Assignment M1
CS6750 Human Computer Interaction

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Abstract*—OMSCS has been establishing Georgia Tech as a pioneer in Online Graduate Programs. While that already is the case, the Pandemic-era has put even more focus and importance on enabling virtual modalities of such graduate program offerings. With such a global scale and the number of students OMSCS caters to, any effort to bridge the limitations of Online Graduate programs to actual physical Graduate programs would benefit these models immensely. This discussion is a small step in that direction; introducing a feature to an already existing, tried & tested interface, "Ed", that will enable a Priority highway for critical attention a student may need from the Professors or TA's; which in a physical graduate program is almost straightforward.

1 PROBLEM SPACE

1.1 What is the problem statement?

Here is an excerpt from CS6750's course guidelines to start with context (*highlighted)*

> "Another big one! Communicate often and early if anything comes up! Due to the structure of online classes and limited TA bandwidth you will ***not always get a response*** right away. We try to guarantee a response within 72 hours but every so often life gets in the way. Even so, 72 hours can feel like a long time when you have an assignment due soon. ***I wish we had the bandwidth to provide quicker responses***, and when we can we respond more quickly - it just can't be expected. Plan for this. If you have questions on an assignment and it's due tomorrow, you might not get a response in time to submit."

Although the program guidelines demand students to plan any course/assignment related communication ahead of time, not within 72 hours of any deadline,

it so happens that due to the very nature of this program where working professionals are pursuing from all over the globe, *there could be untoward incidents that demand students' attention to their daily bread-winning priorities*. A critical question related to meeting their assignment or project deadlines targeted to the Staff/TA's may not be answered within the submission deadline which could impact their course progression.

1.2 What is the Scope of discussion?

This discussion focuses on bridging the gap in availability of Prof & TA's time & attention to students' unanticipated priority questions in OMSCS as compared to physical Graduate programs. The scope is limited to using existing Ed interface to add a design feature idea called *Priority Highway*.

1.3 Where does it occur?

The scene of this situation is when Students and Staff both use Ed for course related strategies. Ed orchestrates the entire conduction of courses to students.

1.4 What is the solution strategy?

The idea is to include a *Checkbox* option on Ed Post page to signal *Priority*. To not eat up into the staff's already crunched time, the interface could allow *Two chances (or lifelines as I'd like to call it)* over the entire time of the course and keep a track of the chances used up. This feature could be refined from both the students' and staff's perspective as we delve into the design further.

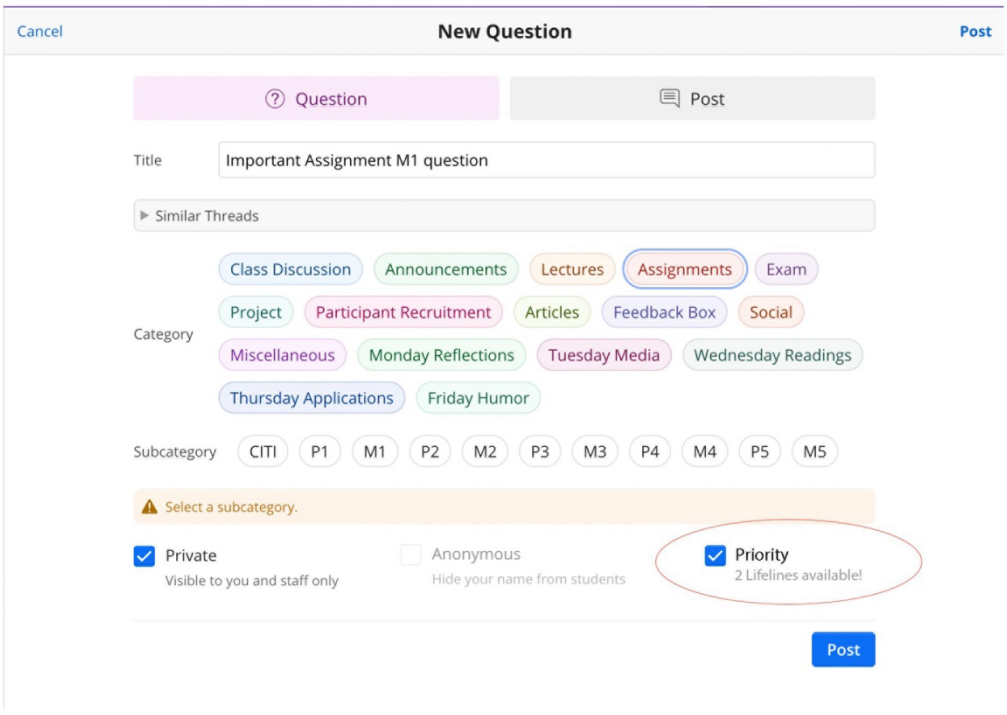

Figure 1 — Idea showing the new Checkbox PRIORITY HIGHWAY feature and displaying the number of lifelines available

1.5 How will this solution help the users?

Needfinding through Surveys, Interviews and Ethnography will help streamline this feature and help users bridge the gap of availability between Staff and Students in the Online Graduate Program models.

2 USER TYPES

The primary users in this context are

- Students who receive course related information (assignments, projects and lessons) on Ed. Students would benefit from having options to get faster responses from Staff on a limited basis.
- Staff (Professors and TA's) who administer these courses and communicate course related information to students via ED. Staff can prioritize their order of answering students' questions and removing impediments in their progress.

The secondary users are

- The whole of the Online Graduate program committee benefitting from the ease of program delivery.

The tertiary users are

- Tech Community: This could influence the ease of Online Graduate program models and make distant learning more popular.

3 NEEDFINDING PLAN 1

3.1 Method

Surveys – Great way to understand if this problem space we are speculating is indeed valid as users and capture the degree of invasion for all three tiers of user categories (Primary, Secondary and Tertiary).

3.2 Plan

Surveys will need to be conducted before the start of design to find out basic information initially that influence the design. Once the information is tied to the data inventory and a prototype is built, other rounds of surveys can be orchestrated to fine tune the feature as needed.

These surveys can be hosted on Microsoft Forms or hosted sites like SurveyMonkey.

3.3 Questions

Abstracting our types of questions initially, it could broadly be divided to represent the following -

- Is this really a problem for users – *This ascertains the problem statement*.
- Who are the users that face this problem – *This ascertains the user types and the order of user categorization.*
- How often do they run into the problem statement per assignment or course phase – *This ascertains the degree of occurrence*
- How does this solution impact users – *This ascertains the degree of invasion the problem has in the users' course progress.*

Additional surveys can be sent to the users after initial prototyping like

- Does this new feature remove existing impediments?
- Does this new feature add any confusion or cause new impediments?
- Any feature suggestion?

3.4 Data Inventory

Primarily this would impact in a designer's way of ascertaining the context - Students that need to get a priority communication highway with the Staff and Staff in turn having to be at the other end of this interface answering the questions beaming at them as priority. The initial survey would tie our survey questions to the below:

- *What* is the problem statement? Is it really a problem as we state in this discussion?
- *Who* are the users and what is their expertise level?

- If users are students, *why* do they not stay ahead of communication or project guidelines
- *How* often would they run into such situations?

3.5 Bias and Bias Mitigation

Potential bias and their mitigation plans with Plan 1 entail the following

- Confirmation Bias – As a designer, I would need to stage out the survey questions to test the hypothesis empirically and involve more people in our surveys – In our case, I could hand out the surveys to my fellow students that use ED in CS6750 and Staff.
- Observer Bias – Survey questions should be reviewed by peers before they are sent out to not include any questions that imply the problem statement and the solution as the only way of addressing it.
- Voluntary response Bias – These come from strongly opinionated users who tend to give voluntary feedback. This can be avoided by shelving users from the survey before they even begin it.

4 NEEDFINDING PLAN 2

4.1 Method

Interviews with fellow students and Staff who use Ed in CS 6750 could be performed once the initial design is complete and a prototype in the form of a wireframe in this context is ready.

4.2 Plan

A sample pool of Students in CS 6750 and Staff could be interviewed to talk through the problem statement and what their current workarounds are. What would they benefit from this design and how this would change their overall course progression.

4.3 Questions

Questions to interview candidates could be pre-scripted initially to go over some consistent standard questions

- Is this problem statement something the user has faced personally?

- How could the user (student and staff in this context), avoid getting into this situation in the first place?
- How many times does the user anticipate this situation can occur?
- If so how did the problem affect the user?
- What were their go-around plans to mitigate this shortcoming?
- Is this design something the user would like to have?
- Will this resolve the problem statement or would it introduce any new overheads?

4.4 Data Inventory

The interviews would give deeper insights into the problem statement and gather both quantitative and qualitative data points from the users.

- The situation and number of occurrences of this situation from the Students' perspective would quantify *How many lifelines or chances* can we present in the *Priority* checkbox highway and keep track of the same.
- From the Staff's point of view, interviewing would help me understand if this solution feature would even work in the first place given their standards of operation.
- If it is feasible, where is the ideal place to integrate this new capability?

These would then tie to the data inventory in the following fashion.

- Is this design required for all tiers of users listed?
- If so, how will they impact either of them?
- If implemented, would it make Students' lives easier? To what extent?
- If implemented, would it make Staff's lives tougher or easier? To what extent?
- Where can this be implemented?

4.5 Bias and Bias Mitigation

Potential bias and their mitigation plans with Plan 2 entail the following

- Confirmation Bias – As a designer, I would need to stage out the interview questions to test the hypothesis empirically and involve more people in our surveys – In our case, we have a larger pool of interview subjects available that are right in the context of our usage – the CS 6750 students and Staff.

- Observer Bias – Scripted interview questions could be reviewed by peers beforehand to not include any questions that imply the problem statement and the solution as the only way of addressing it.
- Social Desirability Bias – My co-students have been a wonderful helpful bunch. But these niceties should not come in the way of our data collection and hence the interview questions could be positioned to try and record more objective data.
- Recall Bias – Users may not really recollect the interface as pictured in the problem statement and may need adequate references to collect concise information from them.

5 NEEDFINDING PLAN 3

5.1 Method

Apprenticeship/Ethnography

5.2 Plan

Integrating myself, being a designer, as the user from both, the students' and the Staff's perspective, would help me understand the nuances of how tasks were handled before and after this new design implementation from either of these viewpoints. This will help us further streamline after gaining thorough insights into actual use cases and any unknowns that may spring up in real world that could influence our design.

5.3 Questions

Working closely with the actual users, as a Student myself and in close quarters with the Staff on how they organize and communicate with Students would necessitate me to put forth these questions in abstract

- As a Student, in the given context of the problem statement, is there any other way I could get faster response from the Staff before the deadline?
- As a Student, what can I do to avoid getting into such situations?
- As a Staff, how can I organize my current standards of operation whenever a Student asks a question on the *Priority* highway.
- As a Staff, how will it change the way I work and how much time will I additionally need or how much time would it save?

- How easy is it to really complete the task cycle from the Tertiary user's perpective, viz. the OMSCS organizing committee that includes the staff but takes a broader stance on how this could eventually pave the way for improved Online program delivery.

5.4 Data Inventory

This plan would tie needfinding to the following

- How does it affect the current state from all users' perspective?
- How would it affect the user with the new feature incorporated?
- Is the location good and attributes of this feature like Checkbox etc likeable and easy to operate?
- What other things can come in the way of my operation with this new interface?
- How will this change the students' response receiving or Staff's responding abilities?

5.5 Bias and Bias Mitigation

Potential bias and their mitigation plans with Plan 3 entail the following

- Confirmation Bias – As a designer interning with the users or watching them operate very closely, I could tend to see only what I like to see. This could be avoided by looking for signs that I'm wrong by testing my beliefs empirically.
- Observer Bias – Even as an intern or watching users closely, I could try to influence their actions into how I want the design perceived. This could be avoided by heavily scripting interaction with the actual users.