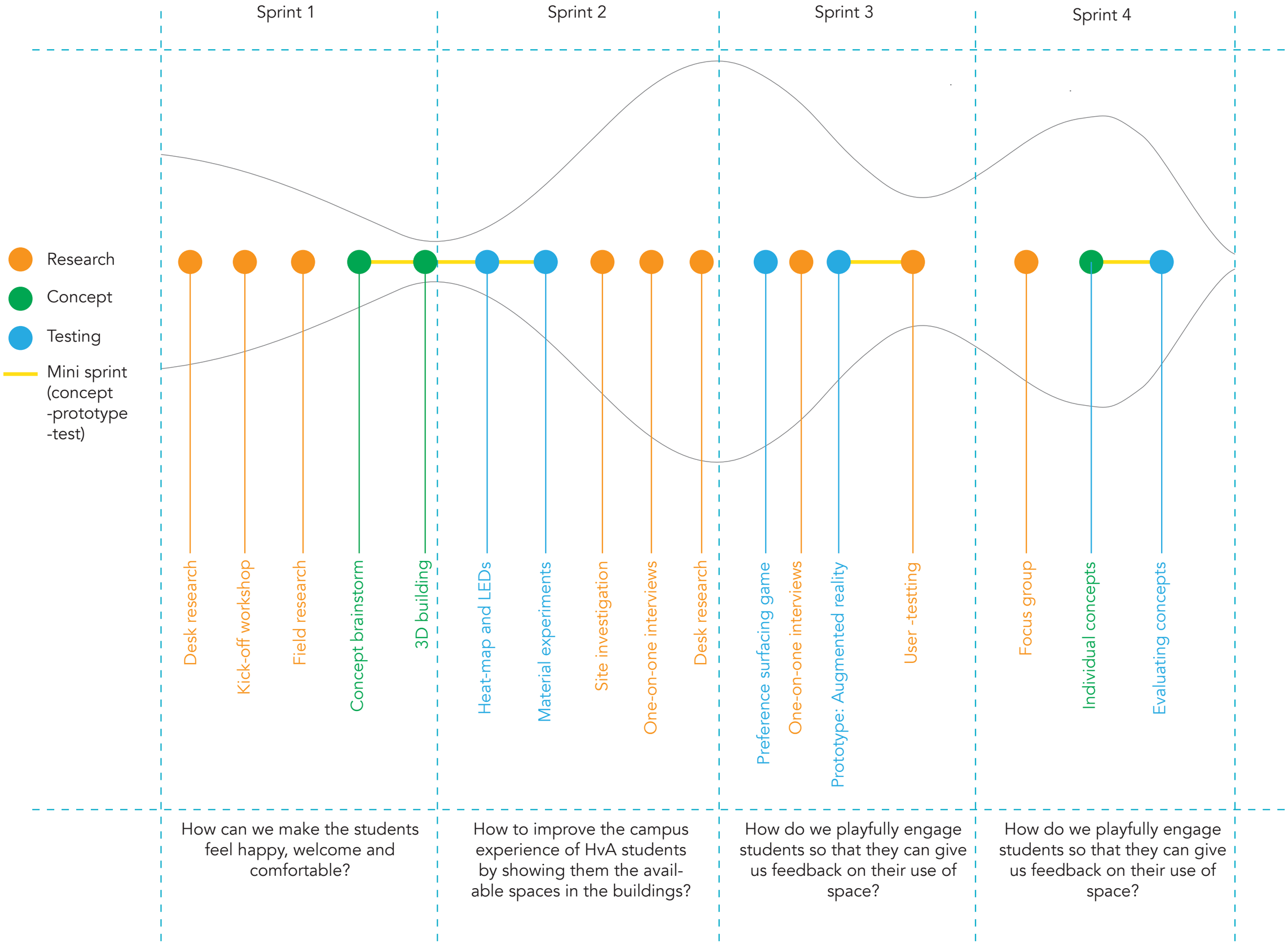
Smart Campus

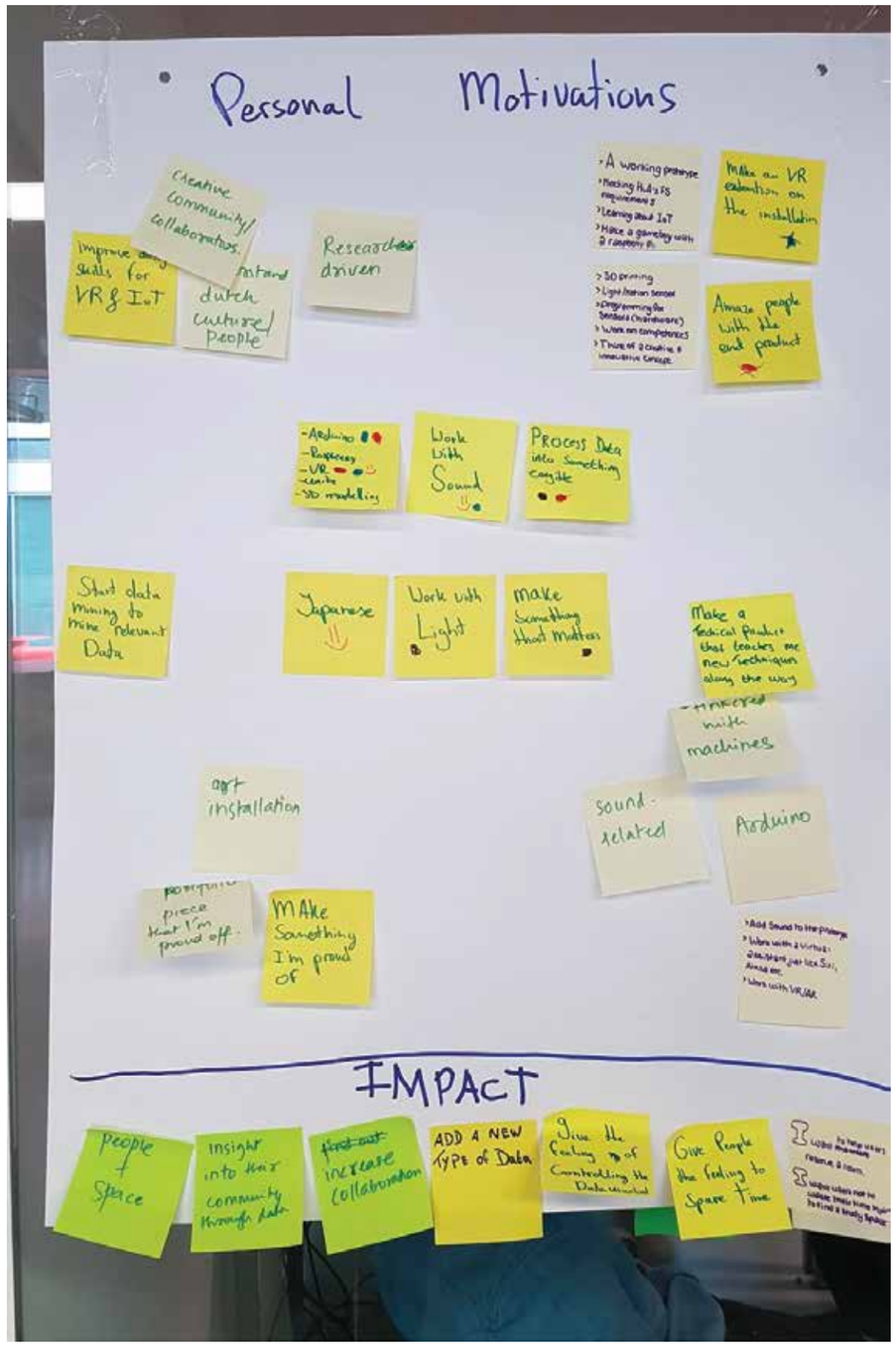
Research findings

Team Omega


Sprint 1
Sprint 2
Sprint 3
Sprint 4
Research
Concept
Testing
Mini sprint (concept -prototype -test)
Desk research
Kick-off workshop
Field research
Concept brainstorm
3D building
Heat-map and LEDs
Material experiments
Site investigation
One-on-one interviews
Desk research
Preference surfacing game
One-on-one interviews
Prototype: Augmented reality
User -testting
Focus group
Individual concepts
Evaluating concepts
How can we make the students feel happy, welcome and comfortable?
How to improve the campus experience of HvA students by showing them the avail-able spaces in the buildings?
How do we playfully engage students so that they can give us feedback on their use of space?
How do we playfully engage students so that they can give us feedback on their use of space?

Links

Smart Campus drive	https://drive.google.com/drive/folders/1jr6bU5UL7h8OzJ2FAQ9xY5wS8svFfOzS
Smart campus report finding	https://docs.google.com/document/d/1PWHr4GYiy6tLgdbOrUzq3DmkMvm8GUTHzK7n8CEuScc https://docs.google.com/document/d/1e93YMuwabQyw4XY64inuIyCpBq246BLRdKAznSPBGLg
Interview questions for David	https://drive.google.com/open?id=1jqn6lJP9J8vo7gkml1ZVvkLmyjqoNFWCi3Y_XOjEB88 https://drive.google.com/open?id=1ux8-cNivzJFMFdpRydmSFTHZbFJjHVl_4mXKogFzFgo https://drive.google.com/open?id=1L0kbgxg7BFHaSU3QEXxwSACLJEsS3oLwT6LWONOxRJA
Interview questions for students	https://drive.google.com/open?id=199v34D_tjgyRy0lR9UjAKicreVjKsfbUPgs7te8Rh-E
Field research with occupants	https://drive.google.com/open?id=1cv2m8-PRvVQi9gL8U20f082imyeeTqG_r3P_bONSP3g
Understanding the trigger problem	https://docs.google.com/document/d/1bRCdreGdm0CIcdAn5Mot21tYCZD-61bvcG06JaqCLao



Background Part 1 of the workshop was to surface each team member's questions, ideas and expectations from this project.

Aim Understand motivations and expectations of team members

Details Questions of Vision, motivation, tracking success, research methods and final outcome were raised in the workshop and the responses were written down on post-it notes.

Questions sit here- https://drive.google.com/open?id=1AjIdxlxsGC2l3hjc5NYzozaxMwfWR--matZsTBYjanuIg

After this each member voted on 3 points areas to work on, and the popular one helped
navigate what we were interested in taking forward.

Findings Some popular responses were working with Arduino, using VR, processing data into something tangible.

Some of us has looked for inspiring projects and looked into known campus problems to get a better sense of where we want to go.

You can find our inspiration here- https://www.pinterest.com.au/prachilai/omega-mood-board/

It would've been beneficial to do some more research as a group on the state-of-the-art projects to get some inspiration and discuss them as a group before this workshop or even show them to each other.

We didn't have much knowledge about what the client wanted or what other type of data can be used or is available (eg. heat map), vso to start imagining what can be done with it.

Kick-off workshop

How can we make the students feel happy, welcome and comfortable?

Sprint 1

Background Part 2 of the kick-off workshop, where we gathered research findings (from the Smart Building Research Document) and framed questions for David.

Aim We met to discuss findings and gathered questions for the client to better understand the brief.

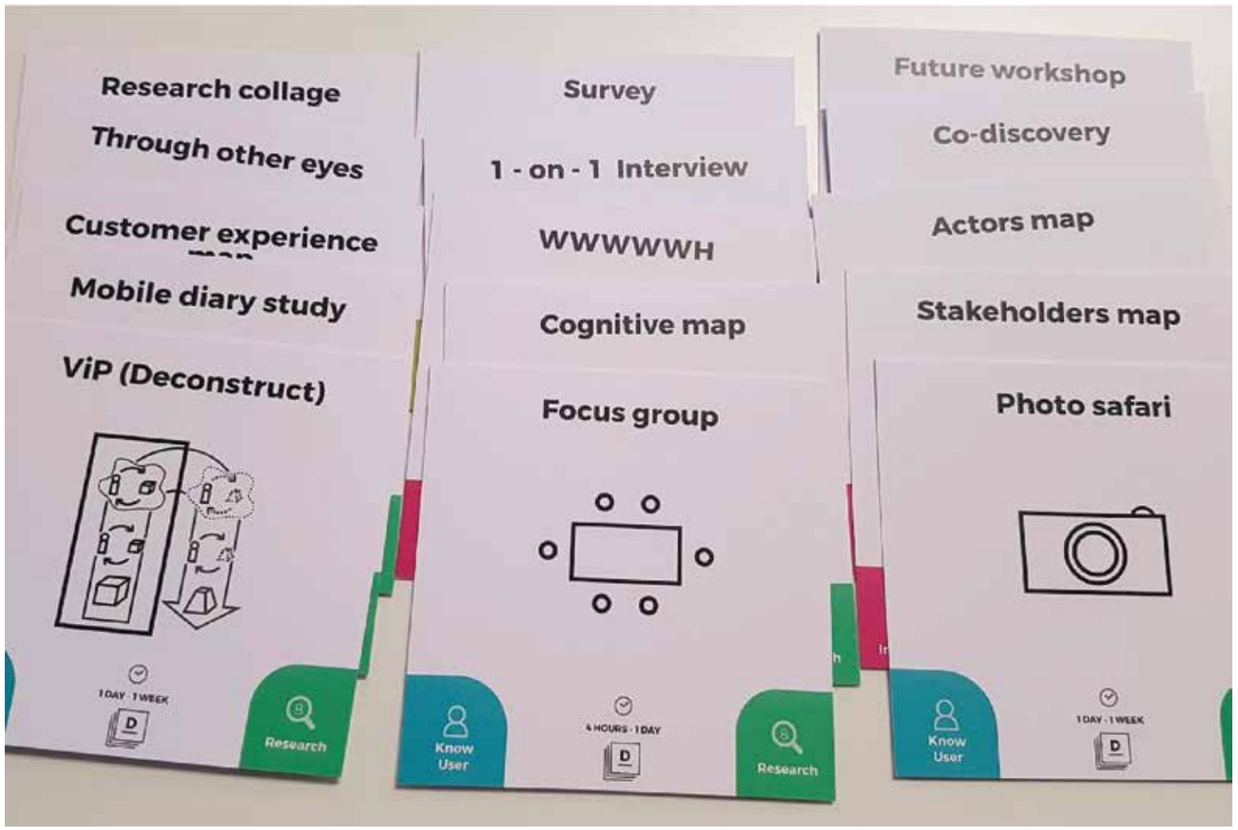
Details The post-it notes were then categorized based on user research findings and technology.

We framed our sprint 1 goal in this workshop : How can we make the students feel happy, welcome and comfortable?, along with finalising questions for field research with students and questions for David.

Research findings- https://drive.google.com/open?id=1e93YMuwabQyw4XY64inulyCpBq246BLRdKAznSPBGLg
Here are some questions we had for David- https://drive.google.com/open?id=1ux8-cNivzJFMFdpRydmSFTHZbFJjHVl_4mXKogFzFgo
Here are some questions we had for the students- https://drive.google.com/open?id=1mLau9y_7dfBcJiE4jtHKSltxpvxDezuOK4sq_pMwmZk

Questions for David

Research Findings



Background

Our first research with occupants

Aim

Speaking to students to learn about their preferences

Details

To get an idea of what are some popular places to study on the campus are
and to learn what kind of places people find memorable, we asked 16 occupants 2 questions:

What is your favourite place in the world and why?
What is your favourite place on the HvA campus and why?

Findings

Here are their responses-
https://drive.google.com/open?id=1cv2m8-PRvVQi9gL8U20f082imyeeTqG_r3P_bONSP3g

Though we had enlisted more than 2 questions to ask (about 5-6 questions were designed) due to the situation in which the questions were asked- stopping them on the campus and asking ad-hoc questions- we couldn't have an indepth conversation and get all the questions answered.

We discovered that people have different preferences- some like a quiet space to study, some like the white noise of a cafe, some like to have people around them while they study and others like a secluded spot.

Some may choose a spot next to the window, while some prefer a spot near the kitchen, while some choose a spot closest to their classroom. Its interesting to see what people pay attention to when choosing a spot.

Two specific findings to take forward were-
First, that not a lot of people choose a spot closest to their classroom, which highlighted that they are not worried about spending sometime to find the right spot. In otherwords, maybe they didn't care too much about efficiency.

Second, for the question about the 'favorite place' question, most people said 'home' because of how comfortable and familiar it is.

Concept generation

How can we make the students feel happy, welcome and comfortable?

Sprint 1

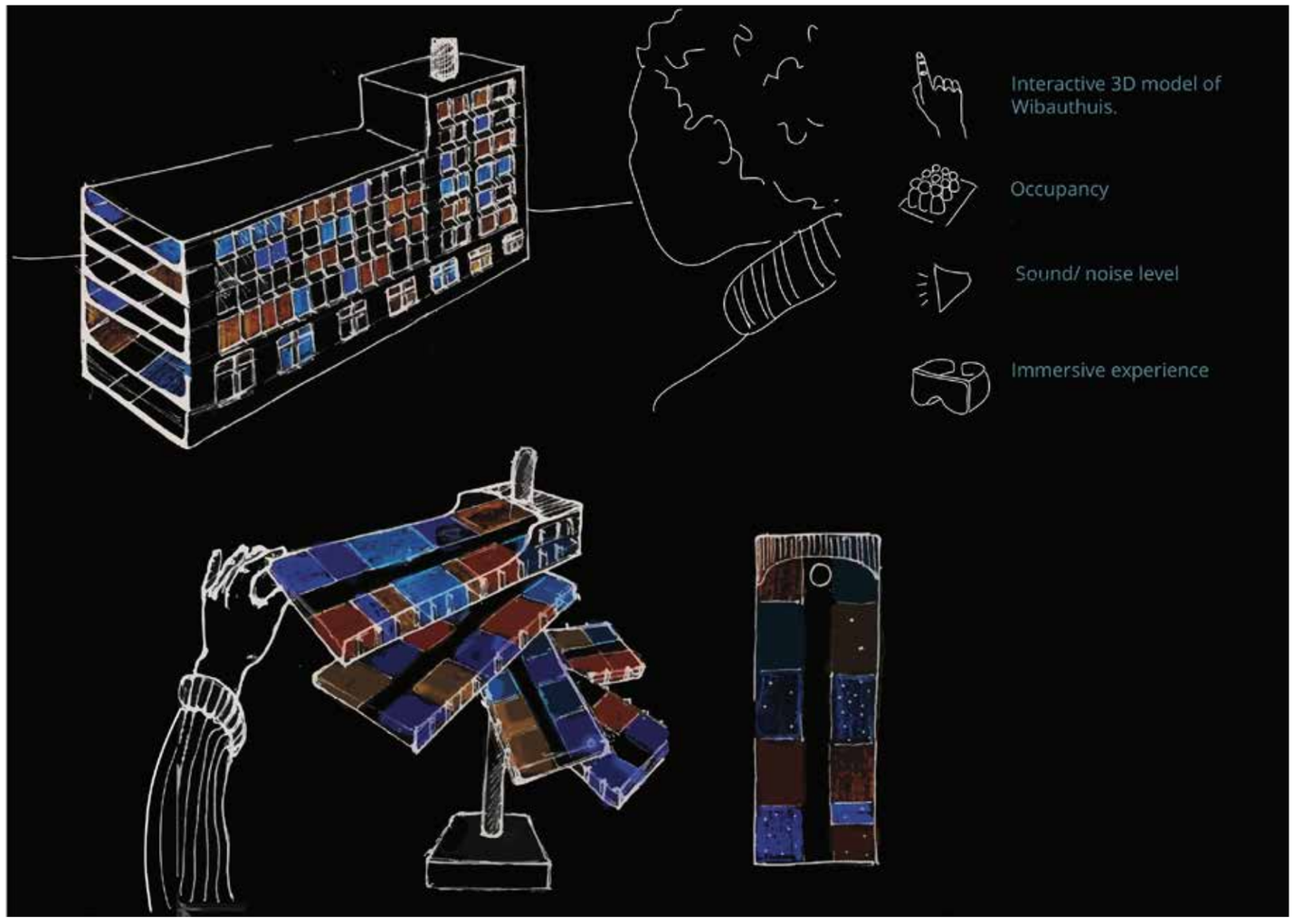
Details

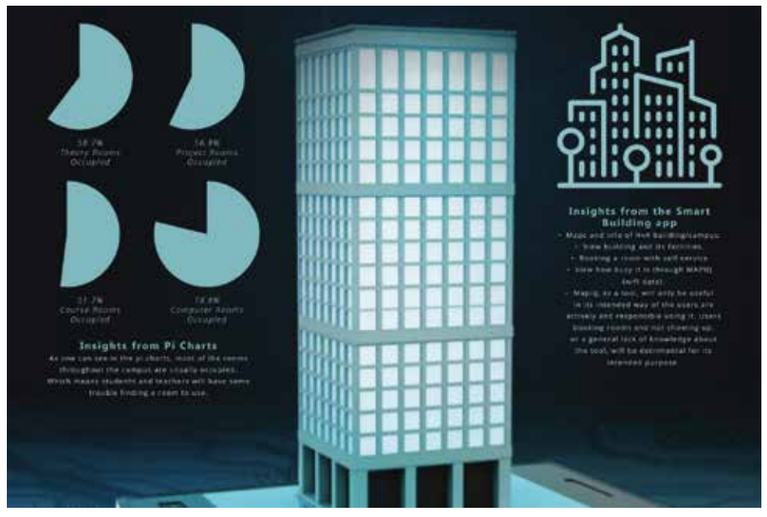
Post our first workshop, our team came up with concepts individually and came together to discuss them.
You can find them here- https://drive.google.com/drive/u/1/folders/1K5yQXvyLAAuz5E_QWpNOYVlMbYIUYXyh
The idea of visualizing occupancy using heat-maps on a 3D building was a popular theme, as one it would attract attention and thus increase awareness of MAPIQ tool.

Learnings

After presenting our concept in Sprint 1, it seemed that we chose a concept too soon. Without really speaking to the students in depth and learning about their pain points, we'd already assumed a the solution. The team felt uneasy about not having a clear brief or direction, and that may have contributed to deciding on a solution rather than trusting the process and exploring. Perhaps the pressure of creating something tangible for the internship or lack of communication from the client (as we had barely any contact time with them in the first sprint as they had some prior commitments) prompted us to this decision.

https://drive.google.com/open?id=1fmf2KNuWAIJpWpsXyme3FUUn06hZaoNt





Physical building model: Using heat-map data

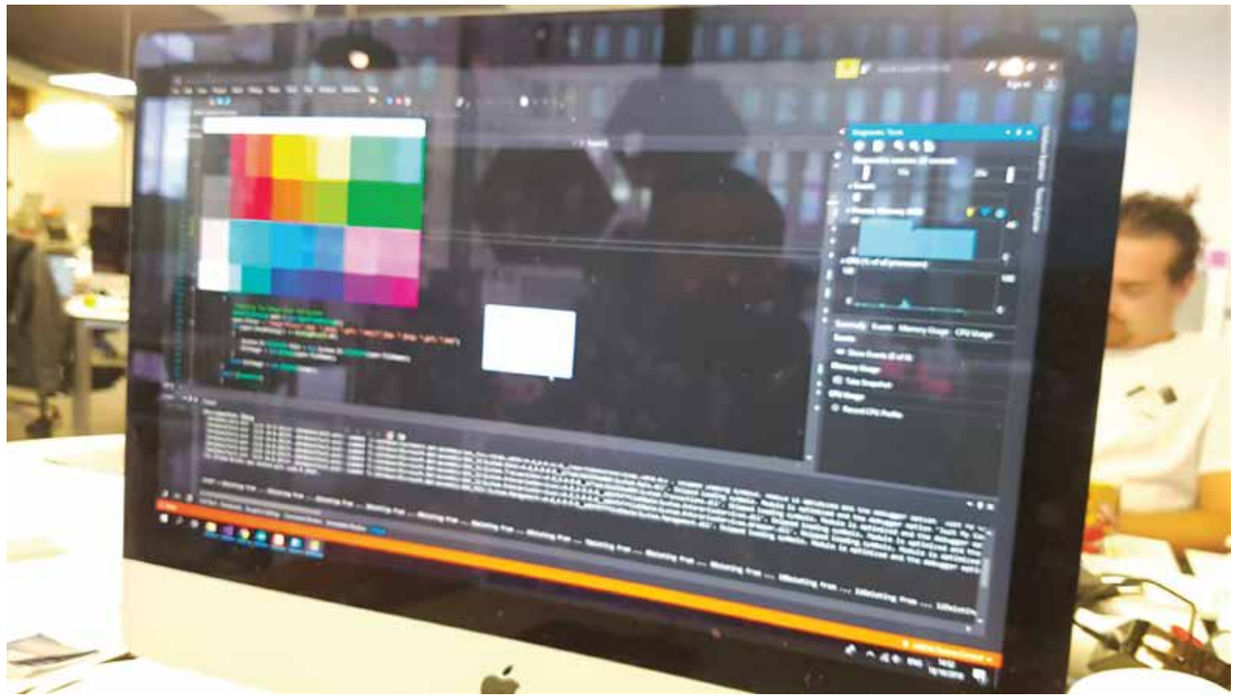
Sprint 2

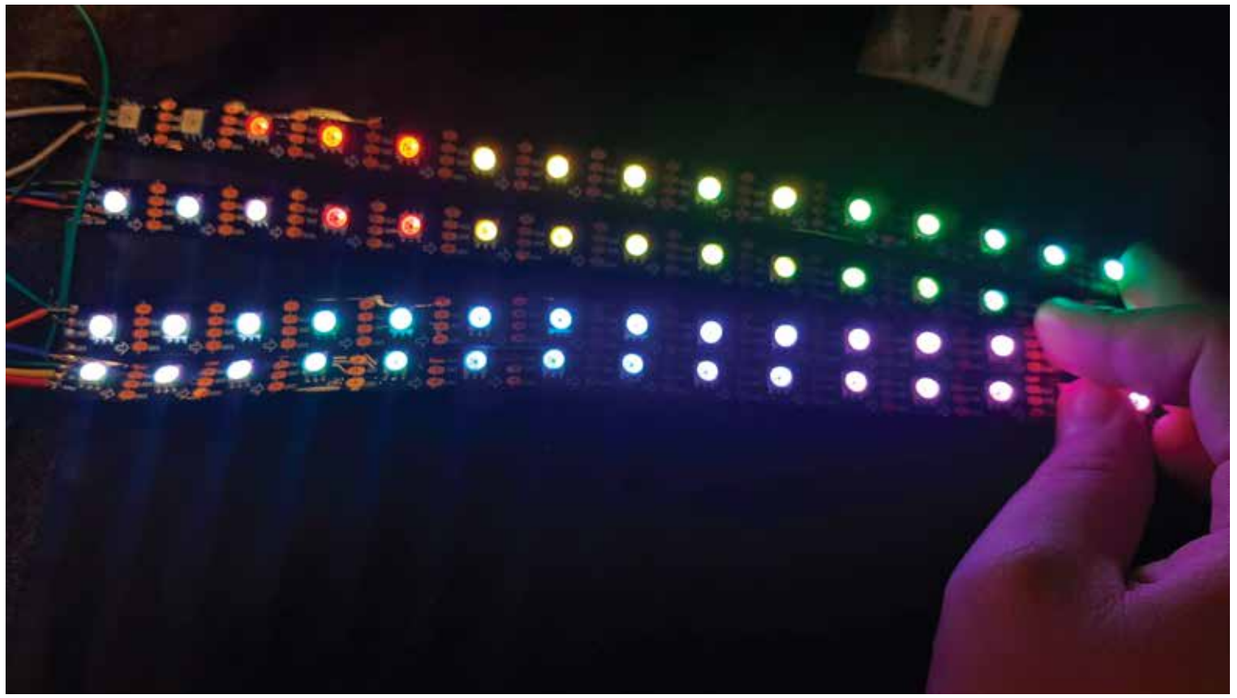
Background Visualising heat-map data to display occupancy

Aim Programming LEDs so that the colours are represented the heat-map data.

Details
1. Heat-map for each floor is divided into equal areas (squares)
2. The prominent colour in each square is identified (aggregate calculated by code)
3. The LED strips represent these coloured squares and thus the aggredate occupancy data for that region

Learning
1. Live heat-map data was unavailable and a sample image was used for this prototype
2. As no reliable heat-map data would be available anytime soon, we didn't progress with this prototype.
3. To convey what these lights represent, we could look into creating an index for colours and can know where to turn to find a spot. Exploring how to engage students rather than only display information would be the next step.





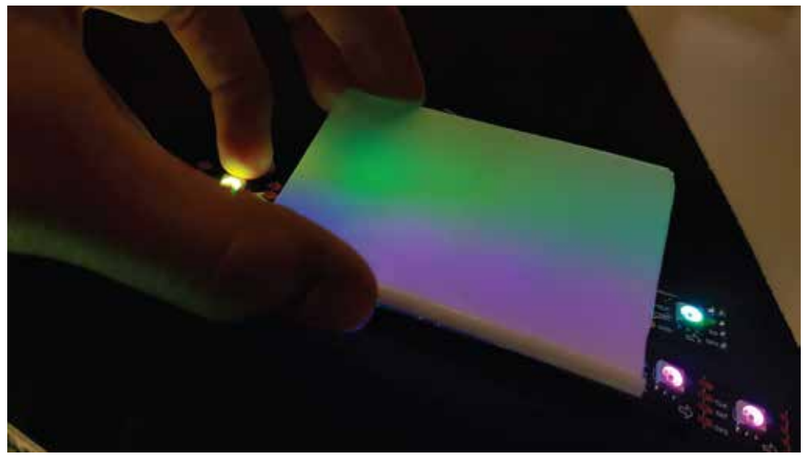
https://photos.google.com/u/1/photo/AF1QipNN6T9n-fy7CYGH48OrIawSOYjC0gU9d8yNq6-g

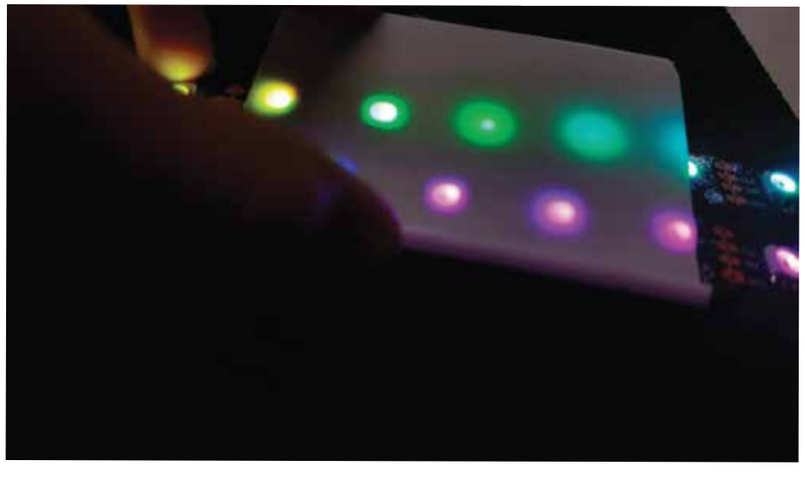
Background Exploring materials for representation of floor on which the heat-map data can be displayed

Aim Multi-sensory means to communicate data and using the correct material to work alongside the lights

Details 1.Used white polypropylene to diffuse light.
2. We used only found materials for these explorations

Learning The further away from the source, the more diffusion. At one particular distance you can differentiate between the LEDs, this would be useful for when each LED represents one section.



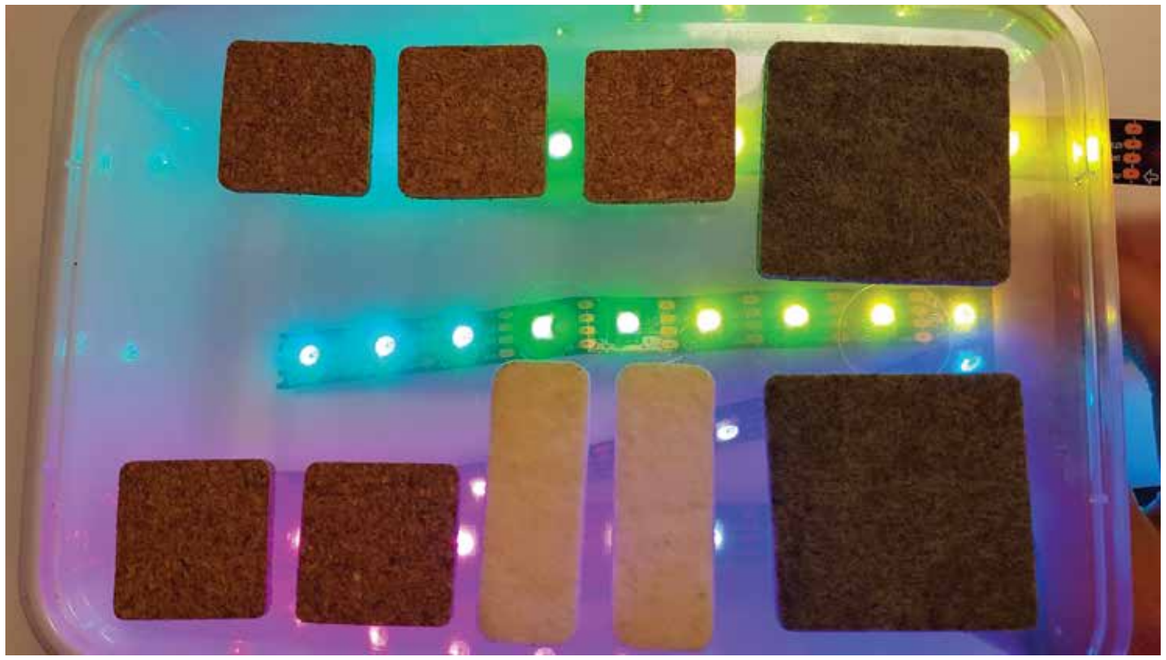


Background Exploring materials for representation of floor map on which the heat-map data can be displayed

Aim Multi-sensory means to communicate data and using the correct material to work alongside the lights

Details
1.Used market-ready anti-skid and anti--scratch cork and felt pads
2. The different textures and sizes were used to represent different rooms (eg: White ones for toilets)
3. We used only found materials for these explorations

Learning The further away from the source, the more diffusion. At one particular distance you can differentiate between the LEDs, this would be useful for when each LED represents one section.



4 students

\+ 1 study group founder

\+ 1 study group member and student teacher

\+ 1 student actief representative

\+ 1 David

1 3 first year students

\+ 1 2 MAPIQ employees

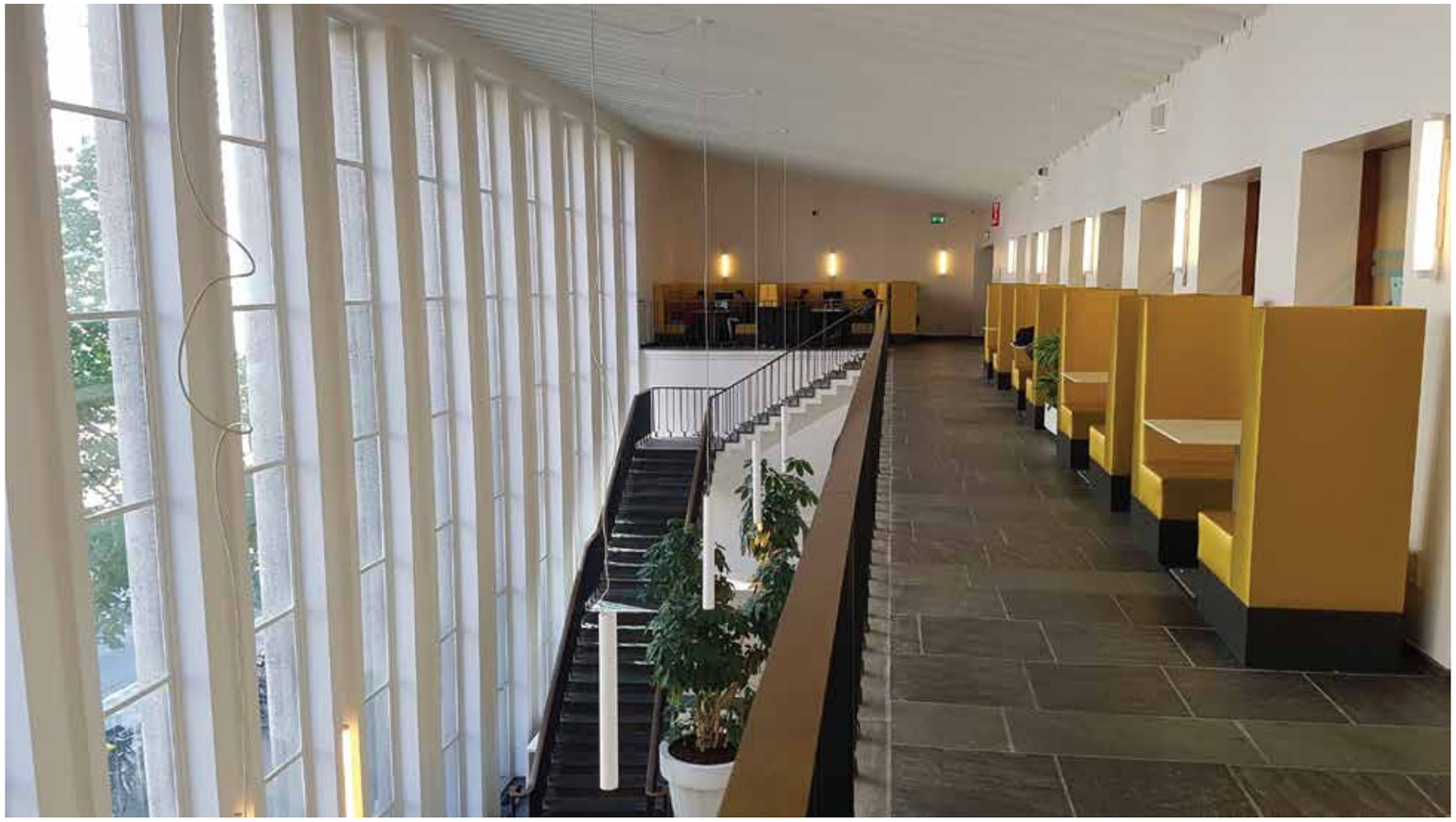
\+ 1 2 facilities employees

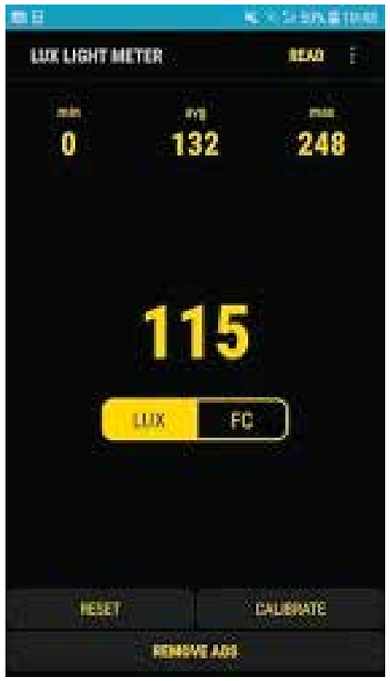
---

6 site investigations + **16** students questioned during field research + **6** one-on-one interviews with students + **3** focus group

Site investigation

Sprint 2





https://photos.google.com/u/1/photo/AF1QipP3org6GDiwLeKysf7hRlYMGylVtQU8J5CppNXZ

Ways to measure a space

Frequency
(when) is there at least one person in a zone?

Occupancy
how many people are in the zone?

Identity
who are the people in the zone?

Activity
what are the people doing in the zone?

Framework by
Christensen, Melfi, Nordman,
Rosenblum and Viera

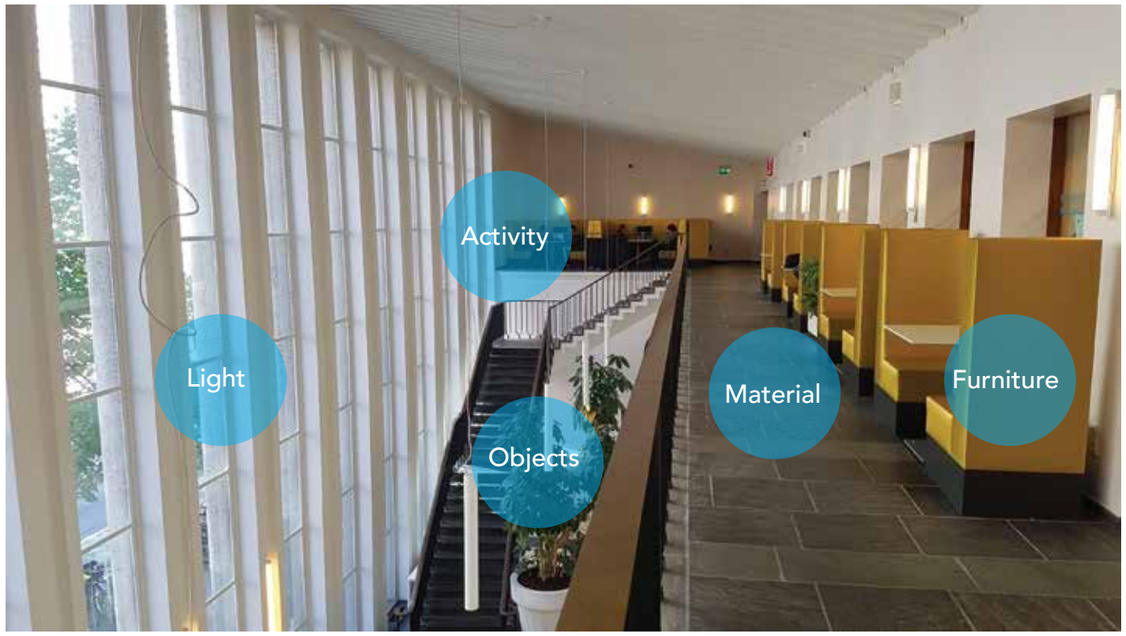
Space

The tasks performed by students today are even more diverse than those done a few years back, the workspaces are continued to designed to accommodate these tasks, different styles of working and personalities. These task require varying levels of attention, stimulation and participation. To cater to these variances, campuses have a variety of space types: offices, meeting rooms, lecture halls, classrooms, study spaces, laboratories etc. Each space has its own dynamics on how the space is used and assigned. The dynamics can be described as chemical states - solid, liquid and gas.

In solid state are offices and laboratories that are usually assigned to individuals or departments and are only used by employees of the particular department. The use of these spaces can be described as 'solid'. There has been an idea where people share their offices but it's still uncommon. There's also that (part-time) researches work at multiple locations.

In liquid state where universities share lecture halls, classrooms and meeting rooms between faculties in order to better match available spaces to group sizes. The pressure on resources along with the growth of students has led universities to start share spaces on a campus level to use the space effectively and efficiently.

The 'gas' state is characterised by students that study at spaces both on and off campus (at home or in city centres) and study spaces are used by many different user groups. For example, students from other universities or even high school students could use a large space like a library or restaurant to study.



Space (contd)

We investigating a few popular campus sites that fell in liquid and gas state to experience these workspaces ourselves. Meeting places like WBH cafeteria and KSH cafe have casual furniture like benches, leather couches and bean bags alongside regular working tables and chairs. It was interesting to find that there were coffee machines in spaces that were social (like KSH Cafe) and also spaces that were quiet-zones (eg: KSH library). Such random placement accompanied by lack of signage could lead to misinterpretations of the rules of a space. So you can find more and more students asking for silent rooms because the supposed misconduct in existing silent rooms.

It was observed that some spaces have lower lux levels than recommended for tasks that require more attention. Some class rooms didn't have enough power-points. We also learnt that 54% of the students are dissatisfied about the number of workspaces there are available. 84% of the students want to see the availability of these workspaces and around 70% want to see how crowded it is in those workspaces before they go there.

The places students choose to study on campus are formed in the first few months of their first year. After which they frequent the same places, and are unlikely to go to a new spot unless suggested by a friend. Students find out about new places (off-campus like restaurants and cafes) through friends or through the top 10 lists that are published on blogs. When introducing an app like MAPIQ or putting out a survey, HVA can use similar communications and could even partner with student associations to pass on the information as the students would be more likely to get involved.

They're also more likely to value something more if they put some work into it (Ikea effect), hence asking for their participation in co-desiging the space would mean students are more satisfied with the campus.

Wilbauthaus (ground floor)
Min 37db | Av 59db | Max 71 db
Min 104 lux | Av 300 lux | Max 653 lux

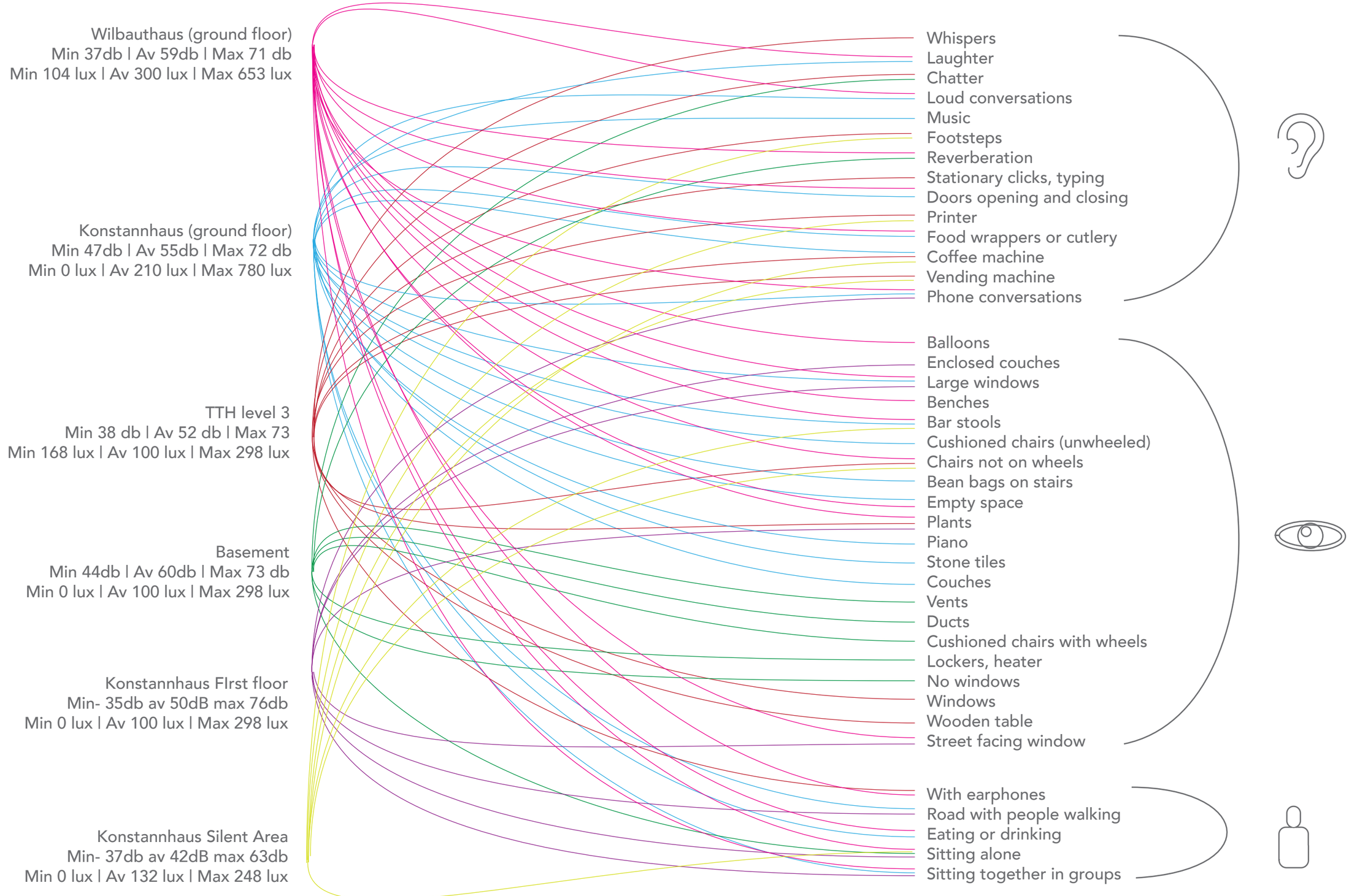
Konstannhaus (ground floor)
Min 47db | Av 55db | Max 72 db
Min 0 lux | Av 210 lux | Max 780 lux

TTH level 3
Min 38 db | Av 52 db | Max 73
Min 168 lux | Av 100 lux | Max 298 lux

Basement
Min 44db | Av 60db | Max 73 db
Min 0 lux | Av 100 lux | Max 298 lux

Konstannhaus FIrst floor
Min- 35db av 50dB max 76db
Min 0 lux | Av 100 lux | Max 298 lux

Konstannhaus Silent Area
Min- 37db av 42dB max 63db
Min 0 lux | Av 132 lux | Max 248 lux



Premise

MAPIQ
HVA wanted to use MAPIQ tool and it has been well received by UVA. HVA wants to spend its budget into what really matters that is research and education.

Efficiency
There is a need to make campus buildings efficient. Efficiency is when there are no empty seats and people are showing up to the rooms they reserved, also financially efficient.

Processes

KPIs
Each student has a square meter budget based on which the services are provided. Facilities need to match these requirements to meet their KPIs

Booking forecast
Faculties reserve rooms for the upcoming semester by forecasting number the students enrolled in the upcoming semester based on the records from previous years. After the deadline (in September) reservations cannot be altered and faculties can only reserve from the shared rooms. Faculties get possessive about their space.

Decision making
5 faculties put forward their requests via their 2 representatives that attend the meetings along with other attendees like the student council representative and the board of HVA to make decisions. “They (the faculties and students) don’t have much of a choice… they budget dictates what they get in the end”.

Pain points

Fluctuating occupancy
Campus gets very busy during exam times and students can’t find a seat to study and there are times the campus is barely used.

The towel problem
When a room is reserved but no one shows up, the room remains unavailable for someone else to reserve.

Evaluation of a space
There is no formal process in place to measure the campus facilities, however the National Student Survey does an annual evaluation of Universities. The survey asks 2 questions that can be scene related to evaluation of space and are very general, HVA scores low on these questions. “To improve the campus, we need students to provide feedback using MAPIQ”.

Interview with David, questions: https://docs.google.com/document/d/1L0kbgxg7BFHaSU3QEXxwSACLJEsS3oLwT6LWONOxRJA/edit

5 whys with David

How to improve the campus experience of HvA students by showing them the available spaces in the buildings?

Sprint 2

We want to

Enhance the student's campus experience

Raise awareness of MAPIQ

Gather feedback for MAPIQ

So that we can

Make students feel welcome, happy and comfortable.

Plan and predict occupancy by gathering data

Measure existing facilities

Which will help

Keep students engaged and interested

Redesign existing spaces

Help understand how the facilities are used

Which will then help

University's reputation and popularity

Make informed investment

Purposeful and efficiently designed spaces

“HVA wanted MAPIQ because UVA had it”
David

MAPIQ

HVA had introduced an application called MAPIQ that allowed its users- students, faculty and employees- to book various rooms on campus. It also provided live heat-map data using a three-dimensional CAD model of the building on screen. This would show the users how many people were in a given room or on a level at a given time.

We found through our interviews with students that they would always ask their teachers and other faculty members to book rooms for them when required as most weren’t aware of how to do it themselves and didn’t know about MAPIQ.

We also found that the heat-map data on MAPIQ wasn’t available for us to use due to permission problems. All features of MAPIQ are only available on the desktop version, which isn’t user friendly for times when student has to look for a space on the go.

MAPIQ was a success in UVA, and since UVA and HVA have the same management, it was brought into HVA too. However, HVA’s organisation is structured differently and is less collaborative that UVA, so MAPIQ will be absorbed differently.

“Faculties can get very possessive about their spaces”, David

Faculty

Each faculty schedules classes and spaces for the upcoming semester using Syllabus+ by forecasting the number of students based on previous years. The scheduling must be done to meet a deadline (September for a March start) without accurate numbers of expected students enrolled for their course available. Once booked, facilities isn’t involved in any further modifications or negotiations if under-booked, and the faculty member will need to find alternatives on their own.

Faculties (like Law) can get very possessive about their spaces and don’t tend to share too easily.

Each faculty is also responsible for what furniture goes in their rooms. They choose from the limited options facilities can provide.

The towel problem- A room is reserved for meetings which do not occur 20% of the time

Efficiency

An important insight that came out of the interview with David was that the school already has a plan and a budget in place to buy a new building. However, to design that building they need to learn about how well the current building and rooms were performing. This prompted us to shift the conversation from designing something eye-catchy to barely increase the awareness of MAPIQ to co-designing with the students by learning how the campus is currently performing.

For facilities, efficiency is meeting the per the sq meter budget allocated to each students. So, no-shows for a booked meeting room (called the towel problem), scarcely used rooms are symptoms of inefficiency for facilities. Fluctuating occupancy during exam time and non-exam times is another concern for them.

Universities like Wageningen University are using a sensors integrated with their scheduling system to determine no-shows and understand occupancy and also where people are in the building as the day progresses.

More findings from Smart building report- https://docs.google.com/document/d/1e93YMuwabQyw4XY64inulyCp-Bq246BLRdKAznSPBGLg/edit

Strategic (policy makers)
stimulating collaboration, stimulating innovation, supporting cuture, supporting image, improving quality of place

Functional (users)
supporting user activities, increasing user satisfaction, increasing flexibility

Financial (controllers)
decreasing costs, increasing real estate value, controlling risks

Physical (managers)
reducing footprint (m2), reducing footprint (CO2)

Efficiency (cont)

However, efficiency is subjective. As an example, a space is environmentally efficient if the building has a low carbon footprint, economically efficient if the rental and operational costs are low and so on.

Since our end-user is the student, these concepts of efficiency may not be relevant to them. We instead asked them questions that would help evaluate the current campus through the eyes of a students.

The places students visit in their daily lives, outside of campus, are informing their preferences, and so the interview questions for the students were constructed to get a glimpse into their worlds and thus help us understand how the current campus facilities are performing. We did this by asking them to describe the places they most like to work out off. One spoke off his dark room with curtains closed-off to be more focused on his assignment, the other about her walls neatly but completely filled with picture to feel more stimulated and another of the relaxed bar called Checkpoint Charlie he frequents to get the ideas flowing.

We asked them "if you had another hour added to your day, what would you do?" to understand what they would do with their saved time when. The responses we got here were ranging from spend more time gaming, reading, soaking the sun, finding time to relax.

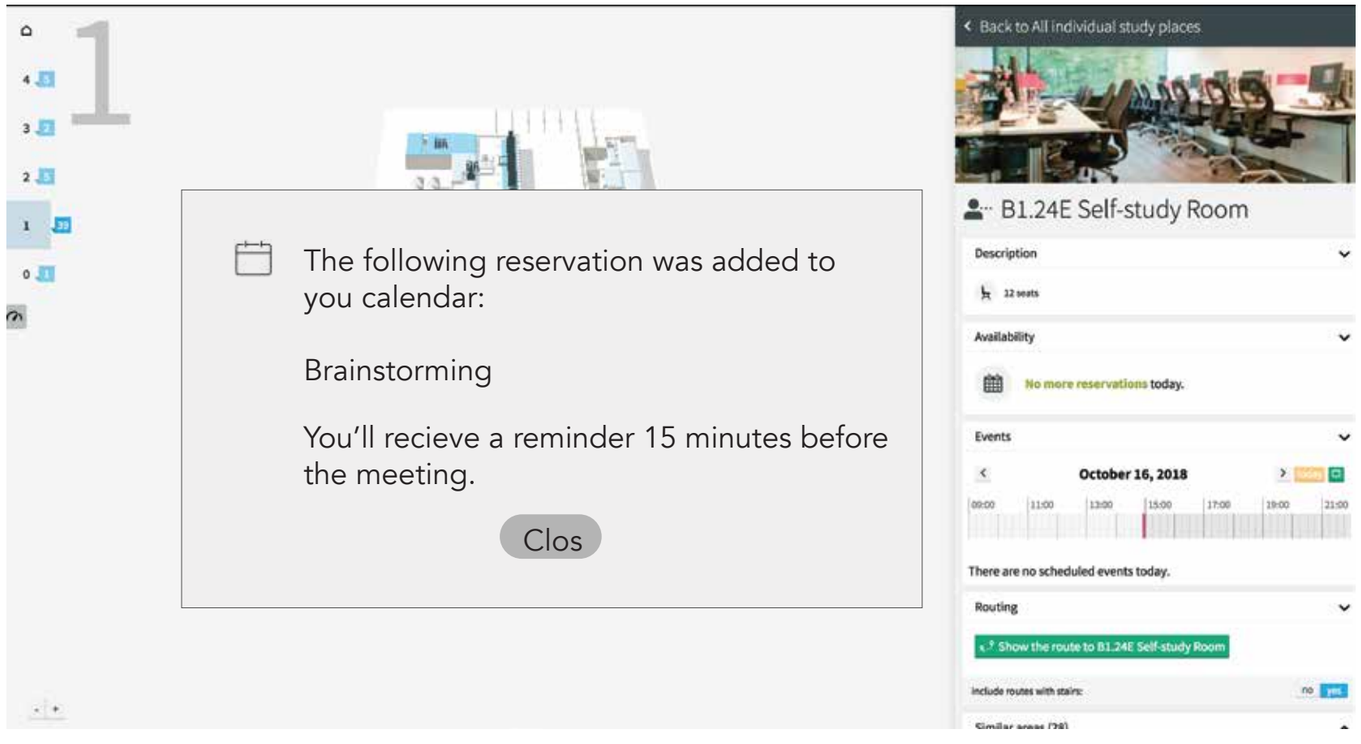
Efficiency for a student, as gathered from an interview, could be when she doesn't need to carry all her belongings with her to duck out to the toilet as she's in a room with familiar faces and so she can leave stuff behind.

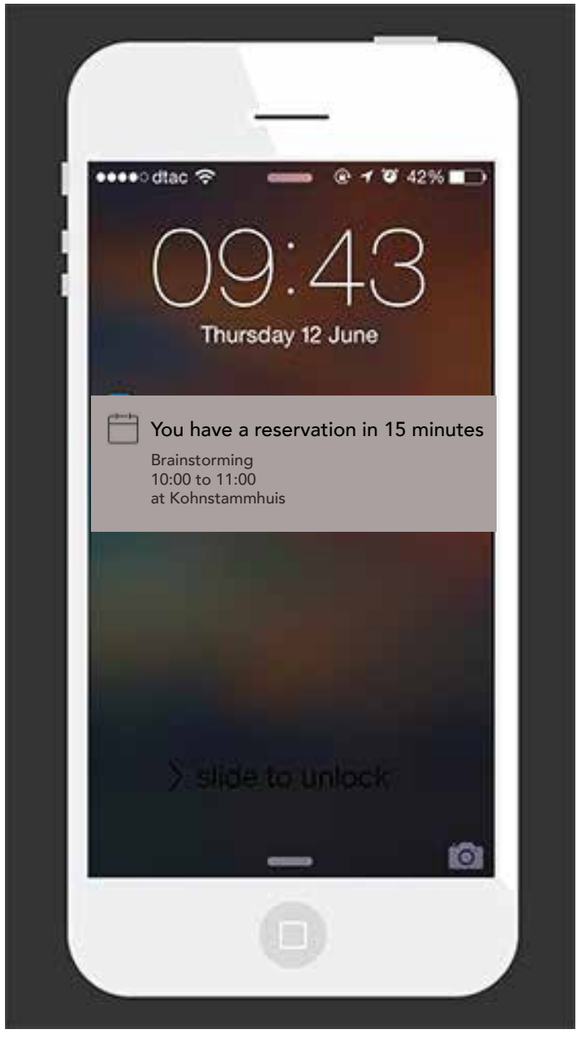
Possible reasons for the ‘towel’ problem

No access to information	I didn’t know
Wrong information	I thought it was
Lack of engagement	I don’t care
Unaware of consequences	I didn’t know others needed it
Overlapping plans	I had to attend another meeting
Change in plans	I had changed it
Overbooked	Not everyone showed up

Proposed solution

- Create a calendar entry on the email calendar when a room is booked on MAPIQ, show as busy
- Remind 15 minutes before meeting. Highlight date, time and location, add option to cancel meeting room booking if meeting is cancelled.
- Ask how the meeting went once meeting time finishes? Include how many people attended, and questions to evaluate meeting room.





	Max 21 years old, 4th year- Game development student
Study tasks	Research, coding
Space requirement	- Is looking for quiet, familiar spot - Fast computer - Clean desk
Preferred location	- Coding at home because its quiet, dark (closed curtains) with a fast computer and 2 screens on his Max Nomic chair with his feet up, - Finishes report at a frequented place basement - Behind the equipment loaning area coz its usually empty - He isn't interested in going to new places girlfriend usually tells him about a new place. He finds out about new games on reviews and blogs.
During task	- Usually has a drink close-by - Can sit for hours at a stretch
Pain points	- Not quiet enough -Slow computers on campus for game development work - Basement can get very messy when busy
Advice to new students	Don't plan, leave it to the last minute
Memorable moments	After class banter
Wishes	3'rd screen
25th hour	Will spend it gaming

	Romy 23 years old, 4th year- Creative Business student
Study tasks	- Group projects, work with video - Exam time, study alone
Space requirement	- Enclosed place with familiar faces and people talking about their projects. - “Where I don’t have to whisper” or “...and can leave my bag to go to the toilet - Visually stimulating like with poster’s of people’s work to see.
Preferred location	- I usually study with my friends at their university because they have regular tests - Media entrepreneurship room - Wilbauthaus second floor
During task	- Uses the toilet - Needs a visually stimulating environment
Pain points	- Feeling of being watched - Asked to leave the room whilse she’s studying because room was booked for someone else - Packing up and carrying bag to the toilet
Memorable moments	Media entrepreurship class. Had the opportunity to learn about other’s projects
Wishes	To tidy up her desk which is filled with paintings and books so she can use it again
25th hour	Cleaning her room but most like relaxing, because she packs her day with a lot of things back-to-back.

	Martyn 19 years old, Student group- Alexa's founder and 4th year Pedagogy student
Study tasks	Reading, assignments (individual work) hands-on when attending baby
Space requirement	A child-friendly space; a place to meet with parents (client facing room), a quiet room to record videos.
Preferred location	- Common room where they play ping pong, Fest are frequented places - He is interning where he is spending a lot of time and is not able to spend much time at the campus.
Study group details	- He created Alexa because he felt isolated in the first year of his course and felt that there wasn't much bonding within the students. Unlike other courses, pedadogy didn't have its study group. - He feels that HVA doesn't do enough for social cohesion. - Student associations can be very expensive, and are mostly about parties.
Advice to new students	Join a study group, connect with your classmates more.
Founder responsibilties	- Finding new members- the membership is only valid for a year. So each year they must find new members and also record them again into the system. - Organise events, speakers, space, drinks - Event eg: Halloween party, bring in a Danish teacher, Readings
Wishes	They got more help with marketing and financing the study group, Alexa
25th hour	Will spend it doing nothing and sitting in the sun

	Moira 19 years old, Student teacher (ST) and 4th year Pedagogy student
Study tasks	Reading, assignments (individual work) hands-on when attending baby
Space requirement	A child-friendly space; a place to meet with parents (client facing room), a quiet room to record videos
Preferred location	- KSH level 4, paedegogy level with her peers - She has joined Paedegogy's student group as she lives 1.5 hours away and this gives her an opportunity to connect with her peers.
Student teacher responsibilties	- Giving advice to first year students about how to study, where to buy books, how to submit assignments, how to organise. - The Advice given by student teachers is personal and can be inconsistent to what other student teacher's give - She has never adviced about campus spaces and areas to use
Advice to new students	Connect with your classmates outside class more
Wishes	It was sunnier
25th hour	Will spend it in a sauna or somewhere you can't take your phone

	Flores 21 yrs 4th year Communications design
Study tasks	Mix of desk and screen work. He prefers off-screen work. Research (emerging technology) and visuslizing research (posters), and lots of talking to people (friends with 'beta' people)
Space requirement	A child-friendly space; a place to meet with parents (client facing room).
Preferred location	- He reads in bed, half sitting with soft light and music (sometimes) - His massive couch in the lounge, which he shares with his housemates. It has a 'medival throne' - Checkpoint Charlie, a bar that he frequents. It has pool tables, board games, books, and sells handcrafted beer not commercial beers like Heineken. - He finds out about a new place through friends (whatsapp group). He wouldn't go to a new place alone, there's always someone.
Advice to new students	Enquire about your study and course well in advance, and think of what you want to do before joining it.
25th hour	Will spend it meditating

	Student actief representative
Job tasks	Meetings (internal and with student bodies), phone calls, hosting events, brainstorming
Space requirement	A large enough space, a place to host an event- they currently use the common room in KSH. A kitchen, a projector for presentations, they also have music and plants. They recieved a request to make the space cosier so they added plants. They've divided the space above so there's a quiet space to work from behind the cupboards whilst there's a meeting on the other side.
Responsibilties	- Support students and student bodies to strengthen - Looking for sponsors, finding caterers for events and parties - Responding to requests by student groups to host events. - They negotiate with sponsors such as fest and get discounted drinks for events - They have to ask for more money for events, its allocated by Communicatie (he thinks). Usually the student groups pay for their expenses. - He doesn't really know who is paying for the Common Room, but it's theirs.

Customer journey

How do we playfully engage students so that they can give us feedback on their use of space?

Sprint 3

Journey	Student enters a building	Browses for a spot in the room/ space	Finds a seat	Begins task	Carries out task	Ends task	Reflection and evaluation
Scenarios	Relationship with build-ing	When they're browsing	How they browse	What are they doing there	How's it going? What else could they need?	When and why did they decide to finish the task?	What are they doing next? Evaluating time spent here
	They've been here before	Find a spot instantly	Go to a previously used (or frequented) seat	They had a task (activity) in mind before finding a seat	Space needs- light, sounds, posture, temperature	They've finished the task planned	They want to come back
	They've never been here before	Has to look in multiple rooms	Finds a friend who has a spot reserved	They carry out the activity based on where the find a seat	Task needs	They've not finished the task planned	They don't want to come
	Someone suggest-ed this building to them	Has to change floors	Goes to occupy their reserved spot	They carry out the activity based on the space or what the other were doing	People needs	They had to leave	Looking for places similar places
Decision making Thinking out loud Individual	Did they say WBH usually has seats? I've never been to this side of the campus What floors can I go Where are the quiet places? I wonder if Jessica is here too?	Is there a class on or can i use this room? This looks empty, I wonder when the next class is How long can they	I wonder if anyone I know is here Lets see if that spot I was in last is still available I really need to finish this assignment. I hope I get someplace to sit	Do I have everything to complete task There's a lot to work on, what should I do I'm sure I can eat here	This place is too noisy This place is too boring Where are my friends? I need to speak to my tutor I'm so distracted, hungry I can keep going for a few more hours	I'm not being produc-tive I don't have everything I need for this task There's something better happening See 'Carries out task' I can go elsewhere	I'll come here after a later/ tomorrow I got a lot done here Wonder if these guys are always here Can I book this space? Can I leave stuff here? What are other places avail-able in this building/campus
Group	I know of this area on level x Someplace we can talk discuss	This room is usually free Someplace we can talk discuss	We need 4 chairs and enough power points	If I could show you the protoype I could explain it better if I could draw it out		We're not being productive I'll leave with the others too We need to go to a different room to find that artefact	
Information	Building location Day's program	See inside a room without entering Room's program	Look for power-points Look or watch out for familiar faces	Study material Coffee	Drink/ food Assistance with work	Program Program	Campus information

“The light beneath the chairs expresses activity levels so passers by intuitively feel something is happening, and this creates a sense of community and personality,” Job Rutgers

http://we-make-money-not-art.com/glowing_places_1/

Community

We were also told by the client that the university wants to keep students in the campus for longer. One leading reason for this was because students travel from long distances and so the university wants them to feel more comfortable on campus outside of class hours too.

Infact, we spoke to a study group member, who confirmed that she joined a study group to socialise with her classmates more as that was her only chance to do so because she lived far away. On speaking to a study group founder, we were told that they felt that there was a lack of community and that they felt like the school was not doing enough to strengthen it.

An interviewee when describing the Media Entrepreneurship room- her favourite place on campus to work from- said that being able to view other students’ projects was great as she felt inspired and it also gave her a chance to speak to people outside of her class. She, along with another student felt that there should be more opportunities to meet people outside of their classes.

Adding comments, wall posts and messages can help strengthen a sense of community and are known to create a sense of community instead of one-click communication.

Today, the HVA app is co-created using a polling system to add new features. Users get to vote on a proposed feature and based on the response the feature is released. A record of these requests and recommendations can be requested by Tuin who manages these apps.

Glowing Places is a project that uses illuminated chairs bring people together in subtle ways, where are public seating glow, dim, flash and change colour in response to people sitting on it throughout the day. “The light beneath the chairs expresses activity levels so passers by intuitively feel something is happening, and this creates a sense of community and personality,” says Job Rutgers, from Philips Design.

More examples can be found here: https://docs.google.com/document/d/1bRC-dreGdm0CIcdAn5Mot21tYCZD-61bvcG06JaqCLao/edit

Background Exploring playful ways to ask for feedback

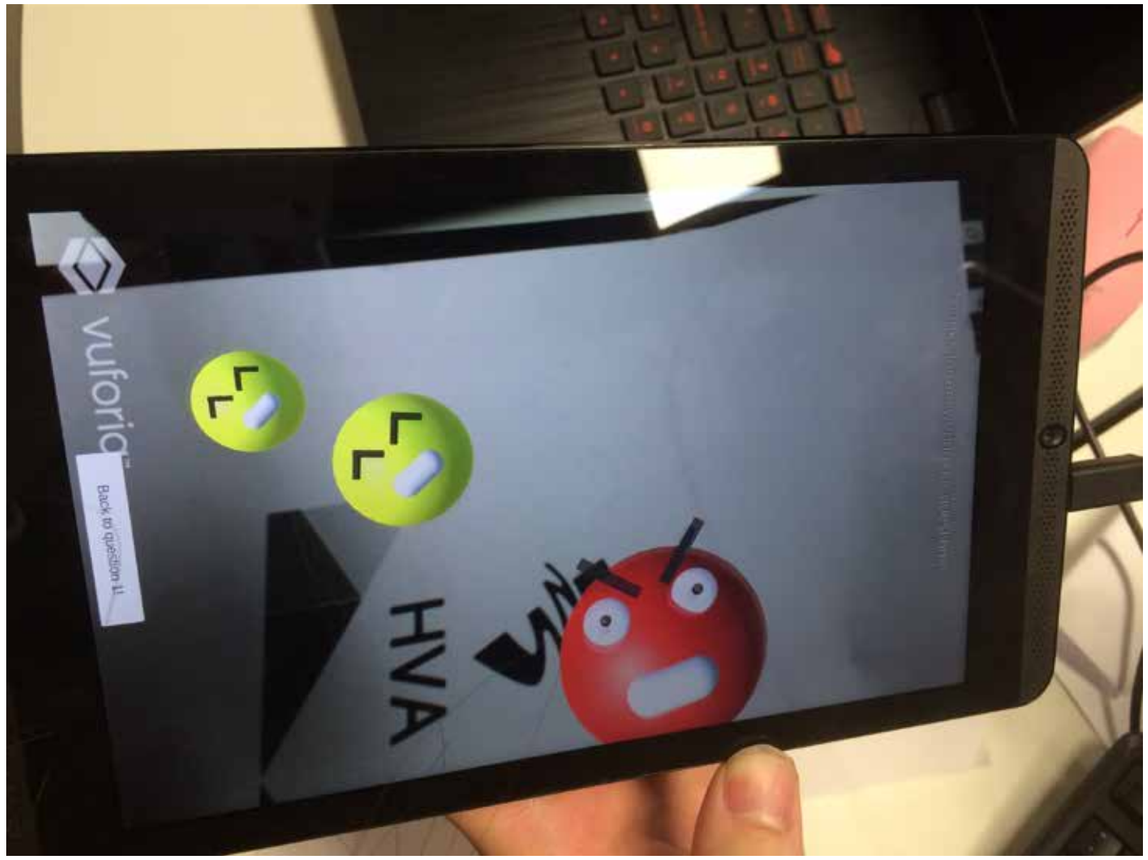
Aim To see how existing and potential students feel about giving their feedback in AR

Setting Open Day, KSH cafe area; We were given a table where we set-up our tablet and had an a4 size poster asking for visitors to provide feedback.

Learning 1.There was a mix of potential students and parents, a lot of them did not know what AR was. A different location, perhaps TSH, would be more conducive as it would have more tech-savy people.

2. Most people were walking purposefully and were not very open to giving feedback. We had to block their path and ask them to participate.

3. We could have recieved more participation if it was visually more appealing or the stall was more attractive, however we didn't have the permission to do so nor the time.



Preference surfacing game

How do we playfully engage students so that they can give us feedback on their use of space?

Sprint 3

Background Exploring playful ways to ask for feedback

Aim To see how we can get users to design a space

Setting Part of a prototyping workshop, where we created 4 categories of objects to choose from-
room furniture, personal objects, sound, ambient related objects. The user was asked to design their workspace and choose from each category. We wanted to test this out physically and see if recreate this in AR.

Learning
1. Colour coded categories was useful to make data more understand and easier to measure
2. Giving the user no constraints and asking them to think-out-loud helped visualise their decisions and helped validate assumptions as well as better empathize with them. This research gathering game was inspired by 'a day in the life of' method.