mōwΔ

In 2037 educational spaces will be without walls, and collaboration will become the primary type of interaction between students due to project-based learning. Consequently, these spaces will be characterized by a high amount of visual and acoustic external stimuli, changing the privacy and personal space perception.

In order to guarantee the psychological well-being of each individual and successful collaboration between people, future educational spaces will have to be adaptable. Moreover, they will need to allow people to adjust the space according to their personal boundaries when needed.

Mōwa is a product-service that creates a quiet zone to concentrate while studying in crowded places. Through white noise emission, the product helps to set a space to focus regardless of the background noises. Designed to enable students to shift between collaborative and individual work, Mōwa's height can be adjusted to cover one single user or a group up to four people.



Polytechnic Institute of Milan School of design

PSSD PRODUCT-SERVICE SYSTEM DESIGN

Master's Degree Course in **Product Service System Design** a.y. 2021–2022



Innovation Studio Higher Education – 2037

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1 Scenario
2 Product
3 Service
4 Brand identity
5 Annex

O Introduction

0.1 Team 0.2 Process

8

10

0.1 Team

Chiara Marsiglia

Mum of Mōwa's identity and master prototyper. Always looking for creative solutions to solve product's issues.

Ceylin Safyürek

Master prototyper and official sketcher of the team. Storyboards and moodboards have no secrets for her.

Daniela Montenegro

The renderer of the team, she made first Mōwa's sketches come to life. Careful about each detail of the project.

Matteo Sciortino

Reliable manager of the team, co-creator of the UI interface and service. Always precise about being on schedule.

martin

Giovanna Freitas

Our Service designer mentor, head of Mōwa's UI interfaces and service. The calm and safe guardian when things are difficult.

Andrea Camurani

Frontline mentor about everything that involves graphics and Mōwa's
 visual communication. Official photographer of the project.



1 Scenario

1.1 The future of educational spaces141.2 A scenario of overwhelm181.3 What we envision20

1.1 The future of educational spaces

Learning curricula are changing: from solely fostering knowledge acquisition, they are now shifting toward an idea of participation, where collaboration plays a significant role. Along with curricula, the evolution of spaces mutates accordingly. Therefore adaptability will be a key characteristics, not only because they have to accommodate new activities, but it is also very likely that they will integrate with working spaces. In fact, practicebased activities are increasing in the overall yield of academic curricula along with the demand for collaboration in the job industry which has more than doubled over the last decade.

However, the amount of available space per single employee

is decreasing rapidly in offices, leading to <u>overcrowded interiors</u>, which ultimately cause great concerns both in academia and industry. In addition, what resembled collaboration backfired. A recent study shows that open-space offices have reduced meaningful interactions between people by 70%, endangering the benefits enabled by collaboration. Extreme open-offices also do not consider that many people perform their best without others around constantly. Evidence of that is the psychological phenomenon of groupthink. It consists of people feeling pressured to go along with others, fearing being isolated to build a personal, and maybe different, point of view on the project.

Studies show that enabling individuals to achieve a <u>privacy sense</u> could limit the toxic side of collaboration, representing a major component for the well-being of people living in collaborative spaces. Privacy is a deep and complicated concept depending on individual, societal and cultural factors. However, giving control over information released and stimuli received is a way of enhancing privacy sense. The opportunity we forecast is giving individuals power over the acoustic, visual and territorial stimuli to which they are exposed.



1 Scenario

Key Features

- <u>People</u>. The boundaries between student and employee are destined to blur. The learning processes are merging with the working practices, as the students' curricula are contemplating more and more practice-based rather than theory-based activities.
- <u>Spaces</u>. Interior layouts of offices are constantly being innovated. The changes in students' curricula are shaping updates also in campus layouts. However, merging the learning with the working spaces leads to crowded co-working spaces that will have to be adequately.
- Overwhelm. Changes in curricula and work environments are addressing the rising demand for collaboration. However, individuals are being exposed to increased stimuli, thriving a real "pandemic of overwhelm". Giving people more adaptative environments where they can filter stimuli, is key to wellbeing in learning and workplaces.

HOW WILL CO-WORKING SPACES LOOK LIKE IN 2037?

1.2 A scenario of overwhelm

- The harder people work collaboratively, the more they need some alone time. Recent research shows that more than 80% of highlydisengaged performance correlates to environments that don't allow people to concentrate easily and work in teams without interruption.
- The connectivity revolution led us to an <u>information overload</u>. Most students and workers are experiencing anxiety due to the amount of information they're expected to deal with daily. Furthermore, multitasking has become more common, and the pressure to be always available has led people to burn out.
- The dimensions of what impacts well-being are intrinsically connected to our relationships, communities, and <u>environments</u> around us. Successful collaboration requires giving colleagues easy access to each other, but at the same time, it requires giving each individual the time and the right places to focus and recharge. The foremost need of students and workers in 2037 is to have a place that allows them to shift from individual to group work comfortably.
- The main actors in this scenario are the <u>students</u>. They are juggling to balance their personal, educational, professional lives. As students, we have been experiencing glimpses of this scenario nowadays.
- If the predictions research points out actually materialize, in 15 years, the well-being of students will be highly compromised by the educational environment. Forecasting this possibility is essential to give future students a seizing experience.



1.3 What we envision

- We envision a product-service that enables students to easily shift from group activities to individual moments. Our goal is to give control to students and workers over how the environmental stimulus affects them. <u>Stimulation control</u> could be achived by: 1 being undisturbed by noise and, or able to create noise of your own without disturbing others (acoustical), 2 not being seen by others and/or freeing yourself from sight-induced distractions (visual), 3 claiming a space and controlling it as your own (territorial).
- Aiming to do that, we appropriated the concept of <u>selective permeability</u> which comes from biology. Selective permeability is a natural mechanism of our cells that balances the number of chemicals allowed in and out.
- Our product is like a membrane, regulating how much stimuli are allowed in your personal zone. In this sense, we want students to be able to control how much noise is allowed in and out and to communicate visually to others if they may be interrupted or not. Selective permeability allows <u>adaptability</u>, the quality of adjusting to different conditions. In this sense, we want students to be able to adjust our product to support one or up to four people, giving them a controllable personal space.



2 Product

2.1 Moodboard	24
2.2 Introducing Mōwa	28
2.3 Specifications	32
2.4 Technology	36
2.5 Type of inluence	38
2.6 Storyboard	40
2.7 Space	42
2.8 Application	46

2.1 Moodboard

Mōwa's moodboard takes inspiration from the <u>Zen philosophy</u>, which highlights the importance of calm, mindfulness, and harmony. We wanted to express these feeling through the usage of colours, wood textured and main material used for the product.











2.2 Introducing Mōwa

Mōwa is an adjustable wood bell that creates a <u>quiet zone</u> to concentrate while studying in crowded places. Through white noise emission, Mōwa helps students set a space to focus, regardless of the background noises.

<u>The key features</u> of Mōwa are: customizable type of noise, adjustable noise coverage and personal-group setting.

Create your personal space, dive in your own flow.





2.3 Specifications

- The <u>adjustment mechanism</u> (1) is made of two pulleys aligned horizontally and a central base that contains two pivots that allow their movement. The distance between the pulley's centers generates the perception of balance when the user interacts. The material used are: base (plywood 30mm), pulleys (plywood 18), pivots (steel).
- For the <u>bended plywood shade</u> we needed a conical shape to enhance the acoustic functionality. Thin plywood makes bending easier, so the choice of thickness was based on its transformability. Material used: shade (plywood 1mm).
- In the <u>metal rope</u> ③ we used a combination of wood and metal makes the display of the object both functional and stylish. Functional because the loads placed on the product exceed 4kg, requiring a strong material to hold it safely. Stylish because the wire almost disappears in some backgrounds, creating an interesting floating look. Material used: rope (inox steel 5mm).
- The <u>wooden sphere</u> ④. Besides the functionality, the object's handle meets specific weight, perception, and contemplation characteristics. The wood sphere is heavy enough to counteract the opposite weight, invites interaction, and highlights the plywood material and the zen aesthetics. Material used: rope (inox steel 5mm).





2.4 Technology

Mōwa's internal technology is the main core of the product.

An adaptable patented circuit allows to generate white, pink or brown noise. White noise is a mix of various frequencies, which makes it effective on masking background noise. Pink noise is closer to human voices frequency, efficiently used to mask conversations. Brown noise is a lower frequency, that helps you relax and concentrate. An internal powerful speaker produces the sound in a higher range. This masking sound technology can be used both by <u>single user and by groups</u> up to for people. The area of sound coverage will change according to the change of the height.



2.5 Type of influence

Sound propagates in the form of a wave, as explained below:



The <u>optimal level</u> of sound established by the World Health Organization (WHO) is <u>55dB</u>. To guarantee it inside Mōwa's coverage area, we tested the distance between the lampshade and users' heads. The best parameters were: 30 cm high for single-use and 100 cm for a group of up to four people. To perform the test, we considered furniture tables of our university, which have dimensions of 150 cm x 70 cm and accommodate comfortably four people.



2.6 Storyboard



1 Unlock the product.

2 Sit under Mōwa.

3 Adjust the height.

2.7 Space

The single and group mode allow Mōwa to create adaptable and customisable educational spaces. In particular, the product guardantees a full sound coverage for groups up to four people.





2.8 Application

Mōwa's application has been designed as a support for the main product. The user can sign up and book one of the Mōwas in the spaces. By scanning the QR Code, he can customise the whole experience by changing the <u>type of noise</u> and <u>height</u>.



scan the QR to use the application

Home	
Good m	norning, Susana :)
What kind of	space are you looking for?
Alone w	Group work
When w	vould you like to book?
bay DD/MM/YY	(
TOTU	T0
15:30	9 16:30 (
15:30 C	9 To 16:30 (
	NEXT

First, users inform what kind of space they want and for when. The app filters available spots according to requirements.



Users can navigate the campus map to choose the space they prefer.

ho

Book



. .

They are guided to find the booked place. Their phone vibrates when they arrive at the spot and opens the QR scanner.



Through the app, users can choose between pre-sets or create their own settings.



They can adjust all parameters to have the best experience.



3 Service

3.1 Overview of the service	54
3.2 Offering Map	56
3.3 Stakeholder's Map	60
3.4 System Map	62
3.5 Persona	64
3.6 Experience Map	66
3.7 Service Blueprints	72
3.8 Business model canvas	80

3.1 Overview of the service

Mōwa offers both a business to business (1), and business to consumer service (2).

Business to business 1. Mowa rents to businesses companies and educational institutions the product. It also takes care of the necessary technical analysis, the installment, and maintaining the devices. Moreover, it takes care layout of the space according to the needs of the organization, allowing the renter to request for adaptations and reconfiguration on the position of the products and numbers available in each space.

Business to consumer 2. Mowa enables students or employees through an app to book a device over a period of time, either using presets or guiding the customization of the device features.

<u>Secondary service</u>. Mōwa creates a sustainable life cycle of the product: reusing plywood from demolished buildings, facilitating the maintenance of the devices thus reducing the amount of resources used and recycling the product at the end of its life.

Offering Map



Legenda:

Primary Service

Secondary Service

Options

Offering Map



3.3 Stakeholders Map

Our stakeholders map was defined taking into consideration mostly the break-even and early stage of the Startup Lifecycle. Mainly because these phases are the ones where we are very engaged on the development and improvement of the product and business. Therefore, our customers (universities and companies) have a high impact on business decisions and our end-users (students and employees) constantly helps us refine the product and service through feedback. However, we expect that this configuration stays pretty stable during the entire lifecycle. Since we'll be always putting customers and users in the center of our designs through constant CRM and feedback.



UNIVERSITIES AND COMPANIES' BOARDS

Are the leaders responsible for decision-making related to our service in the institutions which are our costumers.

STUDENTS AND EMPLOYEES

Are the end-users of our product and service, the ones who benefits from the instalation of the product in the institutions to which they belong.

TEACHERS AND MANAGERS

Are possible users of our product. These are people who usually use the product a little less, since most of them have private offices. In some situations they might find useful to seize the product.

UPCYCLING PARTNERS

Are the ones who provide our raw material. They are companies that produce plywood with wood dismissed from buildings. They were chosen to have a more sustainable source of material, since the reuse of the wood leads to less exploitation.

MANUFACTURING PARTNERS

Are companies that helps us produce the product. They can be tech companies, that provide the sound and light technology of the product, and also production companies which assemble our product.

LOGISTIC PARTNERS

Are the transport and shiping companies that helps us in getting the product to the costumer, or the parts of the product to manufacturing, or that takes obsolete products to recycling.

RECYCLING PARTNERS

Are the cooperatives which receive our product, or parts of our product, that can't be fixed anymore.

System Map



3.5 Persona

<u>BIO</u>

Susana is a student in a foreign country, always opened to get influenced by local cultures. Specifically, she studies design and spents a lot of time working in group, in different facilities of the campus. However, she is aware of the importance of alternating between individual and group thinking in order to keep the work productive. She is constantly searching for <u>quiet places</u> in her university to focus and concentrate. She finds a lot of spaces to work, but they are usually crowded. Making her struggle to focus and concentrate on more complex individual work, but also hard to hear her colleagues in group work. She spends the whole day in campus and sometimes she has to solve personal issues while in there. She always worry about <u>oversharing with others</u> when she takes a call.

"We are always looking for a private place with my team to be calm and to be able to carry out work in a more productive way"

<u>NEEDS</u>

Shifting from team to individual work

• Isolating from the sorrounding environment to stay focused on the task

PAINPOINTS

• Getting distracted or interrupted while being in a flow

• Not being able to adapt the working station

WISHES

 Recharging batteries after teamworking sessions

 Limiting other people to hear personal informations

DIMENSIONS



NAME Susana María Gómez García

AGE 27

OCCUPATION Master Student

LIVING IN Milan, Italy

BORN PLACE Medellin, Colombia

Experience Map

Pre-Service

Awa	reness	Discovery	Decision
She enters the campus of the university	She sees the interior of the campus full of Mōwas	She interacts with some explanatory billboards on the corridors and classrooms	She opens the QR code or the billboards to download and open the Mōwa app
Find a quiet, adaptable pl	comfortable and ace to work	Discover more about Mōwa	Get used and interact with the new functions ofthe app
Physic Campi	<u>al</u> us facilities	<u>Physical</u> Billboards	Physical Smartphone
Digital //		<u>Digital</u> Instagram profile	<u>Digital</u> App interface
<u>Stressed</u> "I have quite a few projects to deliver, I need to focus and be productive."	Surprised "The interiors of my classroom is different Oh, it looks so nice!"	<u>Curious</u> "Let's see… What Mōwa is?"	Interested "Let's see how Mōwa works"
			•
How may we let with Mōwa thus	Susana empathyze lowering as much	How may we us to lead Susana t	e curiosity as a drive to try the product?

Experience Map

Booking	Exploring	Log in	Customization
She books one position available and gets directions on how to get there	She walks towards her position and gets notified when she gets to the right spot	She unlocks her position by pairing her phone with the product through a QR code placed in the product's holder	She explores some setups in the app to regulate the height and sound according to her needs
Reserve the working station	Explore the interiors of the university and find her working station	She unlocks her position by pairing her phone with the product through a QR code placed in the product's holder	Adapt her working station according to the changes in the surrounding environment
<u>Physical</u> Smartphone	<u>Physical</u> Campus facilities	<u>Physical</u> Smartphone	<u>Physical</u> Mōwa
<u>Digital</u> App Interface	Digital App Interface	Digital App interface	<u>Digital</u> App interface
Satisfied 'It was so fast to book Mōwa"	<u>Guided</u> "I didn't have to go arpund the enire campus of the uni to find an available Mōwa	<u>Relieved</u> "It's good not to spend time looking for an available position"	Enterprising "I want a little more light but a lower volume of white noise
Satisfied "It was so fast to book the position" How may we a rapidly bookar working positi	llow Susana to d quickly find her	How may we empower order to create a comfo How may we present to	Susana to set up Mōwa in rtable environment to work? Susana in a clear and easy way

Experience Map

Post-Service

Ch	eck out	Engagement	Feedback
She receives a notification because her time is ending	She leaves the spot and receives a notification with the report on avoi ded noise pollution	She suggests her teamates to book a position for the day after	She receives a notification and leaves feedback.
Terminate her work and leave the position as she found it	Be aware and get infor med about the benefits of Mōwa	Improve the workflow of her team	Be heard about how she thinks her uni could be better
<u>Physical</u> Smartphone	<u>Physical</u> Smartphone	<u>Physical</u> Prople (teamates)	<u>Physical</u> Smartphone
<u>Digital</u> App Interface	<u>Digital</u> App Interface	<u>Digital</u> Instagram profile	Digital App interface
<u>ired</u> t's nearly the end of the day, it's me to stop working."	Interested "Wow. I didn't expect the campus to be so noise-polluted"	Engaged "Now that I've tried in first person, I'm going to suggest Mōwa to my team too"	Skeptical "I'd give feedback if I knew it would drive change, but I'm not sure if it wi
How may we offer Sus so that she will be willi How may we allow Sus	ana a smooth check-out ng to repetedly use Mōwa? sana to have her flow	How may we encourage Susana to share the experience with friends?	How may we encourage Susana to give feedback? How may we make Susana feel beard?
Service Blueprints (B2C) Part 1

Metrics		Conversion rate (Number of downloads/ population of the institution or organization)	Most booked rooms/month (Consequently: Underbooked rooms/month) Conversion rate (Number of bookings/ number of products)	Number of product activa- tions in a month/ Number of bookings in a month	 Number of product activa- tions in a month/ Number of bookings in a month	Most used customizations End-user satisfaction rate	Number of users that tries to extend their time in the product	Rate of users who booked a second time Satisfaction rate Complaining rate
Actions	End-user sees explanatory billboards	End-user downloads and Signs in Mōwa app	End-user books one available Mōwa	End-user is guided to Mōwa	End-user unlocks booked Mōwa and cusomizes its features	End-user receives a notification when their booking time is ending	End-user leaves Mōwa and receives the avoided sound report	End-user is encouraged to give feedback and to share the experience with friends through discouts for Mōwa store
Touchpoints	Physical Mōwa technicians Mōwa billboards Digital // Line of intera	<u>Physical</u> // <u>Digital</u> App store App interface ction	<u>Physical</u> // Digital App interface	<u>Physical</u> // Digital App interface	 <u>Physical</u> Mōwa <u>Digital</u> App interface	<u>Physical</u> // <u>Digital</u> App interface	<u>Physical</u> // Digital App interface	<u>Physical</u> // Digital App interface

Service Blueprints (B2C) Part 2

	Line of interac	tion						
Front-end	Deploing and maintening advertising material in universities/ organizations facilities Line of visibilit	App store App interface (Sign in and on-boarding) Y	App interface (Booking session)	App interface (Navigation session)	Getting notification to pair smartphone with Mōwa Navigating in the customization features of Mōwa app Creating personal setups	App interface (Push-up notification)	App notification App interface (Usage report session)	App notification App interface Sharing button (Feedback session)
Back-end	Designing and manifacturing advertising material Line of interna	Exchanging information between databases Mining, managing and analyzing data	Booking system Updating databases	Geolocalizing user Geplocalizing device Calculate user jurney toward Mōwa	Establishing bluetooth connection protocols Enabling remote controll systems Storage personal setups preferences	Keeping track of usage time Keeping track of usage patterns Meaning, managing and analyzing data	Enabling authomated locking systems Generating a usage report	Collecting and analyzing feedback Generating a discount code
Support	Managing licences for communication design softwares	Updating digital infrastructure Managing licences for data analytics softwares Storaging data	Keeping updated digital infrastructure Update the map of each institution	Coding a plug-in with google maps Keeping the map of each customer facility updated	Managing licences for data analytics softwares Storaging data	Managing licences for data analytics softwares Storaging data	Embedding a microphone in the device	Storaging data Managing licences for data analytics softwares Coding sharing plugin

Service Blueprints (B2B) Part 1

Metrics		Conversion rate (Number of trials/number of institutions or organizations contacted)	Conversion rate (Number of downloads/ population of the institution or organization) Marketing analytics Minutes of usage per month	Economic value of the contract Customer acquisition costs Customer lifetime value	Maintenance intervention rate Single components performance Customer satisfaction rate
Actions	Mōwa sales representative contacts purchasing manager of university/ company and books an appointment	Mōwa is hired by the university/ company for a trial period, deploys the devices and licences of the B2B app	 Mōwa releases the B2C app, deploys the communication material on site and raises awareness on social media through targeted advertising	Mōwa closes the deal with university/ company and is asked to reconfigurate the interiors	Mōwa gets notified automatically in case of device malfuctioning and takes care both of the maintenace and the recycling of wastes
loucnpoints	Digital Emails & phone calls <u>Physical</u> Mōwa sales person (online meeting, if necessary) Line of interaction	<u>Physical</u> Mōwa technicians <u>Digital</u> Mōwa B2B app	<u>Physical</u> Mōwa technicians Mōwa billboards <u>Digital</u> Mōwa B2C app Mōwa instagram page	<u>Physical</u> Mōwa technicians Mōwa customer care (if necessary) <u>Digital</u> Mōwa B2B app Emails & phone or online calls (if necessary)	<u>Physical</u> Mōwa technicians <u>Digital</u> Mōwa remote diagnostic systems

P	Service Blueprints (art 2	– – I Leg I ^{Bi}	egenda:		
	Line of interaction		 		
	Meeting Mōwa sales person Signing preliminary contract	Performing on-site technical analysis Installing devices on-site Interacting with Mōwa B2B app	Installing communication material on site Releasing contents on social media	Updating on-site technical analysis Reconfigurating the interiors Installing new devices on-site (if necessary)	Maintening devices Collecting the wastes
	Line of visibility				
Dack Blu	Briefing session with sales person Drafting preliminary contract	Opening a trial account Designing interiors layout Briefing session with technicians Managing inventory	Designing and manufacturing communication material Exchanging information between databases Managing and analyzing data	Updating to regular account Connecting and validating payment process Briefing session with technicians Managing inventory	Remote product diagnostic systems Disposing the wastes Managing and analyzing data
	Line of internal interaction		 		
auppoir	Training sessions for sales people Paying legal consultancy	Building digital infrastructure Acquiring licences for interior design softwares Training sessions for technicians Managing relationships with upcycling, manifacturing and logistics partners	Updating digital infras- tructure Acquiring licences for communication design softwares Acquiring licences for data analytics Storaging data	Managing licences for interior design softwares Managing relationships with upcycling, manifacturers and logistics partners	Building and updating digital infrastructure for remote diagnostic Storaging data Managing relationships with recycling and logistics partners

Business Model Canvas

Key Partnerships

Manufacturing Logistic Upcycling plants Recycling plants

Key Activities

Deployment and maintenance of devices Supply chain management Marketing & Communication Customer acquisition and retention Digital infrastructure management and maintenance

Key Resources

Staff: designers, sales and technicians Stable supply-chain Digital Infrastructure Marketing & Communication

Customer relations

Installation assistance Dedicated maintenance Reporting and Co-creation Fast and easy support

Customer Segments

Universities Corporations

Channel

Phone (sales and support) Email (sales and report) App (maintenance, support)

Value Proposition

Mōwa provides purposeful solitude to individuals while focusing, through the use of white noise and lighting. In a world of overwhelm, Mōwa lets people find their frequency.

Cost Structure

Manufacturing Logistic and reverse logistic Software licences Workforce Device Maintenance Digital infrastructure

Revenue Streams

Product rental - Subscription model (pay per using

4 Brand Identity

4.1 Naming	84
4.2 Vision, Mission, Es	sence, Values 86
4.3 Tone of voice, pers	onality 88
4.4 Logotype construc	tions 90
4.5 Protection area	92
4.6 Typography	94
4.7 Color palette	96
4.8 Graphic elements	98
4.8 Photography	100
4.9 Campaign	102

4.1 Naming

- Mōwa is a combination between the words *movement* and *Chōwa*, representing our brand's key features.
- The word movement refers to the interaction between the user and the product, particularly while adjusting the height to find the perfect immersion atmosphere. The second name, Chōwa, is a japanese concept often translated as harmony, but more accurately, it means the search for balance. The primary purpose behind Mōwa is to <u>discover our balance through movement</u> every day, according to our personal needs and feelings.



4.2 Values

- Mōwa cares about both the individual and the community wellbeing. Its values focus on the importance of creating inclusive environments, being aware of our limits and respect others' ones.
- The first value is <u>inclusivity</u>. Mōwa wants people to achieve equal access to opportunities for everyone and create welcoming, customizable educational environments.
- The second value is <u>consciousness</u>, being present in our everyday life, aware of our inner emotions and actions in the world.
- The third value is <u>respect</u>, for ourselves and other people's personal boundaries. For Mōwa everyone's needs matter.

INCLUSIVITY CONSCIOUSNESS RESPECT

Vision

We believe in educational spaces tailored to people's needs.

Mission

Mōwa provides a quiet space through white noise technology and adjustable lightning, letting people recharge, focus and communicate better in collaborative educational spaces.

Essence

In a world of overwhelming, find your own frequency.

4.3 Tone of voice

We envision Mōwa as a careful brand at the forefront of providing educational spaces tailored to students' and teachers' needs. The messaging and communication style of the brand is <u>warm</u>, <u>direct</u>, and <u>transparent</u> in order to create a trustful relationship with customers.

Personality

The archetype of Mōwa's personality is the <u>caregiver</u>. This archetype is commonly used in educational activities, and it is also coherent with our concern about well-being.

Therefore, Mōwa's personality is <u>confident</u>, expressing competence through our product. It is also instructive, educating people about sound pollution and the importance of well-being. At the same time, it is friendly, communicating important information with an easy, <u>inclusive vocabulary</u> to make it understandable for everyone. confident

friendly

auth<u>entic</u>

4.4 Logotype constructions

The logotype is made by a <u>rationalist</u> and a constructivist typeface. The geometry reminds the product's shapes <u>dynamics</u> and structuralism. The coherence between visuals and product is represented by the "o" and the "a" treatment. The "o" has been modified into a perfect circle that stands for the wood sphere, the "a" instead has been changed into a trapezoid to remind the conic lampshape. In the counterform of the typeface, in the junction of the axis we added a blurred and fluid curves. On the outside, the typeface is more sharp and structured. This treatment stands metaphorically for the product's soul.



4.5 Protection area

- To guarantee a correct readability of the logotype in small sizes both for the logo followed or not by the payoff – it is necessary to leave a protection area.
- The <u>minimum distance (x)</u> in the border must be respected while applying the logotype in other supports, such as written, image, or other graphic elements. The fundamental measure "x" with which the base grid was built was obtained by dividing the height of the logotype into three equal parts.





4.6 Typography

- The typefaces used for the naming is Söhne Breit Buche from KlimType foundry, a memory of Akzidenz-Grotesk framed through the reality of Helvetica. This geometric and rationalist typeface has been chosen for its roundness and wideness, characteristics that highlight Mōwa's shape.
- The typeface in the payoff is GT Walsheim Ultra Light from GrilliType foundry. It's a friendly but precise typeface inspired by the lettering of Swiss poster designer Otto Baumberger from the 1930s. Its shape is particularly rounded, wide, and thin, something that recalls the product's dynamics. Thanks to its long x-height and large counter form, the typeface is readable in very small sizes. Its weight is well contrasted with the name's one.

Söhne Breit

Extraleicht Kursiv Leicht Kursiv Buch Kursiv Kraftig Kursiv Halbfett Kursiv Dreiviertelfett Kursiv Fett Kursiv Extrafett Kursiv

KLIMTYPE FOUNDRY NEW ZEALAND klim.co.nz The quick brown fox jumps over the lazy dog

GT Walsheim

Ultralight Oblique Thin Oblique Light Oblique Regular Oblique Medium Oblique Bold Oblique Black Oblique Ultra Bold Oblique

GRILLITYPE FOUNDRY SWITZERLAND grillitype.com The quick brown fox jumps over the lazy dog

4.7 Color palette

The color palette has been taken from <u>wood</u> samples and <u>nature</u>. We chose a monochromatic palette of browns with different tones. It recalls the primary material used in the prototype, plywood, as well as it conveys a sense of elegance and essentiality through the product.



4.8 Graphic elements

- Mōwa's graphic elements were designed to symbolize <u>frequency</u> subtly through texture. This can be observed in the filters we use in images, which create noise and dinin the resolution. Also, the wavy shapes adopted to represent the acoustic waves and the sand texture alludes to the zen gardens.
- Meanwhile, the color palette is inspired by the natural shades of plywood to value our primary material. It also matches the color scheme identified in our moodboard. plywood, as well as it conveys a sense of elegance and essentiality through the product.



4.8 Photography

We used a <u>monochromatic treatment</u> to our pictures to highlight a clean and natural texture that resembles Mōwa's identity and product. We also added a noise effect to give the idea of frequency and the blending from one shape to another. Furthermore it gives tridimensionality to each image.



4.9 Campaign

The product campaign is represented by <u>posters</u> that recall the payoff and Mōwa's central idea of balance. We played with movement through graphics and showed the main interaction with the product as well.

mōwΔ **FIND** YOUR FRE QUE

FIND YOUR FRE QUE

mōwΔ

Mowe allows you to properly focus in crowded spaces in order to find and keep your balance your to third and keep your balance your thirty through white noise and light.

KEEP YOUR BALANCE









5 Annex

5.1 Background research
5.2 Concept generation
5.3 Testing and prototyping
5.4 Technical drawings
5.5 Bibliography

5.1 Background research

In physics, sound is a vibration that propagates as an acoustic wave through a transmission medium. The propagation of sound depends on the shape of the environment. Parallel shapes facilitate the creation of echos, while fan shapes enhance sound.



Volume is related to the <u>sound amplitude</u>, louder sounds have a higher volume. It is measured by decibels (dB), which helps identify the limits to sound exposure. Healthy sound exposures are up to 84 dB. Above 84 dB sound can be harmful if the exposure remains constant for hours.



Volume according to safe parameters



Sound against noise

In terms of meaning, sound is what we hear, while noise is an <u>unwanted</u> <u>sound</u>. Our ears pick up the sound waves and send them to the temporal lobe for interpretation to differentiate sound and noise. There, the higher senses of the brain determine whether that sound is unwanted, unpleasant, or disturbing.

Being exposed to noise can have physical and <u>psychological implications</u> in our bodies. Studies on humans and animals have shown that noise exposure arouses the nervous system, causing rising blood pressure and the release of stress hormones. Hearing loss, tinnitus, hypertension, sleep disorders, cardiovascular disease, and impaired cognition are some of the possible consequences of noise exposure. Noise also affects reading comprehension skills and long-term memory.



5 Annex

Noise in workplaces

According to Steelcase, <u>65 dB</u> is the average volume in open-plan offices. According to our measurements, the average noise inside a Polytechnic Institute of Milan's room is <u>75 dB</u>.

In workplaces, irritating noise comes especially from other people's voices. In these places, noise can quickly escalate due to the Lombard effect, where people start speaking even louder when the noise around them increases. The German Association of Engineers has set noise standards at 55 dB for intellectual work, characterized by high complexity and demanding creative thinking, decision-making, solving problems, and effectively communicating.

Italian policies for workplaces establish 80 dB as a maximum. This value can be extended up to 87 dB if the worker wears protection equipment.

65 dB

average volume of open offices

75 dB

average volume of rooms at Polytechnic

80 dB

legal limits for workplaces

Sound management strategies

It seems counter-intuitive, but adding more sound to an environment can actually make it seem quieter. Research suggests noise itself is not distracting, but unwanted speech noise is. However, incomprehensible words are less likely to be distracting. By adding a continuous, low-level ambient sound to an environment (such as white noise, which sounds similar to the sound of airflow), sound masking help make conversations for listeners that aren't intended to hear them unintelligible and therefore much easier to ignore.

<u>White noise is a mix of all frequencies</u>. Efficient to cover background noise, such as air conditioning noise. Pink noise has a frequency closer to human sound perception. It is a more pleasant sound and is more effective in covering human speech. Brown noise is a deeper lower frequency. Works as a focus facilitator and is used for relaxation.



Frequency (Hz)



5.2 Concept generation

- To proceed with the next iteration, the team took a step back and focused on the meaning behind the concept. We wanted to provide a sense of balance in the users through the use of background noise. Hence, inspired by the zen philosophy, we created a prototype with a cylindric body containing all the technology, with a wood rock as a controller. However, the output was still not satisfying, so we explored other possibilities. As the genuine first concept, we thought about a <u>small cylinder</u> object that could generate light and white noise, both in single and group mode. The light would have changed the direction by pulling up and down a small wood part, while a rope would have helped hang the product according to a single user's needs.
- We then decided on the dimensions of the whole prototype; on one hand, from a sociological point of view, the device would have a more powerful meaning. On the other, because the technology would have been more effective for the users.



Concept development

- At this point the team reached a milestone as the direction of the project was getting clearer. The team sketched the final shape to go in depth into the technicalities of the product. *How many people was it able to accomodate? How many centimeters should it have to be from one person head? How does the user controls the product? How powerful should the speacker be? What is the best shape to amplificate sound? How powerful should the light be?*
- In order to answer this questions a new research phase turned out to be necessary along with <u>interviews</u> with fellow designer more specialized in product and engeneering.



5.3 Testing and prototyping

At this point the team had to test if what was designed on paper could have a positive outcome in reality but we weren't ready to leave paper yet as the prototype was refined building <u>two iterations in cardboard</u>. now, the overall characteristic of the product were outlined, so the team go in depth with the details of the project. How and where should be the speacker and light be allocated? How could we build a conic shape? How can the lamp go up and down? Once the team was confident of the design specs we started using plywood, lasercut and machinery. We thought we anticipated everything. How naive were we! Counterbalancing the lamp turned out to be more difficult than previously imagined. The problem was tackled using a <u>spheric handle</u>.





5.4 Technical drawings

Technical drawings show the <u>characteristics and dimensions</u> of each component created for the Mōwa product, starting from a general view to a more detailed description. The first part is about background noise generation. The second part instead highlights the circuit and specification about lightning. At last, the end part focuses on the technical features of our technology.



	L 2	3	4	5	6	7	8
A							A
В				B			В
С							C
				Cod	DESCRIPTIO		MATERIALS
D		/e		A	Main body		D
				B	Pulley system		
				C	Handle		
E					MOWA - ISC		RAL VIEW
		4			Baklava		Unit:
			A	A	. Camurani C. Marsiglia D G. Mundstock C. Safyürek	Montenegro M. Sciortino Scale	1:5 Drawing N. 1
F		(C)				-	- (@) F
					Innovation Studio F Prof: V. Auricchio, S. Broadbent,	PSSD PS2 A.A 2021/22 M. Corubolo, F. Di Liberto, I. Supp	panen DI MILANO
	2	3			6	7	8



4

IΔ

В

D

E

IF

Cod.	DESCRIPTION	N° PIECES	1	MATERIALS			
A-1	Cover	1		Plywood	Ī		
A-2	Shade	1		Plywood			
A-3	Electrical Junction point	1			_		
A-4	Sound circuit case	1					
A-5	Inner structure	1	0	Cold rolled 20			
A-6	Diffuser 1 Polycarbona						
A-7	Background noise generator cover	1					
A.A	Led Lighting adapter	1			-		
A.B	Sound circuit	1					
A.C	Background noise generator	e generator 1			Ī		
A.D	Led light	1					
MOWA - EXPLODED VIEW							
	Baklava		D	Unit: mm			
Α.	Camurani C. Marsiglia D. Montenegi	ro		Drawing			

6

Innovation Studio | PSSD | PS2 | A.A 2021/22 Prof: V. Auricchio, S. Broadbent, M. Corubolo, F. Di Liberto, I. Suppanen

| G. Mundstock | C. Safyürek | M. Sciortino

6



8

POLITECNICO DI MILANO

Scale 1:5

1

8

А

	1 2	3	4	5		6 7		8	
					Cod.	DESCRIPTION	N° PIECES	MATERIALS	
	Ш				B-1	Pulley			
					B-2	Pivot			
			II		В-3	Anchorage			
					B-4	Plywood base			
В					B.A	Bearing			В
						B-1 B-A B-2 B-3 B-3			
E						MOWA - ISOMETRIC	GENER		E
						Baklava		Unit: mm	
					A. (Camurani C. Marsiglia D. Montenegro G. Mundstock C. Safyürek M. Sciortino	Scale 1	:3 Drawing N. 3	
F				_		Innovation Studio PSSD PS2 A Prof: V. Auricchio, S. Broadbent, M. Corubolo, F. Di	- A.A 2021/22 Liberto, I. Suppa	POLITECNICO DI MILANO	F
	1 2	3	4	5		6 7		8	















Background noise generator

A patented or not patented circuit for generating background noise is allowed. Mōwa suggests to use one like the one described by Aaron Schultz and Peter Haak in their article "Pocket-Size white noise generator for quickly testing circuit signal response" since it allows to manage the type of noise that is projected from the circuit and integrates a potent speaker that produces the sound in a higher range.



Note: Blue Fill SMD Terminals Are Grounded R1 = 10 M Ω MMA0204 (MiniMELF) Vishay/Beyschlag 1% TC50 (= Thin Film) R2 = 1 M, R3 = 49900 Ω ; R_s = 10 k Ω ; All 1% TC100 Thick Film C1 = 22 pF COG 5%; C2/C3 = 0.1 μ F C0G C_x = 47 nF C0G 5% (See Text: "Optional Tuning")

> Gizmo layout, *Pocket-Size white noise generator for quickly testing circuit signal response*, Aaron Schultz, Peter Haak, 2018.

TECHNOLOGICAL COMPONENTS

LED LIGHT - REFERENCE KD-CL-S24-5730SMD-20W-CW LIGHT TYPOLOGY: x24SMD5730



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Calculations https://www.rapidtables.org/it/electric/dBW.html



Baklava's team is happy to introduce you Mōwa, a product that has been the result of long discussion and a combination of competencies between all workmates. The team members are Andrea Camurani, Chiara Marsiglia, Daniela Montenegro, Giovanna Mundstock, Ceylin Safyürek, Matteo Sciortino. We invite you to follow our quest for balance.