SECP1513 Technology & Information System

Group Project (Design Thinking)

Topic: Communication Hub (Lecturer-Student)

Group Members:

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1.0 Introduction and Background

Communications between lecturers and students are believed to play a significant part in the teaching and learning process in universities because announcements, feedback, and access to studying materials are greatly appreciated by students and immensely contribute to their performances. The proposed project consists of a system that was formed by identifying the challenges we faced during our time in university as students. These challenges included inadequate communications with lecturers, access to valid studying materials, announcements on time, and help when needed urgently. Even though various systems such as E-Learning, MyUTMportal, WhatsApp, and Telegram group conversations are in use, it is a challenge to know where to access needed information due to fragmented information presented. Therefore, the Communication Hub System was developed as our group project based on the following five stages of the Design Thinking Process: Empathy, Define, Ideate, Prototype, and Test in an effort to incorporate the functionality of the Announcement Page, Discussion Wall, Learning Material Page, Messaging System, and Dashboard into a centralized system that can increase the efficiency of communication and learning support and generate a more united campus community where existing as well as new students can easily communicate with lecturers for a smoother learning process.

2.0 Design Thinking Process

The process of designing the project will begin with the Empathy Phase, where we conducted the survey among the students of UTM using Google Forms, where we received 20 responses. This phase helped us understand the current issues faced by students in relation to the current learning and communication system. We will proceed to the next phase, the Define Phase, where we will analyze the data collected and understand the actual problems faced by the students and the lecturers. In the Ideate Phase, brainstorming happened both online and offline to identify and refine the ideas based on the data from the survey and selecting the most viable solution for the Communication Hub. Then, during the Prototype Phase, a non-functional UI prototype was developed depicting the workflow of the system, which includes a Login Page, Dashboard, Messaging System, Discussion Wall, Announcement Page, and Learning Material page. Lastly, in the Test Phase, the prototype was shared with students and friends to get feedback on the prototype's user-friendliness, effectiveness, and problem-solving issues.

3.0 Problem, Solution, and Team Collaboration

Identified Problem

From the online survey, in addition to the ideas generated in the group, we came up with some of the challenges students experience. Students feel reluctant to speak when interacting personally, especially with lecturers. Fresh students usually find it difficult to get assistance in terms of last year's questions. Notifications sometimes come in groups, such as groups in WhatsApp and Telegram, leaving some students in the dark. Lecturers sometimes receive numerous messages, meaning students with important inquiries cannot get their answers.

Proposed Solution

For the solutions to the problems discovered in our analysis, our team came up with different solutions. For hiding student shyness when asking questions in the classroom, we created a Discussion Wall where questions can be asked anonymously. We created a Learning Material page with sorting capabilities so that seniors and lecturers can transfer appropriate materials to new students. Then we created an Announcement Page where announcements can be sorted into categories so as not to form different messaging groups where students may not get announcements. Lastly, to overcome ignoring important messages, we created a "message type" feature when messaging lecturers.

Team Roles and Collaboration Process

The team collaborated well in both physical and virtual discussions. In the first physical meeting, the key idea for the Communication Hub System was laid out, and the important points were brought up by Koo Yao Meng and Toh Zen Hee. Lee Wai Siang and Mason Ling Ming En were in support of the idea and even gave useful feedback like having anonymous submissions to maintain the privacy of the students and having the notes and resources from seniors in the learning materials. The second, online, focused on the development of prototypes. Koo Yao Meng and Toh Zen Hee developed the base of each page individually, while Lee Wai Siang and Mason Ling Ming En assisted more with adjusting the layout, placing components, and doing minor touches-up. There were no major conflicts, as all members were quite similarly oriented in their opinions.

4.0 Design Thinking Assessment Point

Design Thinking should be evaluated at various stages of a project to assess both the final output and the process. It allows lecturers to evaluate not only how effectively the product works but also how well students understand Design Thinking while completing the task.

Assessment during the end of the project demonstration

At the completion of the project, evaluation is conducted during the demo session. Students are assessed based on their final prototypes and how well the prototypes address the identified problems. The assessment considers clarity of the solution, prototype functionality, relevance to users, and the system's ability to resolve communication gaps between lecturers and students. Another factor is the students' ability to demonstrate the design thinking process.

Assessment during the transition between design thinking phases

Assessment should be conducted at the transition points between design thinking phases, including between Empathy and Define, Ideate Prototype, and Test. This allows evaluation of students' understanding of user needs to define the problem. Assessment is also valuable at points where research findings, problem definition, ideas, and feedback influence the prototype.

5.0 Design Thinking Evidence

Empathy Phase

1. Do you think there is a lack of communication between university students and * lecturers nowadays?

- ● Yes
- ○ Average
- ○ No

2. Do you think students may hesitate to approach lecturers for face-to-face * communication because they are shy?

- ● Yes
- ○ Average
- ○ No

3. Do you think communication problems between students and lecturers can * lead to a decrease in learning efficiency and quality?

- ● Yes
- ○ Average
- ○ No

4. If you answered "Yes" to the questions above, please provide an example to support your opinion. *

It's hard to contact to lecturer when it comes to urgent case like submit page errors

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5. In your opinion, what other communication issues currently exist between university students and lecturers? *

- ☑ Difficulty in obtaining past-year questions or revision materials
- ☐ Students sometimes do not receive lecturers' announcements
- ☐ Students are afraid to ask questions when they face problems
- ☐ Lecturers may not be able to proactively identify each student's weaknesses in a particular course

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Thank you for your response
😁 😁

Submit
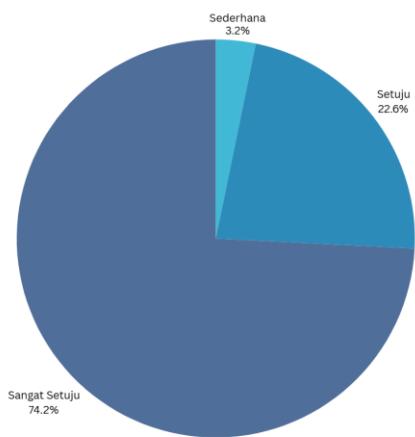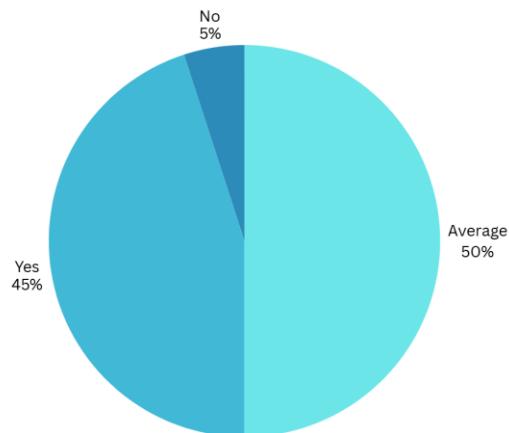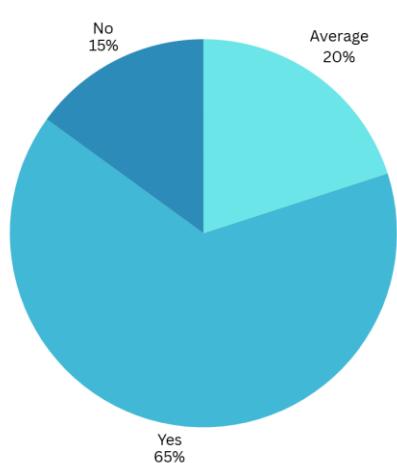
Define Phase

From the survey feedback, students provided several issues they meet such as having difficulties reaching lecturers when needed, fear of asking questions, lack of feedback, and lack of understanding of their course that affect the grades. Some students also felt shy to raise issues during or after lessons.
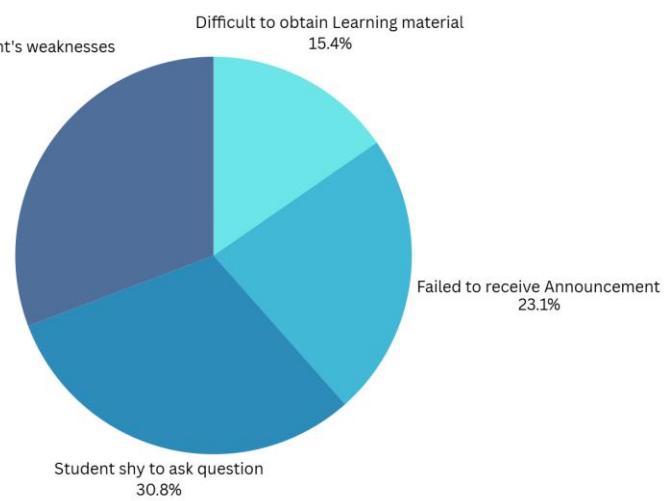
Therefore, the problem was defined as:

University students need a safe, centralized way to reach their lecturers. Currently, poor communication, psychological barriers, and delayed responses prevent students from addressing academic problems and receiving timely feedback.

Data from the survey questionnaire:

It's hard to contact to lecturer when it comes to urgent case like submit page errors

its hard to get lecturers reply when lecturer is busy

If students and lecturers cannot communicate effectively, students will find it difficult to resolve their coursework-related problems.

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student are afraid to ask question to lecturer

misunderstanding between student and lecturer lead to deduction in final mark

student got less oppurtunities to communicate with lecturer

I once submitted a draft for a research paper but received very minimal feedback. Without specific guidance on what to improve, I found it difficult to address my weaknesses, which hindered my ability to produce a high-quality final project.

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student feel ashamed to ask the lecturer for help with solving the questions.

When there is a communication barrier between students and the lecture, students will unconsciously lose focus on listening to the lecture.

shy to ask question during the class

Students are shy to ask questions that they don't understand during the class in front of peoples, while lecturer only focus on their teaching, lack of communication between particular lecturer to student
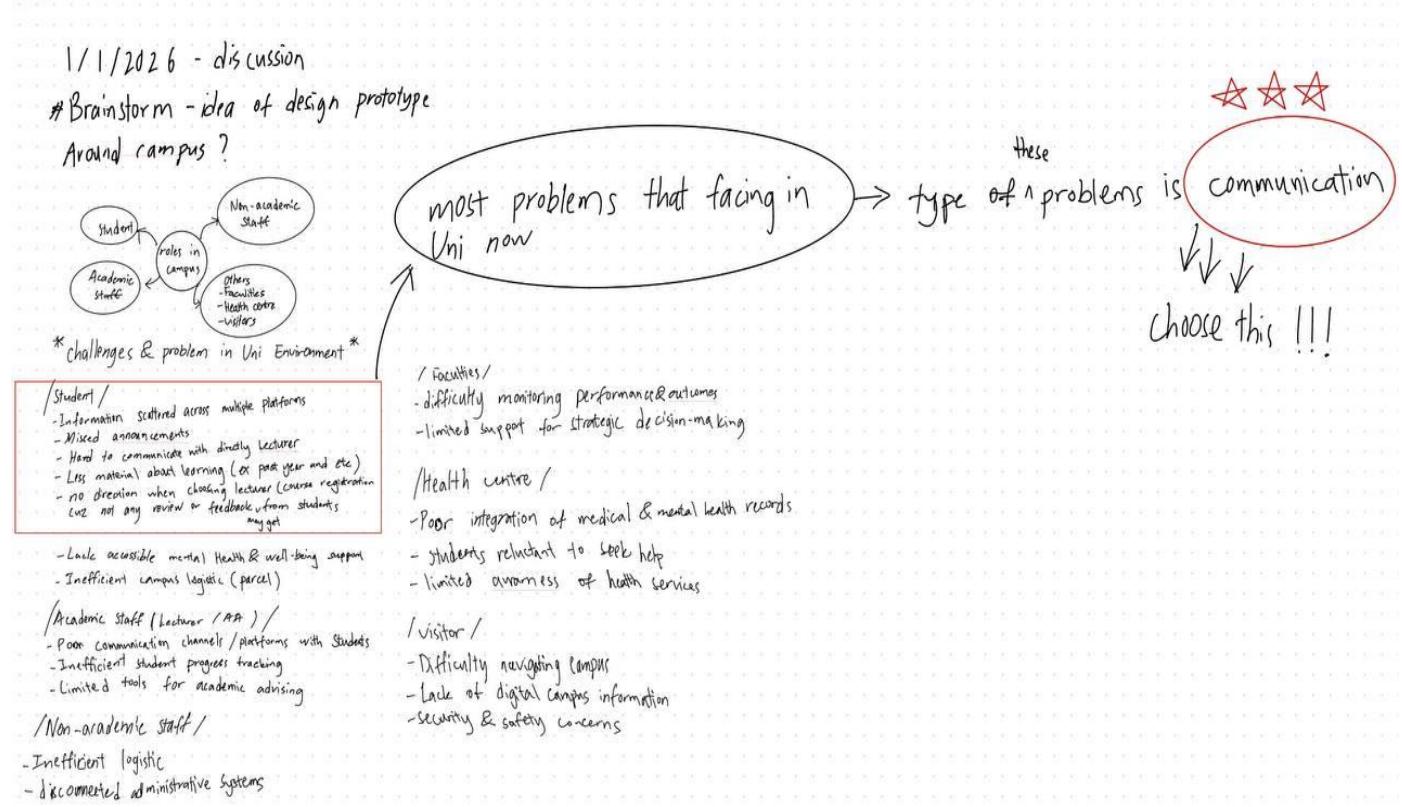
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I once submitted a draft for a research paper, but received very minimal feedback. Without specific guidance on what to improve, I found it difficult to address my weaknesses, which hindered my ability to produce a high-quality final project.

Some students are shy and introvert so they are afraid of asking questions to lecturers.

Ideate Phase

In the ideate phase, a brainstorming session has carried out among our team to come up with ideas related to issues in the university campus environment. Majority of problems identified by students were related to communication. Since students are the primary stakeholders, we adopted a student-centric approach to develop prototype ideas that directly benefit students and improve their learning quality. Being part of the student community allowed our team to respond effectively to these challenges. This highlights that a platform providing a meeting point for both lecturers and students can address communication problems and enhance learning quality during lectures.

Draft when discussion :
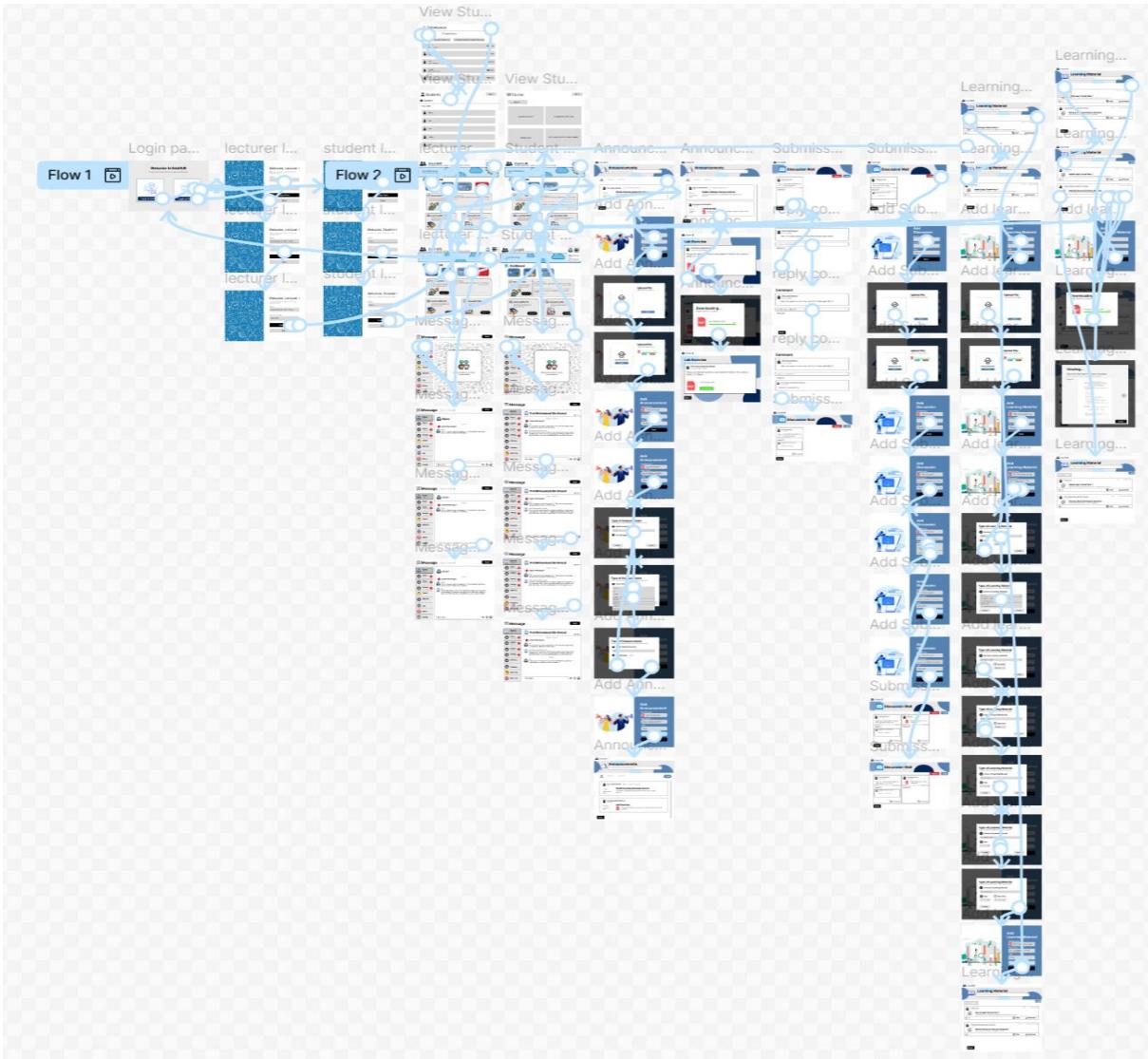
## Prototype   Phase

The type of prototype that was developed in the case of this project is that of **high fidelity but non-functional prototype**. This type of prototype is meant to mimic and demonstrate how our

proposed solution looks like. Even though our prototype does not have any actual functional capabilities or processing capabilities in the background, the overlay clicks and page navigation capabilities do tend to demonstrate how the system can be used. The prototype is developed in **Figma**.
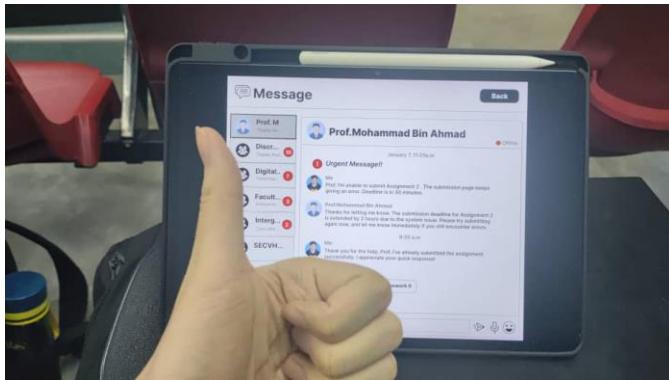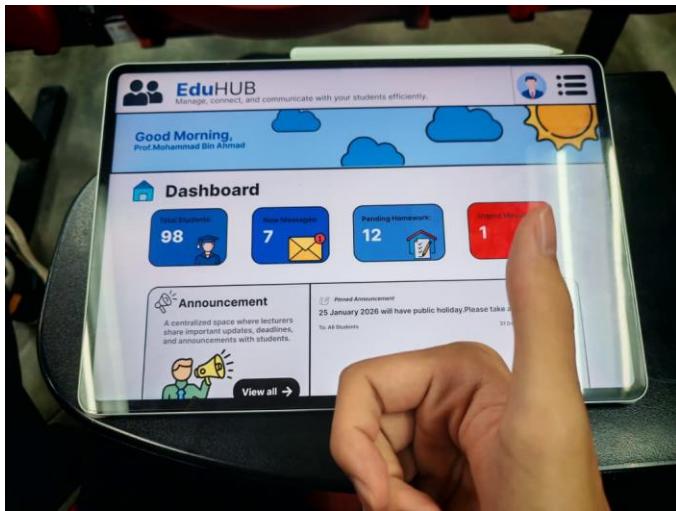

Test Phase

In the testing stage, we let two UTM students test our prototype, and Both gave positive feedback after testing out the prototype, confirming that the prototype match with the original design concept

and its features could effectively optimize the communication gap between students and lecturers. The students felt the communication features improved their ability to communicate and complete academic tasks smoothly. One participant noted that the interface looked similar to other education hubs, so we added cartoon icons to enhance aesthetics and help the platform stand out.

Picture of students testing prototype：

6.0 Group Members Reflection

Toh Zen Hee

My goal in computer science is to become a web designer and game developer, creating user interfaces that meet user needs, and a game that is based on my own ideas. Throughout this design

thinking project, I strengthened my understanding of designing a usable website from the start and provided experience that will benefit my future career. I learned to understand user needs, create prototypes, plan system features, and test designs using feedback. To further improve, I plan to gain more experience through additional web and game development projects.

Koo Yao Meng

From this project, I learned a lot, especially regarding the development of a prototype. Even though our project wasnon-functional, it helped me understand the process of design and the effectiveness of communicating designs even if the technology is not being used. Most importantly, while being a programmer, one should be able to look at things from the user's perspective and understand their requirements. Sometimes, the simplest solution is the most efficient one. This is particularly important within computer science, where innovation can only be achieved by ensuring that technology developed can satisfy the needs of end-users. In the coming future, I hope to be a well-rounded programmer within the area of game development, developing games that not only entertain but cater to all ages. This will be achieved by working on my studies as well as seeking experience outside and related to my area of interest.

Mason Ling Ming En

My goal for this multimedia course is to achieve a first-class grade and apply what I have learned to create apps or games. Through this project, I learned how to design and improve a prototype, gain a deeper understanding of the challenges involved, and important experience for future app design. To improve my skills, I plan to use my free time to learn more about computers and design a simple app myself by applying the knowledge gained this year.

Lee Wai Siang

My goal is to achieve excellent academic results and become a 3D modeler in future. Through this design thinking project, I have obtained the skill to create a prototype, which is crucial for my future as I am involved in graphics and multimedia professions. To reach this goal, I plan to improve my skills to adapt to future environments and maintain a high standard in all coursework.

7.0 Task Distribution Among Team Members

Name	Prototype	Report	Video	Presentation

Mason Ling Ming En	Provide idea, Adjust font, Find icon Pictures	Reflection	Provide idea	Provide idea, Prepare Presentation Slides
Toh Zen Hee	Interface design & prototyping, Page design, Prototype connection (ALL)	Introduction & Background, Design Thinking Process, Problem Solution and Team Collaboration, Reflection		Provide idea
Koo Yao Meng	Interface design & prototyping, Page design, Prototype connection (ALL)	Cover page, Table of content, Design Thinking Process, Assessment Point, Design Thinking Evidence, Reflection, Conclusion		
Lee Wai Siang	Adjust Layout, Optimize Component Placement	Reflection	Edit video	

8.0 Conclusion

In conclusion, this design thinking project identified the communication gap between students and lecturers and proposed a site that integrates all communication modes. The process allowed our team to understand user needs, define the core problem, and propose a solution to improve access,

feedback, and information exchange. Although the prototype was non-functional, it demonstrated the intended user flow. This project shows how design thinking is invaluable as a problem-solving method in the university context.