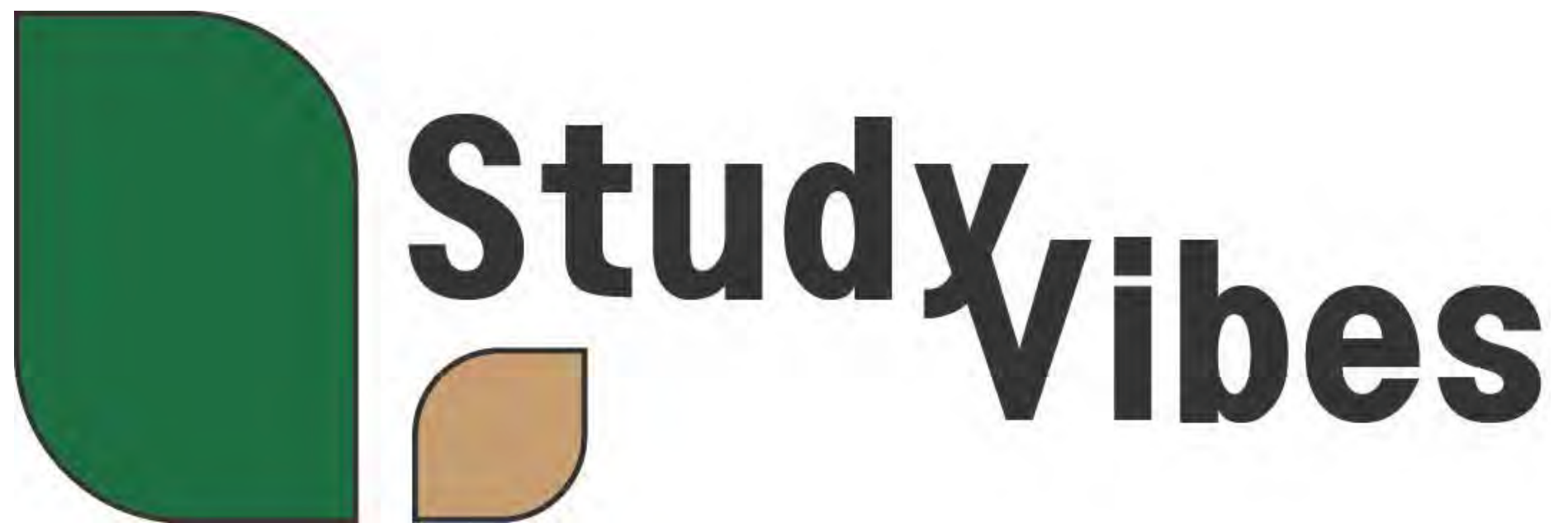


DNB311: Industrial Design Capstone DDR

**Experiences of Tertiary Education for
people with ADHD**

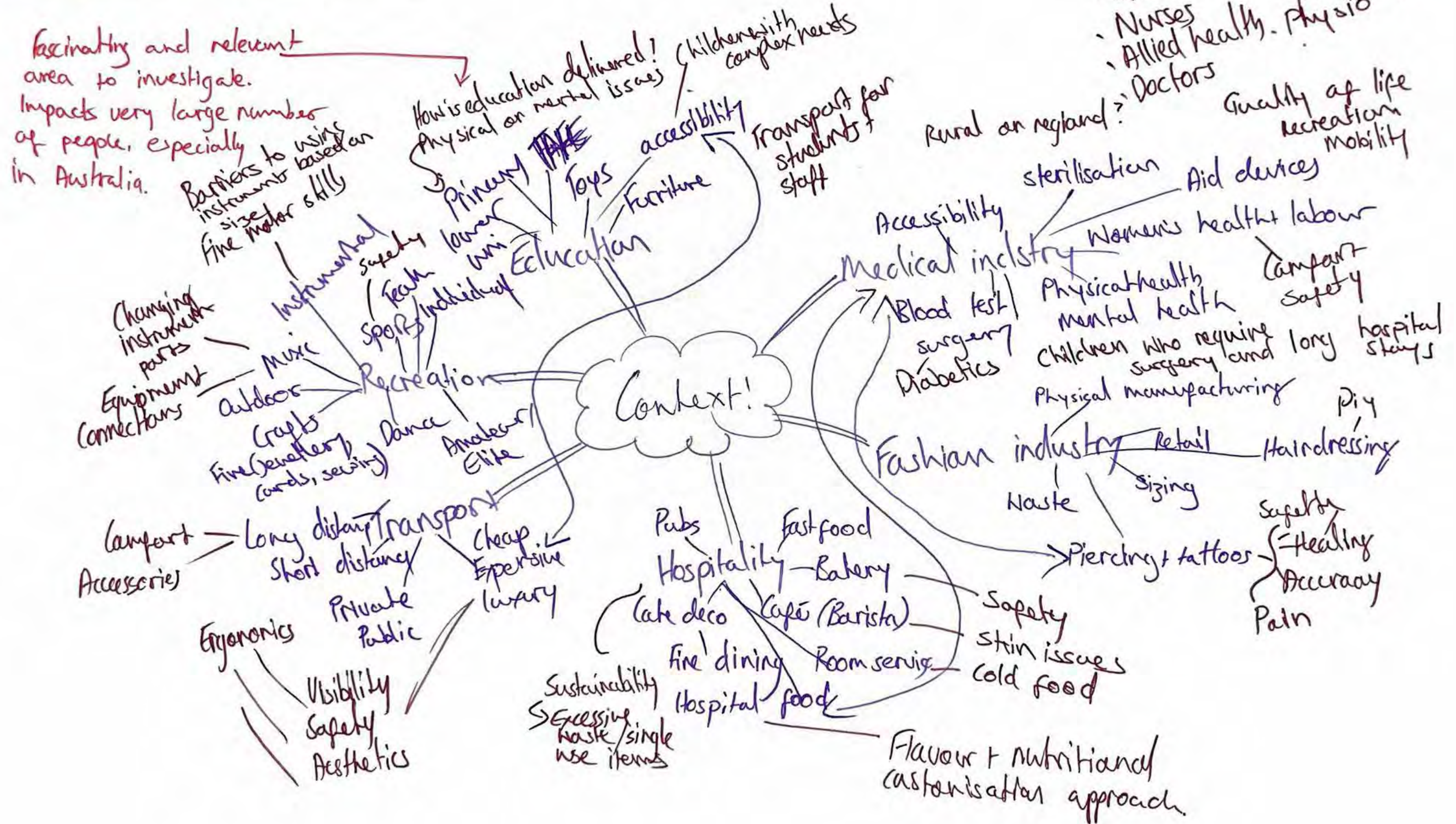


Nadia Shaw

Making Decisions --- Part 2



Making Decisions... CONTEXT



Week 1 | Initial mind-mapping | The who



Potential in Medical Industry

List of conditions

- Cystic fibrosis
- Cancer → what types
- Neuropathy
- Asthma
- Limb mobility issues
- Organ diseases
- Teeth and jaw
- Spinal
- Reproductive
- Skin
- Muscular ailments
- Alzheimer's disease
- Colitis / Chrohn's
- Concussion
- Dysphagia
- Paediatric issues
- Periods
- Vaccinations
- Cramping
- Lipoedema
- Lymphoedema
- Spina bifida
- Fibromyalgia
- MP
- Blindness
- Autism
- Stroke
- UTIs

Physical conditions +
mental health / neurological
conditions.

→ * May be interesting to explore mental health / neurological conditions for this project, because it would be fascinating to look at physical solutions to non-physical or invisible conditions.

Disability support workers

- Physical limitations (lifting people, personal care and dignity)
- * May struggle getting research participants

Women's health

- * PCOS
- Endo
- PMDD
- Ovarian tracking
- Hormonal health
- * Lots of opportunity for innovation, however very broad scope for this projects.

Patients (degenerative conditions)

- Muscle wasting
- Muscle weakening
- Loss of balance and motor skills
- * Needs of patients vary case to case

Patients (mental health)

- Lack of purpose
- Self-harming
- Worthlessness
- Unsafe environments

* Can link this to the 'Neurodiversity' category. Strong link between neurodiversity + adverse mental health.

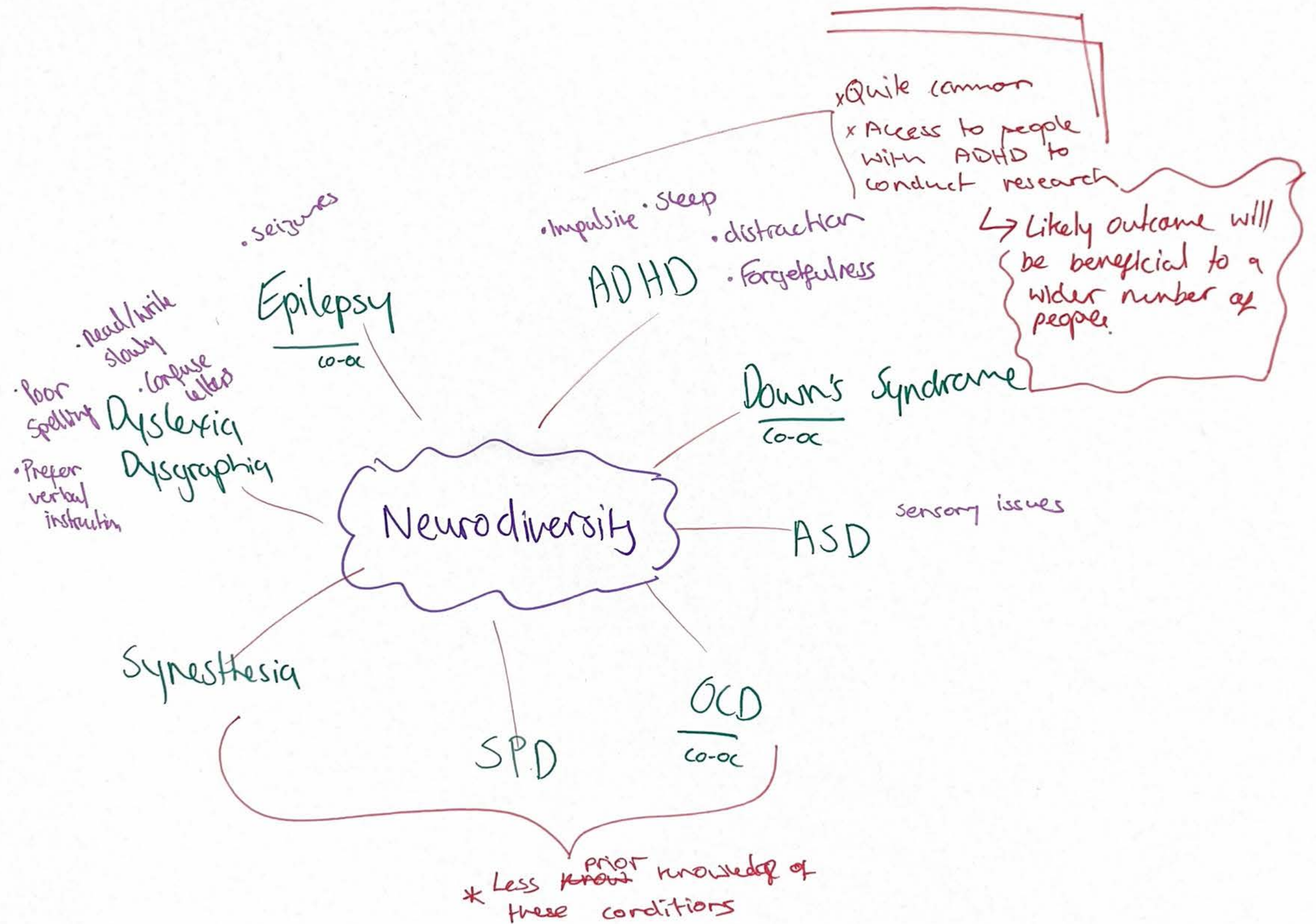
Neurodiversity

- ADHD
- Autism
- Sensory processing disorder
- OCD
- Dyslexia/Dysgraphia

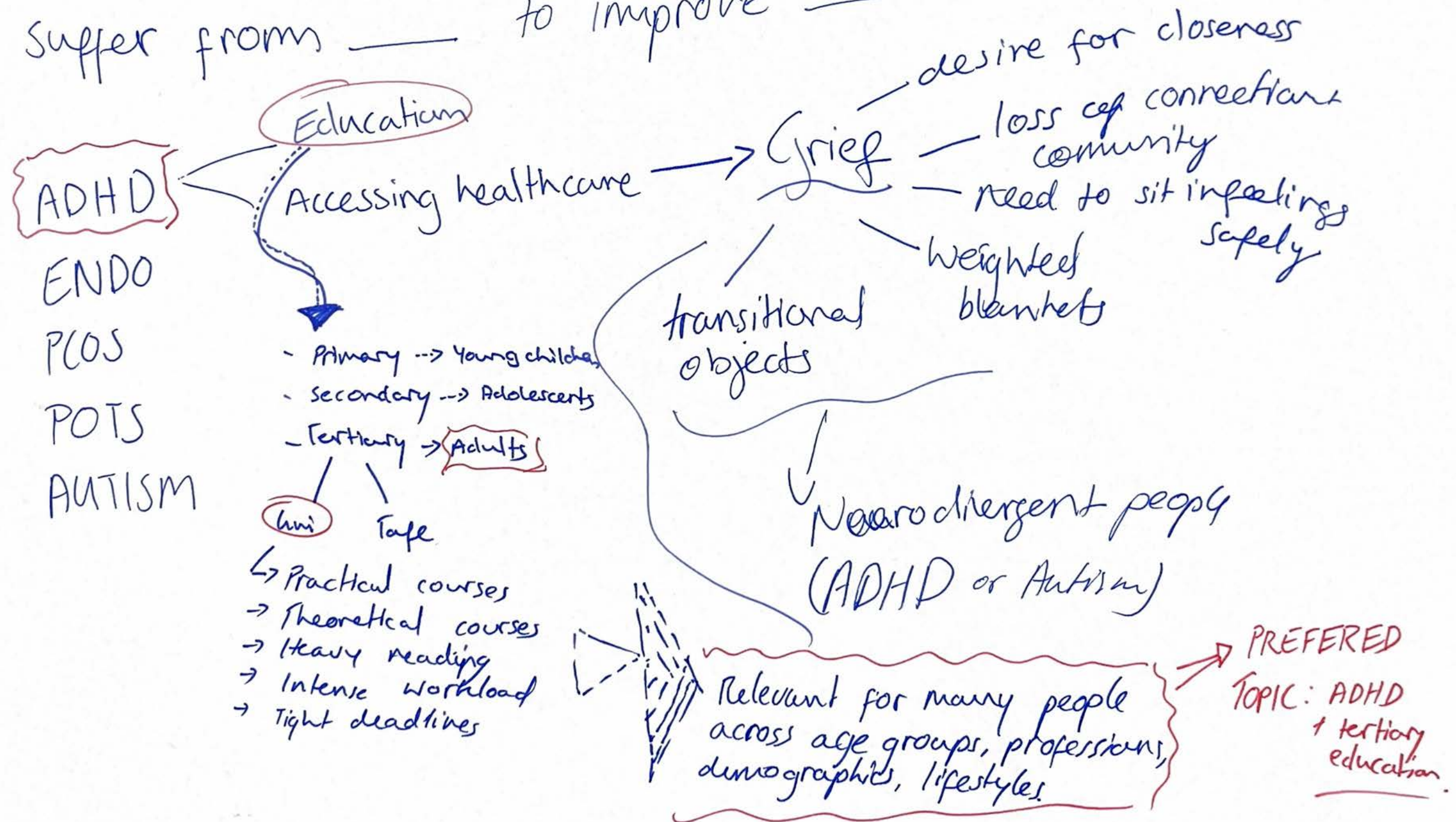
Children's health

- Physical disabilities
- Cognitive disabilities

> This topic impacts people of all ages and demographics.
> Potential for research and opportunity for innovation across multiple contexts



To design a product for people who live with/
suffer from _____ to improve _____.



Project

From topic exploration, and personal interest, I have decided to do this project on the following topic:

"The experiences of tertiary education for people with ADHD"

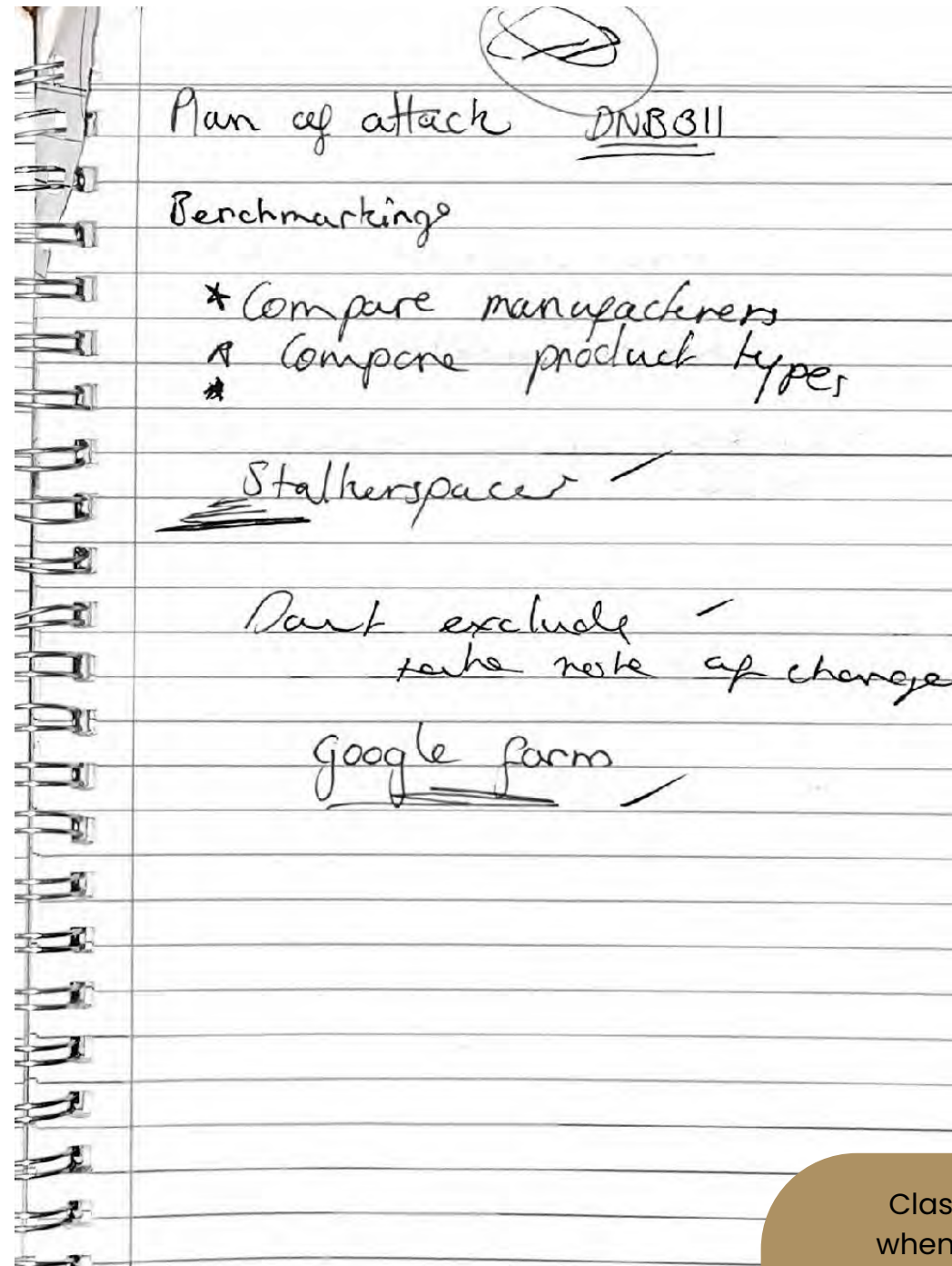
Why?

* Tertiary education (university / TAFE) is required in many industries to succeed

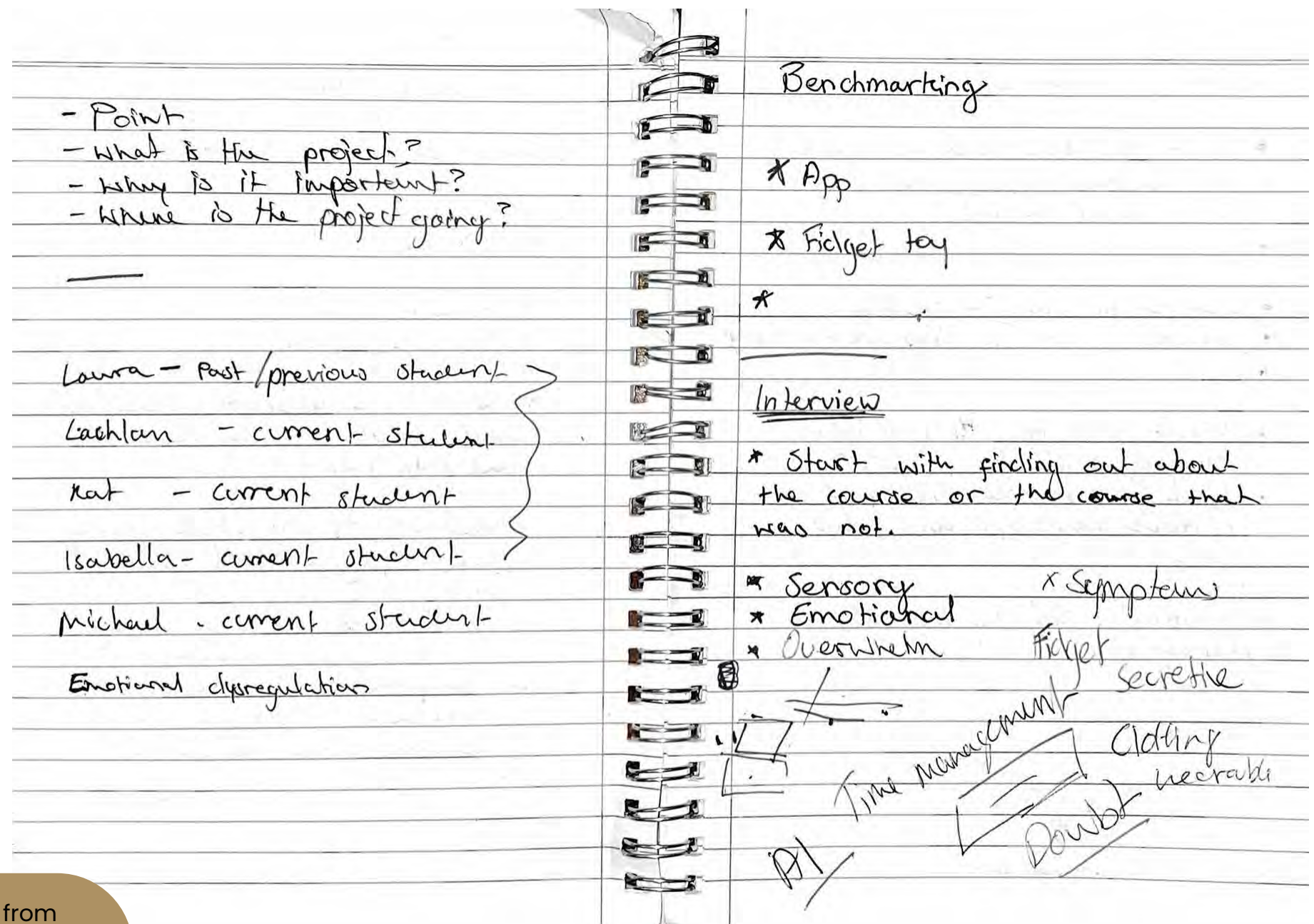
↳ The complexities of ADHD can make completing tertiary education more challenging than it is for neurotypical people.

Therefore

It is anticipated that the design outcome will benefit people with ADHD, helping to improve their experiences of tertiary education. This will be by helping them work with their symptoms of ADHD through physical interventions



Class notes from when the research report was being created.



Limitations adopted

Removing data

12
68

used AI for transcription

Rating

2 No

24 undiagnosed

What does it do?
What do people do with it?
Review?

Reviews

Why are they good?

Reason why I did the interviews

Interviews

Some questions to answer in the research report.

ordinal 17

interval questions

What were the questions + why?

50/68 48/68 73%

cut code subcode

18/68 12 50/53 94%

66-15 53 90%

background - break it up

Discussion - compare + contrast

analyse

inductive → looking for key things from research

deductive → key themes from research.

Change edge range → methodology

Same way coded

Acknowledgement of data

Include survey data in appendix.

Interview transcripts in appendix.

singleta@qut.edu.au

Further notes about the research report, its components and plan of attack.

Week 1 | Initial research

Next step: Find <u>main</u> themes	Benchmarking
Then: Do code the data from the surveys.	↳ Allow 2-3 hours to finalise benchmarking
	↳ 2 hours to finalise section 1
To do Make a list of the codes - how many it does - how many? What do they mean?	Research <i>Find sources to back up why you did something.</i>
→ Stats from survey	* 2 hours to finalise data & make graphs
→ Key findings from interviews	* 2 hours to write about the process the implications etcetera.
↳ What does it all mean?	Discussion Design implications > 2-3 h
	12 hours of work
	Try pomodoro. Try speedrunning it.

Start of initial concept creation following the research report.

A2 page = 594 x 420mm

Idea 1: Box

Idea 2: Haptic mat

Idea 3: Digest reader

Idea 4: Sophisticated pidgets

Idea 5: Foot rocker

Week 4 | Survey builder – Qualtrix

Experiences of Tertiary Education for people with ADHD

ExpertReview scoreGreat

What is your status in relation to tertiary education?

Q1

Which status best describes you?

☐ I am enrolled in a course

☐ I have completed a course

☐ I have previously been enrolled, but withdrew

☐ I have never been enrolled in a course

Q2

Display this question

If Which status best describes you? I have previously been enrolled, but withdrew Is Selected

And Which status best describes you? I have completed a course Is Selected

And Which status best describes you? I am enrolled in a course Is Selected

Using the five star rating system, please indicate your satisfaction with your education experience.

Satisfaction

Display this question

If Which status best describes you? I have never been enrolled in a course Is Selected

You have indicated that you have never enrolled in a course. What is your reasoning?

☐ I do not have the desire to enter tertiary education

☐ I am undecided in choosing a course

☐ I do not feel confident to embark on a tertiary education course

☐ These options do not reflect my experience.

Q2

Display this question

If You have indicated that you have never enrolled in a course, What is your reasoning? These options do not reflect my experience. Is Selected

If you selected 'these options do not reflect my experience', could you please elaborate on your reason for not entering tertiary education.

Import from library

Add new question

Q9

Thank you for indicating your overall satisfaction with your education experience. Could you please elaborate on your experience?

Q10

Display this question

If Which status best describes you? I have previously been enrolled, but withdrew Is Selected

You have indicated that you have withdrawn from a course. Have any of the following reasons influenced your decision?

☐ Lack of interest in the course content

☐ Difficulty with engaging in course content

☐ Difficulty with maintaining focus in the course

☐ Overwhelm

☐ Intense feelings of inadequacy

☐ Insufficient support from educators

☐ Other

ADHD Diagnosis

Q4

Do you have a formal ADHD diagnosis?

☐ Yes

☐ No

☐ No, however I suspect that I do have undiagnosed ADHD

Q11

Display this question

If Do you have a formal ADHD diagnosis? Yes Is Selected

Do you currently take medication to aid your ADHD symptoms?

☐ Yes

☐ No

☐ Occasionally

These questions were posed to respondents because they provided me with answers about who my target user is, what their main struggles are, and how they currently manage their ADHD in regards to tertiary education.

Week 4 | Survey builder – Qualtrix

Q5

In what ways do you believe that your ADHD symptoms have impacted your relationship with tertiary education?

Q13

You indicated that you believe you have undiagnosed ADHD. Could you please indicate the symptoms that you believe that you display, which may disrupt your experience in the context of education.

☐ Emotional dysregulation

☐ Organisational challenges

☐ Time management

☐ Need for physical movement

☐ Overthinking

☐ Irritability

☐ Click to write Choice 8

Import from library

Add new question

Sensory experiences

Q13

For people with ADHD or other neurodevelopmental conditions such as autism, sensory experiences can be heightened. Do you believe that your sensory experience is more intense than other people's?

☐ Yes

☐ No

☐ Unsure

Q14

Which of the common senses do you believe you are most sensitive to?

☐ Sound

☐ Touch

☐ Smell

☐ Taste

☐ Sight

Display this question

If Do you have a formal ADHD diagnosis? Yes Is Selected

Below is a list of common ADHD symptoms. Please select all which apply to you.

☐ Emotional dysregulation

☐ Impulsivity

☐ Disorganisation

☐ Poor time management

☐ Trouble staying focussed

☐ Hyperactivity

☐ Need to move and exert physical activity

☐ Challenges with committing to tasks

☐ Procrastination

Q12

Self-medicating is a common occurrence for people with ADHD, especially undiagnosed ADHD. Please indicate you have partaken in the following activities, particularly in relation to completing tertiary education.

☐ Consumed alcohol

☐ Smoked tobacco

☐ Smoked marijuana

☐ Used food for emotional regulation

☐ Consumed illicit drugs

☒ None of the above

Have you experienced challenges in tertiary education?

Import from libraryAdd new question

End of Survey

We thank you for your time spent taking this survey.

Publish and activate survey

Publishing will activate your survey so that it can be seen by respondents.

Description

Add a description for your version history

User-published version

ExpertReview

Survey strength: Fair

Recommendations: 4

View recommendations

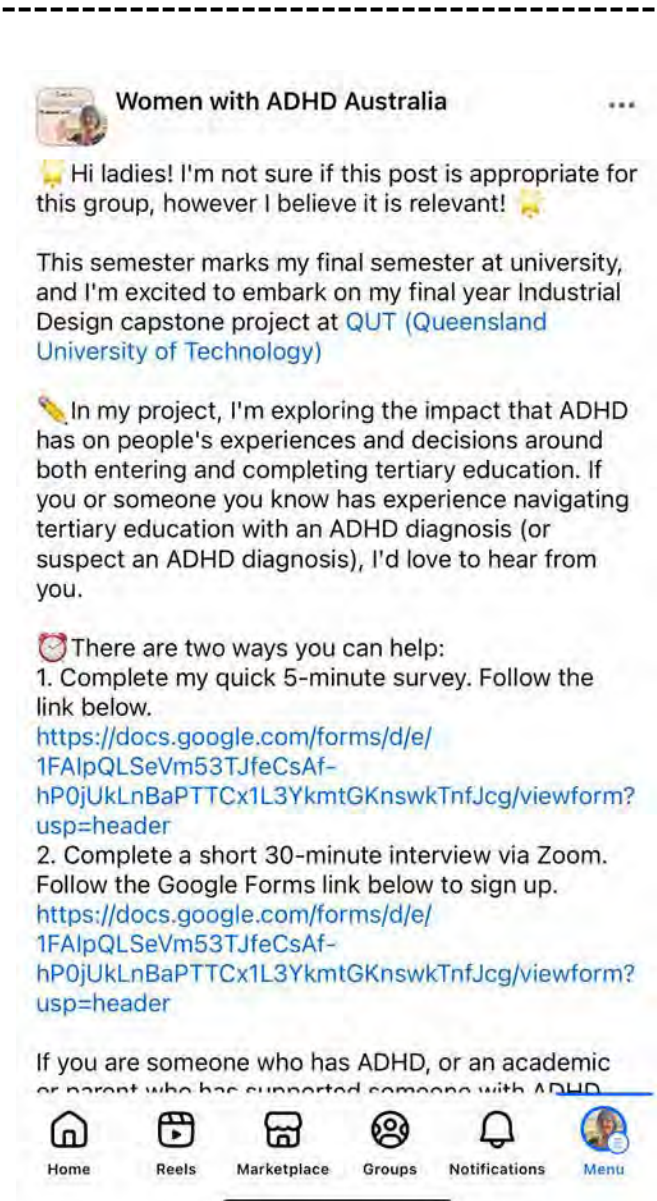
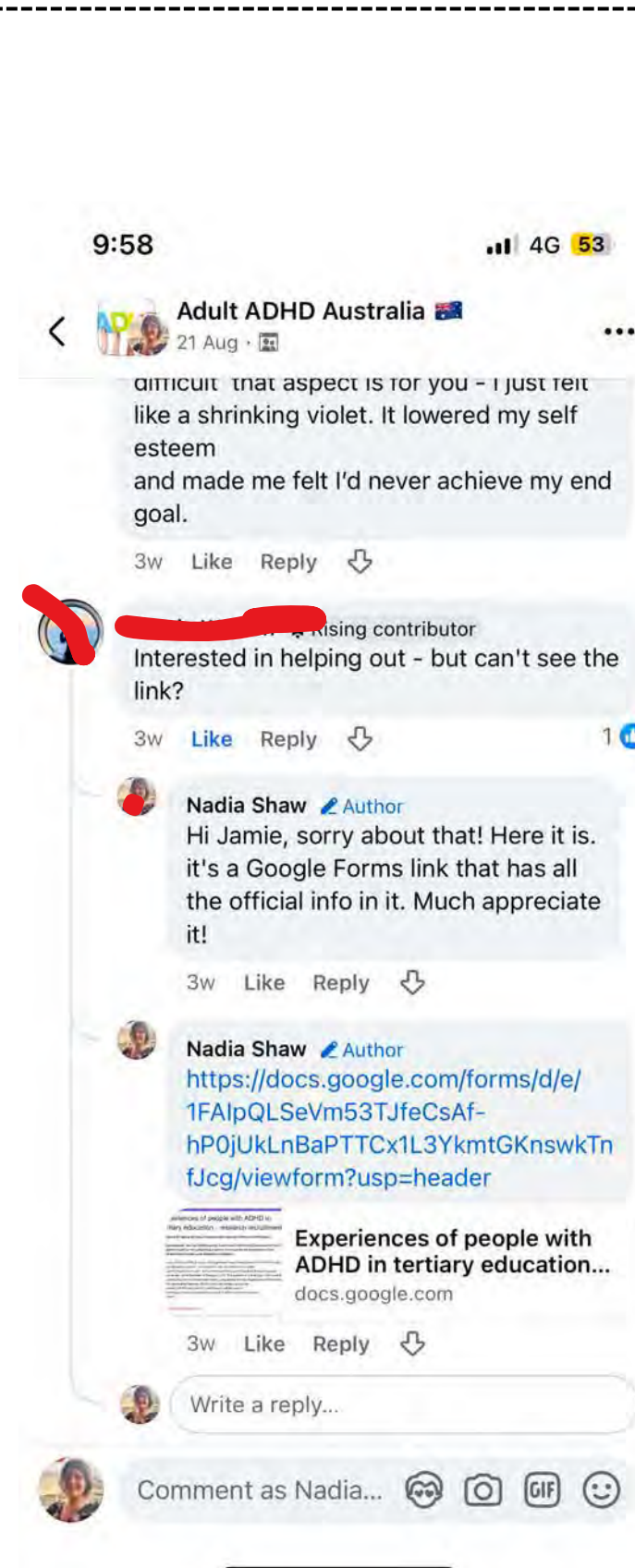
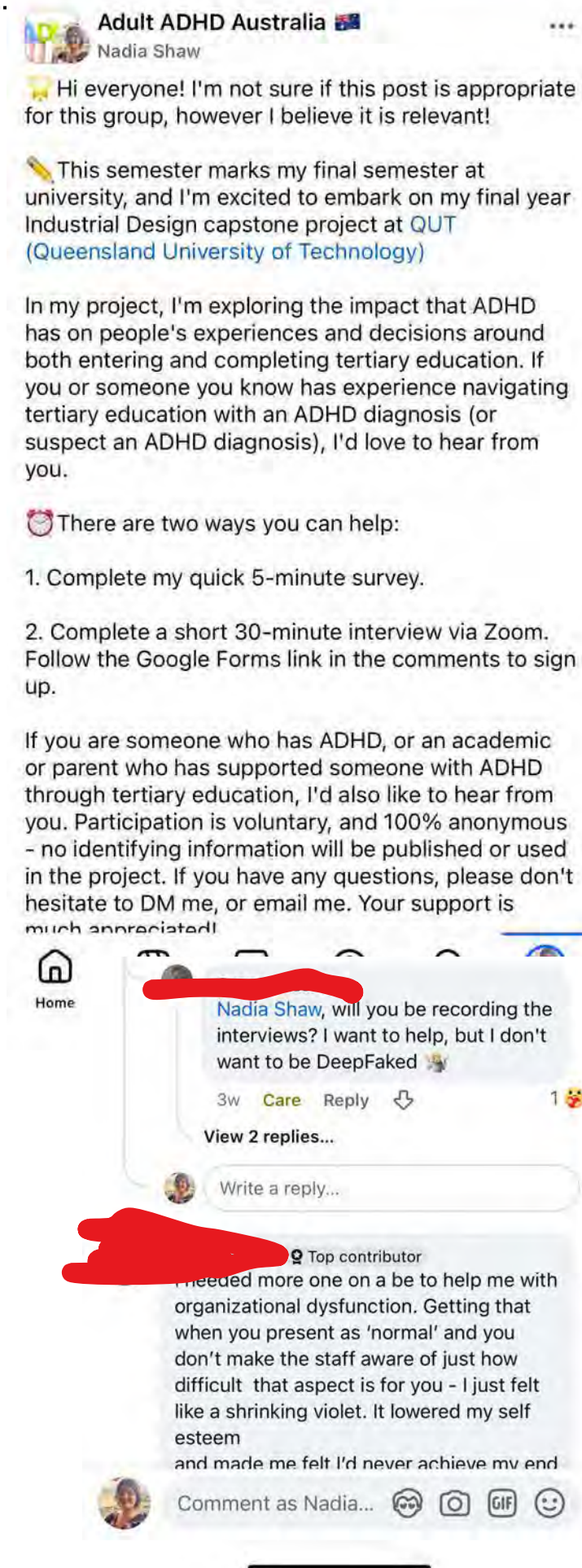
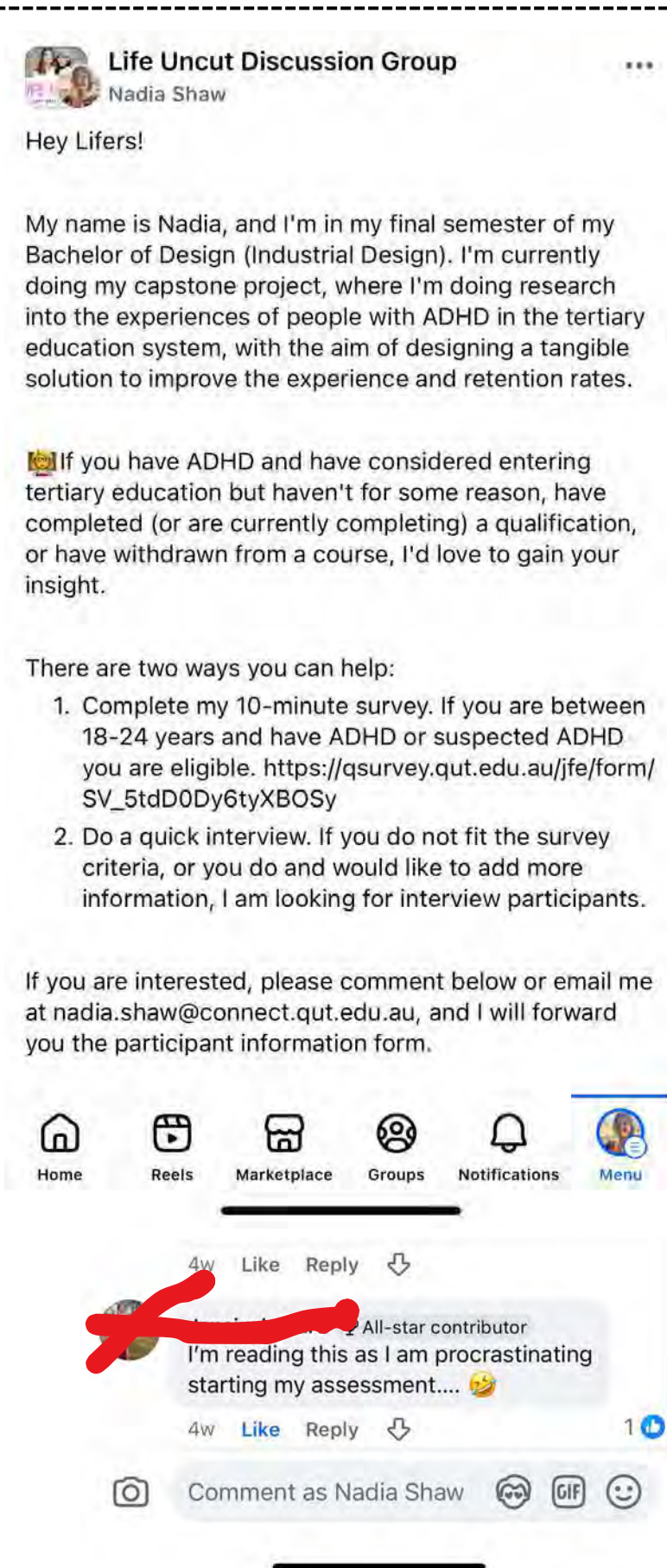
Cancel

Publish

Reminders

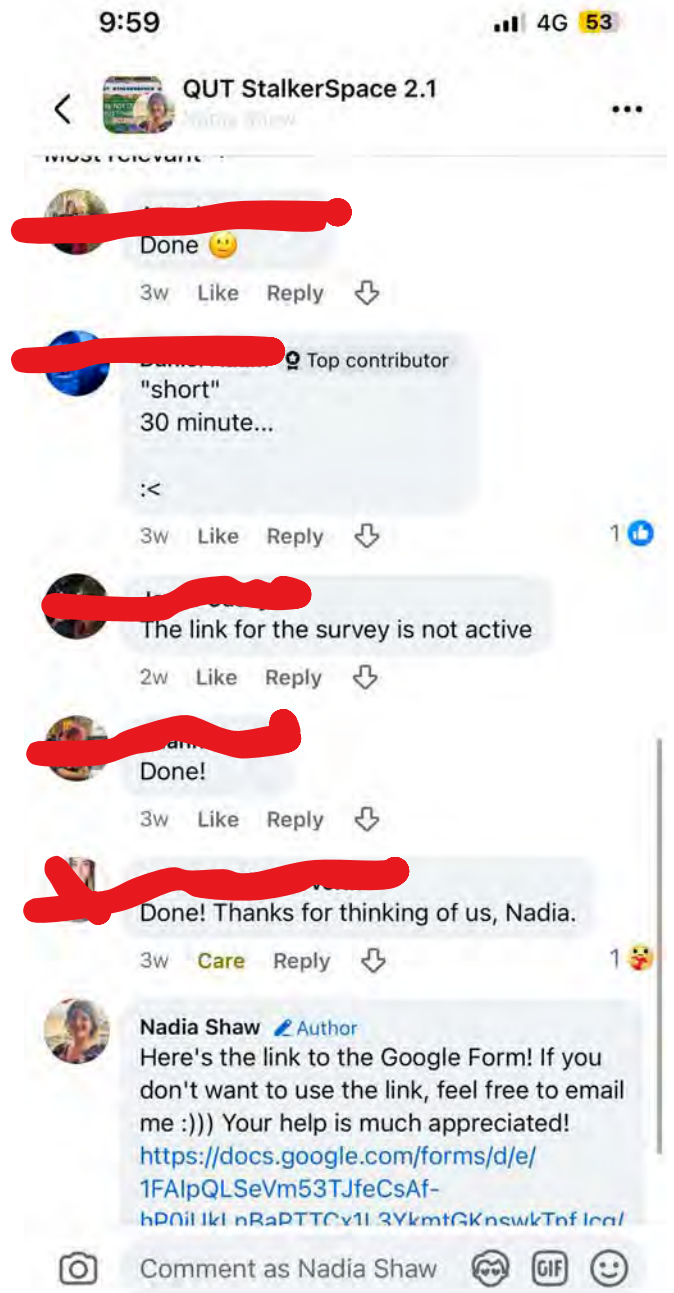
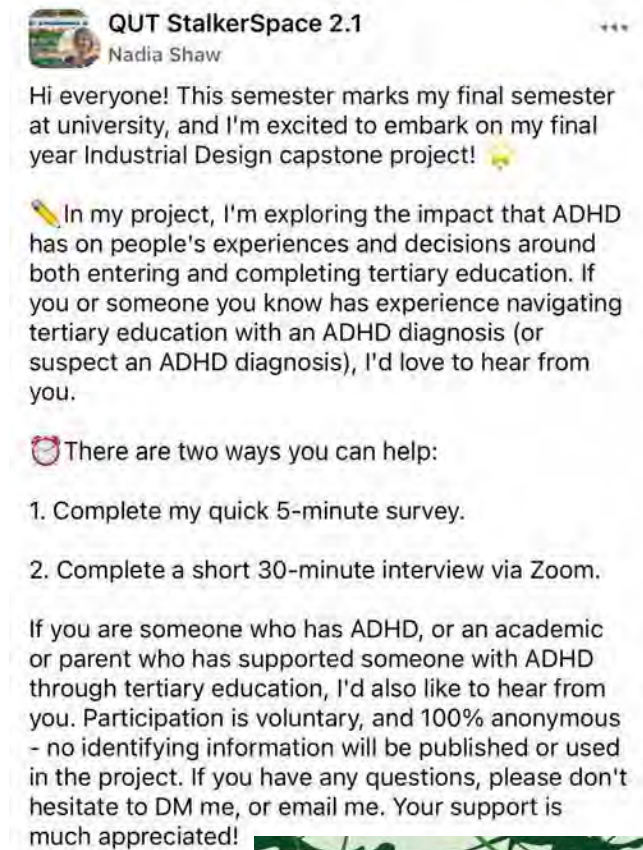
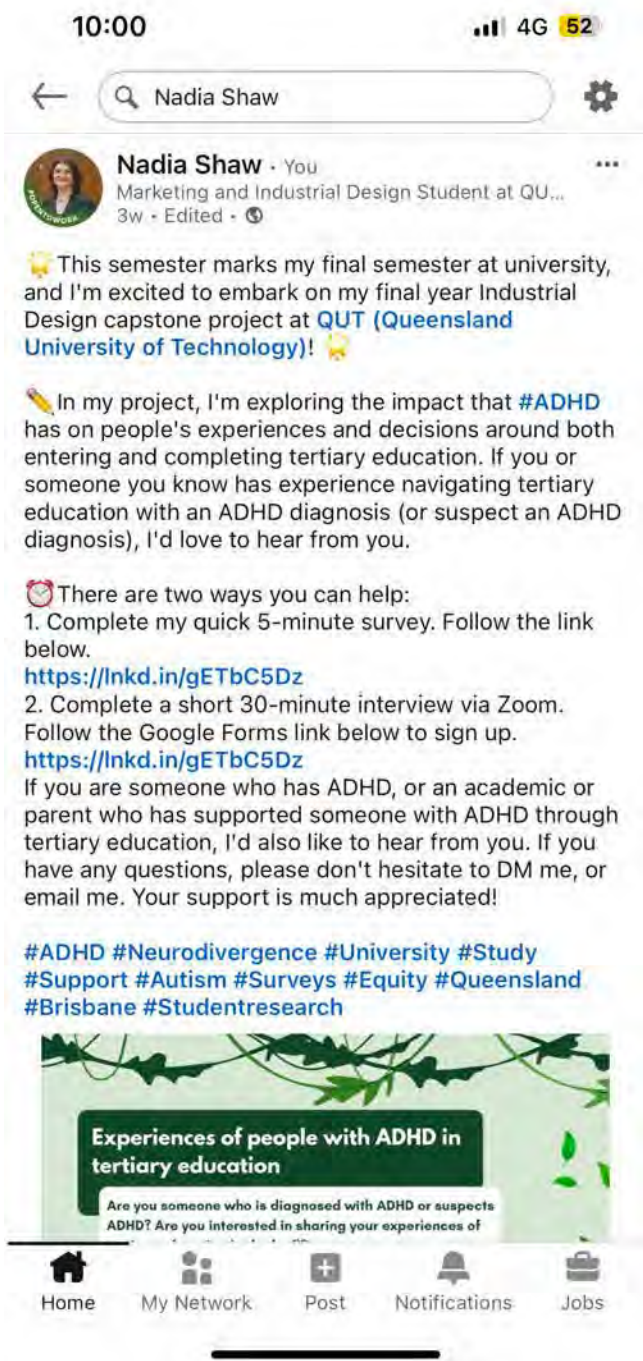
Further questions from the survey.

Week 4| Survey recruitment – Facebook



This is how the survey was deployed on social media during Wk4 and Wk5.

Week 4| Survey deployment - LinkedIn and QUT StalkerSpace



There was significant engagement on both LinkedIn and Facebook for the survey.

Week 5| Google Forms link to survey and interview EOI + Qualtrix Survey Flow

Questions Responses 9 Settings

Section 1 of 11

Experiences of people with ADHD in tertiary education - research recruitment

B I U

Thank you for taking the time to consider participation in this research project.

Are you someone who has ADHD, and has experience in the tertiary education? If you have completed a course, are completing a course, have considered enrolment or have withdrawn from a course, your experience is helpful.

If you do not have ADHD, but you have experience supporting people with ADHD through the tertiary education system, your insight is also valuable to this project.

My name is Nadia Shaw, and I am currently completing my Industrial Design capstone project as part of my Bachelor of Design at QUT. The purpose of this project is to investigate the complexities of the relationship which young adults who are diagnosed with Attention Deficit Hyperactive Disorder (ADHD) have with tertiary education.

It is hoped that the outcomes of this research will be used to bridge the gap that exists between people with ADHD and formal tertiary education.

Would you consider participating in either a 5-minute survey, or a short 30-minute interview via Zoom?

☐ Yes

☐ No

This is the form that people would link through to in order to give their consent and express interest for completing the semi-structured interview.

XM Experience of tertiary education for people with ...

Survey Data Te Starred Weighting

Data Table Shared with me

Last Record Collected: 26/08/2025 15:38 AEST Inactive Response Quality 100% Recorded responses (105) Field Editor

1 of 3 50

Export & Import Tools Column chooser

Q23 - What is your age? Q24 - Please indicate your gender identity. Q1 - Which status best describes you?

Survey flow Published

→ Show Block: Block 5 (2 Questions) Toggle Questions Add Below Move Duplicate Delete

→ Show Block: Demographics (2 Questions) Toggle Questions Add Below Move Duplicate Delete

→ Show Block: What is your status in relation to tertiary education? (6 Questions) Toggle Questions Add Below Move Duplicate Delete

→ Show Block: The following questions directly relate to your experience with ADHD Diagnosis (6 Questions) Toggle Questions Add Below Move Duplicate Delete

→ Show Block: Sensory experiences (3 Questions) Toggle Questions Add Below Move Duplicate Delete

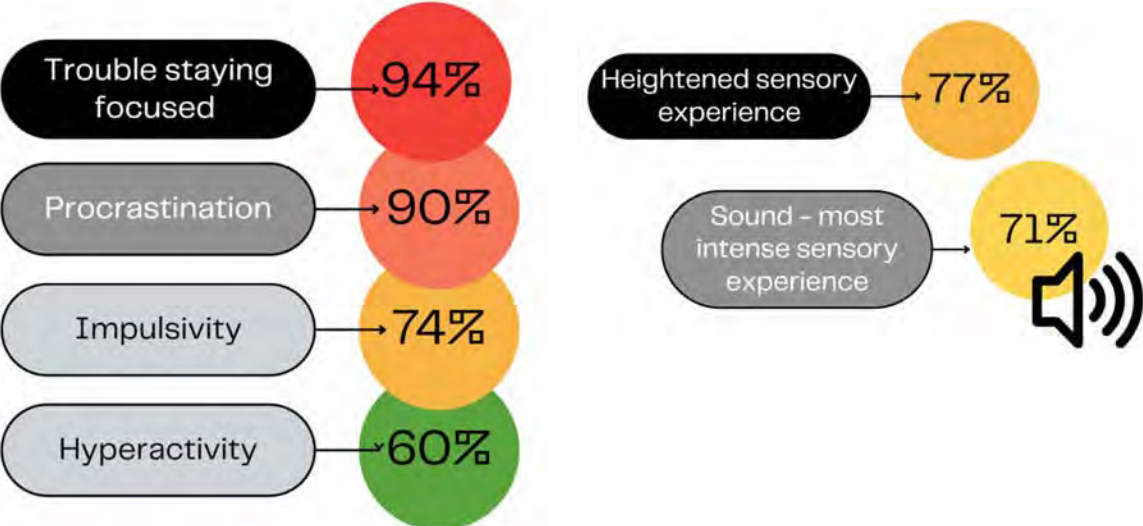
→ Show Block: Design development (7 Questions) Toggle Questions Add Below Move Duplicate Delete

+ Add a New Element Here

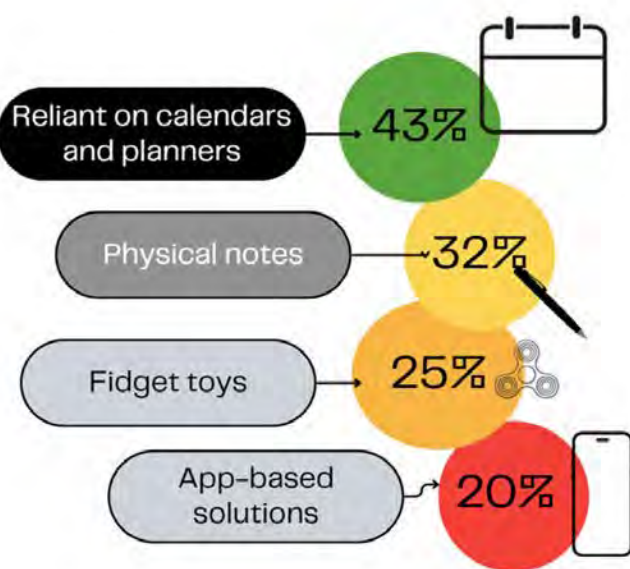
Week 6 | Key findings | research report

78 people responded to the survey

Of the survey participants with ADHD or suspected ADHD, they report that:



Ways that survey participants currently try to manage their ADHD symptoms:

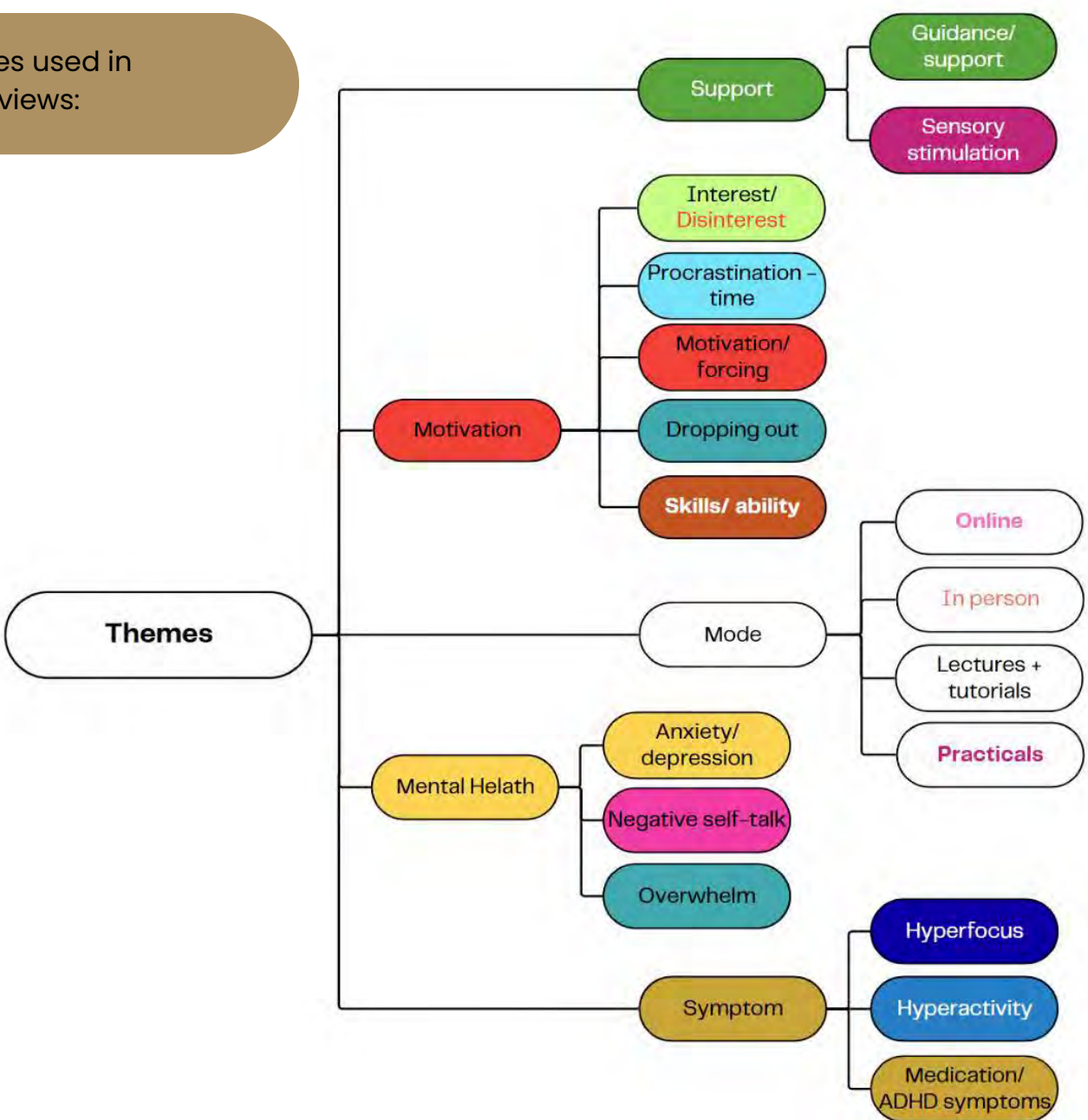


Five semi-structured interviews were conducted via Zoom

The information from the interviews was very similar, with people reporting that the main struggles were:

- lack of executive function
- poor time management
- time blindness
- heightened sensory experiences
- high distractibility
- low self-efficacy
- emotional eating

Codes used in interviews:



Key Considerations

Design Implications

- * Product should work towards improving executive functions
- * Product should consider the challenges people have with ADHD around time management
- * Products should consider sensory needs
- * Incorporate novelty into the design

If this is achieved, it is anticipated that the aim of improving the experience of tertiary education for people with ADHD will be met.

These are the most critical considerations, as they consistently appeared in both primary and secondary research as being the greatest barriers for success for the target audience.

User



Background

Short bio:

Rosie is a third year business student who has ADHD. She struggles to do her assignments on time, and stay focused during her studies.

Lifestyle and values:

- Hard work and good grades
- High standard of work
- Having time to do her hobbies

Audience Insights

Goals:

- Short-term goals:
 - Graduate university
 - Get a good job
- Long-term goals:
 - Be successful in her career
 - Become wealthy
- Key drivers and priorities:
 - Financial success
 -

Barriers:

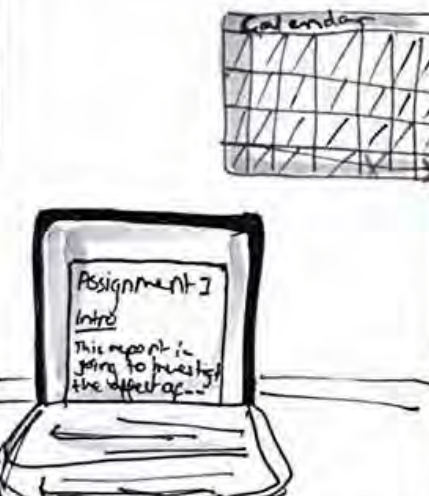
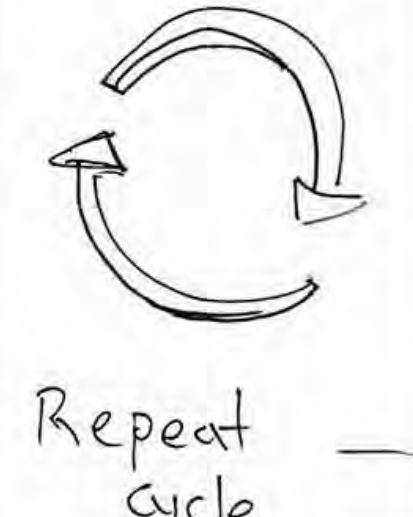
- Practical challenges:
 - Symptoms of ADHD including poor time management, hyperactivity, procrastination
 - Lost learning time due to ADHD
- Emotional frustrations:
 - Emotional dysregulation caused by ADHD and procrastination
- Obstacles to success:
 - Deadlines
 - Lack of internal motivation

Name: Rosie

Age: 20

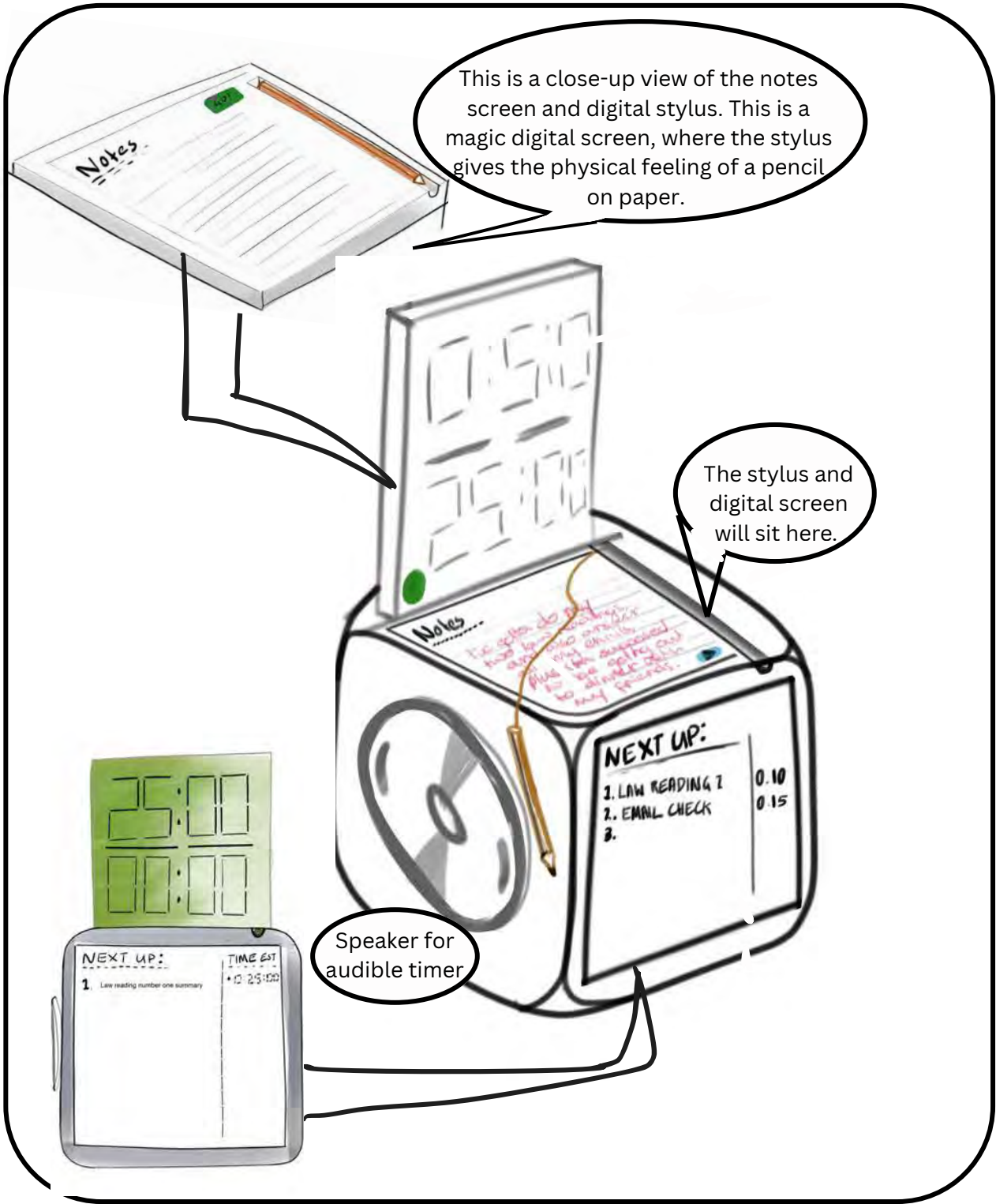
Occupation: Business student

Week 8 | User storyboard | person with ADHD struggling to manage assignment deadlines

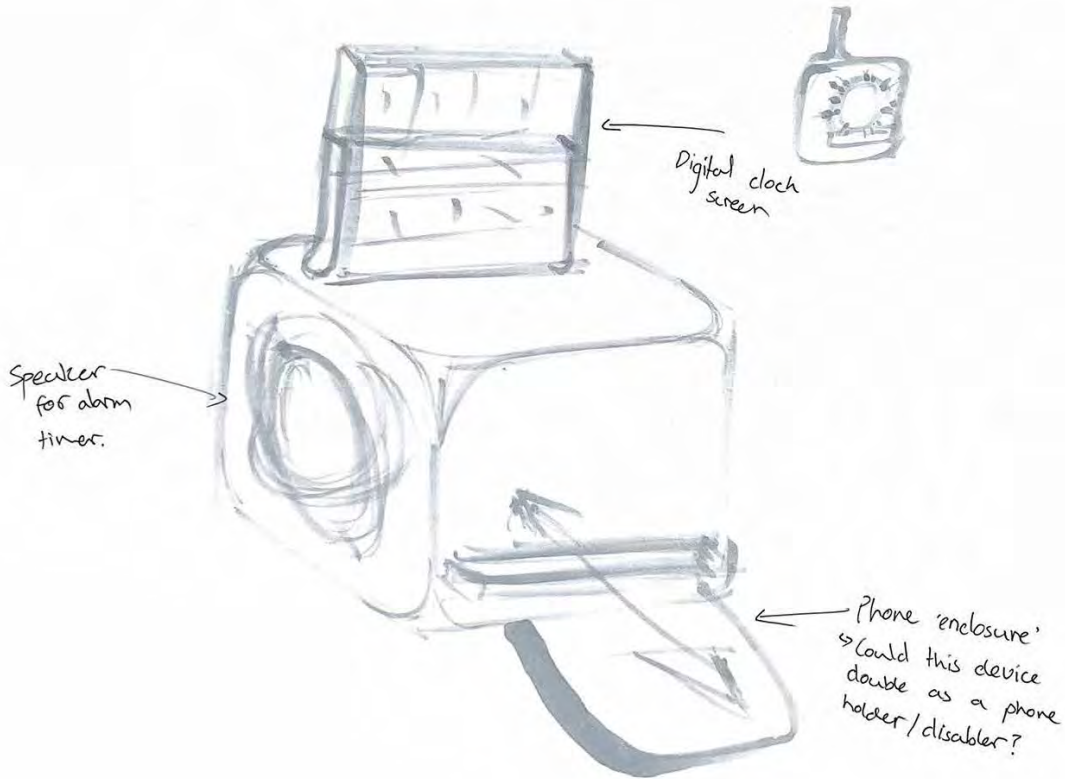
 mon 3pm	 mon 3:30pm	 mon 7pm	 mon 10pm	 Tue 10am	 Tue 11am
She receives assignment, and intends to start immediately. She knows it is due in 4 weeks, and does not want to put it off.	While at her desk, she begins to get distracted, and loses focus on task. She disengages.	Over time, she fails to focus on the assignment. Negative self-talk begins to set in. This sets her back further.	After an unsuccessful evening, she turns to comfort eating to remedy her poor-self-image.	The next day, she turns to using her phone alarm to attempt the Pomodoro study technique. She ignores the alarms.	Despite her attempt to stay focused, present, and on track, she struggles to maintain a strong focus on the task at hand.
 2 days till due	 2 days till due		 Time's out!		 Repeat cycle
Four weeks later, the assignment is nearly due and the panic has set in.	Still struggling to direct her thoughts towards her assignment, she begins to exhibit anger and melt down.	Finally, she relies on adrenaline, watching the clock as she struggles to get her assignment over the line.	Her assignment is submitted, at 11:59pm.	Now finished, she crashes the next day, unable to function for a few days while her body recovers.	The cycle is repeated, time and time again in many aspects of life.

Week 8| Initial concepts + evaluation

To decide on a design direction, each initial concept was evaluated using a PMI framework.

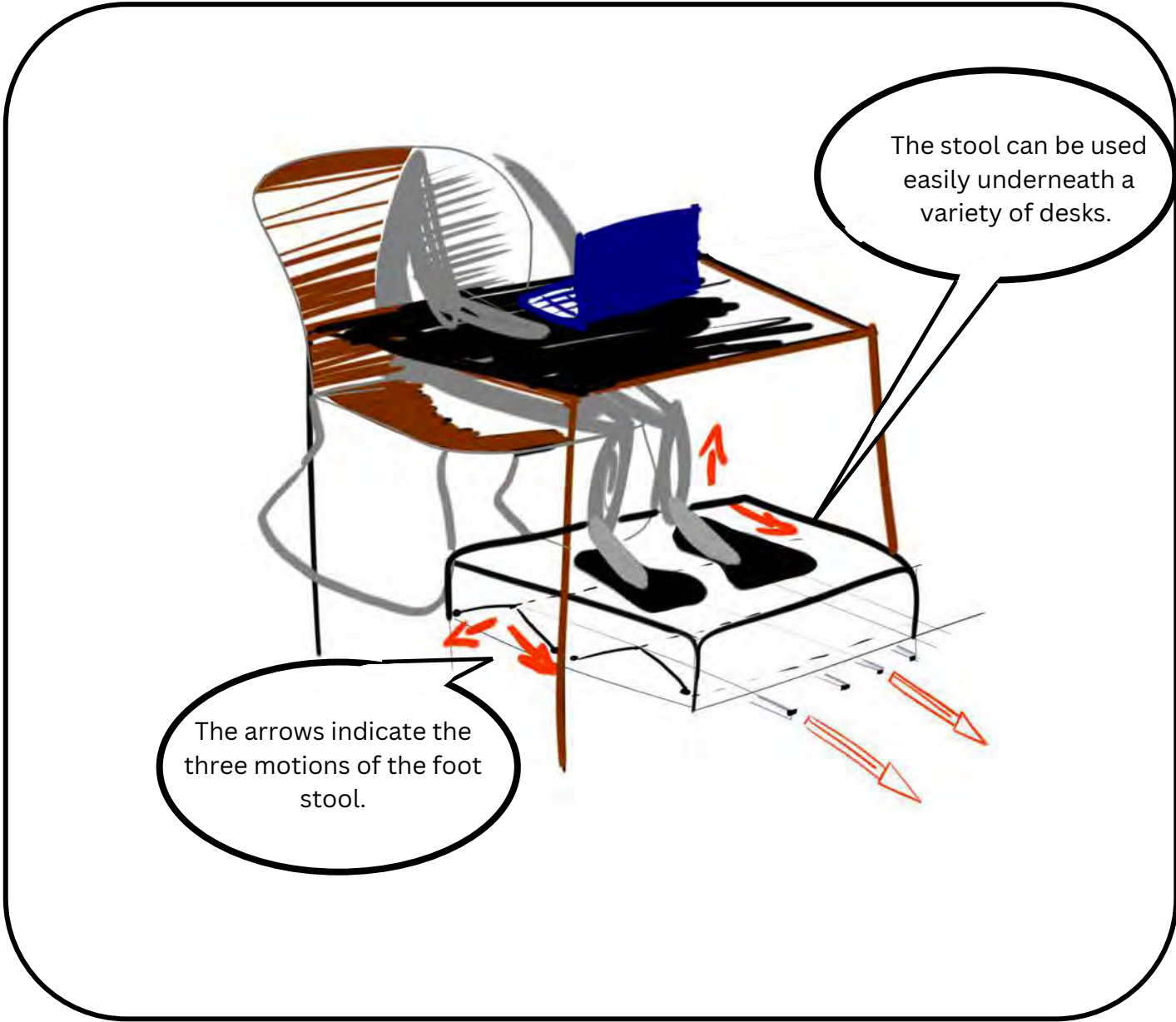


Positive	Minus	Interesting
- Provides users with strategy to record notes and thoughts - Timer could be helpful for users to keep track of the time they've spent on tasks and stay on track	- Concept has many elements, which could complicate the user experience, especially for people with ADHD - The notes summary screen 'Next up' could provide an inaccurate summary, making the feature unreliable	- The inclusion of the physical note-taking/ making feature is interesting as physical interaction is highly effective for people with ADHD - The integration of sound, touch, and sight into one device could be beneficial for users, because it appeals to a number of sensory needs whilst targeting executive function

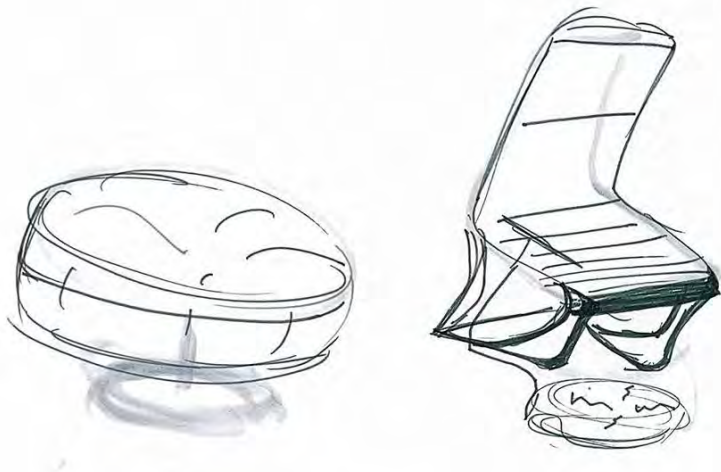


Week 8 | Initial concepts + evaluation

To decide on a design direction, each initial concept was evaluated using a PMI framework.

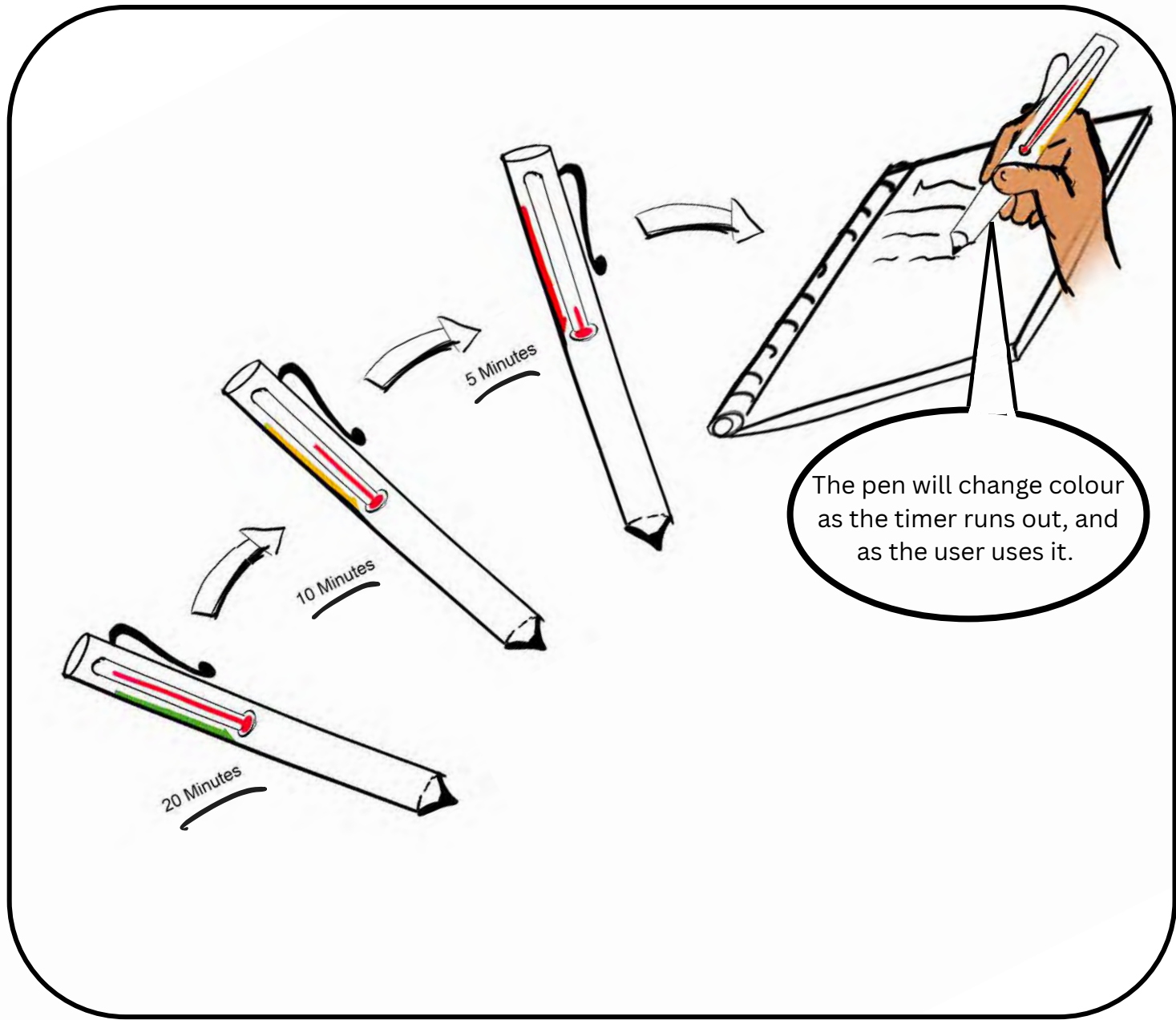


Positive	Minus	Interesting
• Not visible, therefore won't add as a distraction for users • Can sit under any desk	• Difficult to transport • May create a lot of mechanical noise • Could be difficult for taller users, as will decrease space between desk and floor	• The concept has already been invented, however the customisability of this version is innovative. If this was affordable and accessible, it could be highly beneficial for people with ADHD to help satisfy their hyperactivity during desk work.



Week 8| Initial concepts + evaluation

To decide on a design direction, each initial concept was evaluated using a PMI framework.



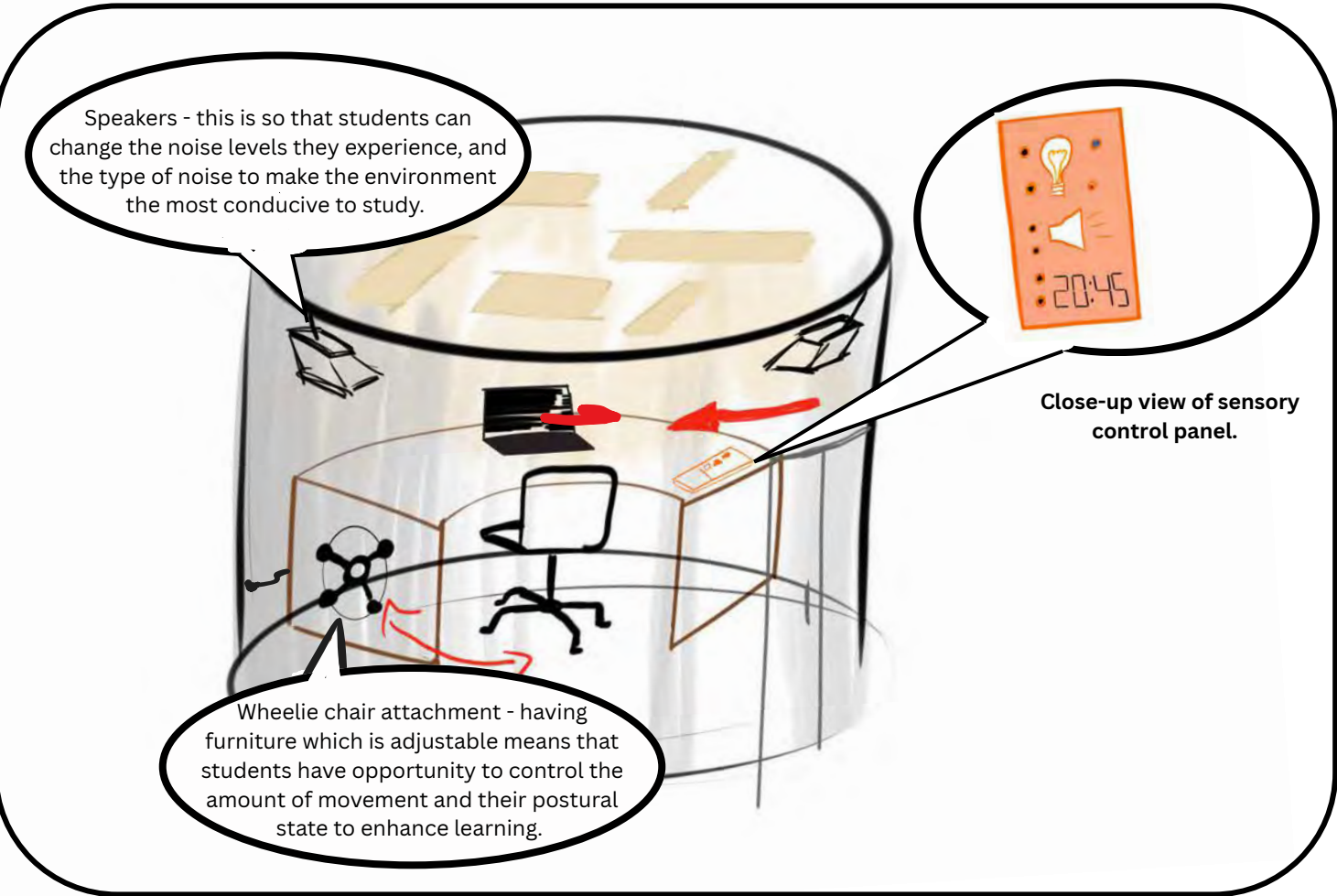
Positive	Minus	Interesting
• Novel concept • Easy and portable	• Many people do not use physical pen and paper, and this is not possible for many courses, as a lot of computer work is required. • Could be seen as negative motivation	• Having the timer element inside a pen is interesting as it is a visual reminder of the time as one is working.



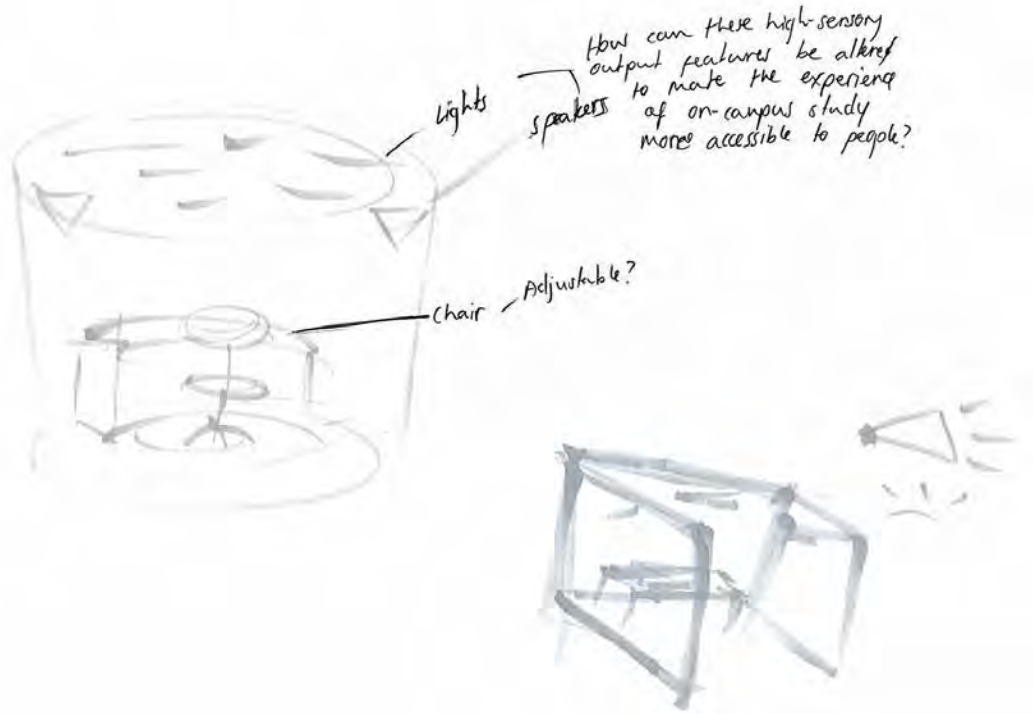
Very early initial sketch of ideation 4. The pen is the main element of this sketch which will be carried through to the concept.

Week 9 | Initial concepts + evaluation

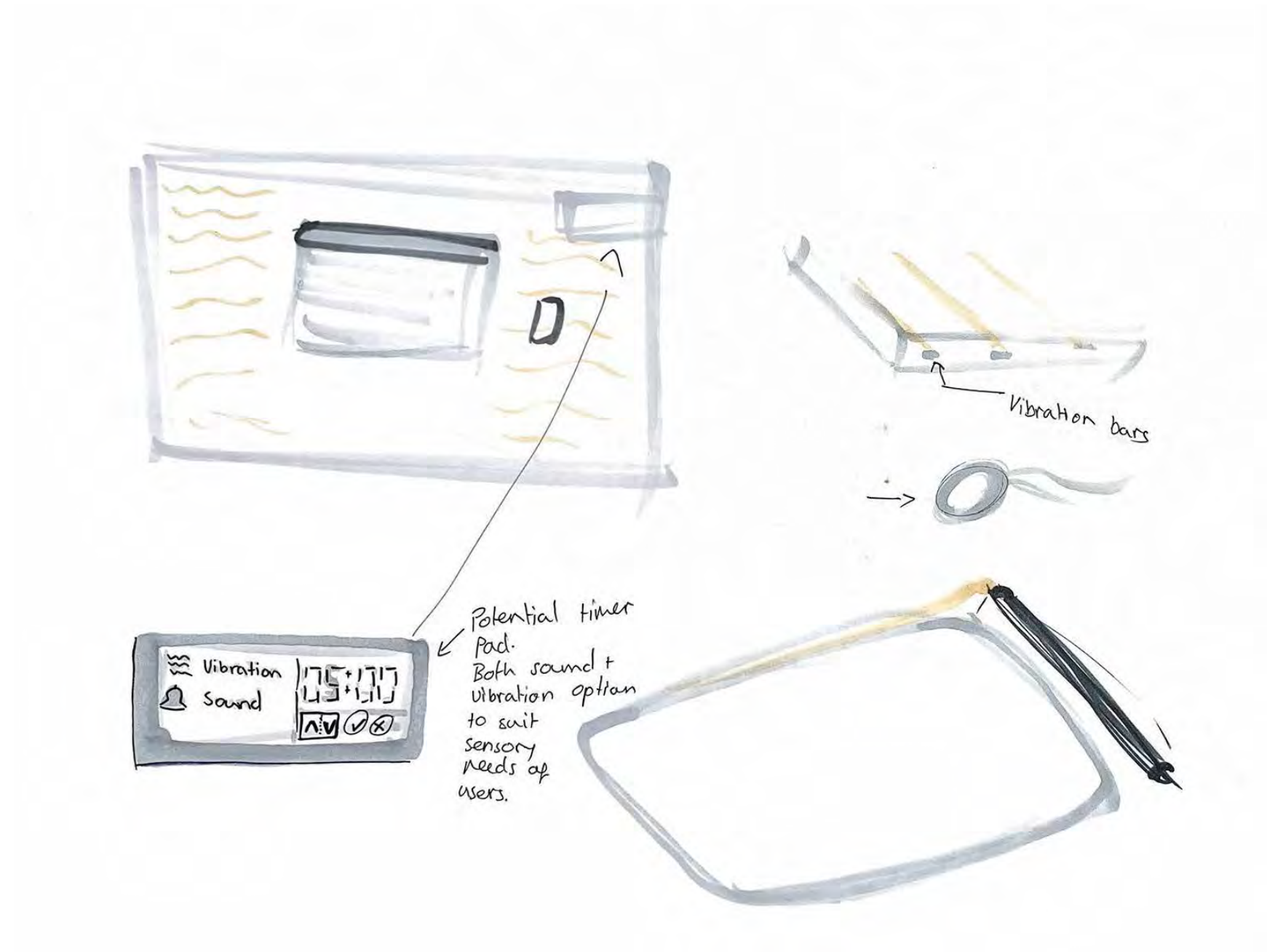
To decide on a design direction, each initial concept was evaluated using a PMI framework.



Positive	Minus	Interesting
• Would make communal study environments more accessible for people with ADHD • sensory friendly • Customisable	• Very expensive • Organisational change required, as it impacts university campus facilities • Large scale	• Would be interesting to see how well a totally controllable sensory environment improves the learning experience for people with ADHD and other neurodiversities.



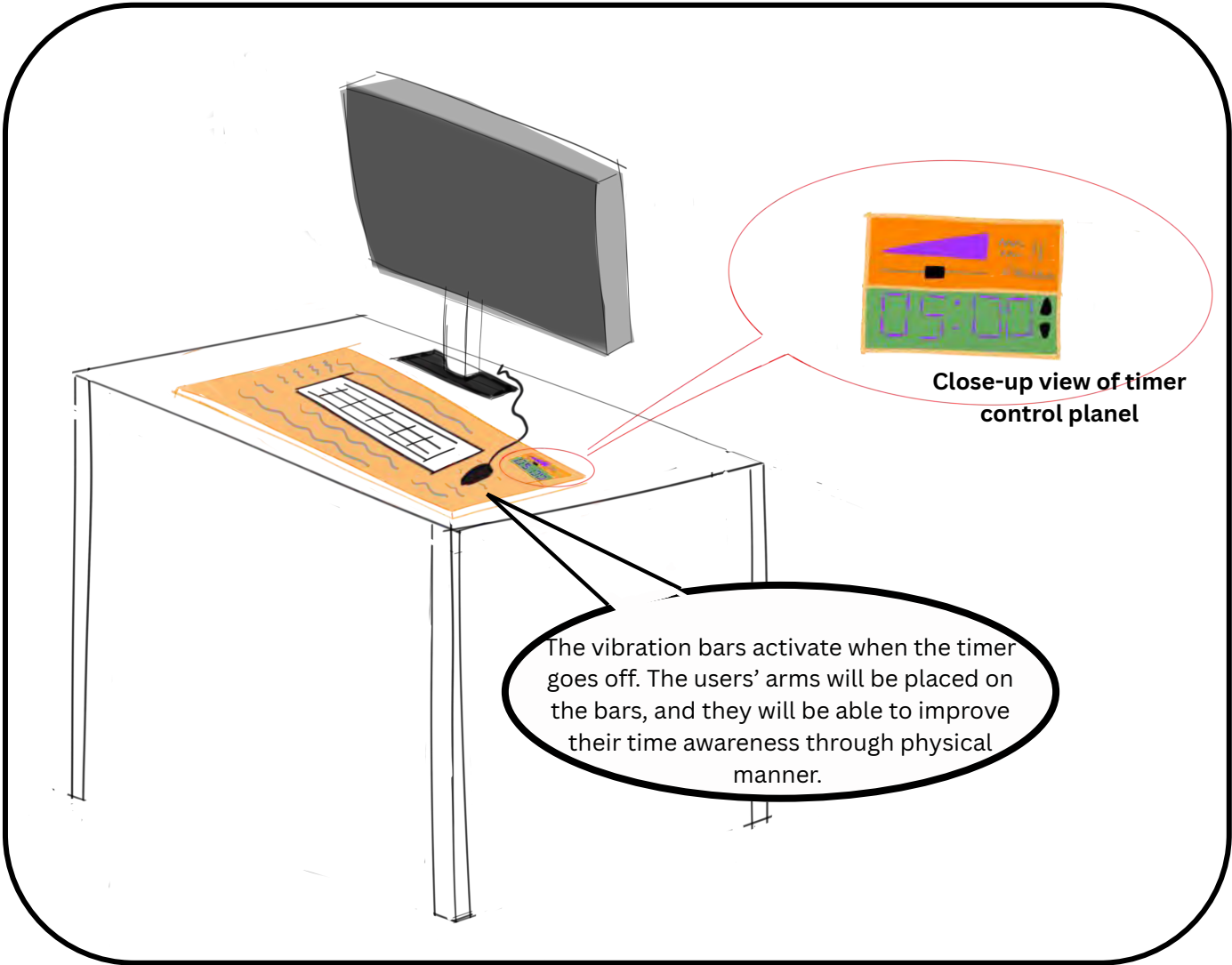
Early sketch of the study environment



Early ideation of vibrating desk mat. This sketch was further developed for the concept presentation.

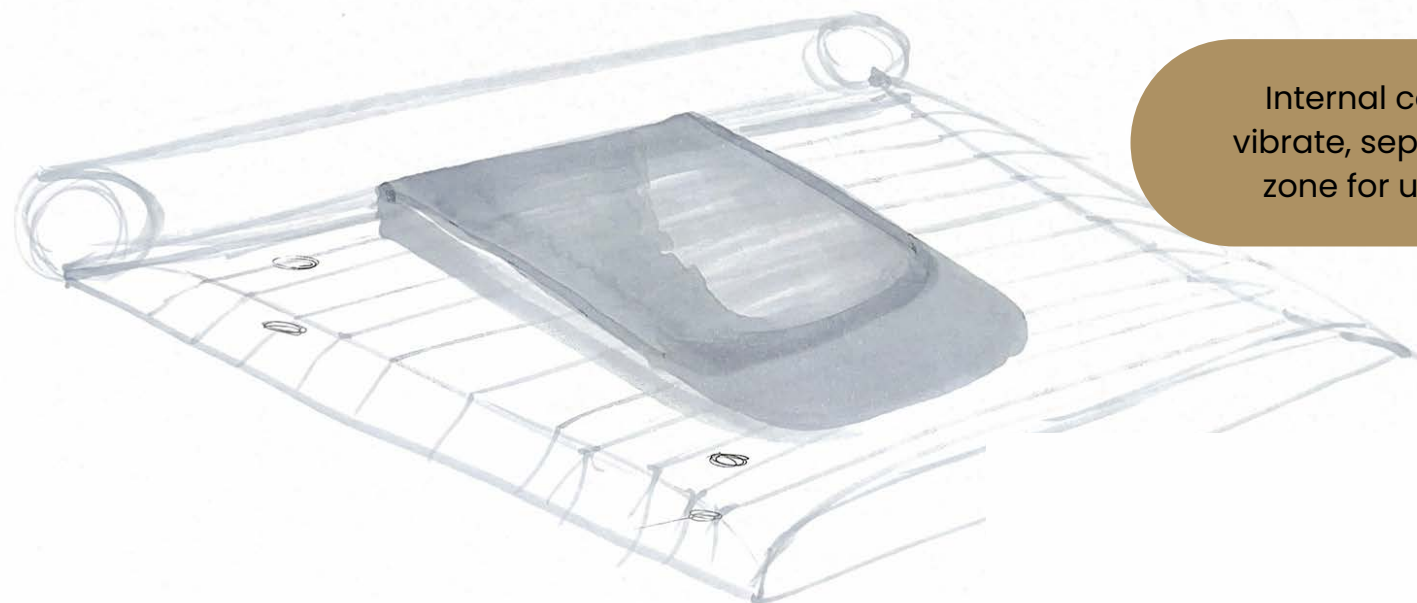
Week 8 | Initial concepts + evaluation

To decide on a design direction, each initial concept was evaluated using a PMI framework.



Positive	Minus	Interesting
- Simple concept which could be implemented at home or on campus - The physical aspect of the vibrations or haptics could work well for the target user (research indicated that many people are receptive to physical reminders, and use things like fidget toys or snapping hair ties on wrist)	- Practicality of having a vibrating mat underneath the user's laptop may be challenging, potentially uncomfortable if the vibrations permeate the laptop when in use. - The purpose of the product is unclear at this stage in the design process.	The concept of creating a physical workspace aimed at improving the attention and regaining the focus of users provides opportunity for innovation, as it does not exist in any capacity. Could be used at home, at work, at university.

After evaluating all concepts, it was decided that the vibrating mat would be the concept that would be further developed throughout the project. This was because the vibrating feature is innovative, sensory friendly, and there is potential to successfully integrate time-management into this concept.

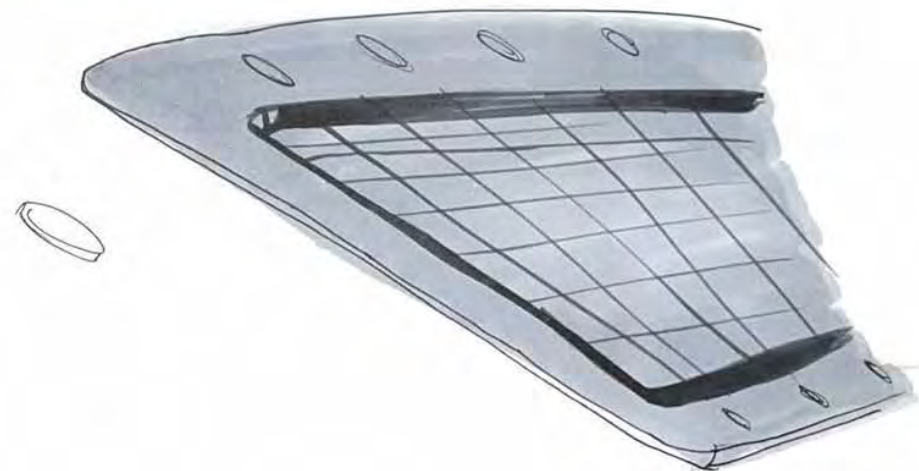


Internal components which vibrate, separate non-vibrating zone for user's laptop to sit.

This is very basic. Further divergent development required.

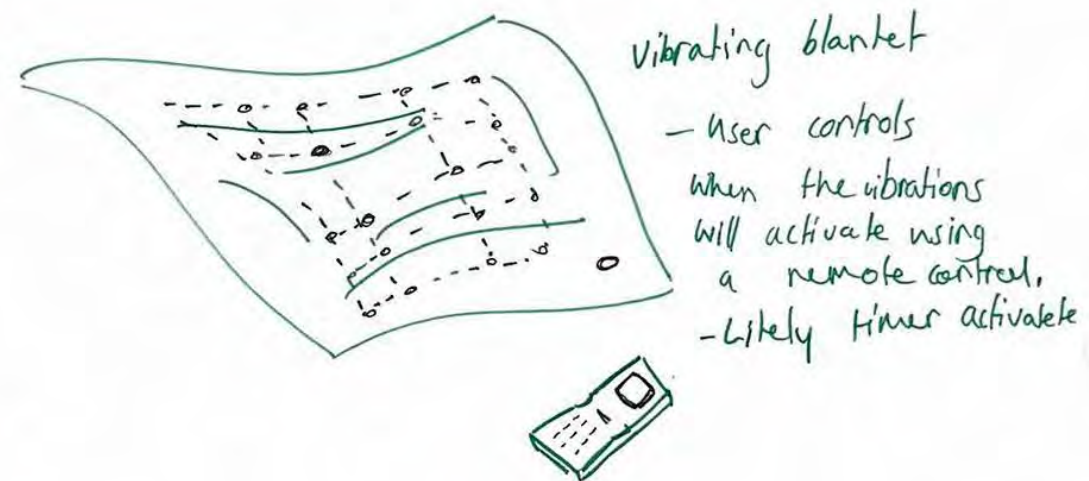
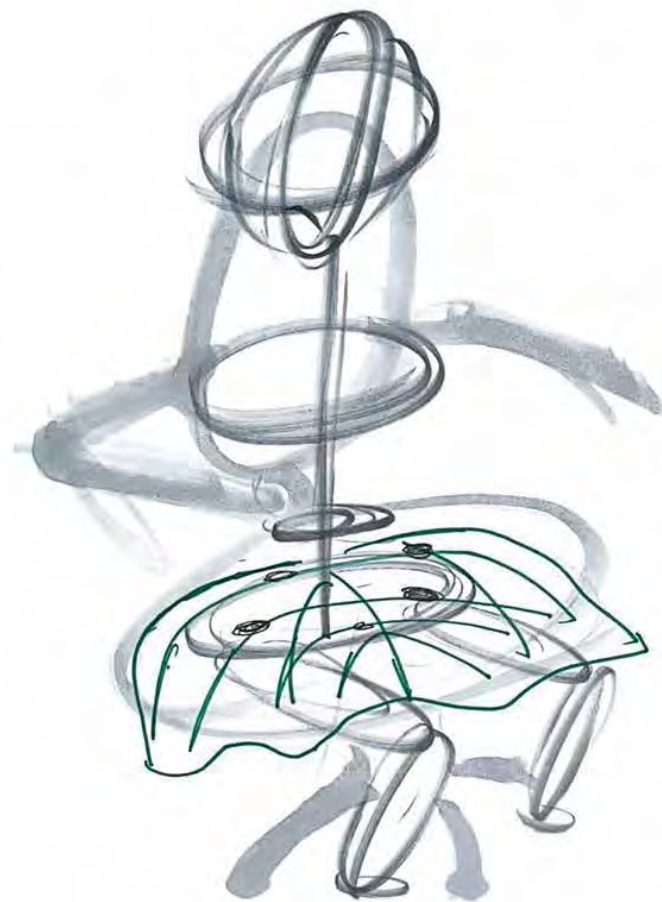


Side view



Week 9 | Early sketch ideation for vibrating blanket for sensory-friendly time management

What if it was a vibrating blanket instead of mat? This would sit on the user's lap, and they could control the vibrating pattern and time using a remote control.



Good idea, however may not be practical for people, especially in hot climates.

Would also pose challenges with having electrical components in a flexible blanket.

Week 9 | Early sketch ideation for vibrating mat for sensory-friendly time management

This would create too many additional distractions for the person with ADHD



Dancing flower for when timer runs out

Speaker for alarm

Vibrations and haptics: Technology exploration

Eccentric rotating mass (ERM) motor

ERM motors are DC motors with an offset mass in the shaft, which causes the vibration.

It is a 'driven harmonic vibration', which is a forced vibration.



This is a vibrating wire rack for use in mining. The fact that it is a wide-spread area that vibrates is interesting, and would be useful to investigate.

<https://www.inneedmotors.com/vibration-motor/coin-vibration-motor/worlds-smallest-erm-motor.html>

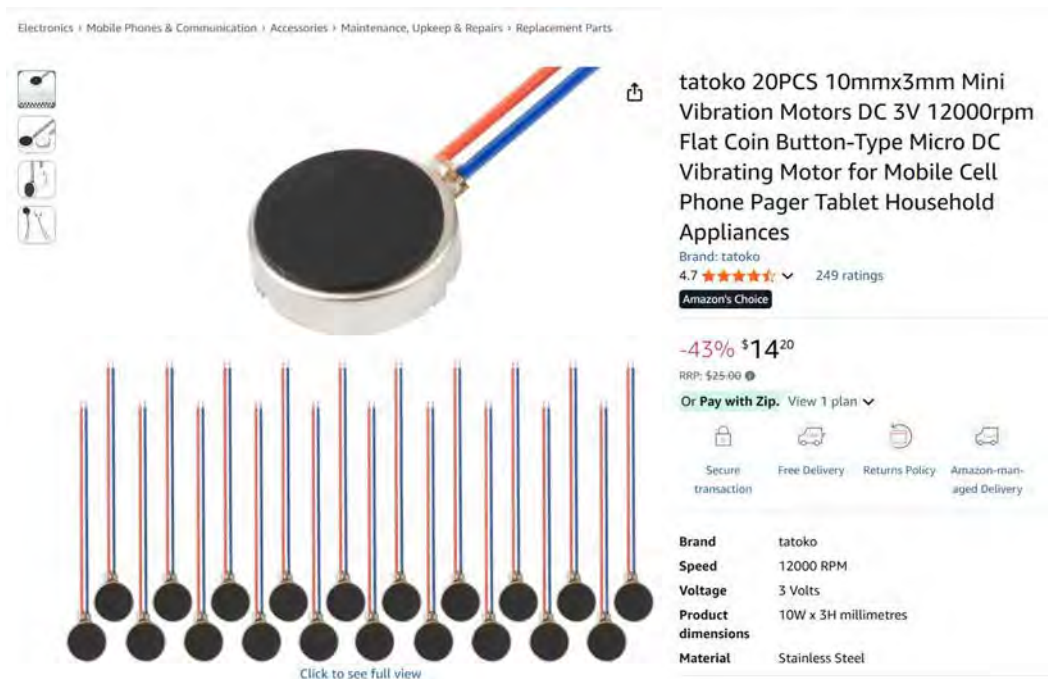
1. Precision Microdrivers. AB-004: Understanding ERM vibration motor characteristics. Precision Microdrivers. Accessed September 19, 2025. <https://www.precisionmicrodrives.com/ab-004>

More vibration exploration

Vibration table DIY tutorial

- In this tutorial, the mechanism used was a motor, and two MDF panels, one suspended with a spring. When the motor is triggered, the table vibrates. https://www.youtube.com/watch?v=ZGOXC_xxyUs

There are a few kinds of motors that could be considered:



Top reviews from Australia

There are 0 reviews and 1 rating from Australia

Top reviews from other countries

WesZ

★★★★★ **Vibration Power surprised me**

Reviewed in the United States on 7 November 2023

Verified Purchase

I used 1v, 2v, 3v, 4v and 5v. Worked fine on all of them. They were quite strong and powerful for their size, approx 3/8 inch diameter.

Report

Djounayd

★★★★☆ **not bad**

Reviewed in Saudi Arabia on 20 December 2023

Verified Purchase

Nice product but the cables break quickly.

Report

Alex B

★★★★★ **Not what I was looking for**

Reviewed in Canada on 6 January 2024

Verified Purchase

These are not the motors needed for the bristlebot STEM activity with elementary school students lol (using a 3V battery). They don't vibrate enough to cause movement that is interesting/exciting. Good product overall I guess, but I wanted to warn other teachers who might make the same mistake.

Report

I have ordered this product because I intend to explore how the vibrations will work with different materials.

Other tech:

Linear Resonant Actuator (LRA) motors are the kind that are usually used in iPhones and other wearable devices.

- Power efficient
- Spring susceptible to wear and tear
- More expensive than ERM motors

Piezoelectric actuators

https://www.amazon.com.au/gp/product/B07Q1ZV4MJ/ref=ewc_pr_img_5?smid=AX3F1Q2X7KL86&psc=1#averageCustomerReviewsAnchor

<https://titanhaptics.com/haptic-technology-101-a-beginners-guide-to-the-different-types-of-vibration-motors>



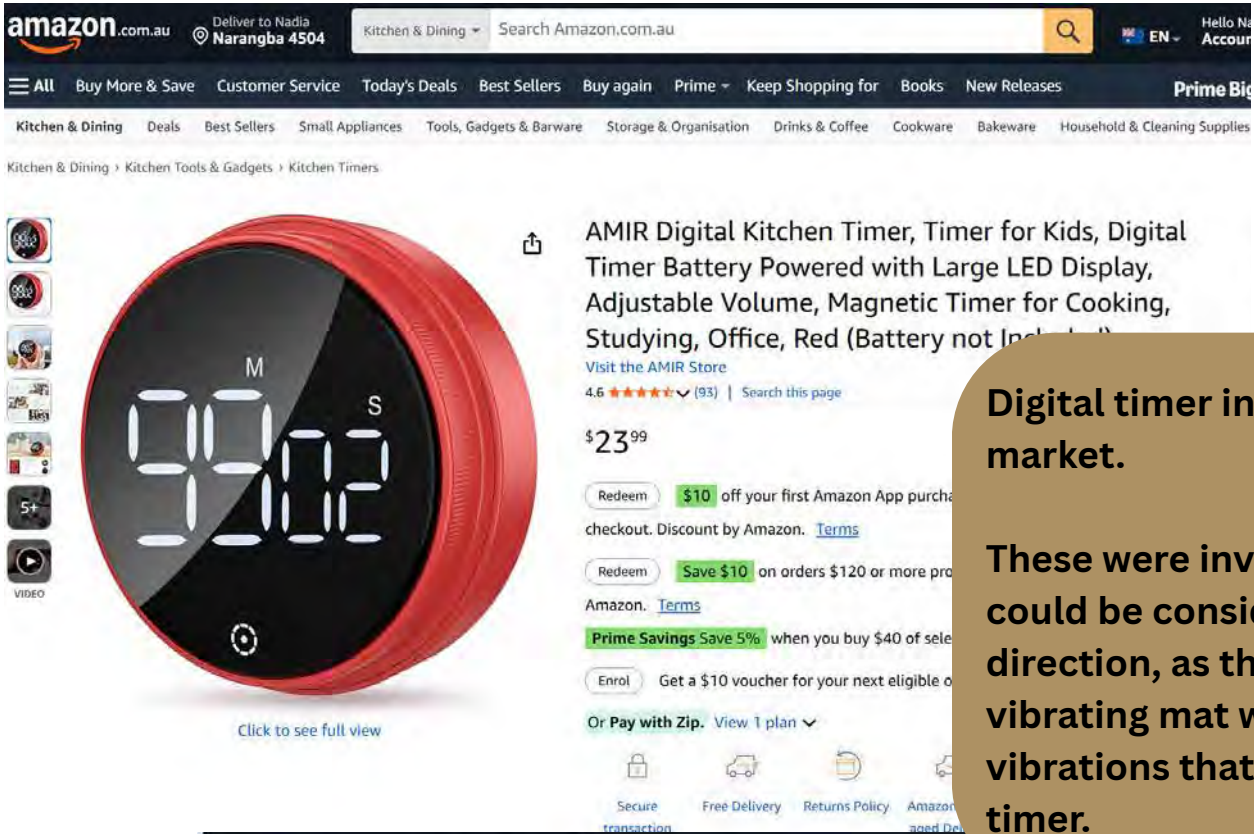
TENS machine

<https://www.ormondphysiotherapy.com.au/product/tens-machine>



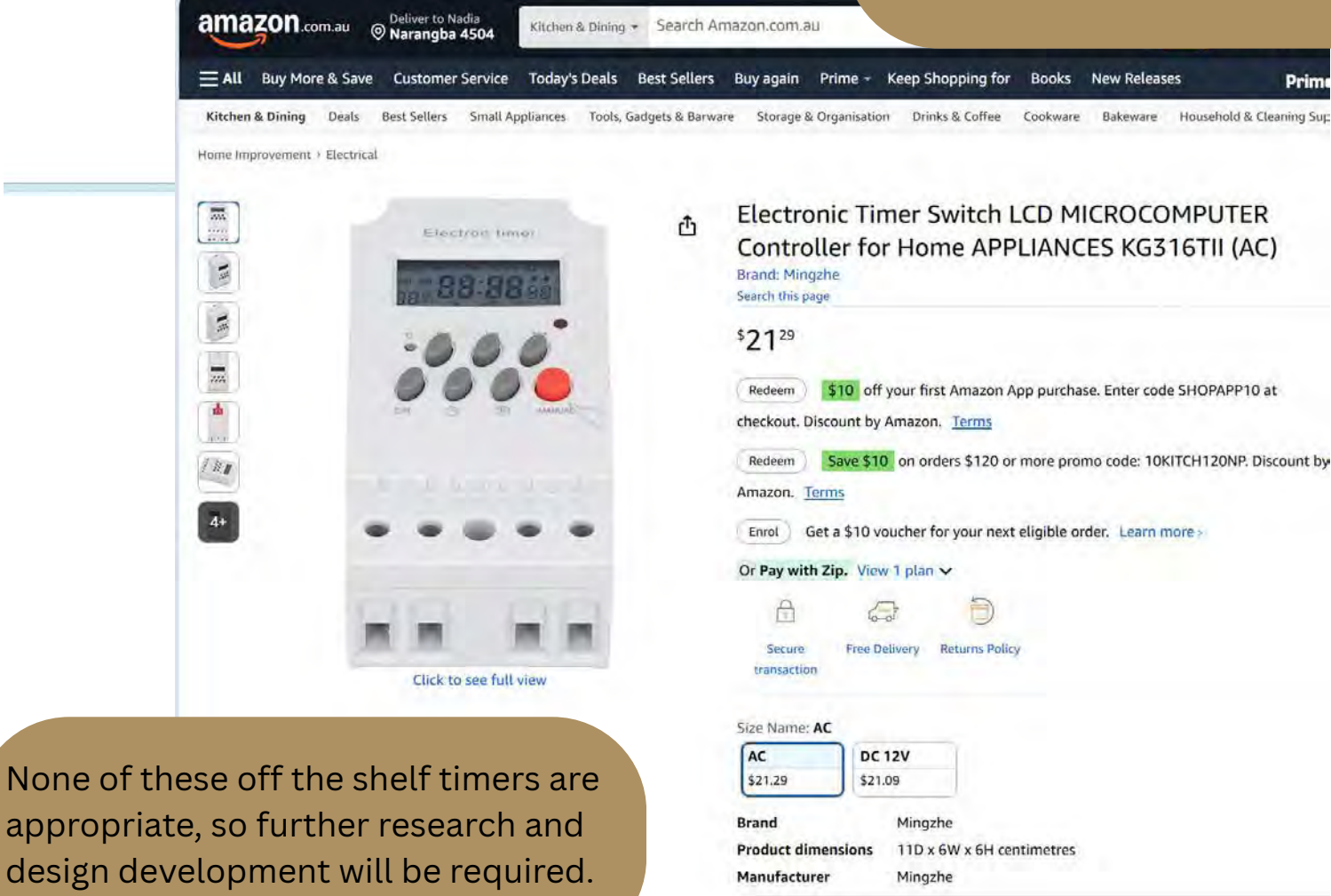
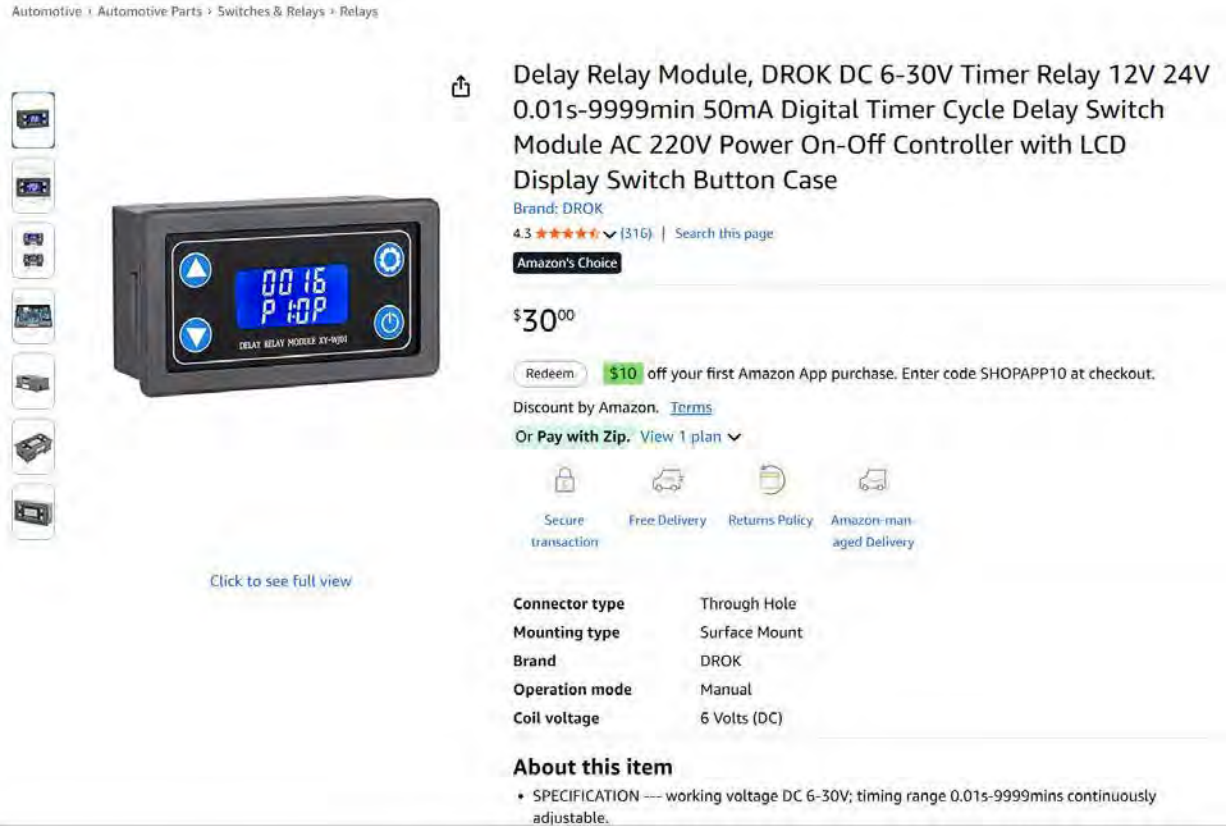
<https://www.amazon.com.au/Hurtle-Vibration-Platform-Equipment-HURVBTR30/dp/B01CK31J0Y>

Week 10 | Technology research



Digital timer interfaces already on the market.

These were investigated so that they could be considered for the final design direction, as the product will be a vibrating mat which will have vibrations that will be controlled via a timer.



None of these off the shelf timers are appropriate, so further research and design development will be required.

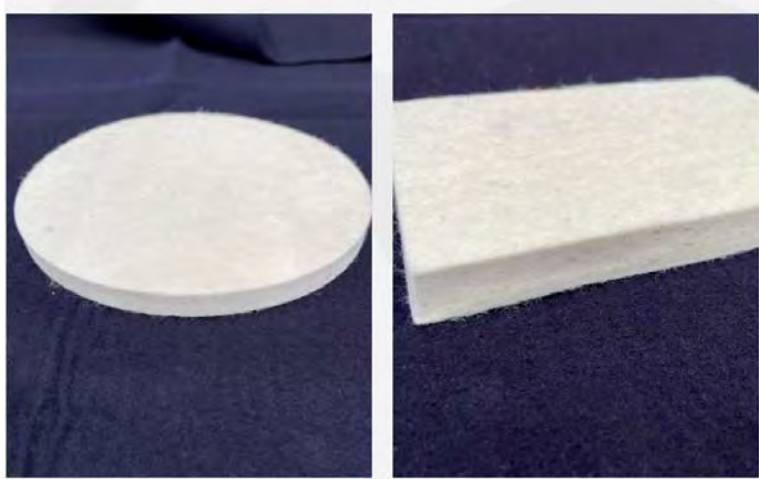
Week 10 | Material exploration continued

Potential materials for outer shell of vibration mat:

- Soft material pour
- Balsa wood
- PLA
- Ply wood
- Aluminium
-

Anti-vibration materials

- Felt
- Foam
- Cork



<https://www.feltsales.com.au/industrial-felt/anti-vibration>



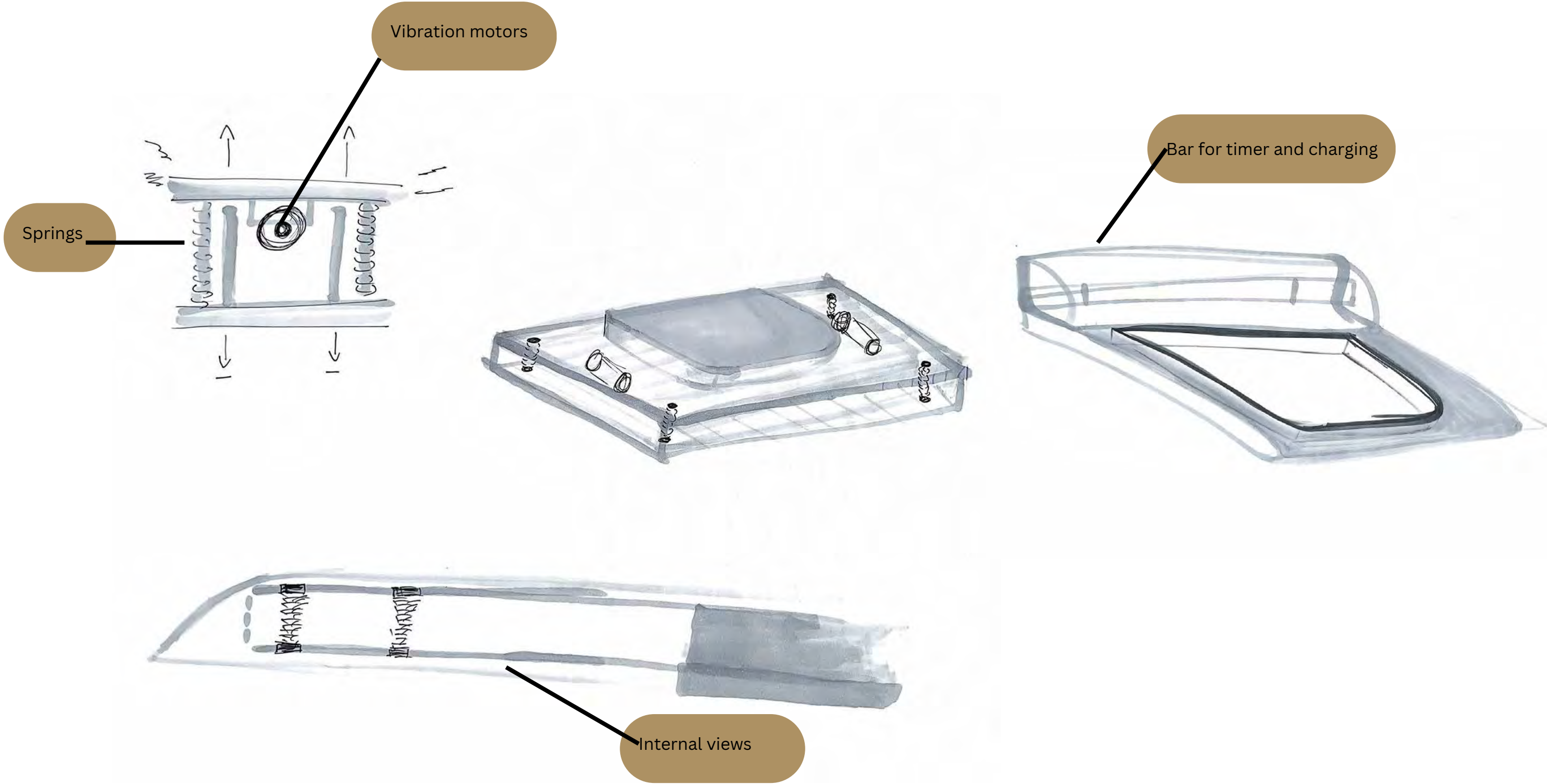
Potential exterior cover materials

- Leather
- Vinyl
- faux suede
- Canvas
- Synthetic canvas

Why?

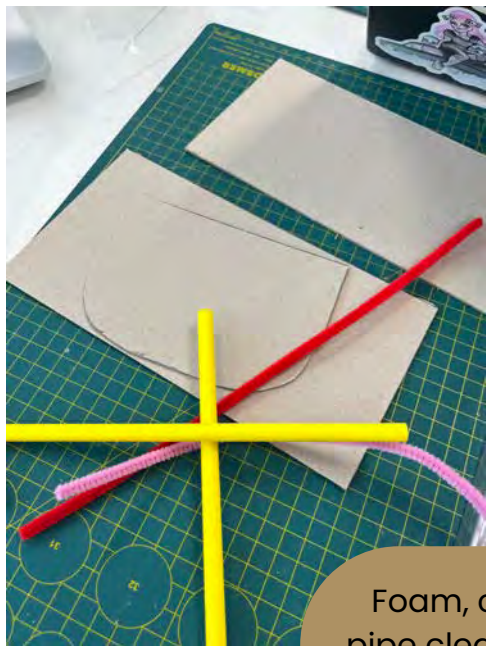
They're heavy duty, they wear well, and they are easy to clean.

Week 10 | Sketches of vibrating desk mat initial prototype



Week 10 | Initial prototyping

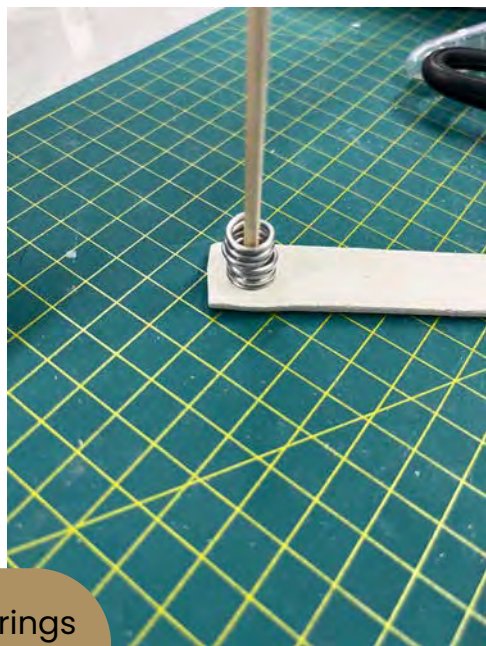
This is the initial prototyping of the desk mat



Foam, cardboard, wire and pipe cleaners were used to do this physical exploration.



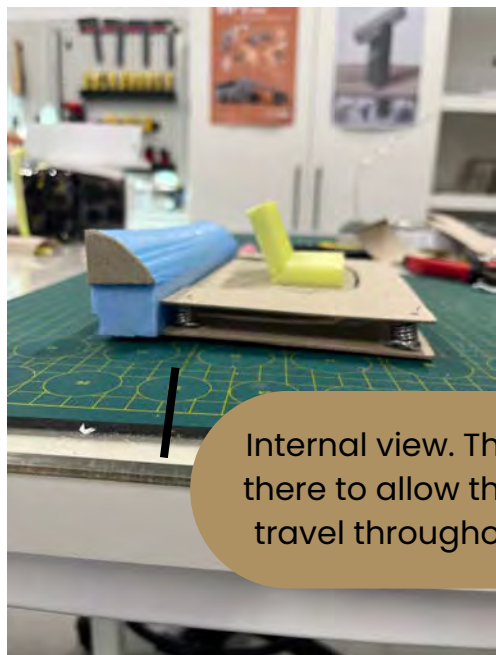
Making springs from wire.



There is a separated piece inside here so that the vibrations of the motors don't interfere with the user's laptop.



This sandwich-like construction was inspired by a YouTube video about how to make a vibrating table for concrete moulding.



Internal view. The springs are there to allow the vibration to travel throughout the table.

Week 11 | User testing + observation

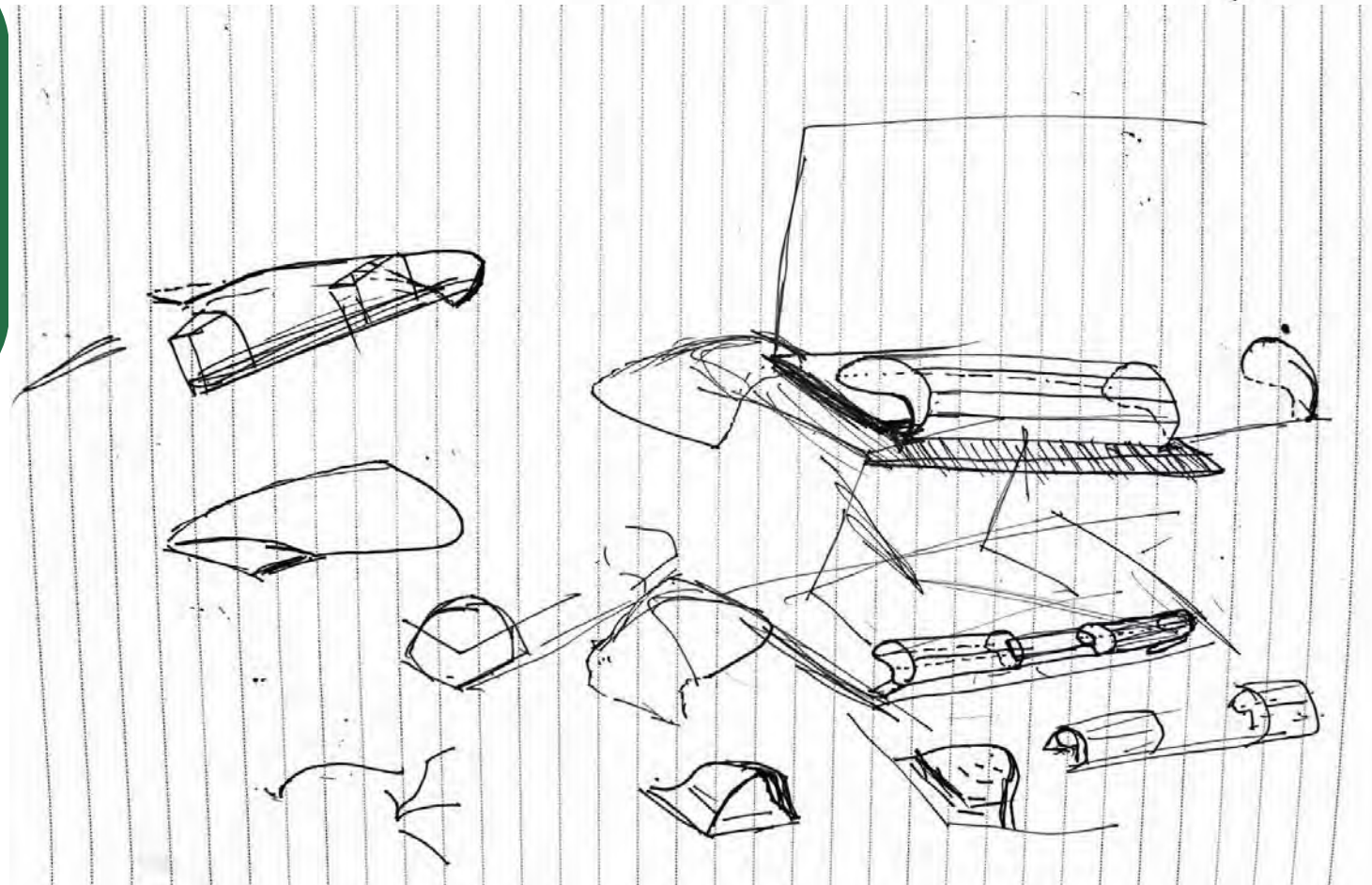
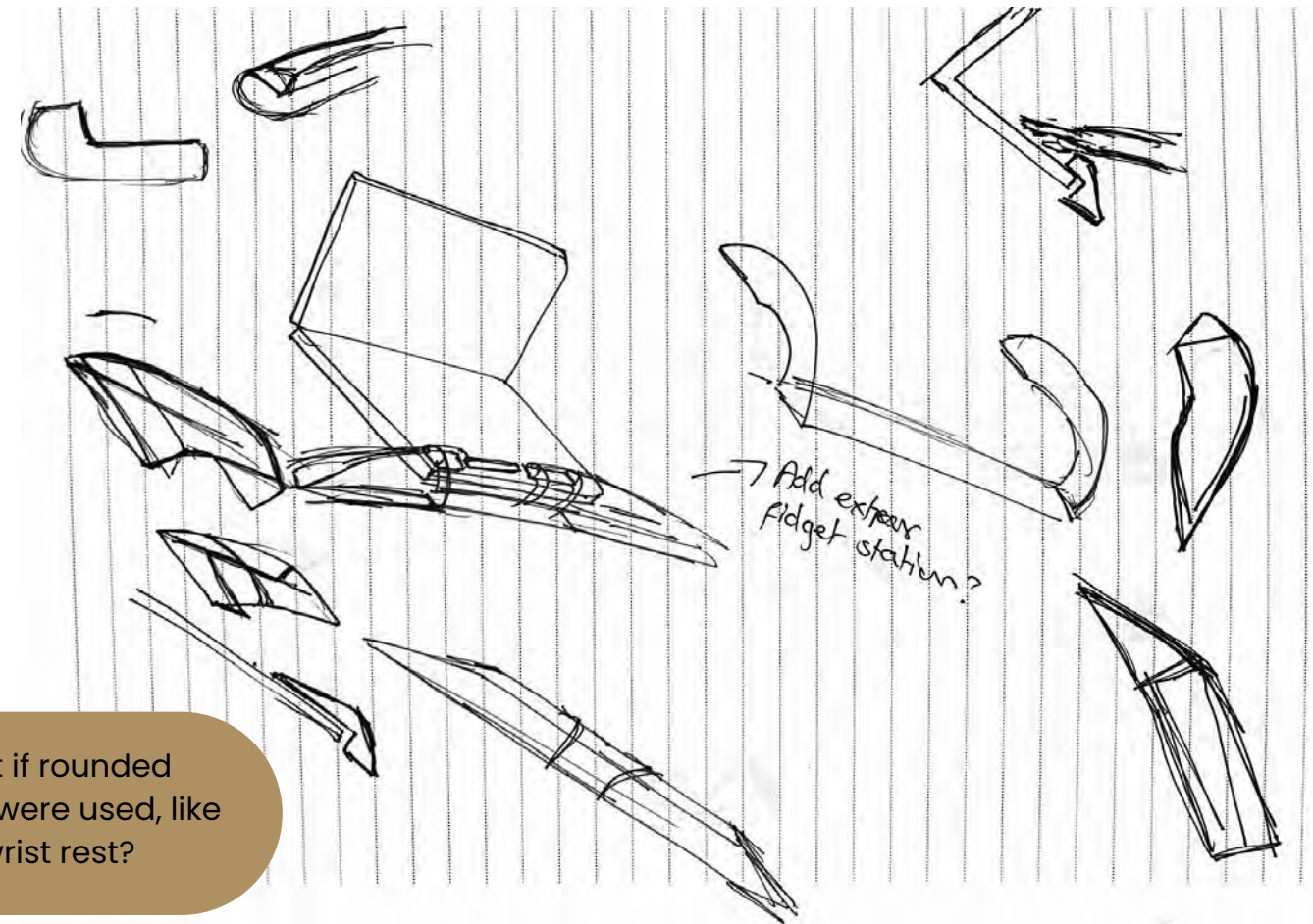
To ensure that the vibration motors and sensation is in the right spot, user testing and observation was conducted.

Initial user testing of a vibrating motor (phone alarm) was conducted with the vibration of a smart phone alarm haptics. It was found that the user was able to feel the vibration sensation on the wrists and hands, however the sensation was significantly reduced on the lower arm.

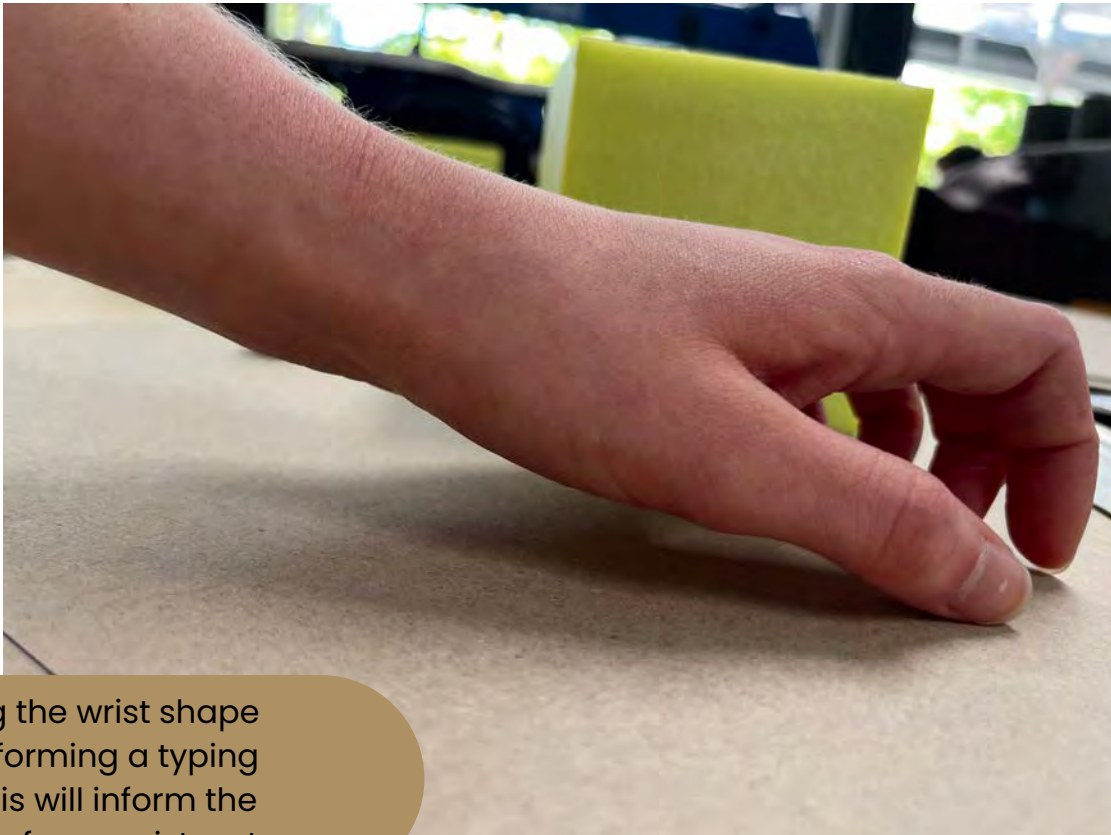
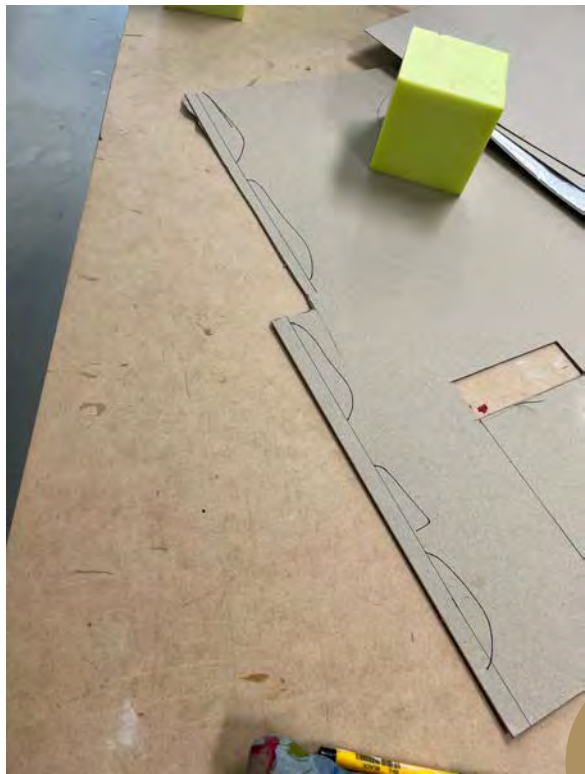
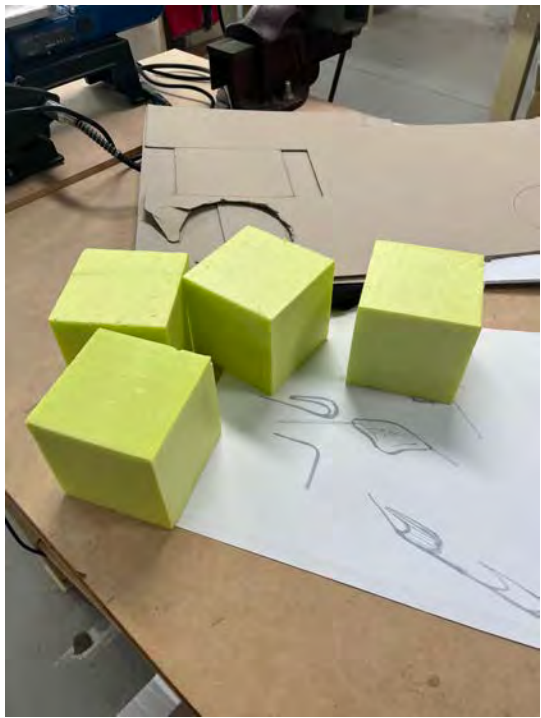
Therefore, some changes will be explored.

Instead of being a mat, a new design direction of a 'wrist support' was explored. In this form, there is potential for a more transportable device, and therefore could be used as a viable solution to reduce the symptoms of ADHD and increase executive function in the classroom as well as at home.

What if rounded shapes were used, like a wrist rest?



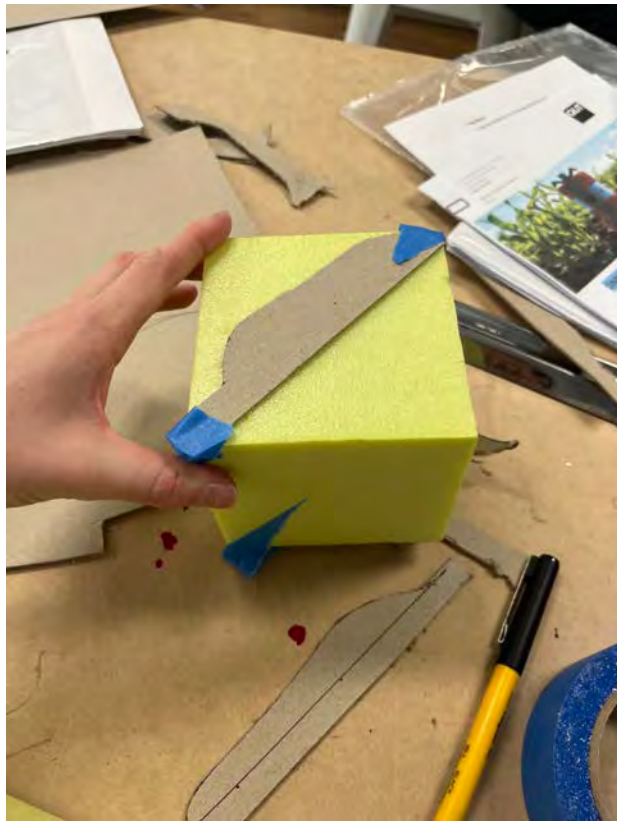
Week 11 | User testing + observation



Observing the wrist shape when performing a typing action. This will inform the shape of the foam wrist rests.

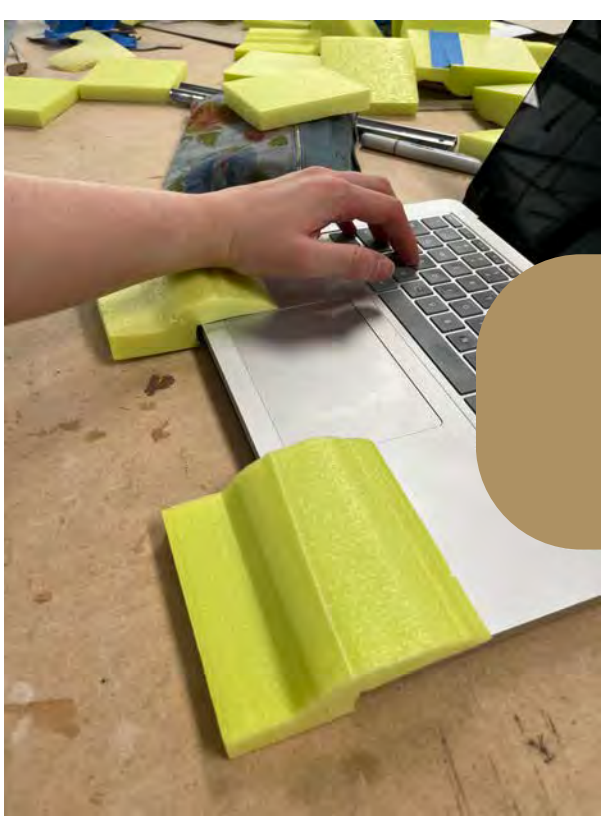
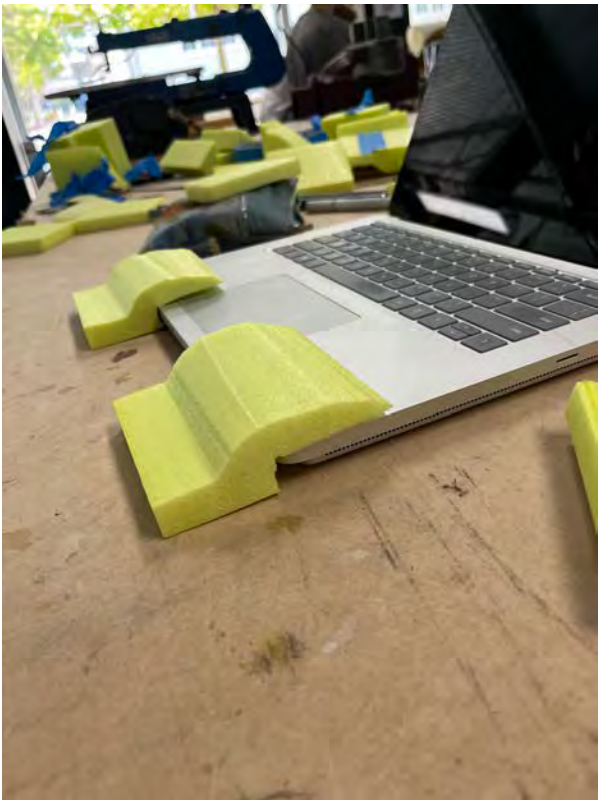


Cardboard foam guide designing and foam cutting.





Various wrist rest prototype forms.

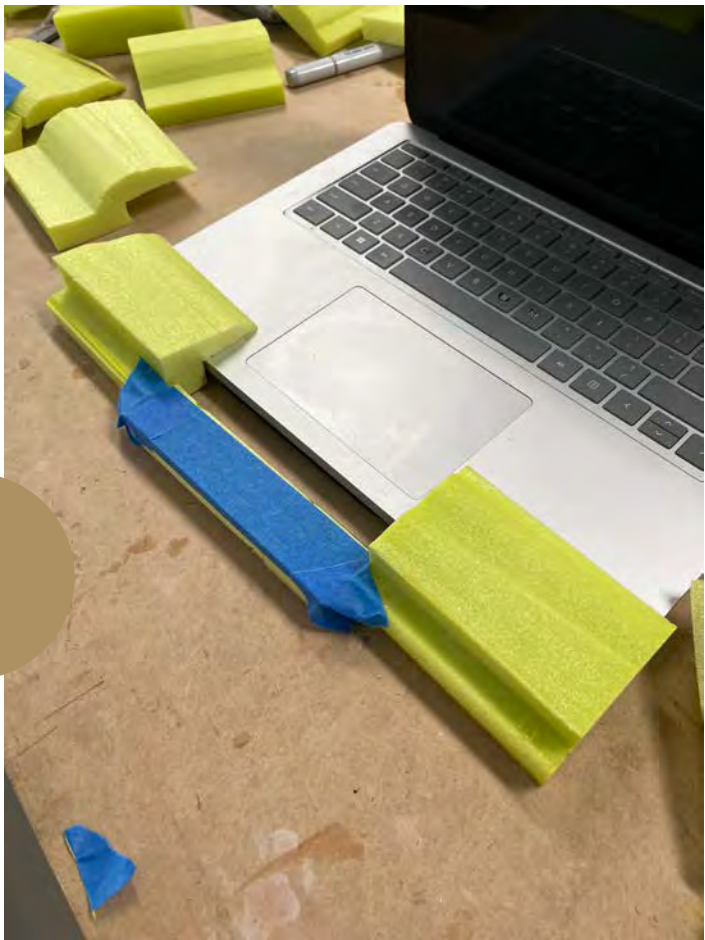


Initial user testing of the wrist rest whilst attempting to type. This person is a 1st percentile adult female. therefore small in stature and hand shape.

Week 11 | User testing + observation



Further physical prototyping of the wrist rests.



If the blue bar is adjustable, this device could be used with a number of computer sizes.

The vibrating motors or sensors would be incorporated into the curved portion of the foam.

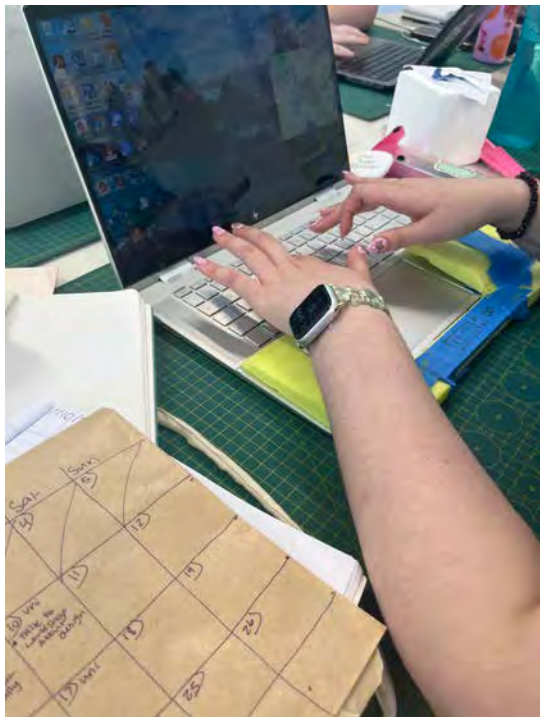
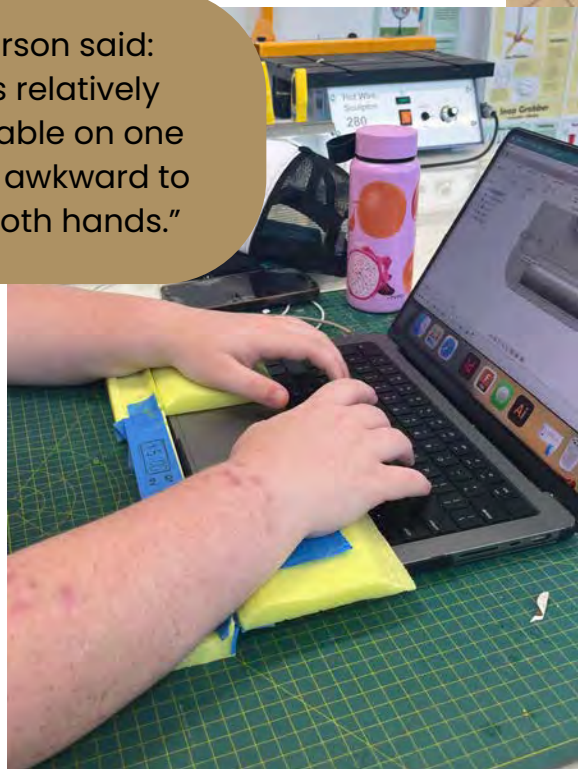


Week 11 | User testing + observation

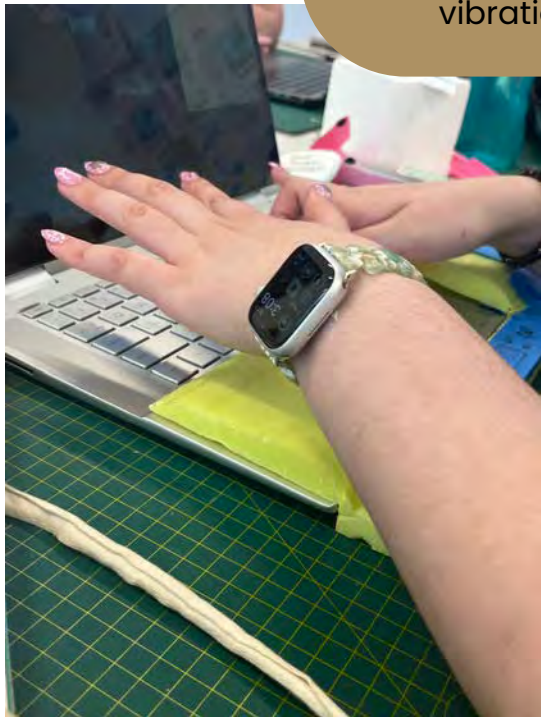


User testing of the wrist rests.

This person said:
"This is relatively comfortable on one side, but awkward to use for both hands."



This person said:
"I don't make contact with the keyboard or the desk when I am typing, so this would not be a good solution for me if I had ADHD. I would not be able to feel the vibrations at all."



Whilst there is some merit to this design direction, the overall ergonomics are not sufficient, and would be challenging to make work for a variety of users at a large scale.

Therefore, it was decided that the vibration motors ordered for the project should be physically trialled in a mock mat to see if there is any increased sensation.

Week 11 | Aesthetics

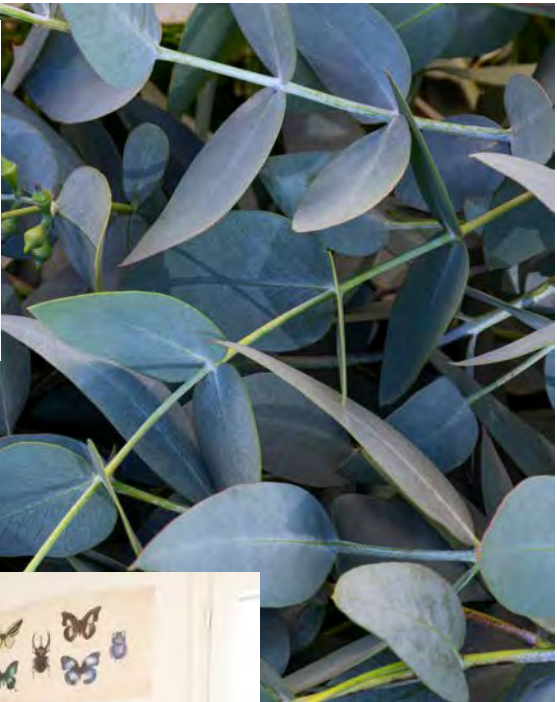
On this page, the aesthetics of the final product were explored.



70cm x 34 cm in size.



The clean lines and form of the Apple products, as well as the clocks here have design merit. This would be good to incorporate.



The greens, whites and neutral colour scheme are soft to the eye, and are not overstimulating. This is important for neurodiverse people.

The inspiration from the environment is clear, and this is something that could be incorporated into final design aesthetic.



https://www.templeandwebster.com.au/Grace-Metal-Silent-Alarm-Clock-ONES1176.html?refid=GPAAU447-ONES1176_200632479&device=c&ptid=&PiID%5B%5D=200632479&utm_content=no_sale&gad_source=1&gad_campaignid=17636172452&gclid=Cj0KCQjw3aLHBhDTARIsAIRij5-R4YXkvHSq9BGd6DR83CTCgyTGLez2lDXGLnoLYTbvwUZ4_rAtBcaAmYaEALw_wcB
<https://www.apple.com/au/macbook-air>
<https://anartfulmom.com/how-to-create-a-calming-home-office/>
<https://www.amazon.com.au/AnyDesign-Stationery-Letterhead-Watercolor-Invitation/dp/B0CNR61GQM>
< a href="https://www.freepik.com/free-photo/top-view-leather-with-needle_10889302.htm#fromView=search&page=1&position=8&uuiid=7e212b20-e8ab-45bd-89b9-27ebdaf9364e&query=leather">Image by freepik

< a href="https://www.freepik.com/free-photo/beautiful-eucalyptus-arrangement_27588999.htm#fromView=search&page=1&position=0&uuiid=86f33079-74cc-48ea-b202-c319d443516d&query=australian+leaves">Image by freepik
https://muji.com.au/products/wooden-hexagonal-ballpoint-pen-0-5mm?variant=45477818466523&country=AU¤cy=AUD&utm_medium=product_sync&utm_source=google&utm_content=sag_organic&utm_campaign=sag_organic&srltiid=AfmBOoorY80b8INSBqUrmzLkEuMYyUHVicZX4iF8O3nrDupvji7sPDHmQ
https://www.reddit.com/r/cottagecore/comments/orw6n5/my_cottagecore_desk
<https://www.officeworks.com.au/shop/officeworks/pl/logitech-m240-silent-bluetooth-mouse-white-logm240we?scrollTop=false>
<https://calmbuddhi.com.au/products/magic-of-i-vegan-leather-journal-lined?srltiid=AfmBOoorY80b8INSBqUrmzLkEuMYyUHVicZX4iF8O3nrDupvji7sPDHmQ>
<https://www.pedderwildernesslodge.com.au/activities/bushwalks-and-hiking/creepy-crawly-nature-trail>

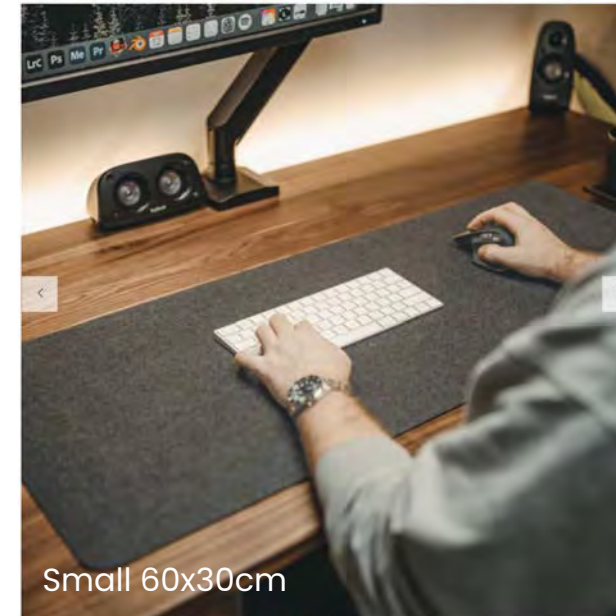
On this page, the aesthetics of the final product were explored.

The curves shown in this larger keyboard mat are calming, and the use of soft green is energising and relaxing for a study space.

These are elements that should be incorporated into the final design.



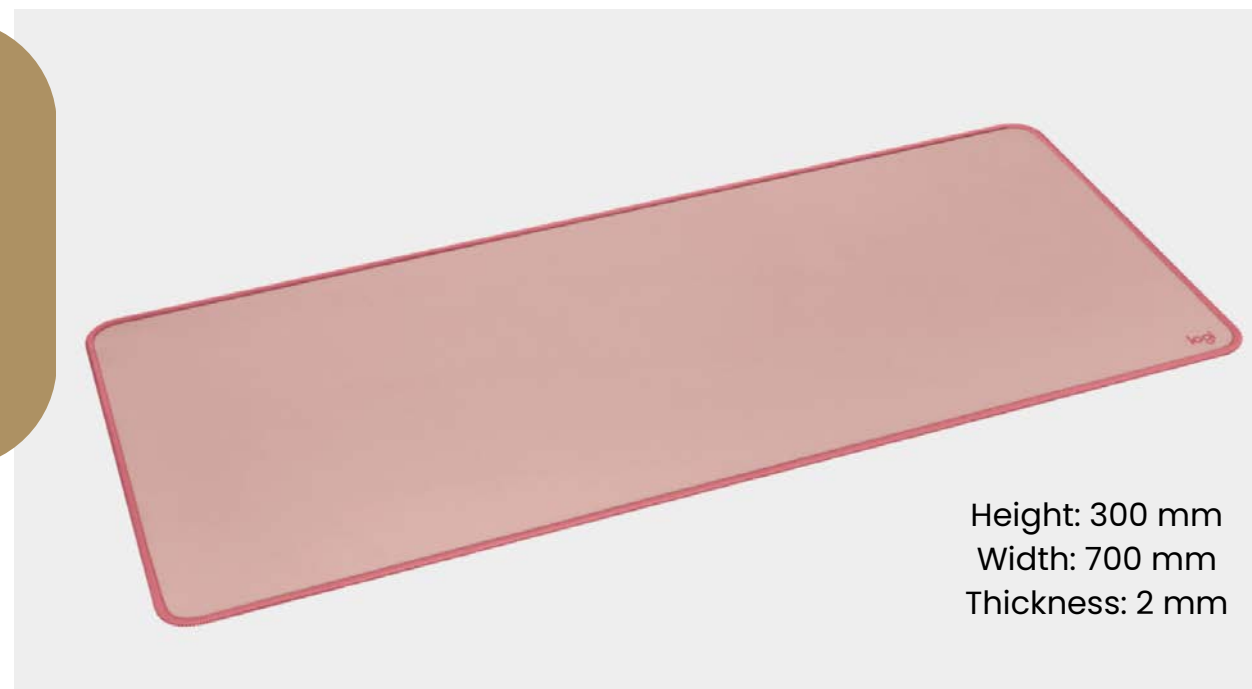
70cm x 34 cm in size.



Small 60x30cm

The space this mat affords the user is very practical.

The final design should not be too small, otherwise it will be inconvenient for the user as a workspace.



Height: 300 mm
Width: 700 mm
Thickness: 2 mm

Despite being simplistic, the flow and streamline nature of these existing desk mats are aesthetically appealing.

<https://www.logitech.com/en-au/shop/p/desk-mat-studio-series>

<https://onherdesk.com.au/products/desk-mat-sage-green?srltid=AfmBOoqUwod2XalmtRscwscMOFE5u976ix0Mhwapgg4-O25R2TSEY5io>

<https://desky.com.au/products/felt-desk-pad?variant=41623043408028>

Week 11 | Digital clock interface research

The features of existing digital clocks were explored in order to get inspiration for the display window for the final design.



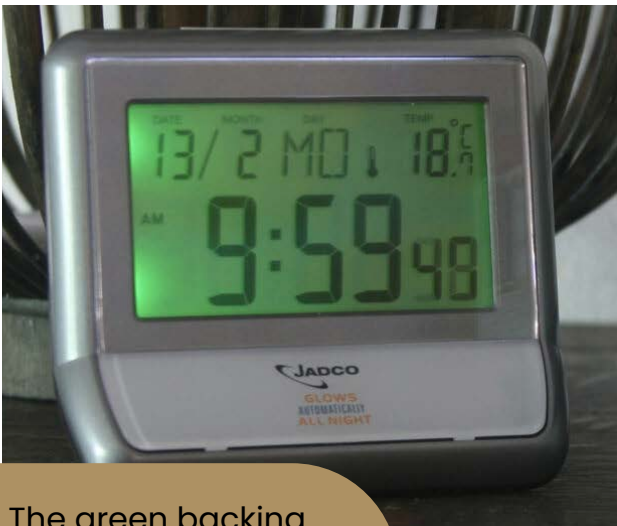
The neat display here is very attractive, and would look impressive if incorporated.



Whilst functional, this clock is unattractive, and very commercial in aesthetic.



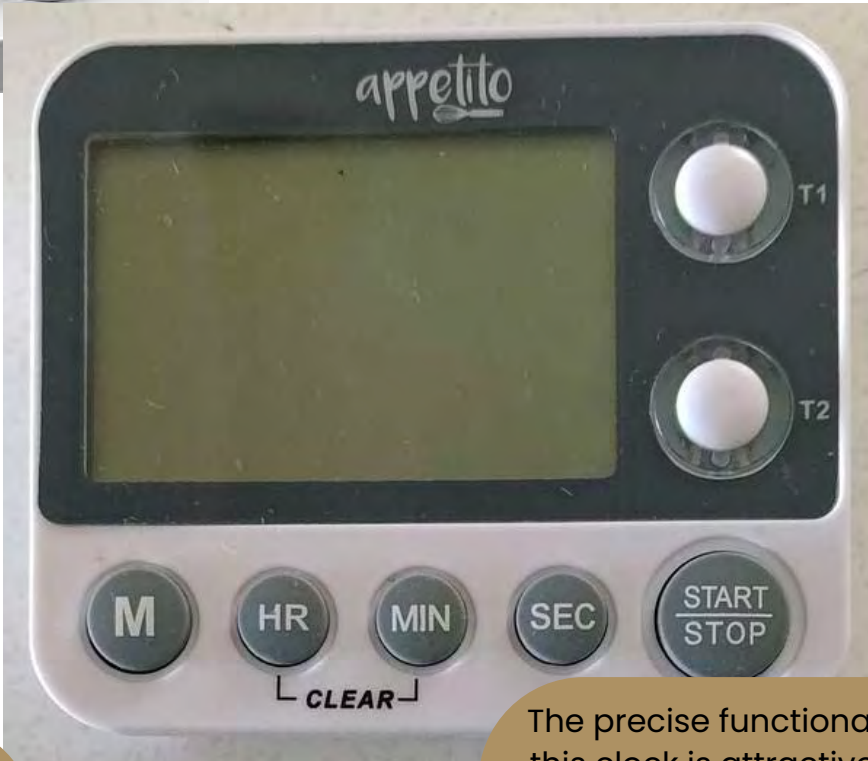
The clear double timer shown here (timer and clock) is a good display, and this would be helpful for the target user of this project.



The green backing here is dated, and would be poor if used for this project.



The softness in this clock is attractive, and much more stylised than the other clocks displayed.



The precise functionality of this clock is attractive, and could be used for the product.

However, the use of a second timer would not be required for a desk mat with vibration timers.

https://eyebrowinkshop.com/products/peach-lcd-mini-digital-timer?variant=43491942236339&country=AU¤cy=AUD&utm_medium=product_sync&utm_source=google&utm_content=sag_organic&utm_campaign=sag_organic&gad_source=1&gad_campaignid=21960520715&gclid=Cj0KCQjw3aLHBhDTARIsAIRij583T10_v36cblqz4PHeKCOqcP7Ub6unvo8Qm2urQNfS1hHPPlaG2GAaAi8sEALw_wcB
<https://www.myer.com.au/p/appetito-dual-digital-timer-100-hours>
https://www.fruugoaustralia.com/dual-screen-lcd-digital-timer-for-kitchenstudybedside/p-362742276-787601799?language=en&ac=google&gad_source=1&gad_campaignid=22567225630&gclid=Cj0KCQjw3aLHBhDTARIsAIRij59fUFI6K38-CbnSlwNE6RWfC7_yEe9rW9o73-bpVXx0AaMyEOT-SZgaAttAEALw_wcB
https://www.ohclocks.com.au/products/tfa-tiny-digital-alarm-clock-with-timer-and-stopwatch-black-5cm?srltid=AfmBOorN44Xt12BOK9Lwo15DKfTU0HHBiFSGICuD2Lu_apTXdFJU7Tg8
<https://jadcotime.com.au/product/bedside-calendar-alarm-clock>
https://www.mightyape.com.au/ma/buy/hhh-creative-smart-small-alarm-clock-mini-digital-clock-bedside-luminous-timing-electronic-clock-green-66100308448561/?srltid=AfmBOoq-gFWrfRc_6DU036kdoT_QsUX0rww6AjzclYNoUPi-wwwkB1cy

Week 11 | Digital clock interface research

The features of existing digital clocks were explored in order to get inspiration for the display window for the final design.



Simple, however too plastic heavy and bright in aesthetic.



The cloud shape of this clock is calming, however could be seen as juvenile.



These pink interfaces are attractive due to the soft lighting coming through, however the overall design of the clocks in the bunny rabbit shape is too juvenile.

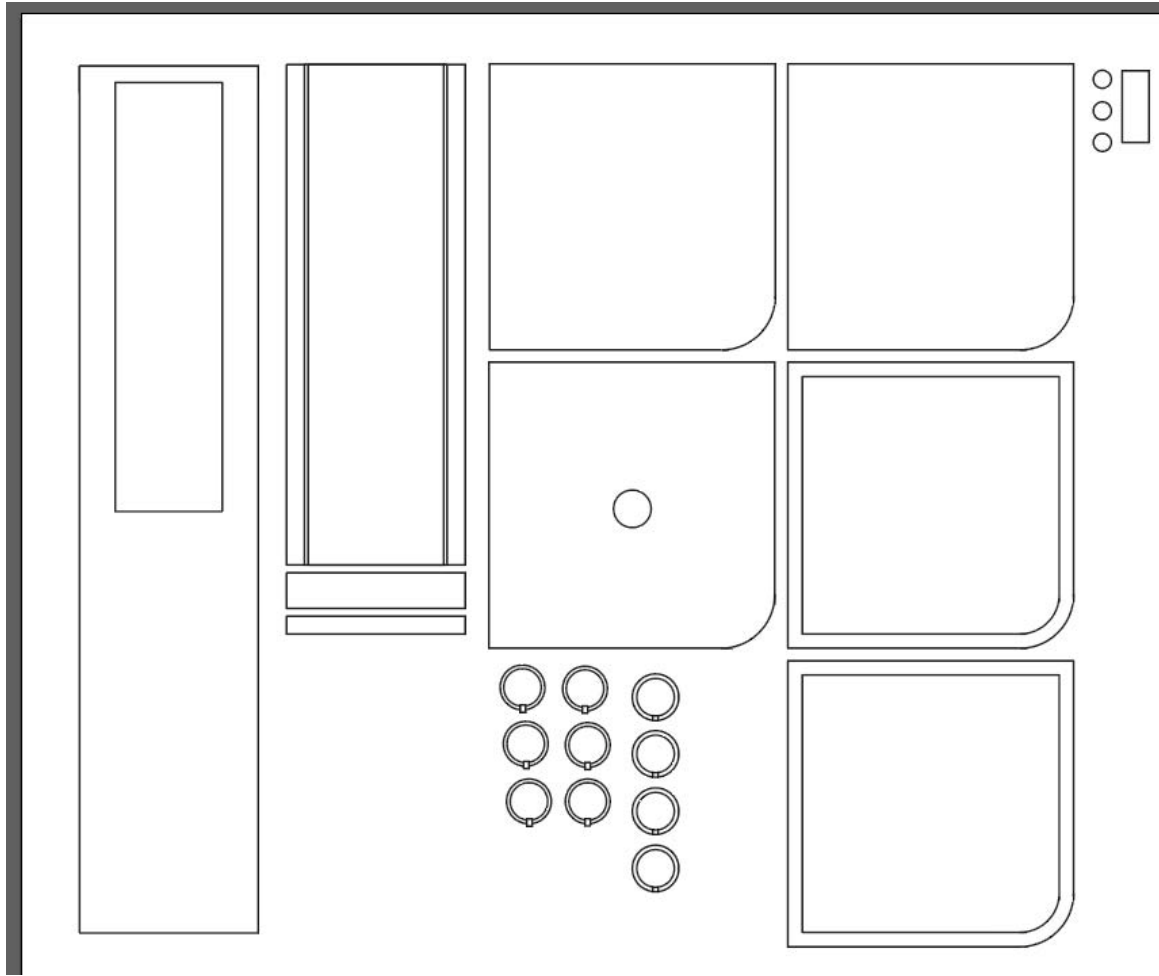
Whilst this is the case, the creativity shown should be used to inform the final design direction.



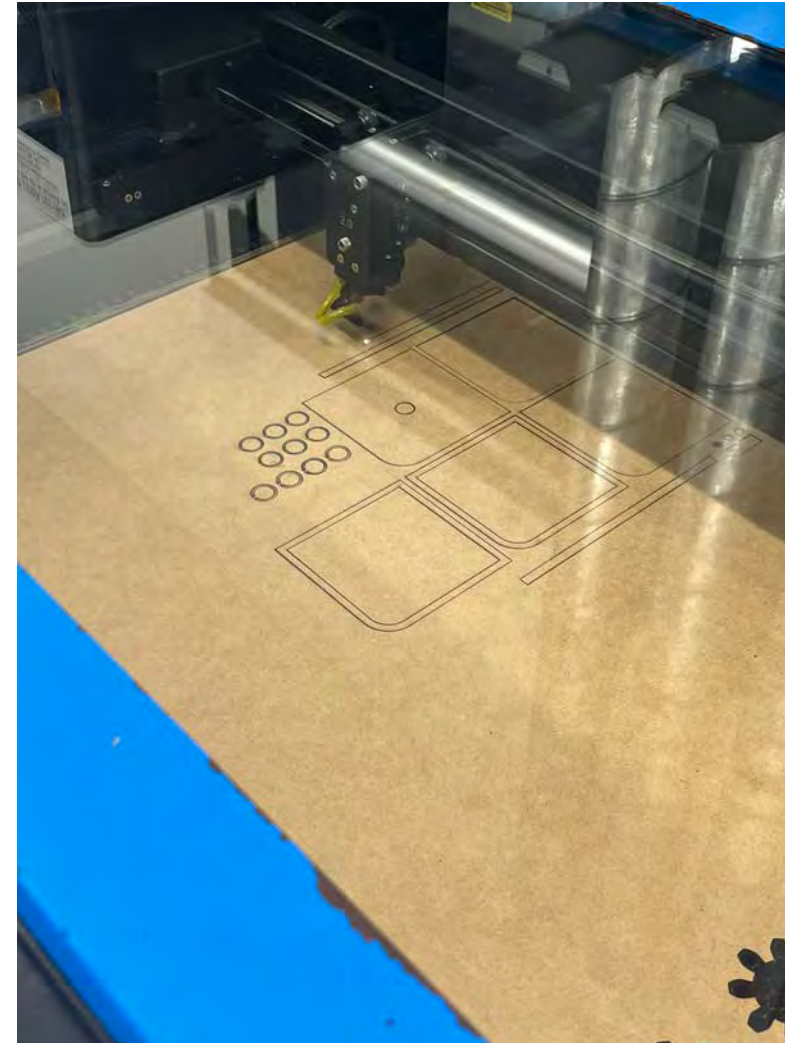
This clock shows subtle sophistication, with the bright lighting and the natural wood finish.

It would be good to use wood, leather/ suede in the design to connect the user with nature. This would give them a sense of grounding.

<https://blossommemento.com/products/kawaii-alarm-clock>
<https://www.amazon.in/Digital-Wireless-Charging-Display-Khaki-Layfool/dp/B09BTXHSZR>
<https://www.kmart.com.au/product/alarm-clock-cloud-43398515/?srsltid=AfmBOorT9Mn3qVNpYdSg48gyZpENRniZpgGOZGg8eYLBm0QXc3DJXju2>
<https://www.amazon.com.au/Ringtones-Digital-Control-Rechargeable-Trainer/dp/B08R925ZWV?th=1>
https://www.cleverclassroom.net.au/products/digital-electronic-timer-green-or-blue?srsltid=AfmBOorua_rLKpbKcolJSzr7ErcD5sBwL8wBaXP73hmRHG-iMf2-gZAI



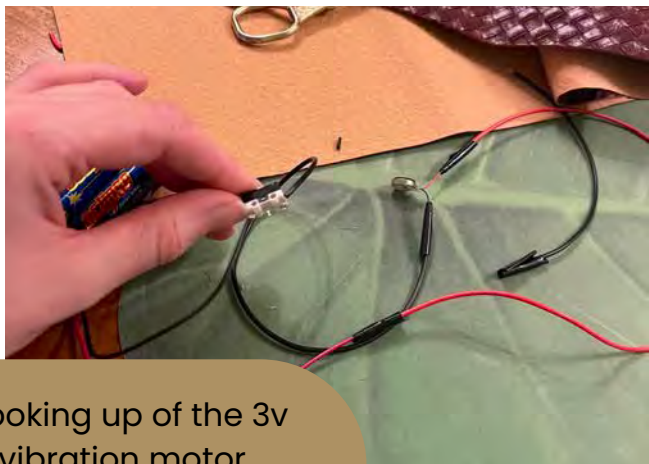
Vector file of the laser cutting template.
There are a few variations to ensure that the correct fit and construction is achieved.



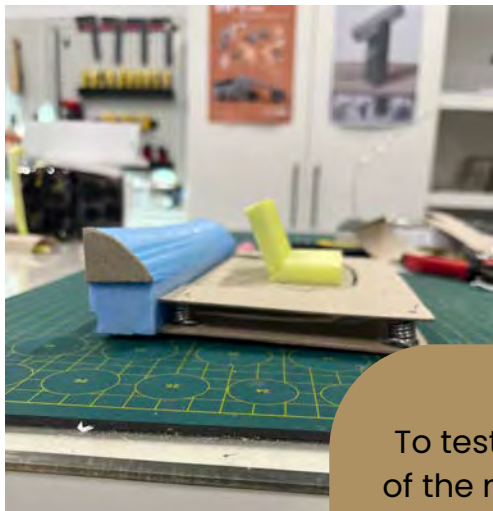
Week 12 | Technology testing

After testing the actual motors purchased, it was found that the strength of the vibrations was strong enough that the design direction could be reverted to the original idea, as long as a high concentration of vibration was present in the lower part of the design.

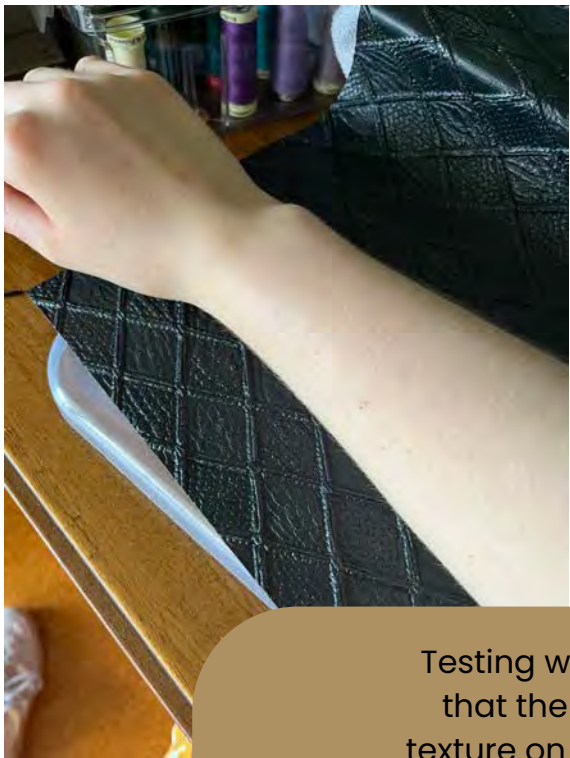
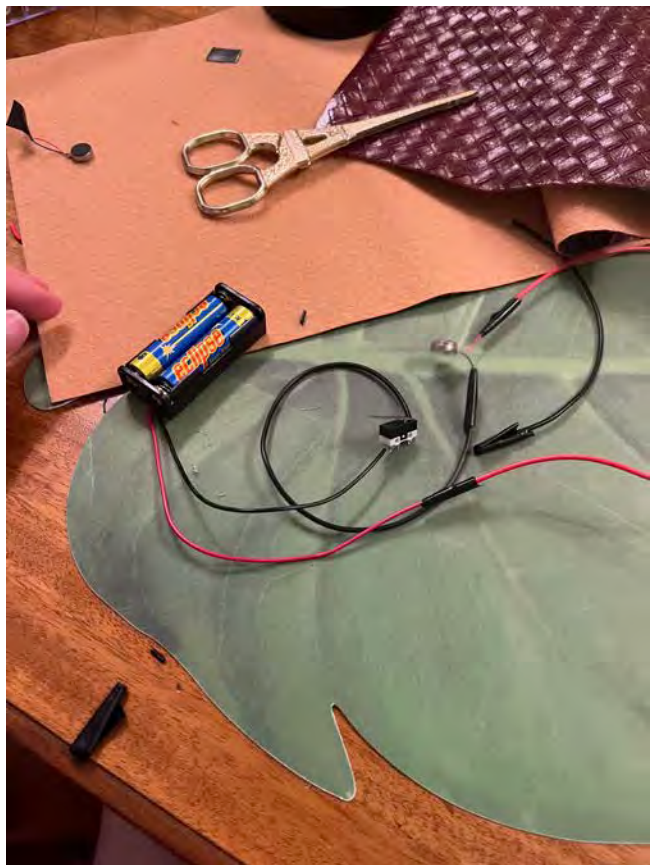
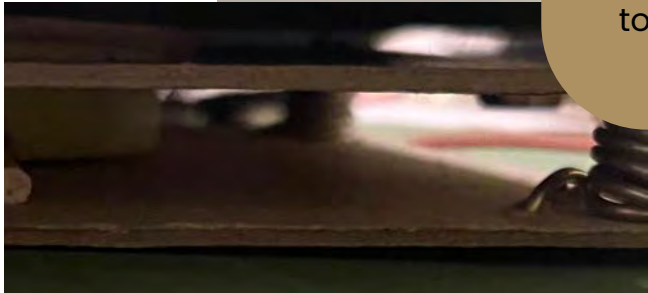
Due to the complex electronics required to make the design function in the way that it is intended to, it was decided that for the purpose of the physical prototype, an aesthetic prototype would be created, which will model how the design should look, as well as show how the vibrations will work, without the computer programming and timing



Hooking up of the 3v vibration motor. Electrical cable and two 1.5v batteries were needed to make this work.



To test the effectiveness of the motor, it was taped to the underside of the initial prototype.



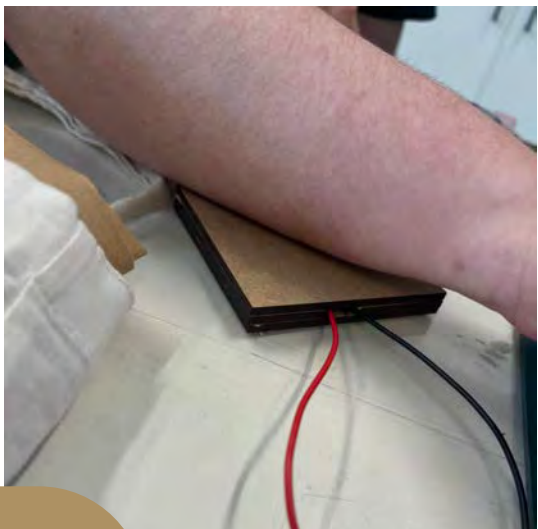
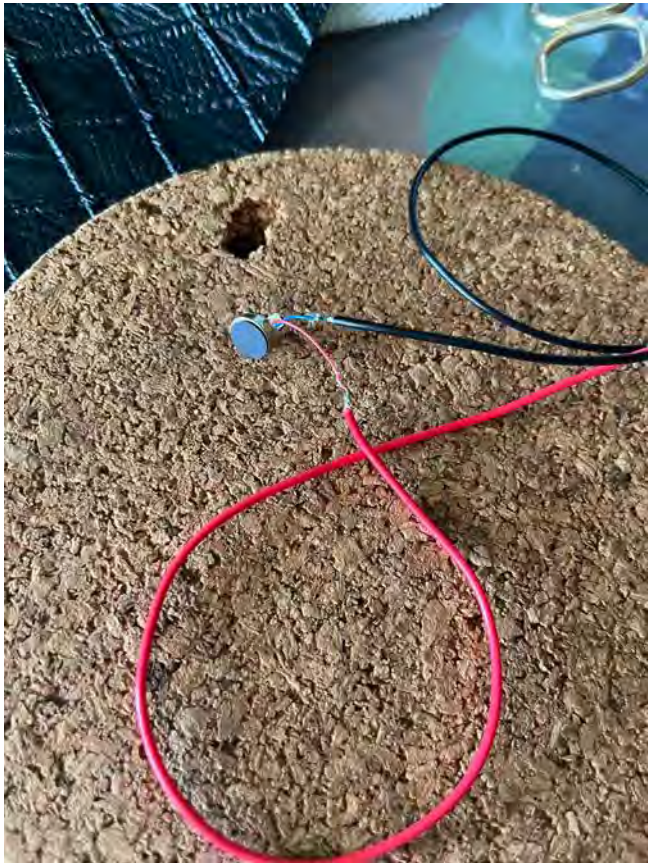
Testing with a vinyl covering. It was found that the vinyl covers which had a bit of texture on them were the most effective for transmitting the vibrations to the user. The vibration could be felt on the lower arm and the hands/ wrists.,



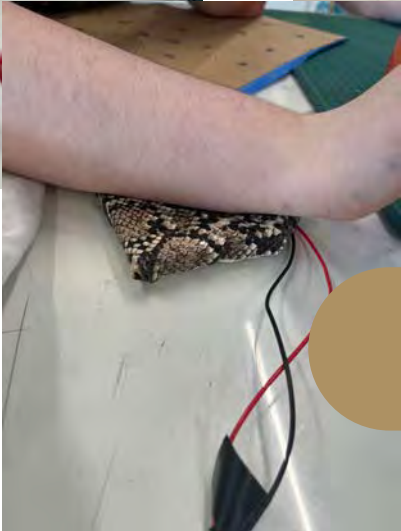
Therefore, the initial direction of the project will continue to be followed.

To ensure that the motor will still be able to be felt when using MDF for construction, a small prototype will be constructed using laser cut MDF.

Testing in cork. This was done so that the sensation could be explored prior to getting the laser cut fabricated.



User testing showed that the sensation could be felt on the hands and the lower arms, therefore it will be successful.



The same, with a vinyl covering.

Week 12 | Appropriate dimensions and ergonomics

In order to move forward with the design process, more research into the standard shapes and sizes of laptops and desks, as well as typical measurements of users is required.

- Standard laptop sizes:
- most typical laptop sizes are between 13-15 inches
 - larger laptops (often used for gaming, which include features such as the numlock) are up to 18 inch screen size.
 - Apple MacBook Air 13" dimensions: 304x215 mm
 - Apple MacBook Pro 16": 358x246 mm

Based on this, the non-vibrating portion of the device should be at least 360mm wide, and 275mm deep, to accommodate for different laptop sizes.

Each motor is only 5mm thick, so the overall mat should not be more than 1cm in thickness to accommodate for wiring, movement, and the motors.

The addition of a sensory panel would also fit into this.

Shoulder width of adult users:

	99 percentile Male	1 st percentile female
Should width	523	342

By using this dimension, the product designed will be able to be used comfortably for the majority of users, and accommodate the majority of standard laptop devices and keyboards.