Sleep Patterns and Mood Tracking

CAB210 Assignment 1

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Introduction

AIM

Our research aims to investigate the influence of irregular sleep patterns on the emotional well-being of university students, whilst also exploring the potential for technologies to assist in enhancing awareness and aiding in the effective management of moods.

IMPORTANCE

By disrupting sleep patterns and affecting the Circadian Rhythm, it's probable that moods are adversely influenced. By understanding these dynamics, students can modify their routines, leading to improved sleep and heightened emotional resilience.

Schueller, S. M., Neary, M., Lai, J., & Epstein, D. A. (2021). Understanding people's use of and perspectives on mood-tracking apps: interview study. *JMIR mental health, 8*(8), e29368.

Participants

Target Group

- University Students
- Aged 18-25
- Enrolled as a full-time student
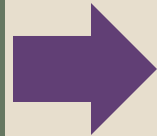- Ideally involved in additional commitments

Recruitment Plan

- Leverage relationships with friends and family actively studying for higher interviewee interest
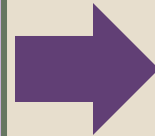- in person and via formal email

Methods Overview

Interview 1 (say) with card sorting (make) → Diary (do) over 5 days → Follow-up interview to discuss diary

All interviews will be audio recorded.

Say Method – Interview Guide

Interview 1

- Interviewee background
- Prior experiences with mood tracking
- Perceived impact of disrupted sleep schedule
- Views on mood tracking in an organisational context
- Card Sorting activity and results

Follow up interview

- Strategies for mood tracking
- Perceived patterns and correlations
- Reflection and overall experience

Interview 1

- **TOPIC 1:** Interviewee Background
- Could you please give me some background on your university studies?
    - Are you a full-time student? How many classes do you take?
- Can you tell me a bit about your typical extracurricular commitments beyond academics?
    - Do you work? - how many hours do you do in a typical week?
    - Will you tell me a bit more about any of your usual social activities?
- How much of your time per week would you estimate these commitments take up?
- How much of your time per week would you estimate that you spend on university tasks?
- How much sleep do you regularly get each day?
- Have you ever skipped sleep entirely in favour of working on other commitments (university or otherwise)? If so, how often have you done this?
- Do you regularly take stimulants (such as coffee) to maintain your energy throughout your activities?
- Do you often take short naps during the day in replacement of a long period of sleep at night

- **TOPIC 2:** Prior Experiences with Mood Tracking
- Have you had any prior experience with personal mood tracking?
- **Yes:** Could you walk me through the steps of how you tracked your mood?
    - Do you feel like it is/was effective?
    - How did you start tracking your moods? Were there any particular motivations that prompted you?
    - **No:** Have you ever thought about tracking your mood, either digitally or physically?
- Do you know anyone who utilizes mood tracking tools, and if so, have you observed notable improvements in their well-being as a result?
- Have you encountered any issues or challenges while tracking your moods?
    - How do you think this issue could have been prevented?

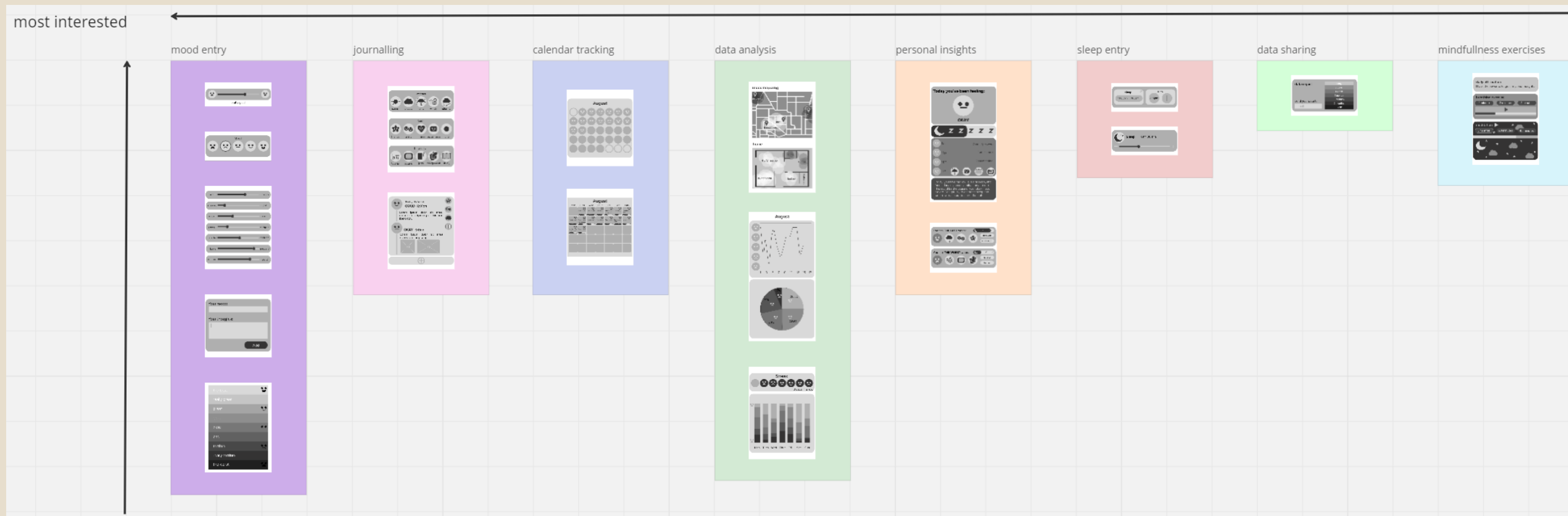- **TOPIC 3:** Perceived Impact of Disrupted Sleep Schedule
- Do you often feel tired throughout the day?
    - Do others often comment on their perception of your tiredness (circles under eyes, look tired, etc?)
- In your opinion, how do you think daily activities, such as university classes, social interactions, work, and extracurriculars, might affect your moods?
- Have you noticed any patterns between irregular daily activities and negative moods?
- Have you found yourself more irritable than normal during periods of high intensity (exam block, assignments due, etc)?

- **TOPIC 4:** Views on Mood Tracking in an Organisational Context
- Do you think, as a whole, mood tracking can be a beneficial tool in self-assessment and personal management, and if so to what extent?
- Would you be personally comfortable having technology (such as a phone application) track your reported mood and sleep schedule and make health recommendations, such as suggesting appropriate bedtimes and setting reminders?
- Do you hold the perspective that the challenge lies not in your inherent inability to regulate your sleep schedule, but rather in the time constraints imposed by juggling university, work, and social commitments, which may leave insufficient room for adequate sleep?
- Do you believe that mood tracking tools could provide emotional support to you or others as a university student?
    - What sort of features would you find personally beneficial in this context?
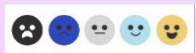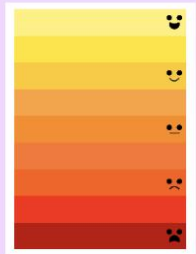
Follow Up Interview

- Since our last interview, have you been consistently tracking your mood and sleep patterns using the mood tracking tool we discussed?

- Did you use any specific strategies or reminders to help you stay consistent with mood tracking?

- Have you noticed any patterns or trends in your mood fluctuations over the past week that you might attribute to certain activities or sleep patterns?

- Did you encounter any surprising realizations about how your activities and sleep impact your mood?

- Were there any instances where reviewing your mood patterns prompted you to make specific changes in your routine or habits?

- Have you observed any correlation between the quality or quantity of your sleep and your overall mood throughout the week?

- Did you face any challenges or setbacks in maintaining consistent sleep patterns or tracking your mood? How did you overcome these challenges, if any?

- On a subjective level, do you feel that keeping a mood tracking diary has had any positive effects on your emotional well-being? If yes, could you elaborate on these effects?

- Looking ahead, do you plan to continue using the mood tracking tool to monitor your mood and sleep patterns? Why or why not?

- Are there any adjustments you would suggest to improve the effectiveness or user-friendliness of the mood tracking technology?

- Reflecting on your experience with mood tracking over the past week, do you think it offers any advantages over your previous methods of managing your schedule and emotions?

- Are there any external factors you might attribute to a perceived change in your mood / quality of sleep outside of the scope of this project that have occurred in the past week? An example might be the loss of a pet, a promotion at work, etc.

- Is there anything else you would like to share about your experience with mood tracking during the past week that we haven't covered in these questions?

most interested

mood entry | journalling | calendar tracking | data analysis | personal insights | sleep entry | data sharing | mindfullness exercises

Make Method – Card Sorting

Make Method – Card Sorting

Mood Tracking Diary

Please record your responses at least once a day over the next week. Thank you :)

How are you feeling currently? *

Short answer text

On a scale of 1-5, rank your mood *

	1	2	3	4	5	
very bad	○	○	○	○	○	very good

How many hours of sleep did you get last night? *

1. less than 4 hours
2. 4 hours
3. 5 hours
4. 6 hours
5. 7 hours
6. 8 hours
7. 9 hours
8. 10 hours
9. more than 10 hours

Have you used technology today? *

○ yes

○ no

if yes, what type did you use?

☐ phone

☐ laptop

☐ tablet

☐ tv

☐ Other...

Where are you right now? *

Short answer text

What activities did you do today? *

☐ study

☐ class

☐ work

☐ social meeting

☐ Other...

Did you take a nap today? *

○ yes

○ no

Are you feeling tired or worn out? *

○ yes

○ no

On a scale of 1-5, how busy were you today? *

	1	2	3	4	5	
not busy at all	○	○	○	○	○	very busy

Further, for what purpose was this technology used for?

☐ University

☐ Work

☐ Social activities

☐ Gaming

☐ Entertainment

☐ Other...

Do Method - Diary

Ethics Documents – Consent Form

CONSENT FORM FOR QUT RESEARCH PROJECT
Interview, Diary, Card Sorting, Usability and User Experience Evaluation

CAB210 User Experience Fundamentals

QUT Ethics Approval Number 1900000684

Research team contacts

Students:	Benjamin Bashford-Ferrier	benjamin.bashfordferrier@connect.qut.edu.au
	Adele Finney	adele.finney@connect.qut.edu.au
	Brayden McConnell	brayden.mcconnell@connect.qut.edu.au
Unit Coordinator:	Dr Bernd Ploderer	b.ploderer@qut.edu.au 07 3138 4927

Faculty of Science, Queensland University of Technology (QUT)

Statement of consent

By signing below, you are indicating that you:

- Have read and understood the information document regarding this research project.
- Have had any questions answered to your satisfaction.
- Understand that if you have any additional questions you can contact the research team.
- Understand that you are free to withdraw without comment or penalty.
- Understand that if you have concerns about the ethical conduct of the research project you can contact the Research Ethics Advisory Team on 07 3138 5123 or email humanethics@qut.edu.au.
- Understand that non-identifiable data from this project may be used as teaching material and as comparative data in future research projects.
- Agree to participate in the research project.

Please tick the relevant box below:

☐ I **agree** for the study to be audio / video recorded.

☐ I **do not agree** for the study to be audio / video recorded.

Name _____

Signature _____

Date _____

Please return this signed consent form to the researcher.

Ethics Documents — Participant Interview Information

PARTICIPANT INFORMATION FOR QUT RESEARCH PROJECT
– Interview, Diary, Card Sorting, Usability and User Experience Evaluation

CAB210 User Experience Fundamentals

QUT Ethics Approval Number 1900000684

Research team

Students:	Benjamin Bashford-Ferrier	benjamin.bashfordferrier@connect.qut.edu.au
	Adele Finney	adele.finney@connect.qut.edu.au
	Brayden McConnell	brayden.mcconnell@connect.qut.edu.au
Unit Coordinator:	Dr Bernd Ploderer	b.ploderer@qut.edu.au 07 3138 4927

Faculty of Science, Queensland University of Technology (QUT)

Why is the study being conducted?

This research project is being undertaken as part of an undergraduate project for Benjamin, Adele and Brayden for unit CAB210 User Experience Fundamentals.

The purpose of this research project is to better understand the experience of University Students with digital technologies to promote mood tracking, and to evaluate and improve related websites or apps. Mood tracking is a technique for improving mental health where a person records their mood, usually at set time intervals, to help identify patterns in how their mood varies. We are particularly interested in how digital technologies might be used for mood-tracking in an organisational context, e.g., by sharing moods with colleagues and supervisors to provide mutual support.

The research team requests your assistance because you are a current university student.

What does participation involve?

Your participation will involve the following activities:

Two audio recorded **interviews** at a comfortable location of your choice that will take approximately 30 minutes of your time each. Questions will include: Your Background, History with Mood Tracking, Perception of Interrupted Sleep Schedule, and Personal Views on Organisational Mood Tracking.

One interview will include a **card sorting activity** that will take approximately 5 minutes of your time. You will be asked to rank 8 features in order of perceived impact, as well as ranking UI designs for each respective feature.

A **diary** over 5 days that will take approximately 5 minutes of your time each day. The focus of the diary will primarily be to track your daily mood, activities and sleep activity. The diary will be transcribed and discussed during the second interview.

Your participation in this research project is entirely voluntary. If you do agree to participate you can withdraw from the research project without comment or penalty. You can withdraw anytime during the interview. If you withdraw with 2 weeks after your interview, on request any information already obtained that can be linked to you will be destroyed. Your decision to participate or not participate will in no way impact upon your current or future relationship with QUT (for example your grades).

What are the possible benefits for me if I take part?

It is expected that this research project will not benefit you directly. However, it may benefit CAB210 students to see how the needs and the way people use technology are different from their personal experience, and to learn user experience methods which will enhance their employability. Your feedback will also benefit QUT researchers to study how digital technologies can support wellbeing as well as the QUT Wellbeing Strategy Team and the company Mettlesome to improve their services.

What are the possible risks for me if I take part?

There are no risks beyond normal day-to-day living associated with your participation in this research project.

What about privacy and confidentiality?

All comments and responses are coded i.e. it will be possible to re-identify you. A re-identifying code stored separately to personal information (e.g. name, address), will only be accessible to the research team, and the code plus identifying information will be destroyed at the end of the semester.

Any personal information that could potentially identify you will be removed or changed before files are shared with other researchers or results are made public. The information that will be removed may include names, place of work/study, occupation, and education.

Any data collected as part of this research project will be stored securely as per QUT's Management of research data policy. Data will be stored for a minimum of 5 years, and can be disclosed if it is to protect you or others from harm, if specifically required by law, or if a regulatory or monitoring body such as the ethics committee requests it.

As the research project involves an audio or video recording:

- You will not have the opportunity to verify your comments and responses prior to final inclusion.
- The recording will be destroyed 5 years after the last publication.
- The recording may be used for teaching purposes and to improve the services of QUT Student Services and Wellbeing.
- Only the named researchers will have access to the recording.
- It is not possible to participate in the research project without being recorded.

Every effort will be made to ensure that the data you provide cannot be traced back to you in reports, publications and other forms of presentation. For example, we will only include the relevant part of a quote, we will not use any names, or names will be changed, and/or details such as dates and specific circumstances will be excluded. Nevertheless, while unlikely, it is possible that if you are quoted directly your identity may become known.

How do I give my consent to participate?

We would like to ask you to sign a written consent form (enclosed) to confirm your agreement to participate.

What if I have questions about the research project?

Please contact the researchers (details above) to have any questions answered or if you require further information about the project.

What if I have a concern or complaint regarding the conduct of the research project?

QUT is committed to research integrity and the ethical conduct of research projects. If you wish to discuss the study with someone not directly involved, particularly in relation to matters concerning policies, information or complaints about the conduct of the study or your rights as a participant, you may contact the QUT Research Ethics Advisory Team on 07 3138 5123 or email humanethics@qut.edu.au.

Thank you for helping with this research project. Please keep this sheet for your information.

Subject Title:
Participate in a research study about mood-tracking with digital technologies

Dear colleagues,

My name is (x) and I am an undergraduate student in IT at Queensland University of Technology (QUT) and I'm doing a research project into the experience of University students with digital technologies and mood-tracking, and to evaluate and improve related websites or apps.

I would like to invite students to take part in a study that involves two interviews, a short survey, a 5-day diary and a card-sorting activity. Each interview will take approximately 30 minutes, and the 5-day diary has been designed to be completed in under 5 minutes per day.

Please view the attached Information Sheet and Consent Form for further details on the study.

If you are interested in participating or have any questions, please contact me via email.

Please note that this study has been approved by the QUT Human Research Ethics Committee (approval number: 1900000684).

Many thanks for your consideration of this request.

(x)
IT Student
(x)@connect.qut.edu.au

Dr Bernd Ploderer
Unit Coordinator
07 3138 4927
b.ploderer@qut.edu.au
School of Computer Science, Faculty of Science
Queensland University of Technology

Ethics Documents

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Recruitment Email

Declaration

We confirm that we will do the following:

1. **Declare** any actual, potential, or perceived **conflict of interest**(s) in completing this research e.g. if we financially benefit from conducting the research

2. **Upload a zip file to Canvas** that includes presentation slides, instruments, and ethics documents

3. **Provide the Information Sheet and Consent Form to eligible participants**, and inform them that their decision to participate or not participate will in no way affect their relationship with us or QUT

4. Submit a **signed IP agreement**

5. **Wait for approval** from the teaching team before we collect any data

6. **De-identify personal information collected from participants**, e.g. by replacing names with pseudonyms, blurring faces in images, changing contextual information like place names

7. **Upload digital copies of all signed consent forms and anonymized study data to Canvas** at the end of assignment 2 & 3

8. **Archive all study data** (video recordings, audio recordings, photos, notes, etc.) and provide the data to the unit coordinator if requested

9. Understand that my assignment marks will not be released if any of these documents are missing

Academic Honesty Statement

We declare that all parts of this report are prepared by the below listed members and no uncited material from any external sources is included. We declare that this report genuinely reflects my/our activities and tasks performed as a part of assessments within the unit CAB210. The work contained in this presentation has not been previously submitted to any other units offered by QUT or any other universities around the world.

Furthermore we declare that:

- We did not cut-and-paste information from other people or AI-generated content without appropriate use of quotation marks and direct reference to their work;

- We did not re-word the ideas of others without proper and clear acknowledgement;

- We did not write ideas or suggestions that originated from other students and claim these as our own;

- We did not include words from other students' work unless this was explicitly permitted in the description of this assignment.

We understand that any violation of the above will result in a possible:

- ZERO mark for this assignment, and/or

- Our names will be recorded and will be forwarded to the faculty to handle.

For assessment purposes, we give the assessor of this assignment the permission to: reproduce this assignment and provide a copy to another member of staff; and take steps to authenticate the assignment, including communicating a copy of this assignment to a checking service (which may retain a copy of the assignment on its database for future plagiarism checking).

Benjamin Bashford-Ferrier, Adele Finney, Brayden McConnell

References

Schueller, S. M., Neary, M., Lai, J., & Epstein, D. A. (2021). Understanding people's use of and perspectives on mood-tracking apps: interview study. *JMIR mental health, 8*(8), e29368.

Khameneh, A. (2023, April 17). Teachers in Denmark are using apps to audit their students' moods. Retrieved from MIT Technology Review: https://www.technologyreview.com/2023/04/17/1071137/denmark-teachers-apps-student-mood-audit-software/

Questions

Feedback welcomed

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