Functional Specification: Study Buddy

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December 10, 2014

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1. Introduction

1.1 Mission Statement

Study Buddy is an application devoted to promoting a stronger academic network among classmates, leading to a more collaborative learning experience and better grades. The main goal of Study Buddy is to make it easier for students to connect with other classmates who have similar schedules and study habits for the purposes of studying and forming study groups. These goals are achieved by creating a centralized platform for educational purposes.

1.2 Research

1.2.1 Conflicting Schedules. The life of a college student can be hectic at times. Between classes, work, internships, university clubs, student organizations, and various other responsibilities it is often very difficult to find time to study with other students let alone students who share the same academic values and study habits as you.

We know this to be true based on research we conducted through a series of interviews with students from Michigan State University. When one group was asked what the hardest part was about working together they quickly replied by saying, "finding a time when everyone in the group could meet." One student in particular related his frustrations saying, "When running club meets at five o'clock and the group says, 'Let's meet right after class.' I'm not able to." Study Buddy is needed in this situation to make it easier to connect with classmates.

1.2.2 Uncooperative Group Members. Beyond the initial connection with a single classmate we realized through our interviews that having an entire study group of like-minded peers would provide even more benefits. However, if you group is meeting consistently over time there are probably certain rules and guidelines that you would like the members of the group to follow. This can be enforced by a group agreement which will ensure group cooperation over time.

We found that it is important for a group agree upon certain terms upon formation because in our research we discovered students who had bad experiences with their groups. One group we observed decided to split the work up among the members and through a lack of communication two of the members made major changes to the project without the consent of the rest of the group who were very upset. This situation could have been prevented if the group had created a contract at the beginning.

1.3 Terminology

There are several terms within Study Buddy that the user must become familiar with. These terms and functions will be the basis for every Study Buddy user.

Courses – The specific classes a user is enrolled in. The courses act as a group that lists all students who have joined.

Studying Status – Declares whether or not a particular student is available to study. It is set by the user for each course they have joined and is visible to all of their classmates.

General Availability Schedule – A week long schedule of when a particular student is usually free to study. It is inputted by users on an optional basis.

Study Request – A request that is sent through the app from one student to another proposing a study session.

Study Groups – Groups created in the app by student users that meet regularly to study.

Group Agreement – This is an agreement that is created at the formation of any new study group. The agreement is managed by Study Buddy and keeps track of how group decisions are made based agreed upon values.

1.4 Current System

In the current system there is not a strong network of classmates among students. They tend to stick with the few people they may know going into a class, but these people are not always the best people for them to study with.

Students don't always know when their classmates are available to study. Students may be unaware when a classmate is near them in the same building studying. They also don't know what study groups already exist in their classes. Some students might be in study groups already but often they find that these groups do not share similar values and therefore struggle to be productive. If a student wants to create a new study group they have to know the people they want to invite, try to find people with similar schedules and values, and planning times and places to meet. This is a lot of work which can all be managed by the features of Study Buddy.

1.5 Use Cases

Students have a diverse set of values and needs when looking for a study partner or group. The following are use cases exhibiting the student's academic desire and the steps with which they would take to achieve it.

1.5.1 Student. Goal: As a student I want to connect with classmates who have similar study schedules to me by…

1. Logging in
2. Viewing and setting up my profile with my information (GPA, preferred studying location, schedule of when I usually study, what courses I'm currently taking)
3. Setting my status for each course as seeking buddy, studying, or not studying
4. Viewing the students in my courses that the app suggests I should study with (based on similarities in our profiles)
5. Being able to see profiles and studying status of other students in my courses
6. Being able to send study requests to other students in my courses
7. Being able to set a time and place to study once a classmate has accepted my study request
8. Seeing groups that have already been created for each course, if they are open for anyone to join, and if they are currently studying
9. Seeing if I already know any of these people (i.e. Facebook friends, twitter followers)
10. Seeing where they are studying if they have chosen to make that information available

Goal: As a student I want to form a group that will meet consistently to either study or work on a project by…

1. Creating a group in the app
2. Exception: choose either "study group" or "project group" (these two different groups will differ in the default contract that is offered for the group to use)
3. Setting the state of the group to either "open" or "closed"
4. Sending invites for classmates to join the group
5. Creating a group contract to ensure that the group will follow certain rules
   a. Contract will set agreements for
      i. How decisions are made
         1. Consensus or majority
      ii. Are regular meetings going to be held
         1. If so, when?
      iii. Are regular meetings mandatory
         1. If so how many can one miss?
      iv. How are members held accountable for complaints from the group and missing mandatory meetings?
         1. Dismissal from group
6. Digitally signing and agreeing to the contract
7. Sending the contract to the rest of the group
8. Using the group page to plan meeting times and places
9. Being able to post files to the course for all of your classmates to see

2. Study Buddy System

2.1 Authentication

When a user opens Study Buddy for the first time, they will be asked to sign in. They will have two options for signing in: they can either sign in with their email and a username, or they can log in through Facebook. Logging in through Facebook will allow them to see which friends of theirs are in the same classes once they have joined the courses they are in.

2.2 Courses

2.2.1 Joining Courses. After a user has signed up, the app will request permission to retrieve their class schedule from the Michigan State University schedule builder website. Once the user gives permission they will automatically be assigned to each of their scheduled courses in Study Buddy. The integration with the schedule builder website will be achieved through the implementation LTI technology (Learning Tools Interoperability). One benefit of using this method is that it will automatically change a student's courses in Study Buddy with the beginning of each new semester; therefore, the user does not have to do this manually, and only the classes they are currently in will be listed on their profile. The courses will act as groups where all students who have joined will be listed either by first name or their username. From here, other users who have joined the same course can select their classmates and view their studying status and their profile.
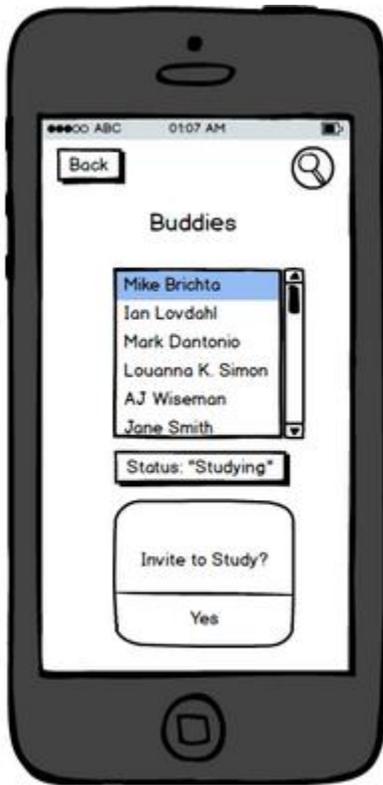
2.2.2 File Sharing. Courses also allow for students to share files with everyone in a specific course. If they have class notes, study guide definitions, or other information that they want to share or with all of their classmates, they can post it to the course page and all of their classmates will receive a notification and be able to view these files.

After the user has added their courses they will be asked if they want to complete the other optional portions of their profile, but if they choose not to do so they can begin using the app for its intended purpose of finding a study buddy.

2.3 Profile

2.3.1 Course Goals. If the user wishes to complete the remainder of their profile there are a few more settings that they can configure to further personalize their profile which will increase their chances of finding a compatible study buddy. For each course that they have joined they can add a course goal which will be a grade point between 1.0 and 4.0. This will allow other people to know how serious they are about a certain course before sending them a study request.
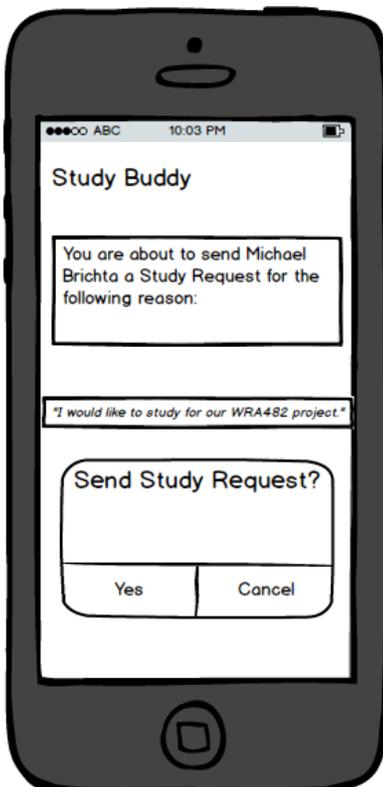
2.3.2 General Availability Schedule. They can also complete their general availability schedule by inputting the times into a weeklong calendar that they are usually free to study. Classmates will be able to see each other's general availability schedules when they view each

other's profiles. This information will make it easier for students to know when someone else is available for a study session in the near future.

2.3.3 Studying Status. The profile is also where the user can set their studying status for each of their courses. There are three different studying statuses a user can choose from. The first status option is "seeking buddy". If this is a user's status it means they are currently looking for someone to study with. The second status option is "Studying". This status indicates that the user is currently studying. The final option for a studying status is "Not Studying" which means the user is not studying and/or not currently available to study with others.

2.3.4 Location. The final setting in the profile is location. Location is a feature that a user can turn on or off whenever they choose. If location is turned on the user will receive a notification whenever a classmate is nearby. However this notification only occurs if this other classmate also has their location turned on and both classmates' have their studying status set to either "seeking buddy" or "studying". The notification will say, "[first name] is studying nearby. Would you like to send a study request?" The user can then send a study request if the wish.
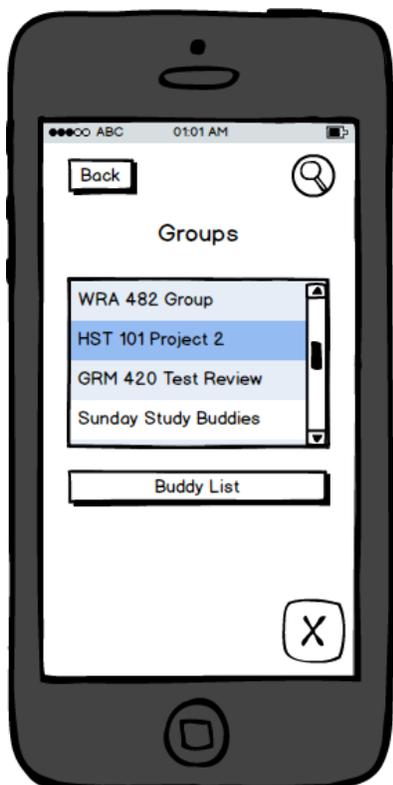
2.4 Study Requests

2.4.1 Sending Study Requests. Study requests can be sent at any time between two users. Generally there will be two scenarios in which a user will be likely to send a study request. The scenario will determine which tool the student uses to choose who they will send a study request to. The first scenario is when a user is wants to find someone to study with right now. This is the short notice scenario. The second scenario is when the user wants to plan a study session with someone for the near future. This is the planned scenario.

2.4.2 Short Notice. On short notice a user should look at their classmates' studying statuses to determine whether or not they are available to study right now. If their status is "Seeking Buddy" it is likely that they will accept a study request, if their status is "Studying" the other student might accept a study request, but if it is "Not Studying" then the user knows to look for a different study buddy.

2.4.3 Planned. In a planned scenario a user will look at their classmates' general availability schedule to determine a time that they will both be free to meet. They can then send a study request for a certain time on their schedule. If their schedules don't match up at all then the user can move on to find a different buddy.

When a study request is accepted a chat will open up that will allow both students to determine a time and place to meet.

2.5 Study Groups

2.5.1 Forming Study Groups. Students may also want to form groups that will meet regularly to study. Study groups are groups created in Study Buddy by users. Study groups will serve as a place for students to plan meetings and share information like class notes. Sending a study group request is effectively the same as sending a single study request; the process only differs in that the group request is sent to more than one individual.

A study group provides an even closer network of peers than the overarching course groups. This is incredibly valuable to the user because it allows them to selectively choose a group that best matches their values when it comes to studying. Determining and managing the shared values of a group is made easy by Study Buddy's group agreement feature.
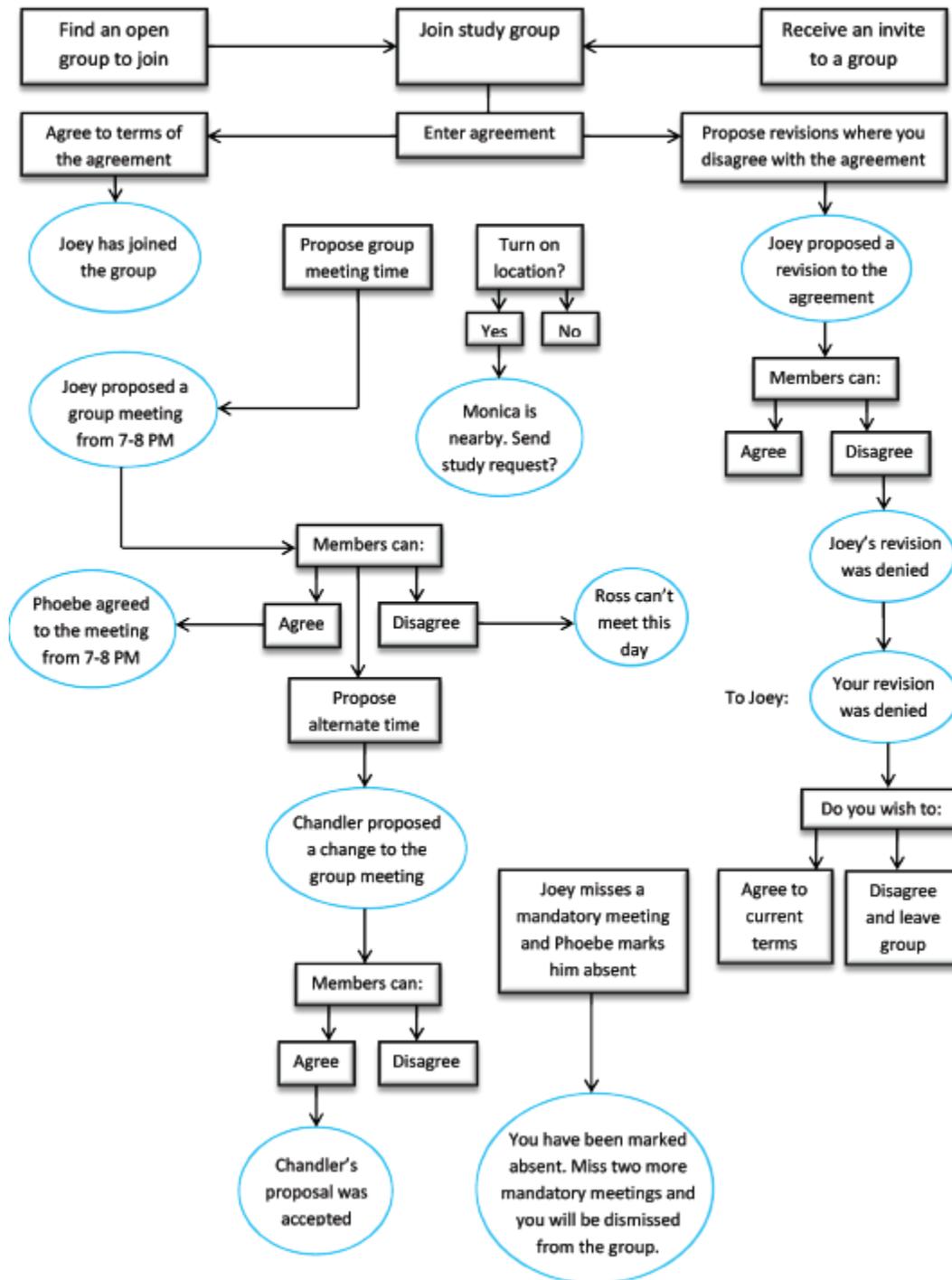
This picture is an example of how a user would see a list of the study groups they are in. Within each group is a list of group members, notes, and class content.

2.6 Group Agreement

2.6.1 Creating a Group Agreement. Upon the creation of a new group the user will be walked through an agreement that all of the group's members will eventually agree to when they join. The agreement will be presented as a series of choices about how the group will function. There are four sections to the agreement that each focus on different values. These values being finding a time to meet that works for everyone, determining how members will be held accountable for showing up, deciding policies on letting new members join, and agreeing upon how all of these decisions will be made.

The flowchart on the following page illustrates how Study Buddy will manage all of the notifications a user could receive based on the terms that were agreed upon in the group agreement as well as the actions taken by other users.

Notification Flowchart

Find an open group to join → Join study group ← Receive an invite to a group

Agree to terms of the agreement ← Enter agreement → Propose revisions where you disagree with the agreement

Joey has joined the group

Propose group meeting time

Turn on location?
- Yes
- No

Joey proposed a revision to the agreement

Monica is nearby. Send study request?

Joey proposed a group meeting from 7-8 PM

Members can:
- Agree
- Disagree

Members can:
- Agree
- Disagree

Phoebe agreed to the meeting from 7-8 PM

Ross can't meet this day

Joey's revision was denied

Propose alternate time

To Joey: Your revision was denied

Chandler proposed a change to the group meeting

Do you wish to:
- Agree to current terms
- Disagree and leave group

Joey misses a mandatory meeting and Phoebe marks him absent

Members can:
- Agree
- Disagree

Chandler's proposal was accepted

You have been marked absent. Miss two more mandatory meetings and you will be dismissed from the group.

2.6.2 Decision Making. The first section is "Decision Making" which determines how group decisions will be made. The user can choose to have the group decide by a majority vote or by consensus. This is important because some students form groups in person but do not establish a clear set of governing rules. Through interviewing students, a common thread of governing ambiguity contributed to the failure of their study groups. This contract seeks to eliminate any confusion found in current studying procedure.

2.6.3 Open/Closed Group. The second section is "Open/Closed Group". This is where the user will decide whether or not the study group will allow anyone to join or if they can only join upon invite or a request accepted by the other members.
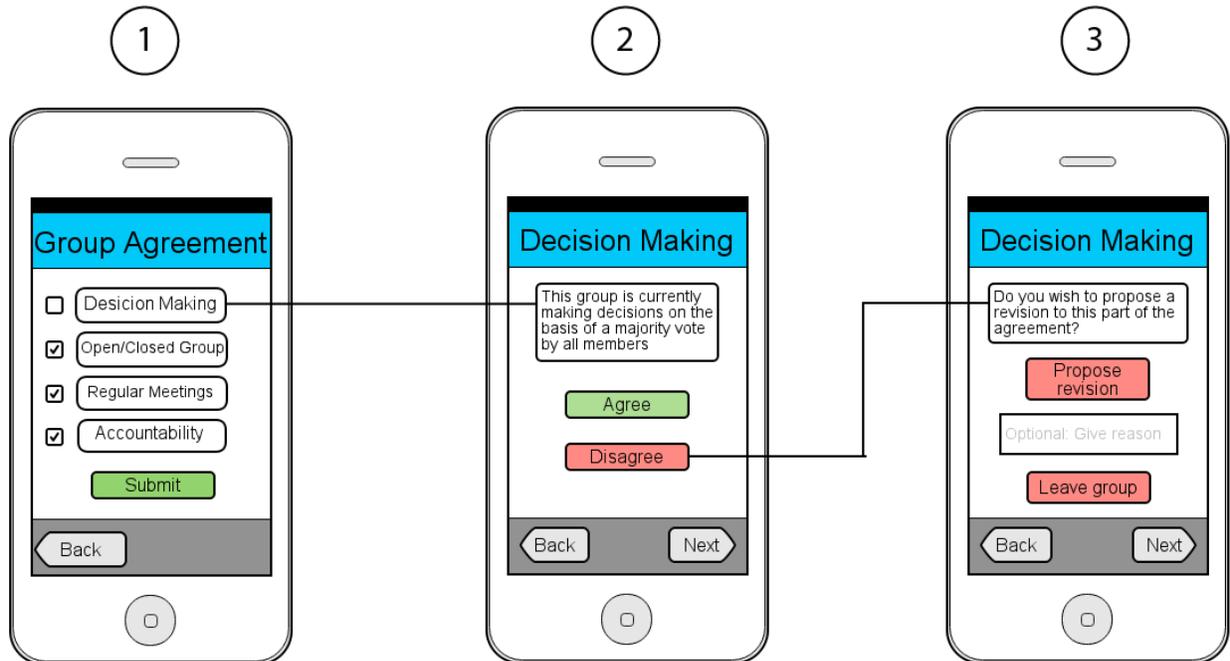
2.6.4 Regular Meetings. The third section is "Regular Meetings". In this section the user will decide if the group will have regular meetings, when these regular meetings will occur, and whether or not the meeting are mandatory.

2.6.5 Accountability. The final section is "Accountability" which determines how members will be held accountable for missing mandatory group meetings. The user can decide how many meetings a member can miss before there are consequences. Absences are inputted by each member and if any one member misses the predetermined amount of mandatory meetings they will be dismissed from the group.

2.6.6 Revising the Agreement. Any time a new member joins a study group, they will be asked to agree to each section of this agreement. However, if they disagree with any section of the agreement they will have the option to propose a revision to the agreement. If they propose a revision, a notification will be sent to the other members, allowing them to either accept or reject this revision. If the revision is accepted, the agreement will automatically be changed. If the revision is rejected, the user who proposed it will be asked if they wish to agree to the original terms or leave the group.

The diagram at the top of the next page demonstrates the steps which a group member takes to affirm or edit the Group Agreement. The first picture (1) shows the values and rules that the group wishes to follow. The user decided to check three of the four values, and he/she chooses to propose a revision to one value. The user then sees a screen where the value is clearly described (2), and he/she opts to disagree. The user is permitted to propose a revision to the value, which the rest of the group will be able to affirm or deny. The user is also given the option to write a revision, or leave the group if they deem it necessary.

Study Buddy Group Agreement

2.7 Safety

One main concern that we have for the Study Buddy app is the issue of safety particularly in relation to the location feature. We realize giving out sensitive information such as the location of another user could allow for the app to be used in ways we did not intend that could be harmful to other's privacy and sense of physical security. This is why we have decided that a user's exact location will never be visible to others. Instead the location of a user will only be used to notify other classmates that a certain user is nearby.

Once two classmates whose studying statuses are both set to either "seeking buddy" or "studying" are within a certain range of one another they will both receive a notification. This notification will only tell them the first name of the other user and that they are nearby. They will then have the option to send that person a study request if they wish. After a study request is accepted then the details of where someone is can be worked out via a chat dialogue that opens, but at no point will the exact location of another user be given out directly from the app itself.

3. Future Features

Looking ahead there are a few more ideas we have that are not yet fully developed but we believe they would add tremendous value to Study Buddy. These features would allow user

profiles to serve as a more accurate indication of what kind of a studier someone is. This would make choosing a compatible study partner a much easier process.

3.1 Studying Questionnaire

One such feature we wish to include would be a studying questionnaire. This would be another optional section of the profile that would take users through a series of questions about what their capacities, values, and habits in relation to studying.

3.1.1 Capacities. Capacities are the skills that a student feels they are best at in relation to studying. To determine these skills the questionnaire would ask questions such as "How good are you at making notecards?" and allow the user to choose from a scale of "not very good" to "very good."

How good are you at making notecards?
- ○ Not very good
- ○ Kind of good
- ○ Good
- ○ Very Good

3.1.2 Values. Values are the qualities that a student looks for in their study partners. Values have been addressed already by the group agreement when it comes to study groups but the studying questionnaire will go deeper into what an individual student's values are. An example of a question for this section of the questionnaire would be "How serious are you about your grades?" with answers ranging from "not very serious" to "Very serious".

How serious are you about your grades?
- ○ Not very serious
- ○ Kind of serious
- ○ Serious
- ○ Very Serious

3.1.3 Habits. A student's habits are his or her preferences when studying. These habits would relate to things like what kind of environment they study best in and what time they prefer to study. The questionnaire would determine a student's studying habits by asking questions like "How much silence do you need to study at your best?" and allow them to choose from a range of answers as depicted below.

How much silence do you need to study your best?
- ○ Absolute silence
- ○ Mostly quiet, maybe some quiet talking
- ○ Some soft background music is ok
- ○ No silence needed, talking and music is fine

3.2 Similarity Percentage

Study Buddy would then take the questionnaire results from one user and compare them against the results received by other users to come up with a similarity percentage. The similarity percentage is the percentage of questions that any two users answered the same on their study questionnaires. We also hope that users would be able to view this percentage not just for the questionnaire as whole, but also for the individual sections of capacities, values, and habits. This would be helpful because the user would probably want someone with a high similarity percentage for values, but for capacities they might want someone with a lower similarity percentage because this would indicate that this person has a set of skills that is different than what they already offer. We imagine the similarity percentage would exist on each user's profile as a number next to or below their studying status.

3.3 Study Buddy Score

The final feature that we've thought about including in the future is a way to rate a particular study session after it has taken place. The rating would either be a star rating out of five or it might just be a simple "good" or "bad" choice. Study Buddy would then take the average of all the ratings that each user received and this would become the user's Study Buddy Score. The Study Buddy Score would be represented on each user's profile along with their studying status and similarity percentage as another way to help other students quickly decide who will be the best partner for them to study with.

4. Conclusion

Study Buddy provides students with an academic social network of their peers. Currently, college students are asking for this social media platform. Through analyzing research, it is clear that finding effective study partners is a difficult task for many students. Considering how well students perform in classes when able to cooperate with their peers, Study Buddy gives students an incentive to connect, share knowledge, and earn good grades. Study Buddy allows students to optimize their studying experience by finding students who share their values; moreover, Study Buddy gives students autonomy over their pursuit of knowledge, allowing them to create study group parameters through use of a Group Agreement.

Study Buddy taps into a ubiquitous problem in academia and provides a solution: enabling students everywhere with an easy way to meet, cooperate, learn, and succeed.