual feedback might you give a person on an exercise bike?

3.4 haptic

Design how that type of perception could be used to give feedback about something (within your chosen task domain) that does not currently use that modality. For example, what kind of haptic feedback might you give a player in a game? What kind of visual feedback might you give a person on an exercise bike?

Finally — Briefly name a different kind of human perception outside these three, and describe one way it is or could be used for feedback in your chosen task

domain.

4 QUESTION 4

Reducing cognitive load in interface design —

1. Using multiple modalities
2. Letting the modalities complement each other
3. Giving the user control of the pace
4. Emphasizing essential content while minimizing clutter
5. Offloading tasks from the user onto the interface

4.1 Strategy 1

Select an interface from your everyday life that violates the suggestion. Briefly describe the interface, and then describe violation of the tip. Then, briefly redesign the interface to incorporate the tip into its design.

4.2 Strategy 2

Select an interface from your everyday life that violates the suggestion. Briefly describe the interface, and then describe violation of the tip. Then, briefly redesign the interface to incorporate the tip into its design.