

MoodWatch

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Problem and Solution Overview

Attending college is a challenging and expensive venture. Because of the cost, students often feel obligated to make the most out of their college experience by learning as much as they can. The challenging nature of college, though, can get in the way of this. Students will often get so caught up just trying to scrape by in their classes that they will forget to take a step back and consider how they are feeling about the class. Routinely doing just that, however, can help students discover exactly what aspects of a course are most challenging for them and from there they can begin to take action to better understand the course content. This is the precise behavior we want to enable and encourage. MoodWatch allows students to do just this in an easy, minimally distracting way. By recording a student's mood in class in real time and by allowing the students to interact with that data at a later time, MoodWatch enables students to become more aware of their mood during classes. With this type of precise awareness, MoodWatch will encourage students to seek extra help when it is needed and will even make doing so more convenient. College is a vital time in a student's life and MoodWatch will help them make the most of that time.

Design Research Goals, Stakeholders, and Participants

Goals

Our initial design research showed that the question of “what factors influence a person’s mood” is not easy to answer in general because the breadth of these factors is so incredibly wide. We shifted our focus to something narrower where we could capture a better understanding of our participants: tracking mood and the role it plays in the classroom. In our research for this focus, our primary goals were to determine which moods students tend to feel during their classes, to understand how these moods are correlated with an understanding of the course material (if at all), and to gain a sense of what responses may accompany certain moods if students are aware of these moods. We also wanted to gain a sense of whether or not the data we would obtain is be useful for people other than the student the data pertains to, such as other students in the class and the instructor. We also wanted to gauge, then, with who students would be comfortable sharing this sort of information and under what conditions.

Stakeholders

College Students: Students are often highly motivated to do well in classes but can quickly fall behind if they do not keep on top of the material for their courses. For students who are motivated in such a way, having a convenient way to keep track of their mood and understanding of course content will play a major role in their collegiate success.

Instructors: Many instructors at the college level are deeply invested in the content of their courses and are driven to spark that same investment in students. By giving these instructors the tools to correlate course topics and student mood, they will gain the power to adjust their teaching techniques and make their courses as effective as possible.

Participants

All of our interview participants are teaching or studying at University of Washington. We prepared a few questions that provide us with college students’ moods and their typical responses during class to various moods, especially confusion. We interviewed four college students who usually attend their classes and care about the quality of their learning during class. In addition to college students, we also interviewed two teaching assistants. We asked a couple of questions that provide us with their opinions on having real-time mood feedback from their students, the type of feedback that they would like to get from students, and what kinds of actions (if any) they would like to take, if they knew students were confused about a topic . We chose to have interviews with college students because our main goal is to track students’ moods during a class and to understand how mood can play a role in the learning process. On the way to achieving this goal, we need to consider whether having knowledge of students’ mood can help instructors and TAs to provide their students with a better academic environment. That way we can make sure the data that we are gathering during classes is helpful for both students and instructors.

Design Research Results and Themes

Tracking only a few moods would be most helpful

Without the intention to track mood, the scope of moods students are conscious of feeling in the classroom is small. Our research showed that students tend to notice the extremes. When they are very confident about the material, they feel great. When they are sleepy or confused, they begin to feel worried or stressed especially if this continues for several days. And if they do not feel either of those, they are somewhere in the middle where they are not particularly confident or worried. Perhaps through tracking mood, the breadth of moods students notice would grow, but we have evidence that this is not worth focusing on. When we talked to students about actions they may take because of their mood, it boiled down to two options: get some form of help when they are doing poorly or take no action at all. For this reason, we do not feel that tracking a variety of moods will be most helpful for students and instead would rather focus on just tracking a few simple moods in detail.

Students are comfortable sharing their mood with instructors

Our research also showed that students were surprisingly comfortable sharing their mood with their instructor. In some cases, our participants noted that they would be comfortable not being anonymous and that they would be totally honest in this scenario. Some were not so bold, but everyone admitted that they would not mind sharing their mood with an instructor if it was anonymous. In terms of sharing mood with students, our participants seemed a bit less comfortable. Again people are more comfortable when it is anonymous, but in talking to our participants we found that sharing mood anonymously with classmates is not as useful as with instructors. Perhaps a student who sees they are stressed when everyone else is confident might seek extra help, but our research showed that students who are stressed are likely to get help even without seeing the mood of their peers. This is leading us away from sharing mood between students.

Instructors worry about distractions

In general, the instructors we talked to agreed that having more information about their students would be helpful. They worry about being overwhelmed and distracted if we gave them this information in real time, but they mention that having the information to look back on to make changes for upcoming lectures or quarters would be a major boon. It seemed like the biggest concern instructors had about tracking mood during class was that this might be a distraction for students. If students are having to get out their phones or laptops regularly to record their mood, either the instructor would have to pause lecture or there would be holes in what students are hearing and writing notes about. This is a concern we did not originally consider, but we can definitely see why this is something to worry about. However, we still feel that tracking mood periodically during class is a worthwhile endeavor, so we plan to spend time implementing this functionality in such a way as to make it minimally distracting for instructors and for students.

Answers to Task Analysis Questions

Who is going to use the design?

Our design is targeted toward college students and teachers. For students, we are focusing on those who are committed to their classes and would seek ways to be more successful in their classes as these students are the ones who are most likely to pursue options like MoodWatch. Teachers looking to improve would also benefit from this design.

What tasks do they now perform?

Currently students perform little in the way of active mood tracking, but are conscious of when they feel mood certain moods like confusion and confidence. They also perform more reactionary tasks and actions like attending office hours, studying course material, asking friends for help on assignments, or helping others. Teachers like to draw affirmations from their students. This is done by directly asking whether students are confused, answering questions at office hours, or reflecting on their teaching style through the end of quarter surveys.

What tasks are desired?

We want to have students spend more time becoming more cognizant of their mood during class to help them recognize which moods warrant which reactions. We also want to help students understand the mood data in such a way as to be able to turn the data into actions they can take in response. For teachers, we want to help teachers find a more effective and distraction-free way to understand why and how students are confused.

How are the tasks learned?

Becoming cognizant of mood does not require much in the way of learning but rather becomes habitual with practice. In that sense, it can be learned through real-time reminders that prompt students for their mood regularly as these provide an opportunity for that practice. We can give suggestions for responsive action to certain moods, which will help students correlate moods with reactions even without the use of MoodWatch.

Where are the tasks performed?

The task of recognizing mood during class is performed in the classroom only. However, tasks resulting from this (such as reaching out to instructors for help on course content) can be performed at any location. We expect that these tasks will often occur on college campuses.

What is the relationship between the person and data?

The data collected belongs to the mood of a single student during various lectures and is individual to that person. In this way it is dependent on the person themselves as well as factors in the lecture like the instructor and the content being covered. It can also be useful for individuals to share their data with others (e.g. instructors, peers), which expands the relationship to include individuals seeing the data of other individuals, like in a way that maintains anonymity.

Answers to Task Analysis Questions (continued)

What other tools does the person have?

Most students use some sort of tool to take notes during lecture. Some common examples of this are a pen and paper, electronic tablets, and laptop computers. Most students, even those who use traditional pen and paper, are likely to have access to electronic devices like laptops and smartphones during class. Teachers may only draw to student feedback and test results to gauge how their students are doing.

How do people communicate with each other?

There are several communication channels at play. In class, instructors communicate with students primarily through lecturing. Students communicate with these instructors by answering questions or asking some of their own. Sometimes students interact with each other to briefly ask questions or chat about unrelated topics. Outside of class, students and instructors often communicate over email to set up times to meet or to share information and learning resources.

How often are the tasks performed?

Most classes meet between 1 and 5 days a week, so there can be many opportunities for student and instructor interaction. Within each class, the frequency with which a student may consider their mood ranges from every few minutes to never. Tasks relating to reaching out for help can be performed as often as necessary, but are often limited to several times per quarter.

What are the time constraints on the tasks?

The biggest time constraint during class is closely tied to how long the minds of students can be away from the class without falling behind. This timeframe is short (probably measured in seconds), but we will be limited to gathering mood information within it. More reactionary tasks such as reaching out for help do not have a fixed time constraint, but often become more and more urgent as time passes as the student is likely to fall further behind on the material.

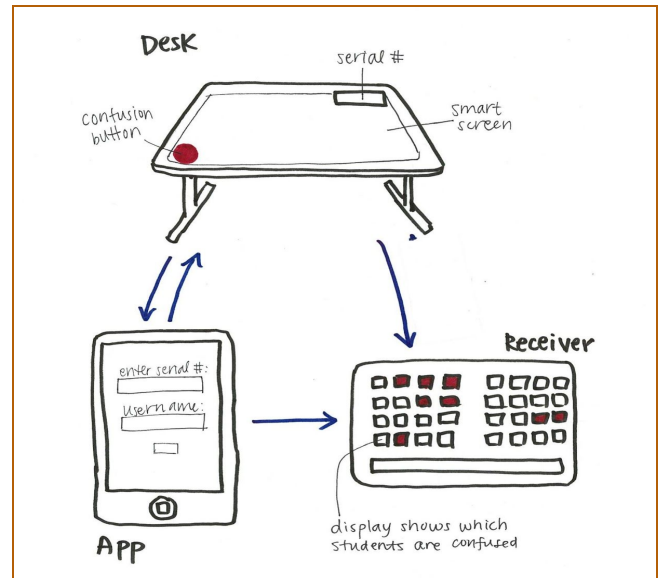
What happens when things go wrong?

Human error is possibly the biggest issue that can occur. If the student inputs their moods and other data incorrectly, then there is a potential that they will retrieve erroneous results. In this case, the best we can do is predict how much of an error margin the results have, based on previous results and inputs. We can also ensure that they try to accurately put in information by reminding them through visuals and having an easy to navigate interface.

Proposed Design Sketches - "3x4"

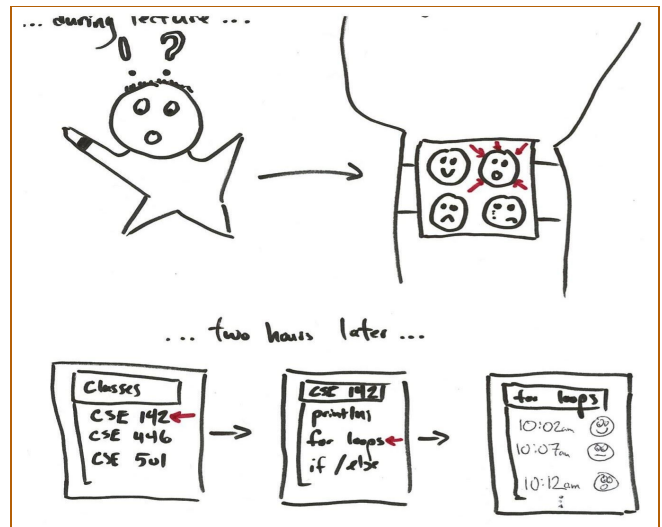
Design 1: Desk

This design is a smart desk which students can use to indicate their mood at various points during lecture. This information is saved and transmitted to a receiver that the instructor will use to learn information about their students' mood. Since students will be tracking their own mood, it becomes much easier to share that with instructors and peers, and this would enable instructors to know who needs additional help and reach out to students about getting additional help if necessary.



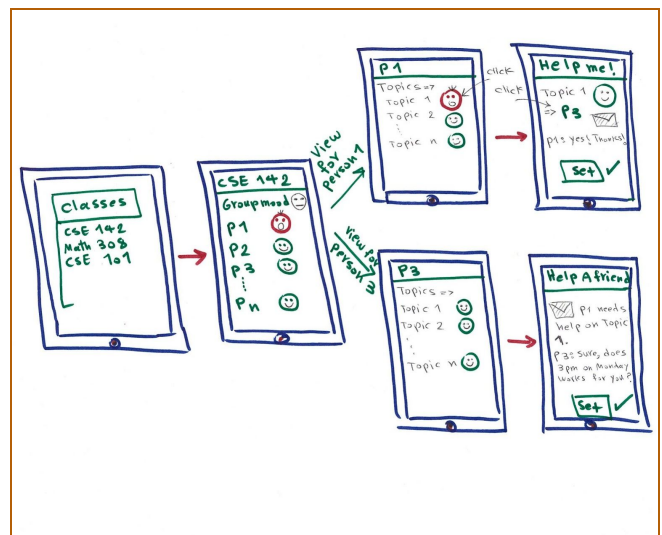
Design 2: Wearable

This design is a wearable with an accompanying app. Students would input their mood using the smart watch interface at various points during lecture. The wearable would likely need to remind students to input this data. This information would then be viewable in the app so a student can later view their mood along with a timestamp and the topic of the lecture at the time. This would be particularly helpful when linked with resources like Panopto so students can go back to the exact topics that confused them for some lecture or shared with TAs/instructors. It basically helps student to be aware of their moods during class and get help easily.



Design 3: App

This app focuses on recording mood after lecture and sharing this mood among a study group. Recording mood after lecture helps a person reflect on their understanding of course content, something many students fail to do until it is too late. Sharing mood helps facilitate a group using this to understand each others moods and create study plans. The hope is that by having a group that is open to each other about their mood during class, students would be able to get help from the other members quickly and personally.



Written Scenarios - "1x2"

Task 1: becoming aware of mood during classes

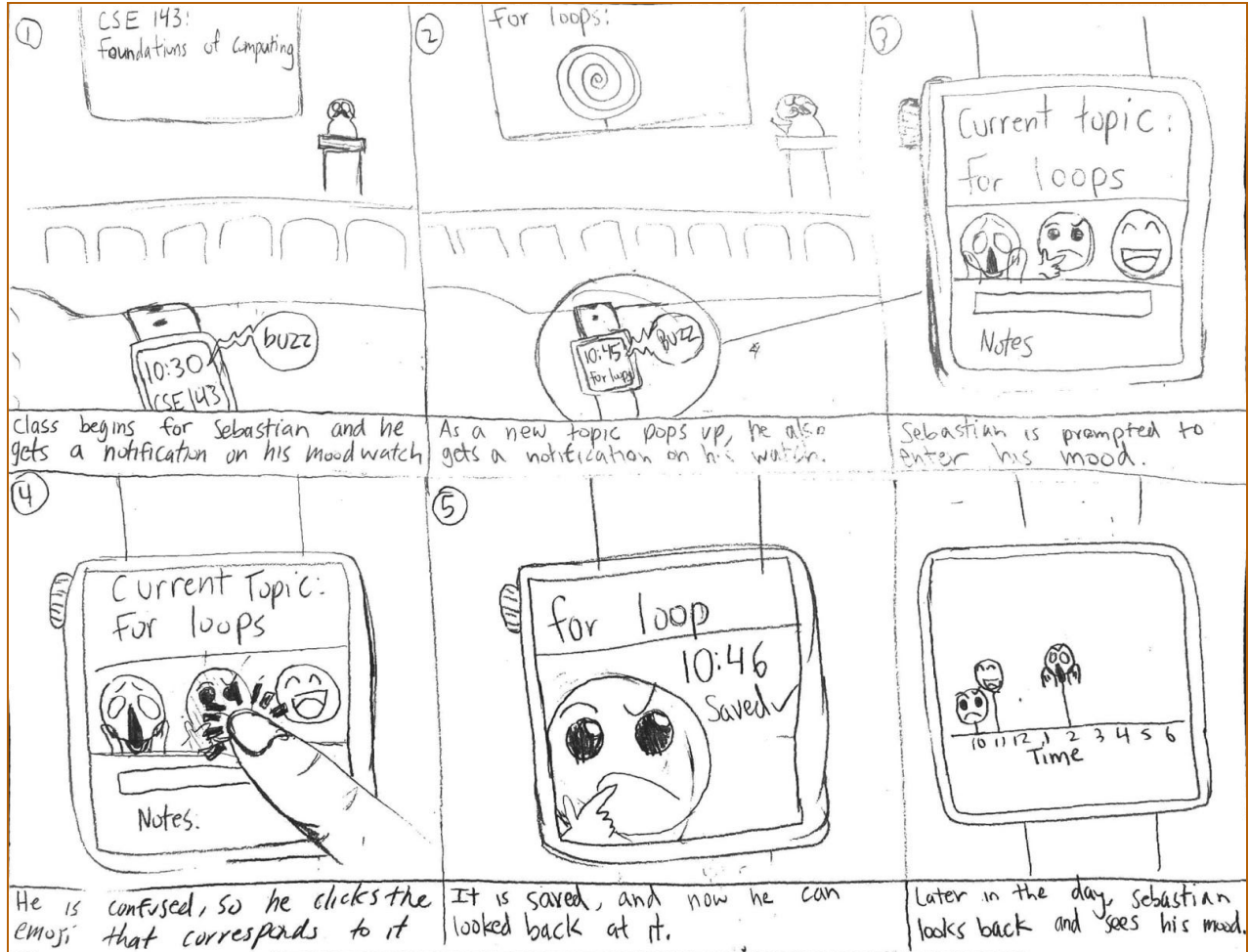
Sebastian is a freshman at the University of Washington who hopes to major in Computer Science. He knows it is challenging to be admitted to the Paul G. Allen School, so he knows he will have to put in a lot of work to achieve this goal. A few weeks into the quarter, though, he simply feels worn down by his classes and his grades start to slip. Luckily, he catches himself and picks up a MoodWatch to help stay focused. He is optimistic about the purchase, but on the first day he wears the watch, he still finds that he is confused and unhappy. This time, though, as he is sitting in his first class, his watch prompts him for his mood. He thinks for a moment and enters "unhappy". As the watch continues to regularly prompt him for his mood, he starts to become more acutely aware of the fluctuations in his throughout the day. Soon, Sebastian finds that he is catching himself when he is becoming bored or confused in class even before he is prompted by his MoodWatch and he is able to adjust his focus appropriately.

Task 2: reaching out for help when needed

Liana is a sophomore at the University of Washington who was recently admitted to the Physics major. Even though she is in her major now, she knows she needs to keep up her good grades so she can land her dream job at NASA after graduation. She is worried that this will be harder than ever now that she will start taking classes within the major. Liana buys a MoodWatch with the intention of keeping track of how she feels for each topic that is covered in her classes. Every evening, she uses the MoodWatch app to look back at which concepts she was confused by and is immediately routed to the appropriate portion of the Panopto recording for that topic. After watching the brief segment a few times, she still is not getting it. She uses the MoodWatch app to send a pre-written email to her TA with her mood timestamps for the past couple lectures and the steps she has already taken to try to understand the material.

Storyboards of Selected Design

Task 1: becoming aware of mood during classes



Storyboards of Selected Design (continued)

Task 2: reaching out for help when needed



Contribution Statement

Kelvin: 25% Task Analysis Questions
Storyboards of Selected Design

Saba: 25% Design Research Goals, Stakeholders, and Participants
Proposed Design Sketches

Kyle: 25% Design Research Results and Themes
Written Scenarios

Yuma: 25% Problem and Solution Overview
Task Analysis Questions