CPSC 481

Stage Five Final Report

Team 34

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Executive Summary

This is the final written report for the FALL 2019 CPSC 481 Human-Computer Interactions course. This document will succinctly cover all aspects of our term project from it's initial ideation phase, to it's fully realized final hi-fi prototype. There will be 9 sections to this report (including this section), each with their own subsections that will go into greater detail on each subject.

Introduction -

The introduction will provide a brief short story on a typical user scenario that involves using our app. From there we will deliver an overview of our application, StudyBuddy, as well as a features overview that hashes over the key components to the app.

Design Problem -

The design problem section goes over the initial investigation phase where we formulate how we were going to tackle the objective. That is, how do we go about making an application that allows students to connect with each other, and also provide a medium for them to work in an academic setting.

End-user and Stakeholders -

After setting the foundations of our app, we then will shift focus onto identifying users that we are targeting. In addition, we will take a look at our stakeholders. General users will be the students themselves, but stakeholders could range from a large host of people from TAs, and even Professors.

User Research and Findings -

Following this, we move into the investigative phase. Using the IDEO methods we learned in class we distributed surveys and conducted interviews in order to gauge user interest. Finally, we also used Scenario Card Testing to show users our core functionality and see what their thoughts were.

To summarize, we found that despite students mostly studying alone, the idea of an app that can help facilitate group studying intrigued most of our participants. To obtain more specific data we looked to our interviews to help us. We also use scenario cards to give users two possible choices for finding study partners.

Design and Justification -

In our design of this app we have focused on a few design principles:

- Clean, simple and minimalist design
- Represent data through visualization
- Match between the real world and the app
- Maintaining consistency through design of the entire app
- Maintaining consistency across apps with similar functionality
- Easily learned or already known by the user
- Design to prevent errors while helping users recognize and recover from the errors that are hard to prevent

Heuristic Evaluation and Findings -

Some of the issues that were uncovered by other groups in the same course, including our own personal evaluation. Many of our findings covered issues with regard to general usability and navigation that we will analyze further in that section.

Changes made based on evaluation -

After organizing the findings from the heuristic evaluation conducted on our high fidelity prototype, we have implemented the changes that would affect the functionality and usability of the app. Once these changes were implemented we have decided to showcase our features in greater detail while adding some help and documentation in our sign up section. Lastly, we implemented changes based on the feedback to better improve our cosmetic appearance of the app.

Recommendations for Next Iteration of design -

Some of the issues that we wish to have fixed for future iterations of our design is our “Chat” page, which lacks avenues for users to access it. Other issues regarding playing with the app layout to reduce congestion. Using a dark and light mode to help with saving battery life and reducing strain on the eyes. Although our app shows the user how busy a general area is, it does not effectively show the amount of people in a given room in the buildings throughout the University. A feature that has a greater focus on study spaces would bring the app together well. Also, we believe adding more social features would be beneficial to the apps likeability.

1. Introduction and Design Problem

1.1. A short story

Imagine yourself as a 1st year student at University. The thrill of starting a new chapter of your life in post secondary is scary, but also an amazing feeling as well. One of the greatest things to come out of going to University is making amazing friends along the way, sometimes forming friendships that will last for the rest of your life. But sometimes, those friends don’t just materialize in front of you to meet. How would you build your social network from the ground up?

In addition how about your academics? Students in the same major take all of the same required classes, however a large percentage of them will move through their degree without ever meeting their peers. Sometimes the best source of help are from your fellow students, but approaching them can be quite difficult. How can we get around this?

1.2. About our app

Enter StudyBuddy. This app offers a way for students to connect with other students and find peers to study with. Students may broadcast and join ongoing study sessions, as well as filter their search based on classes that they are currently enrolled in. Our goal with the application is to give students a simple, interactive, and social platform for them to communicate and study with each other. At the end of the day StudyBuddy hopes to be both a social and academic application.

1.3. Brief Problem Overview

As previously mentioned in our short story, the design issue we have decided to focus on is to create an app that is able to facilitate the organization and creation of study groups for students interested in the same topics. To realize this we have developed an app to solve this exact issue. The main purpose of the app will be to overcome the challenges of finding peers to study with along with allowing users to gather information on how busy a given building is by utilizing our heatmaps.

1.4. Features Overview

Here are a few of the features that our app provides to our users:

1.4.1. Session Broadcaster

The broadcaster allows students to create and join study sessions. Sessions can range from Assignment Help Sessions to Final Exam cramming. The students have plenty of options to choose from to customize their sessions. Students will be able to choose total group size, session type, location etc. We will go into more details further in this report.

1.4.2. Interactive Map

In order to facilitate where these broadcasts will appear, an interactive map will be a core part of our app. In addition to seeing the broadcasts live on the map, other nearby users will also be visible as well. Much like the broadcasts, individuals can

1.4.3. In-app Chat

Our in-app chat features allow users to coordinate with each other. Applications can include discussing potential meeting locations or questions regarding their subject. An in-app chat also allows users to speak outside of a study session, to build new relationships with other students similar to other platforms like Facebook and Instagram.

1.4.4. Social Features

Talking about social features. We wish to give users a way to express themselves within the app itself. Our Bitmoji feature allows users to customize their own personal avatar that can be used to represent them within the app. This will allow users to have a more personal connection to other students, as well as minimizing the feeling the app being purely for academic purposes.

2. End-user and stakeholder

2.1. Who are our users?

With this app our main demographic that we hope to tap into is the students. Particularly, we wish to get students who are interested in academic study groups and wish to seek out like minded individuals. With our app, we intend it to act as a platform for these students to open communication with each other, and not only perhaps form long-lasting friendships, but maybe even improve their own grades and own personal study habits.

2.2. Who are our stakeholders?

Stakeholders in our app would naturally be the students themselves. However other potential stakeholders could be Professors, Teaching Assistants, and any other faculty that is involved with the academic system here a Post-Secondary Institution. Although the majority of the work will be handled by students, while Teaching Assistants could also play a large role in our app as they themselves could potentially form their own study sessions or office hours through the app itself.

3. User Research and Findings

3.1. How did we conduct our research?

For our project we conducted our research through 3 methods:

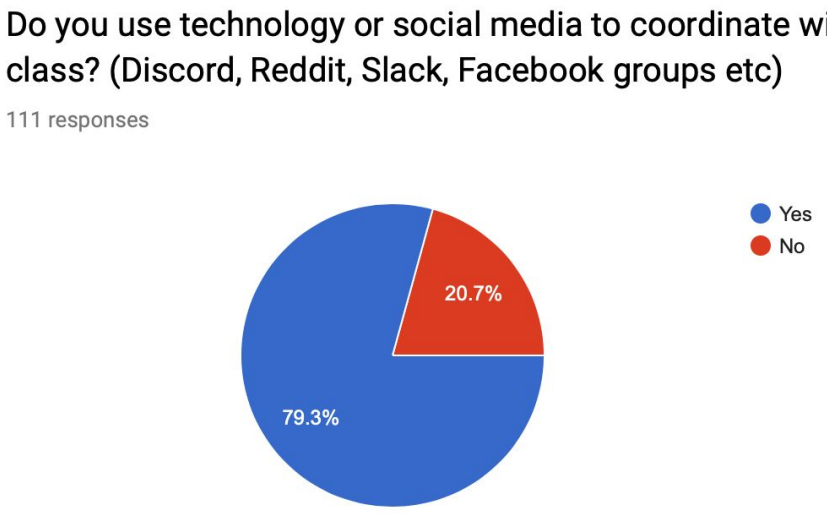
1. Surveys
    - Using Surveys allowed to cover a broad category of students that other methods simply could not capture. Through using them we were able to elicit a large amount of data, (111 responses in fact) worth of data. Although the data may not all be incredibely in-depth, it gives us a general start location for where our potential application stands in relation to our students.
2. Interviews
    - In order to further pin-point our ideas, we used our interviews to dig to the centre of our users. Where as the Survey was a more surface level analysis, the interviews got straight into the meat of the content, asking the users for things such as their personal study habits and how they may have evolved or changed. We believe that the use of Survey and Interviews in tandem are perfect because, as previously stated, Surveys cover a large and broad category of knowledge that we need, but interviews are able to really get down to ground level and help us to understand our users eye to eye.
3. Scenario Cards

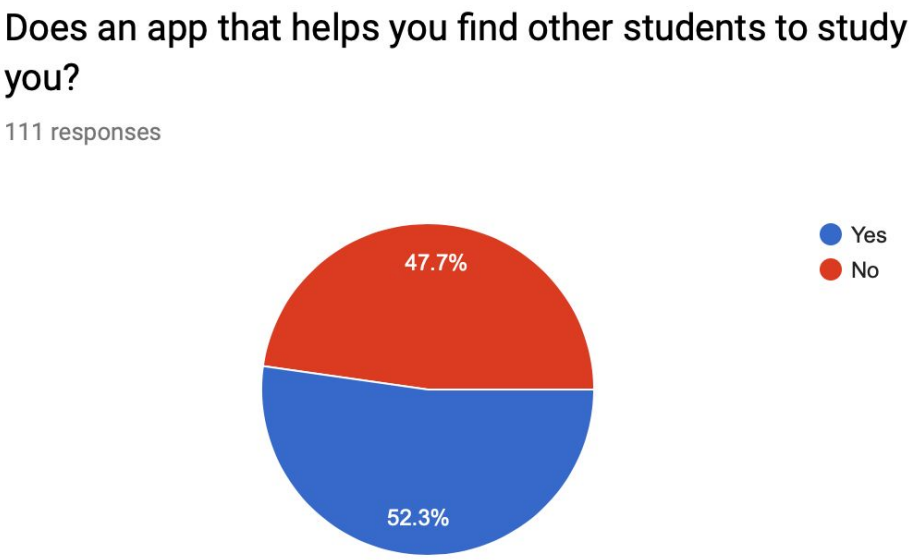
- Finally, using Scenario Cards we are able to show the users what our core functionality ideally would look like in practice. This in return helped us during interviews because as users could sort of have an idea of what the end product was like, they would be able to give a more informed opinion regarding the situation.

3.2. What did we find?

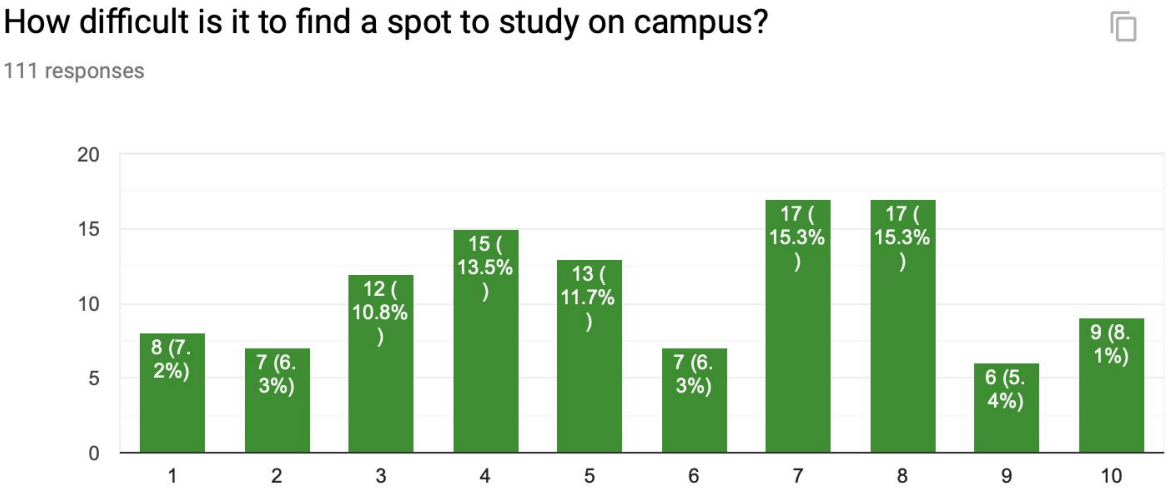
1. Surveys

we surveyed the r/UCalgary subreddit to learn more about student behaviour. Out of 111 responses, here are our findings. When asked if students prefer to study alone or in a group, an overwhelming 73.9% stated that they prefer to study alone. We also wanted to see if these students were also open to studying with other peers, and we were surprised to find that 70% of students trended towards being open towards studying with peers. Even though these students are used to studying alone, we concluded that it might not always be out of choice.

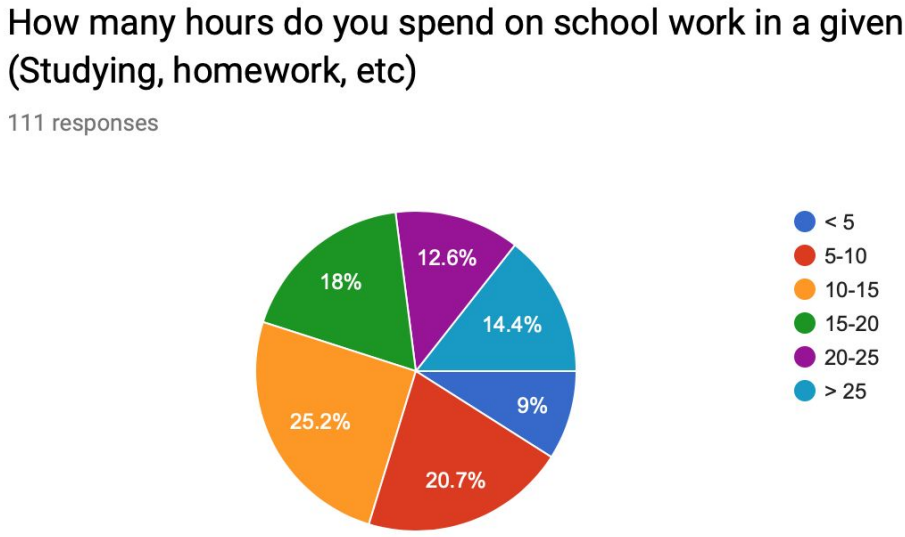




We also gathered information on students' use of technology. Firstly, we asked if the students currently use technology or social media to coordinate with peers in their class. Our results from these findings were 79.3%, which displays that these students are already comfortable with using these external resources to coordinate with peers. To follow up, we found out only 52% of these students were interested in an app that helps you find other students to study with.



1: easiest, 10: most difficult
We found that more than half of responses answered that finding a spot is not easy.



This shows that most students study approximately 15 hours a week not including lectures. That is a large number of students spending a lot of time in one campus. With this in mind we believe that our app can help students enjoy the time they spend on this campus more, while being more efficient with their study time by not only enjoying the company of study group but also learning from their peers while doing so.

2. Interviews

During our interviews, we realized that a lot of students were interested in the social aspect of our app. Interviewees seemed interested in functions such as note share, edit and work on notes together, seeing other students ratings based on past interactions with other “study buddies”, Discussion, Forums, Posts, Reactions, Polls, Votes, etc. The interviewee also made it known that our app would be a good starting point for those willing to go out and meet others(in the context of studying) as it takes out the awkwardness of direct approaches. One thing we should be careful about however is that we would be treading a tight line between giving away too much information about other users and not enough.

3. Scenario Cards

Upon showing our scenario card which had a rough prototype of the UI, interviewees responded well to the large map but wanted to build into the profile features more, akin to LinkedIn. Most of our results showed that students met other peers in class, or through mutual friends. This all aligned with our survey results, where people were less interested in the idea of having an app that helps them meet study buddies, but they were heavily interested in studying with more peers.

4. Design and Justification

During the planning phase of our hi-fi, we tested 4 different softwares: Framer, Principal, Adobe XD, and Invision. We decided to settle on Invision as our prototyping software. The biggest selling point for invision for us was the fact that they had various ways of taking touch input, including swipes from both directions. This was something that we found was lacking in Adobe XD, since one the UX designs we wanted to stick with was a drawer on the map that swipes out and swipes back in. Much like Adobe XD, Invision also offered downloadable extensions which allowed us to use some of the UI from iOS. Invision also offered a way to publish your prototype online, which assisted in the distribution of our prototype for users to test. Users had more incentive to play around with our app since they only had to navigate to a link instead of downloading specific software to fulfil user testing.

The underlying philosophy behind our application is that we wished to keep it clean and simple. We attempted to keep the apps aesthetically pleasing while maintaining a minimalist design. We use 3 separate tabs to facilitate all of the necessary functions of our app; social, map and profile tab. Most of our primary functionality comes in from the map tab. A user may join or broadcast an event here, see all ongoing events, how busy a location is based on the heat maps and much more. The idea behind keeping the main functionality in the map was to keep the data visual. This is done through the map with additional features such as filters being represented on the map, heatmap, broadcasting location shown on the map, etc.

Throughout the design of this app we had kept in mind many key design rules. One of these rules was to keep a match between the app and the real world. We have done this all throughout the app demonstrated by multiple little nuances such as keeping button design consistent (Map, profile, social, edit event, add event, etc.) to an already recognized design, chat organization, notifications, etc. This rule also ties in well with keeping a consistent and standard design throughout the entire app, and across other apps with similar functionality as well.

In order to add some help and documentation for all users, we have added a few introductory pages once a user signs up to help explain any features that are not self explanatory to a beginner user. Although we attempted to keep the explanations to a minimum by designing the system in such a way that can be easily learned or is already known by users. This is done through maintaining a match between the real world and the system, designing while attempting to prevent errors and helping users recognize and error through error messages throughout the app wherever necessary. Furthermore, it is key for the user to recognize what the use of the features of the system are rather then having to recall information from memory. This played a key role in allowing the user to learn the system efficiently.

5. Heuristic Evaluation, Findings and Design changes based on Evaluation

An extensive heuristic evaluation was conducted on our initial stage four high fidelity prototype. From this we categorized each issue based on its individual severity rating.To view the changes that have come from the heuristic evaluation, please take a look at the differences in these three prototypes:

Initial Prototype:
https://sbuddies.invisionapp.com/prototype/ck3e1bgrl00dgik0125wgfh5x/play

Final Stage 4 Prototype:
https://sbuddies.invisionapp.com/prototype/ck3dyd3xy00inkx01as2gyqts/play

Final Stage 5 Prototype:
https://projects.invisionapp.com/prototype/ck3o0ynod00x3ik015tv1y6bf/play

The levels of severity, the issues categorized within them and the changes that came about because of them goes as follows:

0 - Don't think this is a usability problem.

- In the "Chat" page, we have two ways we can get to any chat. One is by using the sidebar, and another is by clicking on "message" on the list view. As there are two ways of reaching the same chat, it has been suggested that they should be ordered differently. For example, the sidebar can be organized by most recently messaged, while the list view is organized in alphabetical order. Another suggestion is that it is entirely unnecessary to have both, thus we can consider removing one of them and adding in additional features using that space.
    - We have considered this feature and believe that it is valuable. We have organized them based on who which chat was most recently active. Although this is difficult to demonstrate in a high fidelity prototype.
    - We have decided to keep the sidebar as it adds to the look and feel of the app. The UI looks cleaner with this feature and we have added a bit of color to the sidebar which in turn demonstrates appealing contrast between itself and the background colors.
- The sidebars both on the Map page and the Chat page should be shifted down.
    - Made the sidebar on the map larger in order to allow for a natural feel when swiping, as in our previous iteration the side bar was closer to the top and a user would have to reach with their thumbs to bring out the map sidebar.
- The ability to delete and edit messages.

    - We have decided not to implement this feature as it would not be relevant to the core functionality of the app. Alternatively, we have decided to use the time we save from not implementing this feature, to implementing features that would better improve the user experience.
- No help and documentation to explain what buttons can be tapped/used.
    - We have implemented a few additional screens when a user signs up to be a user. These additional screens give a quick tour to the user explaining how to use the features of the app quickly and comprehensively.
    - In these additional screens we have showcased the features that may not be self explanatory to a beginner user.
- Implementation of an additional screen to confirm a creation/joining of an event. This additional screen should be implemented at the center of the screen as it would allow for additional error prevention. Essentially, it would be harder to misclick something near the middle of the screen as opposed to the bottom.
    - We have implemented and showcased a feature in the final iteration of the high fidelity prototype in which all fields must be filled out in order to create an event. An error message will be displayed on the screen if these fields are not filled out before attempting to create an event. This prevents a user from “accidentally” joining.

1 - Cosmetic problem

- The ability to switch between dark and light modes for the app.
    - We have decided not to implement this feature as it would not be relevant to the core functionality of the app. Alternatively, we have decided to use the time we save from not implementing this feature, to implementing features that would better improve the user experience.
- The “Chat” icon is very similar to the friends icon used in many other apps. It is suggested to use a more conventional “Chat” icon.
    - We have decided to change the title of the tab from “Chat” to “Social” to better represent the functionality of the tab. This also better represents a match between the real world and the system as the icon now matches the title and functionality of the tab.
- When we navigate to the Broadcast new event page (Map → Plus symbol (bottom right of page)), the “Date” and “Time” sections should be reformatted as “dd/mm/yyyy” and the time as something similar instead of drop downs.
    - We would like to keep the app as minimal as we can in order to provide ease of use for the user. For this reason we have taken out the year in the date as it seems to be an irrelevant detail that does not add any value.
    - We have kept the drop downs to allow for higher levels of simplicity and lower the chances of human error when inputting dates.
- The app seemed to be “boring” because of the lack of color.
    - We have added some color into the profile tab for our final stage four deliverable. In order to make it more visually appealing, we have

implemented some more color in the social tab and changed the color and the look of the sidebar to add more contrast with the screen.

2 - minor usability problem

- Adding a class is currently only possible under add “add semester” button.
    - We have added a way for the user to edit their current semester. This can be done when the user clicks on the title of the semester from the profile tab. A user can now directly add and remove classes from this new feature.
    - We have taken this one step further, allowing the user to remove, or broadcast an event from the profile tab. When a user clicks on a class in the semester drop down, a pop up will appear, giving the user three options; Broadcast, Remove Class, or Cancel.
- When creating a new event, an error message that tells the user that it failed to create an event if the necessary parameters are not entered.
    - When the
- Feedback suggests that the class dropdown list in the map sidebar is confusing. It is unclear if the classes can be chosen and what the functionality of this feature is.
    - We have implemented a filter feature to clear up this confusion. A class can be chosen from the map tabs sidebar under the “Filter by class” section. When a class is selected, this will act as a filter and the changes will be reflected on the map. This not only fixes the issue but also implements a useful function allowing for improved user efficiency as they navigate through the app.
- The ability to unfriend or block users.
    - We have implemented this along with a chat settings page. The page includes not only these two functions, but also the ability to mut conversations and view previous media sent in the chat.
- When you are accepting a friend request, you have to click accept and accept once again. It is suggested that we change the second “accept” to “Terry has been accepted a friend!”.
    - We have changed the second accept button from being a clickable button to label in order to provide the user with feedback suggesting the friend has been added.
- In the profile tab, semesters are categorized only by winter and fall, and not by year.
    - We have decided to allow the user to choose the name of the semester they are creating. It is up to the user's discretion to name a semester “Fall”, “Fall 2019”, “The crazy semester”, or just about anything else.
- It has been suggested that the ability to invite friends to join an event would be a good feature.
    - When creating an event, we have a feature in which a user can invite a friend to the event they are creating.

- In the notifications, it can be seen when a friend is broadcasting an event. The ability to join the session from that notification would very useful.
    - We have implemented this to allow for higher efficiency when navigating through the app.
- Searching for new friends and sending friend requests to them.
    - This was an important feature for a social app to have. We have implemented this through an easy to understand “+” button near the top of the social page.

3 - major usability problem; important to fix

- A user cannot view or edit the event they have created.
    - The ability to edit the event you have created has been added. When an event is created, the create new event button is replaced with an edit current event button. This allows for the user to once again invite more friends after creating the event, change the information of the event, or end the event.
- The ability to modify the “About” section on profile is missing.
    - We have implemented an edit profile section in the app. This section allows for the user to change the profile photo, name, and about section.

4 - Usability catastrophe; must fix

- The app should implement a Signup and Login page, this would allow for a more clear of the starting point of the app and a better flow while exploring the app.
    - We have already implemented this before the high fidelity prototype was given for a heuristic evaluation.

Additional changes not mentioned by the heuristic evaluation

- Was missing a “Have an account? Log in here” button in the sign up page. In our previous iteration of the high fidelity prototype, it was impossible to go back to the sign in page from the sign up page. We have implemented this in our current high fidelity prototype.
- Added multiple ongoing study sessions reflected on the map to get a better understanding of how other features work, such as filter.
- We have fixed a minor cosmetic issue by connecting the sidebar that was in the social section down to the tab section. In the previous iteration the sidebar was not connected and looked odd.
- We added the ability for users to send stickers and attachments in the chat. This would allow for users to share notes, and it added a touch for emotional design with the implementation of sending stickers via. chat.

6. Recommendation for next iteration of design

The next iteration of StudyBuddy would allow for more features towards sharing information between students. A platform that allows students to seek and share notes in their class would be part of future implementation. Given the technology, it would also be nice to be able to implement some of our current features on a finer scale. One example would be the ability to narrow down the heatmap and look at room occupancy for specific rooms. We could do this by taking all the scheduled classes in a semester, and finding the times where certain rooms don't have scheduled classes.

Another thing we can pursue in the future would be an even more immersive UI experience. One that would allow students to seamlessly integrate their desire to learn accounts with StudyBuddy such that no information is missed. Since D2L allows you to sync events to your calendar, that information should be shared with an in-app StudyBuddy calendar as well. Possible use cases within the app would be to click on an event in the in-app calendar and view a list of other people who are also looking for study buddies for that particular event.

Throughout the course of this project, we have learned about the intricacies of design. Through investigation, brainstorming sessions, affinity diagrams, creating low fidelity prototypes, high fidelity prototypes, heuristic evaluations, viewing the design of existing apps and seeing first hand the development of multiple projects with a focus on UI/UX have helped develop a keen sense of design.

7. Conclusions

We wanted to help students to organize and create study groups for students interested in the same topics. With StudyBuddy, Team 34 is confident that we have created the ideal app to not only help students connect with each other socially, but also develop side by side academically. Studybuddy have various features like Session Broadcaster, Interactive Map, In-app Chat and Social Features for it. Although the majority of the work will be handled by students, other users like professors or teaching assistants could also play a large role in our app as they themselves could form their own study sessions or office hours through the app itself.

To understand our potential users accurately, we conducted our research through 3 methods: Surveys, Interviews, and Scenario Cards. From them, we found that our app could be useful in reality for students, and in which direction we should develop our app.

StudyBuddy provides the experience to satisfy both ends of the users desires. However, despite this, there are things that can always be improved and reiterated on. We hope to take the lessons learned here into our future projects.