

Assignment P1

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1 QUESTION 1 – PROCESSOR/PREDICTOR MODELS

As an OMSCS student at Georgia Tech, there are countless tools used to interface with course material, students, professors, TA's, etc. Each class makes use of what is believed to enable an individual's success while also being an effective tool for the entire student population. One such tool that is commonly used to promote communication is Ed Discussion. Ed Discussions is a feature of Canvas that allows students to share and interact asynchronously. As such, Ed Discussions is a good example of how the processor model and predictor model apply to human computer interaction.

1.1 Perspective of the Processor Model

As the processor model would suggest, the main objective of Ed Discussion is to facilitate communication between students and instructors by engaging students and promoting a sense of community. This is accomplished by creating a user friendly layout that has different colored thread topics, easily accessible recent discussions, and a very functional search feature. Using the processor model, Ed Discussion can be quantitatively evaluated by how long it takes the user to create a new thread and/or access a particular discussion, and how efficiently a user can understand answers to questions. To accurately reflect such an evaluation, a parallel study could be done using a similar discussion platform such as Piazza for comparison.

Viewing the user as a sensory processor, Ed Discussion has been designed in a way that makes its user interface very efficient and easy to navigate. Each thread can be tagged with a color coded category that makes filtering for discussions simple. Moreover, once a category is selected, posts are in descending order by date. In addition to categories and filtering, discussions are viewable on a large portion of the screen once selected. As a result, the initial post of thread, and subsequent responses, are very easy to read and understand. Once read, the blue dot indicating an unread discussion disappears signifying the post as having been viewed.

1.2 Perspective of the Predictor Model

From the perspective of the predictor model, Ed Discussion and Piazza have very similar user experiences. Both user interfaces act similarly, hence, predicting the outcome of interactions would be very similar between the two. Ed Discussion very effectively differentiates each discussion by listing them in ascending order and sorting them by weeks. This is similar to most any discussion tool used, whether it be chat, social media, or Piazza. Furthermore, when individual discussions are tagged with a category, it is shown in the title using the categories preselected color. If unable to find a discussion, it is easy to create a new thread by clicking on the big blue “New Thread” icon. Predicting the outcome of clicking on discussions, searching for discussions, and creating new discussions is exactly as one would expect them to be. Hence, the outcome of common tasks within Ed Discussion would match the predicted result.

1.3 Comparison of Models

Overall, from the perspective of the processor and predictor model, Ed Discussion is an easy to use and effective discussion tool that uses similar features of other discussion tools but also introduces some distinctive features to better users the experience. One features that I personally feel is missing from Ed Discussion is the ability to select a single/multiple posts and mark them as read. If, for example, an OMSCS class is working on the third or fourth assignment, it may be advantageous to mark all the preceding assignment discussions as read. Contrarywise, it would be useful to be able to mark a thread as unread if there was a need to circle back around to it later. Having this feature missing makes the list of discussion feel cluttered and overwhelming at times. The processor model could possibly benefit from having this feature added as it would improve its efficiency by allowing the user to focus only on discussions relevant to what they are working on. This improvement would also improve the prediction model as it would equip the user with the knowledge of what is most relevant to their needs.

2 QUESTION 2 – PARTICIPANT MODEL

As we have learned thus far, computers touch almost every facet of our lives whether for better or for worse. Speaking from experience, there really isn't a time during the day where a cell phone is not within arm's reach. As such, utilizing apps to help accomplish different tasks has become a default behavior. One such app that is designed for activities that exist in different contexts is Google Maps.

The most notable feature of Google Maps is its navigation. Google Maps can suggest multiple ways to get to an address based on fuel efficiency, accidents and/or traffic, distance, and many other factors. These directions can be given for walking, driving, biking, rail transit, and taxi services like Uber and Lyft.

As would be expected, different uses of Google Maps add different constraints or challenges to using it. For example, when using the walking directions, it is often hard to know what direction we initially need to move is because the app can sometimes struggle with what direction we are starting in. This is especially true if the user is at a 4 way stop. Another constraint of the app is in its ability to know what form of transportation is used by the user more often than others. If the user bikes more than they drive, directions will default to driving. The lack of intuition can be especially challenging to bikers and walkers when cognitive resources are divided while paying attention to cars, crosswalks, and other obstacles one might face. Physical precision in these cases is also less reliable when taking on the phone or paying attention for an upcoming turn.

To alter the interface such that it would perform differently depending on the current state of the user and to overcome the identified constraints, it would be viable for Google Maps to update the app with a "live" view that would utilize AI technology to help it understand the user's orientation and precise location. For a disoriented walker, pointing the camera at a street sign, the entrance to an airport, or any other significant landmark, Google Maps would display an augmented reality to help the user navigate via arrows and descriptive directions. For the user who prefers biking to driving, Google Maps would default to displaying more biking routes as opposed to driving routes.

3 QUESTION 3

3.1 Gulf of Execution

Per the definition of the gulf of execution, the process of submitting a question to the Ed Discussion form and receiving an answer is covered in the three following stages.

3.1.1 *Identify the user intentions*

There will come a time for every OMSCS student to ask a question. For this reason, Ed Discussion is available for questions and answers. The dashboard of Ed Discussion is very intuitive and makes it easy to use. For a user wanting to submit a question and receive an answer, when the user enters the Ed Discussion dashboard, there is a large blue icon labeled “New Thread” that will enable a new post. The intension here is clear and concise, clicking on the “New Thread” button will create a new discussion.

3.1.2 *Identify the actions*

The actions required for the user to reach their goal of posting a discussion and receiving an answer are as follows:

1. From the Ed dashboard, the user will have to be in the discussion section. If not, the user must click on the discussion link to bring them to the Ed Discussion UI.
2. Find and click on the icon “New Thread” in the upper left corner.
3. Because the user is posting a question, “question” will need to be selected as the posting type.
4. Enter a descriptive title for the question
5. Select a category that applies to the question being asked.
6. Select any subcategories if applicable. For example, using the category “assignments” will need a subcategory selected for which assignment the question is being asked.
7. Once the question has an applicable category/subcategory applied, the user can enter the question in the window that has appeared.
8. Select whether the question should be anonymous or visible to only the user and staff.
9. Click on the “Post” button to post the question.

10. After posting, confirm your question is complete. If needed, add a comment, edit, or delete the question.
11. Wait for staff or a fellow student to answer
12. Once the user receives an answer to their question, a notification will be sent to the user email stored in their account. A notification will also show in the notification tab in the Ed dashboard.

For a first time user of Ed Discussion, the above functions are mostly discoverable if the user plays around within the new thread interface. While the interface for a new thread does not indicate any field is required, the user will not be able to post a question until all fields have been completed. There are warning/error messages that will be displayed indicating what is missing. For an expert user, the process to post a question and receive an answer is very clear and concise. Again, because no input is denoted as required, an expert user might experience some confusion. However, it would be safe to assume that an expert user would treat all the input fields as required.

3.2 Gulf of Evaluation

Per the definition of the gulf of evaluation Ed Discussion successfully communicates the student the outcome of their action in the three following stages.

3.2.1 *Interface Output*

After submitting a question to Ed Discussion, the user can view their question in the recently asked questions/posts column. This column is not titled, but it has a search bar at the top and drop down available to filter the list of questions and/or posts. Because this list is in ascending order by date, the question should be at the top of the list. Confirming the question is listed is indication to the student that that the task of asking the question was successful. For a student who may not know exactly what to expect, there could be some confusion here. Ed Discussion does not notify the user that the question has been successfully posted and is subsequently visible to other users to answer it.

3.2.2 *Interpretation*

After asking a question and receiving an answer, the output of the Ed Discussion interface is visual. Both viewing the question in the recently asked questions/posts column and the notification displayed after receiving an answer are

done so within the interface. Personally, there is not much expected after posting a question besides being notified when a response to my question is available. Ed Discussion handles this effectively by notifying the user both within the interface and by sending an email after the response has been submitted.

3.2.3 Evaluation

Depending on the output of the Ed Discussion interface, the user can assess whether the goal of posting a question and receiving an answer was successful. If a question is submitted where required input is missing, the user will see any applicable warning or errors and have a change to add what is missing. If the question has been successfully posted, the user will see the question in the list of previously asked questions/posts. Once an answer is available, the user is notified in both Ed Discussion and with an email notification.

4 QUESTION 4 – EVERYDAY ACTIVITY

I am an avid coffee drinker and, as a result, I have three coffee machines occupying real estate on my counters. Of the three, one is a regular drip coffee pot and another a Keurig machine. I prefer a pot of coffee in the morning so the standard coffee machine is what my wife and I will use in the morning. Its not fancy, but I can program it to have a hot pot of coffee ready for me when I wake up. The Keurig machine, however, is great for a late afternoon cup of coffee. I don't want a full pot, so being able to brew a single 10 or 12 ounce cup of coffee is exactly what I need.

4.1 Wide Gulf of Execution

A user of either the Keurig machine or standard drip coffee machine can determine the state of the system easily and it is clear what the user intension is – having a hot cup of coffee. The actions required for each to function in a way that produces the end goal is also straight forward. Where the Keurig requires water and a coffee pod, the standard machine uses loose coffee grounds and water. Evaluating the end result is also simple, requiring to user to observe the presence of brewed coffee. Where the standard coffee pot falls short, creating a wide gulf of execution, is in its inability to notify the user that more water is needed. The standard coffee pot has no indicator that water is needed and the

water reservoir is not visible to the user. This makes it impossible to know if, for any reason, water was not added to coffee pot, but it is expected to brew a pot of coffee.

4.2 Narrow Gulf of Execution

Where the standard coffee pot has a wide gulf of execution, the Keurig bridges this gulf by notifying the user when water needs to be added. Moreover, the Keurig reservoir is in a place that makes it very visible. As such, it is also easy for the user to visually observe whether water needs to be added or there is enough to make a cup of coffee.

4.3 Lessons To Bridge the Gulf of Execution

To bridge the standard coffee pots wide gulf of execution, the user needs to be notified when the coffee machine is set to brew but no water is present. There are 2 scenarios that could utilize the same warning. First is when the coffee pot is set to delayed brew. I often fill the coffee machine with beans and water the night before. In this scenario, after filling the machine with beans and water, I must turn a knob to “delayed brew” and make sure that the time for the machine to start brewing is set. Next, I press a button to turn the machine on. The second scenario is when I want to immediately brew coffee. In this scenario, after filling the machine with beans and water, I turn the knob to “brew” and then press the same power button turn the machine on. Because the knob is set to “brew” as opposed to “delayed brew”, the coffee pot will start making coffee immediately. The common denominator in these two scenarios is pressing the “on” button to enable the machine to turn on in the morning or start brewing immediately. To bridge the wide gulf, it could be expected that the standard coffee pot notifies the user when the “on” button has been pressed but no water has been added. This could be an “Add Water” light since there is no display like the Keurig has. Furthermore, the water reservoir could be in a place that is visible to the user like the Keurig machine. If not fully visible, a small window that runs the height of the reservoir that has a floating device in it that would rise when water is added and fall as the coffee machine brews coffee. In this situation, the user would be notified via an “Add Water” light and could also verify the need to add water exists by visually confirming the water reservoir is empty.