REPORT

Social well-being in offices.

A design intervention to enhance employees' sense of belonging by stimulating informal social interaction.

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Dear Reader,

This is my final project of my Masters Strategic Product Design, and the result of two years of study at the TU Delft ended in a way I did not expect. Conducting a project during the pandemic was certainly challenging, but it made the topic of the project more relevant and interesting.

This long journey would not have been possible without the support of a few people. First of all, I would like to show gratitude to my team of supervisors. Sylvia and Susanne, for your valuable feedback, motivation and support since the early stages of this project. Our meetings were always an opportunity to evaluate and consider new directions, inspire me in new ideas and make me ask the right questions to get back on track. I loved working with you, and your positive attitude always gave me the energy to keep going even in difficult times. Secondly, a special thanks to my family, who made this dream come true and always supported me on every occasion that crossed my path. To my brother, who has always been my first inspiration. And Chiara, who is always there for me. Finally, I would like to thank all my friends, my housemates and my fellow IDE students who took care of me and helped me throughout the project making it feel like a joint effort.

Enjoy reading!

Giusivelia Morena

EXECUTIVE SUMMARY

The report describes the design process that led to an implementation strategy for a design intervention that fosters a sense of belonging and cohesion in working environments, by increasing opportunities of spontaneous face-to-face informal encounters. The research follows two different approaches: the classical double diamond process from the Design Council (Ball B. J., 2019) and the Empirical Research through Design (ERDM) in which a design hypothesis (expectation about the effect of the design on behaviour and well-being) is formulated and then tested (Keyson, D. V., & Bruns, M.,2009). Since it was difficult to find an office physically open during COVID-19, the design process was developed at the IDE faculty involving IDE employees', Team managers, experts in Social Sciences and Technology, the Human Resources and Facility Management department.

The Discover phase of the project consisted of in-depth literature review and semi-structured interviews to explore the concept of social well-being in the workplace, and learn about the personal experiences and opinions of workers. The Define phase was devoted to scoping the problem, and the formulation of a design vision and hypothesis. The Develop phase aimed to explore several directions for the final design intervention, and consisted of three generative phases with different stakeholders involved through evaluation, co-creative and iteration sessions. The fourth Deliver phase, was aimed at defining the final design intervention in terms of feasibility, desirability and viability. This phase involved testing the prototype in the coffee corners of the IDE faculty (through observations and short interviews), and formulating an implementation strategy that emphasises the importance, methods and stakeholders' benefits of adopting the final design solution.

During the pandemic, the sense of cohesion and belonging between colleagues is significantly reduced due to the decrease of spontaneous face-to-face informal social interactions. As the hybrid working mode is expected to be the future of the way of working (de Klerk J. J., 2021), it is important that organisations emphasise the social aspect of the office by increasing the possibilities for social interactions between colleagues (Dahik, A., 2021). A sense of belonging and cohesion in the office benefits not only the well-being of employees, but also the performance of the organisation (Rosales, R. M., 2016). The final design is a demonstration that it is possible to increase the sense of cohesion and belonging among workers, by means of an interactive object that increases the chances of informal serendipitous encounters. For implementation, organisations need to maintain long-term contact with supplier partners (e.g. furniture companies) to produce, assemble and develop new design features. These change according to the evolution of the pandemic, and the insights generated by ongoing user testing. The organisation is responsible for monitoring and directing the social behaviour of the office (Team Managers and HR Department), and for the installation and maintenance of the object within the office café corners (Facility Management Department). The continuous sharing of research insights between companies and supplier partners contributes to the development of knowledge for a healthier and socially connected workplace in the post-pandemic era.

"In the post-COVID world, even a downsized office will still need to create the right environment to facilitate a sense of connection and a spirit of collaboration."

- CBRE Group (2021)

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0. BRIEFING

This chapter provides an overview of the project context, methods and actors involved throughout the process. In addition, the initial project focus and goal (that were explored further during the research phase) are presented. For more information on the project brief, see Appendix A.

Chapter overview

0.1 PROJECT CONTEXT

Social well-being theory

The context of this research lies within the field of social well-being. Theoretically, social well-being was first conceptualised by Keys, after the WHO recognised it as a social dimension of well-being (see Figure 1), along with physical and mental well-being in 1948 (Colenberg, S., 2020). Keys' theory includes five dimensions of social well-being: integration in a community (feeling part of a group), acceptance of other people (feeling comfortable with others), perceived contribution to the community (feeling a valued group member), actualization or belief in the community's evolution (feeling hopeful about its progress) and perceived coherence of the social world (feeling of understanding of what is happening around) (Colenberg, S., 2020).

Figure 1. The 8 dimensions of wellness.
Sourced by University of Wisconsin-Madison (2019).

Social well-being in the workplace

In the workplace, the measurement and conceptualization of social well-being is still to be defined compared to physical and mental well-being. However Fisher (2014) proposes the following definition: *"feeling embedded in meaningful communities and having satisfying short-term interactions and long-term relationships with others"*. Social wellbeing is about feeling valued as an individual, a worker and a colleague by others. Therefore, it concerns both interactions and relationships with colleagues and feeling part of a group. According to the Global Human Capital Trends Report 2021, enhancing social wellbeing among colleagues is one of the most important trends of this year due to Covid, and a sense of belonging in the workplace plays a key role.

"Currently, 79% of organisations say that fostering a sense of belonging in the workforce is important or very important for their success in the next 12-18 months, but only 13% say they are ready for this trend"

(Volini E., 2020)

Social well-being in the workplace during pandemic

The COVID-19 pandemic forced many workers to abruptly shift to remote work in 2020, but as now vaccines are proceeding in many countries, companies are going through a process of reopening their offices (Boland B., 2021). However, after the pandemic the role of the office will be different. Some companies are thinking of adopting a complete remote working method, while many are considering a 'hybrid working method' that combines remote and on-site working (Castrillon, C, 2021). In this scenario, the office will then serve more as a facility for collaboration or a place to meet informally with colleagues. After working remotely during the pandemic, many employees are discouraged from returning to the office, as they were able to better manage their work-life balance (Liu Z., 2020). However, working from home has been found to have a negative impact on the social well-being of employees, in particular for the lack of spontaneous social interactions that are fundamental for employees' well-being and for the organisational sense of community and belonging (Fayard A.-L., 2021). With the return to the office after the pandemic, team managers should balance virus safety regulations with encouraging relationships in the office. At the same time, they must integrate new employees and maintain contact with workers at home.

Social well-being and organizational practice

Fostering social connectedness through the promotion of face-to-face spontaneous collisions among colleagues is a key organisational practice, especially in a post-pandemic scenario. It remains companies responsibility to maintain the relational side of teams and to create opportunities for social interaction and collaboration (de Klerk J. J., 2021).

0.2 PROBLEM SCOPE AND PROJECT AIM

Having positive connections at work would result in several benefits for both employees and the organisation. On the one hand, colleagues would feel happier, less stressed and more connected. On the organizational side, having positive interpersonal relationships between colleagues has been positively linked to facilitate organisational learning, cooperation, employee effectiveness and loyalty, collaborative productivity (Dahik, A., 2021), employee turnover and performance (Page, K. M., & Vella-Brodrick, D. A., 2008). In fact, the flourishing of organisations and their employees depends on the quantity of social connections that the organisation nurtures (Rosales, R. M., 2016).

Thus, it is clear that if organisations ensure the social wellbeing of employees at work, the company will consequently benefit in terms of performance and financials. In addition, as companies start to hire new employees who have not built social capital from pre-COVID-19 times, it becomes necessary to create social connectivity between them and the rest of the workforce.

The problem is that the adoption of remote or 'hybrid working modes' after the COVID-19 lockdown may reduce opportunities for face-to-face informal and spontaneous social interactions between colleagues. In fact a gap is created both between workers who work from home and at the office, and those in the office itself. In the first case (between workers who work from home and at the office), the communication between workers is limited to a more central group of people - those they work with directly - rather than with a wider range of groups they may have in the office. As a matter of fact, contact with workers at home might be limited to working meetings, and there is a lack of informal social meetings (such as casual chats, coffee and lunch breaks) as it normally happens in office spaces. In the case of people who work in the office, the dislocation and reduction of employees in the office building decrease the opportunities of spontaneous face-to-face social interactions. In both cases described above, not having spontaneous face-to-face social interactions lead to a decrease of sense of belonging and cohesion among colleagues. In fact, these kinds

Figure 2. The social gap between workers at home and in the office.
Courtesy by Audra Melton, Ben Garvin/The New York Times.

of interactions are important for building a sense of belonging and community among colleagues and critical for developing team culture within the organization (Blanchard, A. L., 2021).

"Creativity is required to enhance human connections and promote a sense of belonging in the office"

(Li Z., 2020)

The design goal is to increase a sense of belonging and cohesion by bringing together employees in the office space. To achieve this, the project aims at creating an implementation strategy for a design intervention that stimulates positive and informal face-to face social interactions between colleagues who are located in the office space and in a hybrid work situation.

0.3 PROJECT STAKEHOLDERS

On the organisational side, the involvement of Team managers, the Human Resource and Facility Management department is necessary for a working environment that fosters positive social interaction in a post-pandemic scenario. Team managers and the Human resource department should implement knowledge and theoretical research on social well-being in their business strategies. The Facility management department should be involved in assembling spaces that support high-quality social interactions, while taking into account safety measures.

For the execution of the project, it was considered the educational context, and in particular the IDE faculty of TU Delft. During the process, several actors from the IDE Faculty have taken part (see Figure 3). These are employees of Studio Lab, Team managers of the different departments, the Facility management department, the Human resources department, IDE design students, and other IDE employees who are experts in social well-being, light installation and technology.

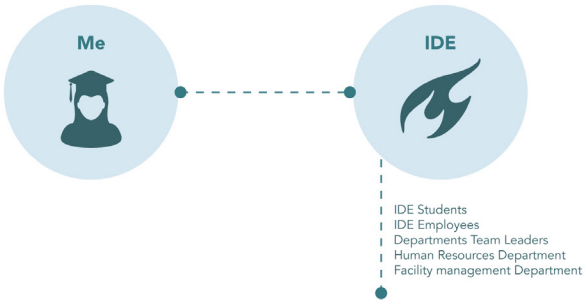


Figure 3. The main stakeholders involved during the project.

0.4 APPROACH AND STRUCTURE

The project plan is inspired by the classical double diamond process and design principles from the Design Council (Ball B. J., 2019), in which a discover and define phase (first diamond) and develop and deliver phase (second diamond) are defined (see Figure 4). For the development of the final design intervention, the project takes the approach of Empirical Research through Design (ERDM), in which a design hypothesis (expectation about the effect of the design on behaviour and well-being) is formulated and then tested (Keyson, D. V., & Bruns, M.,2009)

Following the double diamond process, this project consists of two main phases: the first is an exploratory phase of researching and scoping, the second is a solution oriented phase of ideating and validating. In the scoping phase (Discover part of the first diamond), the literature research and user interviews are carried out in order to scope the problem and design focus. The exploration phase (Define part of the first diamond), focuses on understanding the insights gathered from the previous step in order to develop a design vision and hypothesis. The solution phase (Develop part of the second diamond), includes generative sessions to develop the first directions for the design intervention. In this stage, several iteration and evaluation sessions with the main stakeholders (see Figure 3) are carried out to arrive at the final design choice. The last phase (Deliver part of the second diamond) is devoted to defining the final design solution, the testing in the IDE Faculty and the formulation of the implementation strategy.

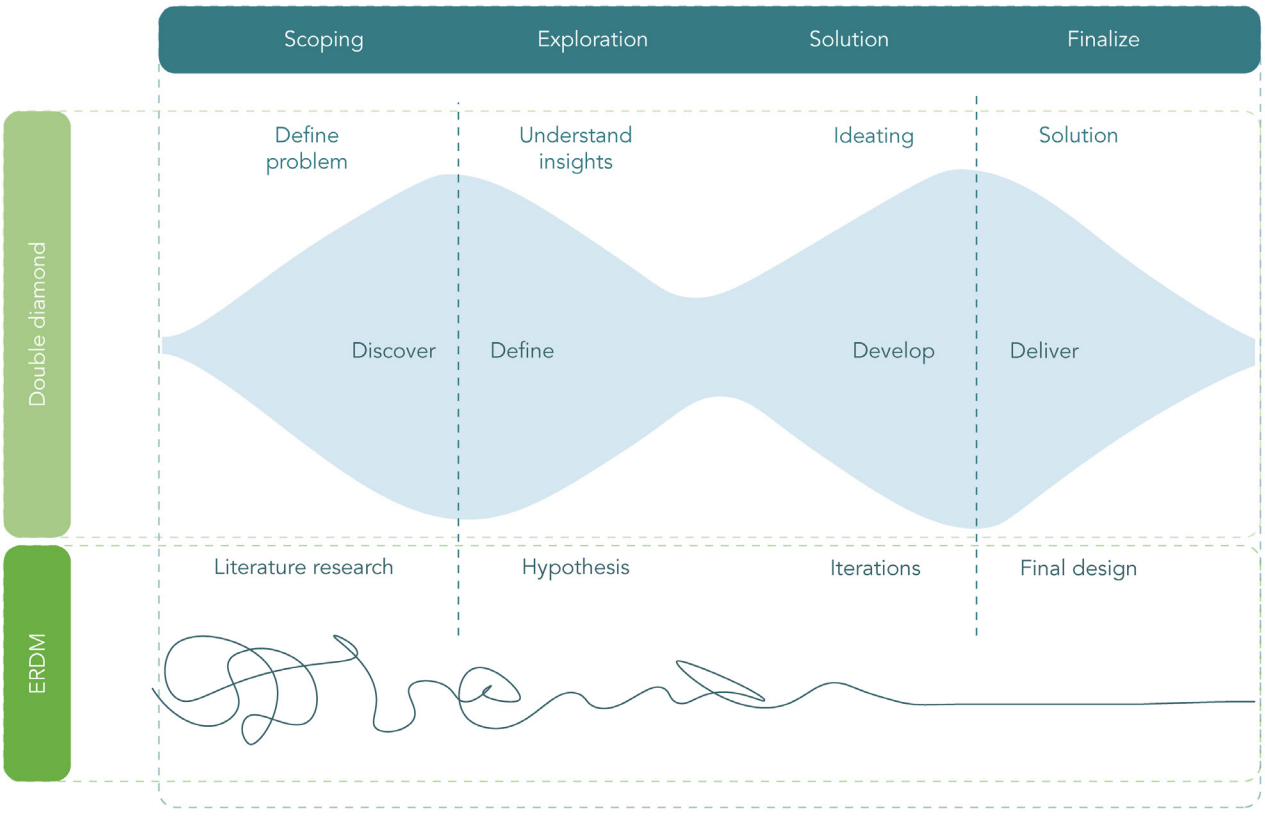


Figure 4. The approach and structure of the project.

1. DISCOVER

The Discover phase of this project consisted of in-depth literature review and semi-structured interviews with the problem owners. Through an intensive exploration and analysis of the desk research, it was possible to create a framework of knowledge to establish the focus of interest and the problem scope on which I want to contribute.

Chapter overview

1.1 LITERATURE REVIEW

The literature research was driven by the following questions:

Context questions:

- *How did the forced remote working experience affect people's way to interact and collaborate with their team and colleagues?*
- *How did organizations act to ensure the social well-being of their workers before the pandemic? And what actions are needed from companies in the future when the pandemic will be over?*
- *What are the future post-pandemic scenarios in relation to the way of working and face-to-face social interactions between colleagues in the office? What will be the role of the office then?*

Focussed questions:

- *What are the experiences and opinions of users in social interactions within their working environment (before and after pandemic)?*
- *Which types of social interactions might enhance office workers' well-being? And how and where do these take place?*

To better understand the social interaction experiences of employees in flexible offices, a study was done of the theoretical meaning of social well-being, the way it relates to the workplace, and the way it is adopted in organizational practice. Successively the research focussed on the context of the pandemic, and in particular on colleagues' social interactions, their work-life routines, and what organisations should do to deal with the consequences of the pandemic. On top of this, trends of the future way of working, and a few examples of organisations that integrated social well-being in their organisational practices during pandemic have been explored. The results obtained from the literature review were clustered under the following categories:

1. Social well-being in the workplace
2. Social well-being and organization practice
3. Implications of COVID19 on employees wellbeing
4. Implications of COVID19 on office practice
5. Future working mode and office role after COVID19
6. Future office and Hybrid Working Mode practice
7. Examples of implementation of social well-being in organization practice

1. Social well-being in the workplace

Connection to physical and mental health

Social connectedness is widely recognized as a basic human need, affecting a wide spectrum of life. In application to the workplace, social well-being has been found to be strongly linked to physical and mental health. In fact, enhancing or detracting from social interactions can strongly influence physical symptoms, sleep and eating patterns, socialisation, emotional well-being, career decisions and energy levels (Mastroianni, K. & Storberg-Walker, J., 2014). Regarding mental health, past studies showed that there is a correlation between interpersonal relationships with co-workers and support from team members with psychological safety. Moreover, the positive social experience of co-worker in the working environment fosters a sense of social identity and meaningfulness (Lee H., 2021). In the workplace, both strong and weak social ties within broader social networks are found to be positive for health (Holt-Lunstad, J., 2018).

Positive interactions benefit both employees and organisations

The flourishing of organisations and their employees depends on the quantity of social connections that the organisation nurtures (Rosales, R. M., 2016). Having positive social interactions facilitate organisational learning, cooperation, employee effectiveness and loyalty, among many other desirable outcomes (Rosales, R. M., 2016). Other benefits of social connectivity include collaborative productivity (Dahik, A., 2021), employee turnover and performance (Page, K. M., & Vella-Brodrick, D. A., 2008). On top of this, interventions designed to improve the social well-

being of employees may minimise the financial and human costs of negative interactions (Mastroianni, K. & Storberg-Walker, J., 2014). Therefore, having positive social connections in the workplace benefits not only for the worker's well-being, but also the organisation (Holt-Lunstad, J., 2018).

2. Social well-being and organization practice

Addressing social well-being in the workplace

Physical and social work environments need to be addressed, and the organization needs to increase social well-being among colleagues and eliminate factors that undermine it (Mastroianni, K. & Storberg-Walker, J., 2014). In organizational practice, it is necessary to implement policies and strategies that foster meaningful relationships and promote a healthy work-life balance (Holt-Lunstad, J., 2018). On top of this, it is necessary to create organisational models that improve interpersonal dynamics, as well as organisational factors that support the dynamics (Mastroianni, K. & Storberg-Walker, J., 2014).

Collaborations: HRD, organization leaders and health professionals

The combination of different areas of specialisation is essential to integrate organisational practices aimed at increasing and improving social interactions within the workplace. Collaboration between Human Resources Department (HRD) and health promotion professions can establish best practices to assess and address the social environment. For instance, it might be essential for the HRD, wellness professionals, and other organizational leaders to meet regularly and discuss changes in the social and physical workplace environment (Mastroianni, K. & Storberg-Walker, J., 2014).

3. Implications of COVID19 on employees wellbeing

Implications on employees' wellbeing

Working from home is a practice that has become more widely known and experienced due to the COVID-19 pandemic. The benefits of remote working include improvements in

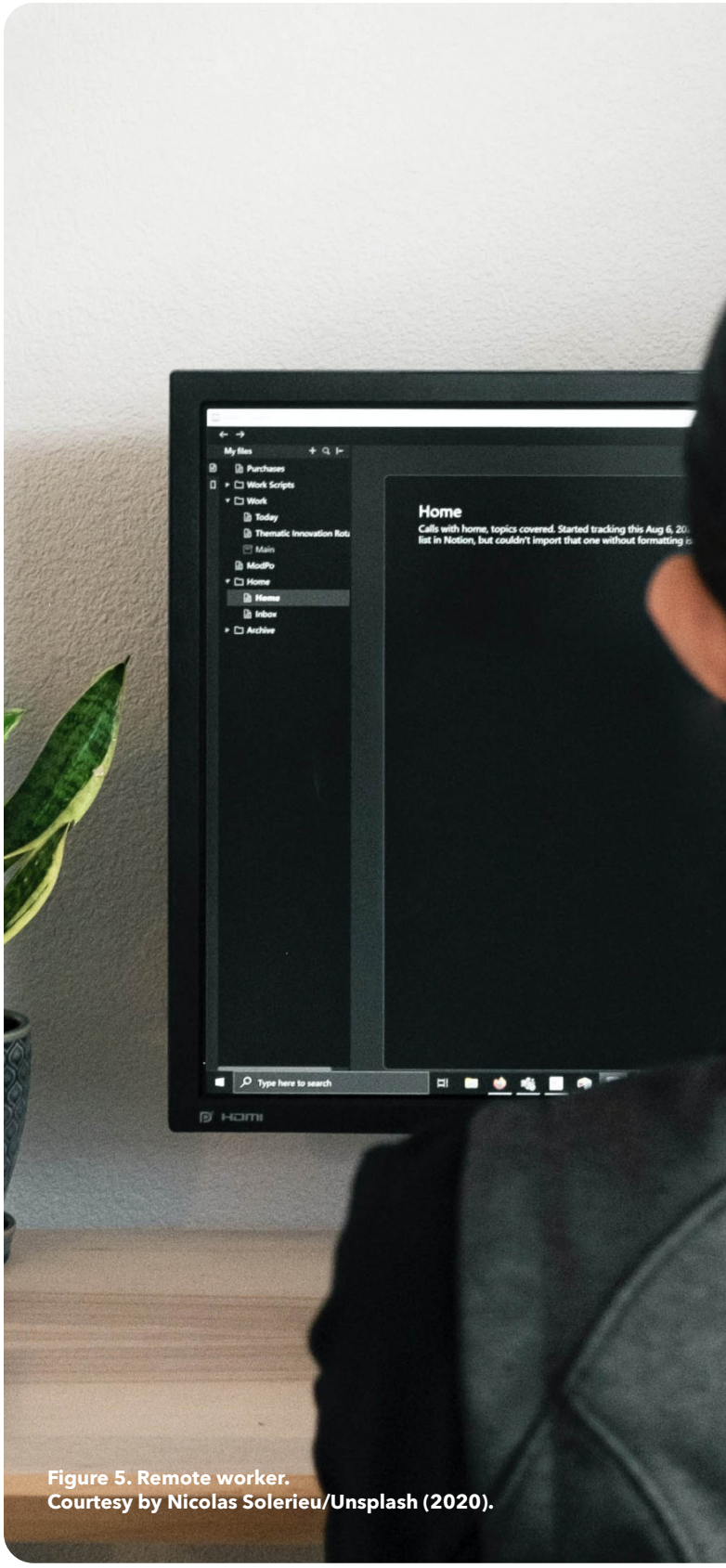


Figure 5. Remote worker.
Courtesy by Nicolas Solerieu/Unsplash (2020).

quality of life (Griffiths, D., 2021), more time with family (Griffiths, D., 2021), time saved by not having to commute, improved morale, fewer work interruptions, better ability to coordinate work and non-work commitments, greater job satisfaction and commitment, less role stress and work–family conflict, and increased work–life balance (McNaughton, 2014). In contrast, the downsides of extensive remote working include reduced teamwork and collaboration, work–life blurring, increased isolation and lack of meaningful connections with others, overwork, distractions, loneliness, worry and guilt, increased stress and decreased life satisfaction (McNaughton, 2014).

"The virus (crisis) allowed me to have experience in working at home, but took away my chance to learn with others during internship"

"I miss being able to spontaneously walk to a coworker's desk and discuss an issue, and having social gatherings at work"

- An intern interviewed by Lund S. (2021).

N.B. It should be taken into account that the perceived advantages and disadvantages of the remote working mode can't be generalized. In fact, they vary according to the home environment, resource availability, personal preferences, personalities and working roles (Lund, S., 2021).

Implications on employees' social well-being

Regarding the social well-being of workers, the implications of the pandemic were mostly negative. In general, the disadvantages include loss of learning with colleagues in the office setting (Lee, H., 2021), less connectedness (Susanne Colenberg & David Keyson, 2021) and absence of non verbal language (Lee, H., 2021). The loss of efficiency and intimacy of regular physical interaction with colleagues, creates communication gaps that leads to lower employee engagement, lower levels of team and cultural cohesion, and reduced trust among employees (Newman, S. A. & Ford R. C., 2021). On top of this, working from home led to the loss of social support which brings to feelings of irritation, loss, uncertainty and disappointment (Lee, H., 2021).

"Without the 'social touch', certain reactions may have been at 'face' value without the facial or voice tone interpretations, so sometimes we tend to be more thoughtful before replying."

"Having physical interaction actually changes the dynamics especially when you can feel the energy and overall gestures. Video conferences just do not give you the same opportunity of interaction and communication because technology can be a hindrance (bad connection, blurred view, time lag."

- A manager and marketing leader interviewed by Lund S. (2021).

4. Implications of COVID19 on office practice

Working from home had both positive and negative effects also from an organisational point of view. Among the benefits, remote working led to an increase in productivity (from 15% to 20%), reduction of absenteeism (to 40%), reduction of turnover (from 10% to 15%) and the reduction of potential costs in the use of property and resources (to 20%) (de Lucas Ancillo A., 2020). However, the lack of spontaneous face-to-face social interactions and absent physical presence in the office, led to the impairment of the corporate culture and connection with the company (Massachusetts Institute of Technology, 2020).

5. Future working mode and office role after COVID19

After the pandemic, the office will never be the same. As both companies and employees have experienced the positive aspects of working from home, the full return to the office will be reassessed. In a near-term scenario, two options are generally expected: working from home and hybrid working mode (McKinsey&Company, 2021).

Working from home

"Working from home is largely expected to become a new working norm, at least partly so"

- de Klerk J. J. (2021)

After experimenting with working from home during the pandemic, many organisations would like to continue to keep their workers at home

(Newman, S. A. & Ford R. C., 2021), and cost cutting is one of the reasons. Moreover, the percentage of workers who would prefer to work from home (compared to before the pandemic) has increased by 18% (Bin Saeed B., 2019).

Hybrid working mode

Hybrid working mode is expected to be the next norm, and most employees would prefer it. According to de Klerk J.J. (2021), 76% of respondents wished to work from home at least 1 day per week after the lifting of lockdown. Hybrid work has been found to be more conducive to the development of a healthy balance between physical presence in the office and work from home. In fact, flexible working arrangements have been associated with improved employee health and well-being, management of work and family role conflicts, more engagement, greater job autonomy, psychological resources and improved commitment (de Klerk J.J., 2021).

6. Future office and Hybrid Working Mode practice

The virus crisis leads the organisation having to take measures to manage the return to the office after the pandemic. In general, the biggest challenges will be: restructuring the workplace and work content; applying more advanced technology to recruitment, selection and employee performance; more interest, appreciation and motivation from managers; and building trust and a sense of belonging among team members (Przytuła, S., 2020). As there is no substitute for in-person collaboration, the office workplace has now the role to fulfill the human need for connectedness, informal social interaction and intensive collaboration (Susanne Colenberg & David Keyson, 2021). In this scenario, it remains companies responsibility to maintain the relational side of teams and to create opportunities for social interaction and collaboration (de Klerk J. J., 2021).

A few key actions from the organizational side in a hybrid setting are:

- **Rethinking the workspace.** A better working environment after COVID-19, includes more private spaces, different tasks-dedicated spots and safety measures taken into account. In order to ensure safety and interactions, it is necessary to rethink some aspects of the workplace such as: cleaning, social distance, as well as providing gathering places, common areas, and amenities (de Lucas Ancillo A., 2020). The hybrid office (especially open-plan) increases the need to rethink office spaces by reconsidering size, shape, private and meeting spaces, and customizing team spaces (Susanne Colenberg & David Keyson, 2021).

- **Investment in technology and physical infrastructure.** With the loss of frequent informal communication during the pandemic, leaders need to employ new communication tools and techniques for their virtual and on-spot employees (Newman, S. A. & Ford R. C., 2021). Investments in physical infrastructure and digital technologies will become essential (Dahik, A., 2021), and it becomes necessary to design workspaces that can support all forms of interaction that take place both on site and remotely (de Lucas Ancillo A., 2020).

- **Adopting a new scheduling.** Depending on the role/task of each employee, the ideal number of presence at the office is seen as two to three days per week (de Klerk J. J., 2021). A predefined calendar or through rotating schedules would allow different workers to work partly from home and partly in the office (de Lucas Ancillo A., 2020)

- **Build social capital.** As companies start to hire new employees who have not built social capital from pre-COVID-19 times, it becomes necessary to recreate social connectivity to increase a sense of belonging in the work environment amongst new and old colleagues (Dahik, A., 2021).

- **Showing care, flexibility and clarity.** Successful return to the workplace will require significant changes to organisational health and safety policies, and practices to show flexibility to the individual needs of workers (Shaw, W. S., 2020).

7. Examples of implementation of social well-being in organization practice

As the pandemic winds down, many companies are considering how to design flexible working to support the future of work and the return to the office. They are also recognising the importance of connections, and focusing on ensuring that people feel a sense of belonging with their colleagues. To achieve this, some companies are adopting solutions to allow colleagues to socialise and feel part of a group while ensuring flexibility between life and work.

For example, **Clevertech** encourages its employees to interact with each other by playing video games that simulate a collaborative environment and enable complex problems to be solved by the group (Brower T., 2021). Another example is from companies like the **Scandinavian Air Systems** (SAS), **Corning** and **Xerox** which redesigned their offices to maximize the opportunity for informal interaction in the belief that this will improve performance (Fayard A.-L., 2021). **GitLab** encourages employees to set aside a few hours per week for virtual coffee breaks and to use Slack for informal connections and conversations (Dahik, A., 2021). **Monster** is providing more life-work balance by making 'self-care days' available as part of a PTO (paid time off) entitlement and encouraging employees to 'turn off' for a day. In fact, this is implemented with the belief that flexible working is also part of the well-being solution. Another belief of Monster, is that it is important to support each other in challenging situations and for this, they created opportunities for people to connect within groups related to particular interests or circumstances (Brower T., 2021). **Wiley** has been testing 'no meeting Fridays' or 'happy Fridays' where employees can make a choice to take half of the day off. They also adopted a policy where employees didn't have to use vacation time or personal time if they were sick (Brower T., 2021).

In general, the current typical types of solutions adopted by companies to address social well-being are:

- Virtual coffee breaks
- Redesign of offices
- Collaborative games
- Flexible working and time off

Figure 6. Researcher gather on beanbags in the Palo Alto Research Center (known as Xerox PARC), circa 1980s. Courtesy of Fortune (2016).

1.2 INTERVIEWS

To get more information about the opinion and experiences in social interactions (during and before pandemic) directly from the problem owners, 11 semi-structured interviews were held.

Interviews were conducted to IDE employees and other project stakeholders. The majority of the interviewees were PhD candidates, assistant professors, full professors and post-doctoral researchers. The variety of employee positions was chosen in order to give a comprehensive understanding of workers' experiences of social interactions in a flexible office-like environment. Of the 11 semi-structured interviews, 4 were with people from the Team Management, Human Resources, and Facility Management departments to get to know their point of view and current interventions on the topic.

The semi-structured interviews ranged from online to in person depending on availability and convenience of the participant. Before starting the interviews, participants were asked to sign an informed consent form (see appendix B). The interviews were recorded with the consent of the participants in order to be transcribed and analysed in a later stage. The duration of each interview lasted between 30-45 minutes.

Online interviews were conducted both online (Zoom) and in-person following an interview guide (see appendix C). Additional tools used during the interview were: printed (or digital) informed consent form and a smartphone for recording. The interviews were semi-structured and followed the interview guide to cover the main topics while keeping the conversation open. The interviewees were chosen through purposeful sampling (convenience sampling), depending on their work position and context. The recorded conversations of the interviews were transcribed and then analysed individually following the Grounded Theory Method developed by Glaser, B. G. & Strauss, A. L. (1967) (more details can be found in appendix D).

Results

After a phase of analysis, the insights gathered were grouped into three categories:

1. Background information
2. Types of social interactions (and locations)
3. Ideas of design interventions

1. Background information

The 'Background information' category supports the findings of the literature review and helped to define the problem scope and design aims of the project.

- **Differences between work roles.** There are differences in terms of tasks and amount of social interactions between employees covering different roles. For example, there are roles that require more concentration work (e.g. Phd candidates), social interactions (e.g. Human Resources) or both (e.g. Head of Departments). In a hybrid work situation, workers covering roles that are more individualistic were found to experience a greater lack of sense of belonging and cohesion.

- **Different work locations.** In a hybrid work situation, presence in the office is commonly 2-3 times per week. Employees who live far away from the workplace, go to the office only for specific purposes (and depending on the infection rate) and they feel more detached from the working environment and colleagues. Moreover, people that work in the office, find it

difficult to meet with their colleagues as there are a few people 'buzzing around' in the office.

- **Inclusivity among colleagues.** There is a gap between employees who are newly-recruited and those who have been working in the workplace for a longer time. Among older employees, there is a tendency to form 'closed groups', and they rarely interact with the new ones. As a consequence, new employees feel isolated and disconnected from their colleagues and the work environment. During the pandemic, this worsened as newly-recruited employees have never met their colleagues in person as all meetings were online (and work-related only).

- **Feeling part of community.** From both the interview and research, it was clear that working from home during the pandemic has significantly diminished the sense of community among colleagues. According to the respondents, elements that foster a sense of community, and that were missing during the lockdown are: being physically in the office, having common goals/interests (e.g. the same profession) and having spontaneous face-to-face recurring meetings.

2. Types of social interactions (and locations)

The analysis of this category helped to choose the social interaction to focus on for this project. Several types of social interactions were indicated as 'missing' from the interviewees during pandemic. These are:

- **Lunches and coffee breaks together**

"Having lunch, having coffees, those kinds of things I really miss"

- Interviewee 2

- **Work-informal conversations**

"I miss the deeper interaction with colleagues who are "friend-colleagues" but not friends that I would meet outside university"

Interviewee 6

- **Chit chats**

"I just miss chatting with colleagues"

- Interviewee 8

- **Spontaneous interactions**

"What I'm missing are more casual meetings, where normally you just bump into people"

- Interviewee 5

These types of social interaction, usually take place:

- **Outside the office space.** Usually, planned walks to 'get out of work' or lunches with colleagues happen outside the office space. Prior to the pandemic, business lunches or dinners at restaurants were also held, and were other opportunities for informal social interaction. However, they occur in exceptional cases, and not on a daily basis.

- **At the coffee corner.** Many spontaneous and informal social interactions take place around the coffee machine. This usually happens during breaks, which if not short, lead to sitting down or stopping at nearby tables for a longer conversation. Coffee machine breaks were rated by respondents as the most valuable when it comes to informal interactions and meeting new colleagues.

- **In open-shared places.** Sometimes, short chats also take place in shared working spaces (e.g. for comments on work or quick questions). In an open-plan office, this happens almost everywhere in the working area, and mostly between colleagues who are sitting in close proximity. However, this causes disturbance and distraction for surrounding colleagues, especially at times when concentration is needed.

- **In the hallway.** The corridor is another place where many spontaneous social interactions take place. This happens for example when walking in the corridors to go somewhere (e.g. to the coffee machines, bathroom, etc.), or when going to a colleagues' office to ask a quick question.

3. Ideas of design interventions

During the interviews, participants were also asked for an opinion on 'what' and 'how' the design intervention should be. In this way, an initial range of desiderable design direction was collected and used during the Develop phase (see Figure 6). These also helped to define the criteria of the design vision defined during the Define phase. Below are some of the ideas expressed by participants:

- **A recurring game or collaborative activity** (e.g. Ping pong tournament every week). According to one of the participants, games as a way of connecting would be appreciated as it is a 'social activity'. An activity-based solution is more inclusive, as everyone can participate without feeling awkward, and it is a great way to meet and connect with non-familiar colleagues. It was also pointed out that it would help if it is in the form of a recurring scheduled event (so it seems spontaneous, but also scheduled), and if it is something physical.

- **A recurring meeting / colloquia** (no technical solution). An interesting idea is the absence of overly technical solutions. This perspective suggests that rather than create new solutions, it would be better to understand what is really needed and what can be improved. It would be appreciated, for example, to think of a 'new way of being together', such as a recurring event with colleagues using existing means of communications.

- **Something that raises awareness of people's context / presence in the office.** Another interesting proposal is to create something that helps increase the awareness of both the presence and the context (e.g. personal information, role, ...) of colleagues who are in the office. In fact, with hybrid work and the reduced concentration of colleagues in the office, it is more difficult to understand where colleagues are and therefore get to know them.

- **An institutionalised rite or event** (e.g. Swedish FIKA). The FIKA is a daily tradition in Sweden, which brings people together socially by drinking coffee and eating dessert (usually at work between colleagues during a break, or at home between family and friends). The Swedish FIKA has been described as a great design intervention to meet everyone in the office, especially in a hybrid work situation. Moreover, being an institutionalised ritual makes it spontaneous and planned at the same time.

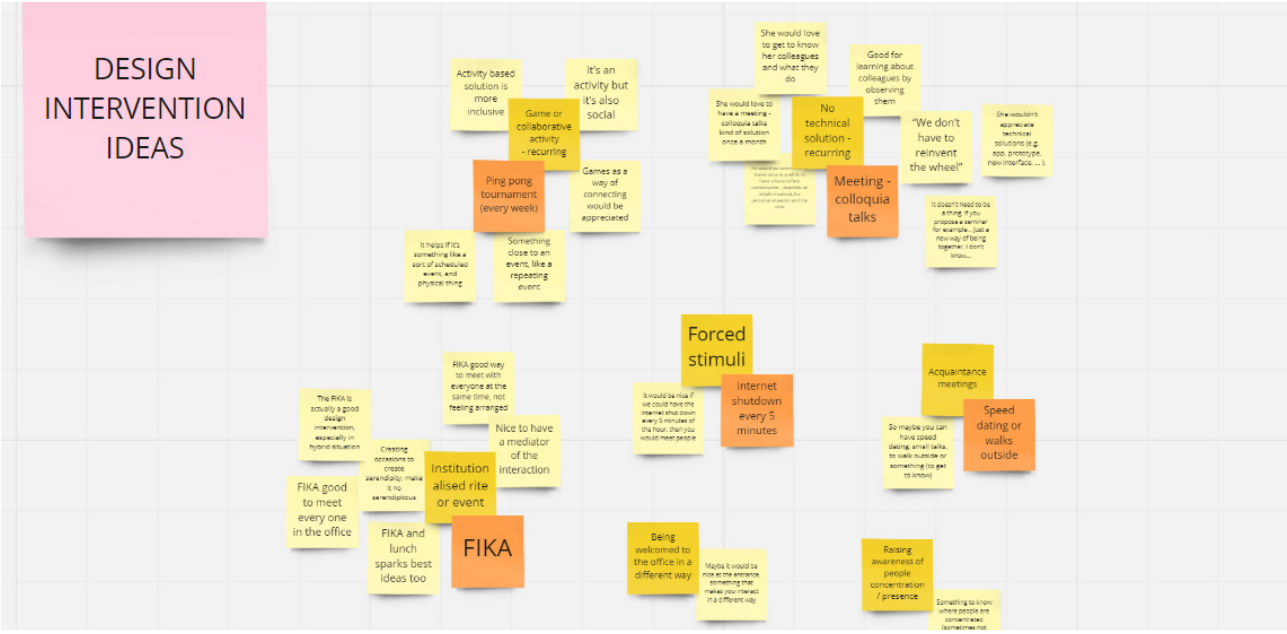


Figure 6. Collection of ideas from respondents on a MIRO board.

1.3 INSIGHTS OF DISCOVER PHASE

The conclusions drawn from the analysis of the initial desk research are explained below:

1. ***Need to enhance a sense of belonging and cohesion***

The main conclusion obtained both from the literature review and interview is that during the pandemic, the sense of cohesion and belonging between colleagues is significantly reduced. This is due to the decrease of face-to-face informal social interactions, which affects particularly colleagues having more individualistic roles, those leaving far-away from the office and those who have recently been recruited.

- **Increase opportunities of 'social collisions' in the office building.** With hybrid working mode settings (which is expected to be the new working norm), there are fewer colleagues in the office. This leads to less likelihood to bump into someone and have a spontaneous short chat (= social collision, see page 28). The spontaneity element of social interactions is something that is missing the most in the current situation, as now meetings are mostly online, 'too planned' and working-related. On top of that, there is no substitute to the quality of in-person interactions as online meetings lack the dynamics and physical details (e.g. non-verbal communication). Spontaneous face-to-face interactions are considered by users as valuable and relevant to emphasise the sense of belonging and cohesion between colleagues, and therefore needs to be fostered.

- **Increase opportunities to meet new colleagues.** New recruits during pandemic feel more excluded from the rest of the workforce since during lockdown (or in hybrid settings) they had (or have) less opportunities to meet their fellow-colleagues in person, and to bond with the working environment and culture. In fact, they usually interact with their close working mates (working on the same project), and don't have many opportunities to meet other colleagues. On top of that, the embarrassment of initiating a conversation with someone who is already in a 'closed group' (older colleagues) is something that limits the integration process once they are back in the office. Therefore, it is important to create opportunities of socialization amongst new and old colleagues.

2. ***Organization should take responsibility to increase social interactions in the office***

From an organisational perspective, it turned out that emphasizing social well-being and positive interactions in the work environment is important both for employees' wellbeing and organizational performance. With the pandemic, this becomes even more important as the sense of belonging and cohesion amongst colleagues has decreased. It is expected that the role of the office will emphasise the social side, and it remains companies responsibility to maintain the relational side of teams and to create opportunities for social interaction and collaboration. A few key steps from the organization side are:

- Increasing collaboration of organisational expertise to monitor and address social well-being
- Rethinking of the workspace and invest in technology
- Adopting a new scheduling (e.g. rotational)
- Build social capital between new colleagues
- Showing care, flexibility and clarity on the new measures

2. DEFINE

The key takeaways of the Discover phase, led to the definition of the problem and the focus on the type and place of social interaction. Moreover, together with the insights gathered from the initial collection of ideas of the interviews, it was possible to formulate a vision and design hypothesis.

Chapter overview

2.1 PROBLEM SCOPE

Problem statement:

In hybrid work situations, employees (especially newly-recruited and those covering more individualistic roles) feel disconnected from the office environment as there are less opportunities to meet their colleagues.

During the pandemic, ties between colleagues generally loosened (or lacked) as there were few opportunities to meet each other in person and outside of working purposes (informally). This affects especially colleagues covering individual roles, and those who were hired during the pandemic. In fact, the latter only meet colleagues (mostly online) to whom they work closely, and do not know or have met physically the rest of the office. Another point is that in an office with a hybrid setting, there are fewer people which brings less likelihood of 'bumping into each other' and having a chat with colleagues. These two aspects lead to a detachment from the work environment, and a lack of sense of cohesion and belonging that needs to be addressed.

" As executives look to sustain pandemic-style productivity gains with a hybrid model, they will need to design and develop the right spaces for these small interactions to take place."

- McKinsey & Company (2021)

2.2 PROJECT FOCUS

Type of social interaction: social collisions

The type of informal social interaction the project focuses on are called *'social collisions'*. Social collisions in the workplace are defined as spontaneous interactions that occur, for example, when 'bumping into a colleague' while walking to (or from) a meeting (Stoller J. K., 2021). These usually bring to have short or long informal chats. Social collisions are important to boost a sense of belonging and cohesion among colleagues. These kinds of interactions are also responsible for improving mood and subjective well-being of employees, increasing the exchange of information, knowledge and stimulating creativity (Brown C., 2014). On top of that, they are found to foster collaboration, innovation, and connectivity between colleagues. It also turns out that social collisions create opportunities for creative exchange that lead to innovation and greater organisational effectiveness (Stoller J. K., 2021).

In the desk research, it emerged that the element of spontaneity typical of face-to-face interactions is missing. Respondents expressed the need for more spontaneous and positive face-to-face interactions as they are considered valuable for catching up with colleagues and getting to know new ones. On top of that, it was found that the quality of face-to-face interactions is irreplaceable. In fact, compared to face-to-face meetings, they lack the dynamics (it becomes difficult to switch interlocutors), physical information (e.g. non-verbal communication) and the spontaneity trait (not planneed). On top of that, online meetings are only organised between

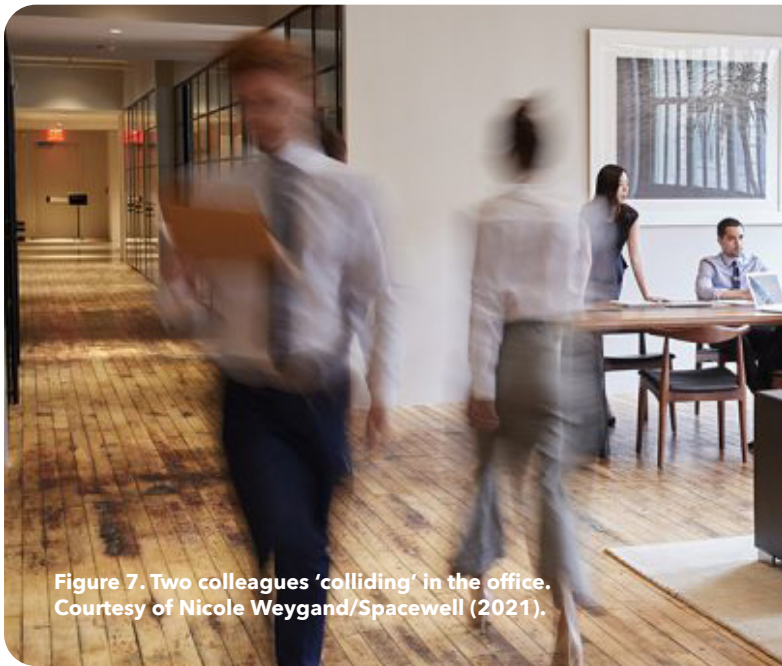
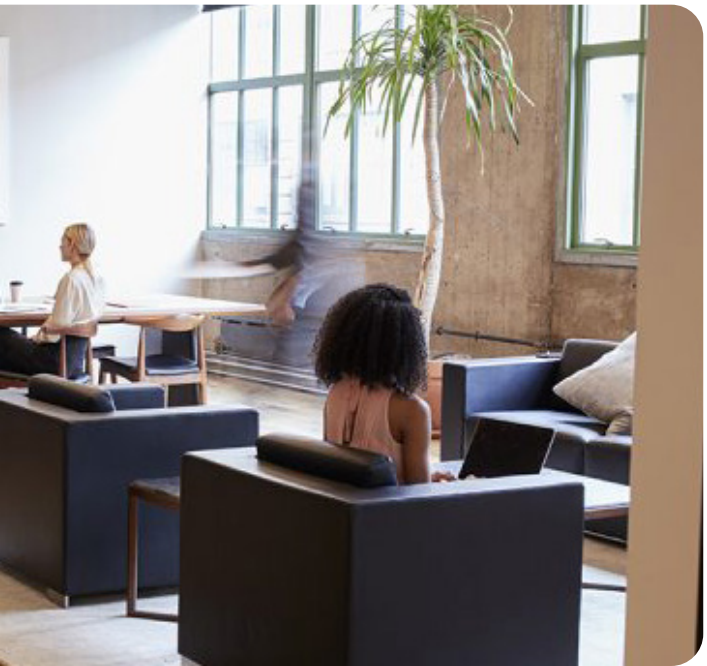


Figure 7. Two colleagues 'colliding' in the office. Courtesy of Nicole Weygand/Spacewell (2021).

a closed group of people, and do not allow for opportunities to meet new or other colleagues.

Location of social interaction: coffee corner areas

During the interviews, respondents emphasised that in a pre-pandemic situation most social collisions occur in coffee corners or hallways. These happen more often during breaks, for example when users are heading to the toilet, coffee/food dispensers or walking to a meeting.
Among these two locations, the coffee machine area was chosen with the help of other IDE designers involved in the idea generation session (see page 35). This location was assessed as the most suitable for the placement of the design intervention for several reasons. One of these, is that the coffee corner area is usually far from the working area, and thus would be less disruptive for the people who are working. Moreover, almost every office has a coffee corner, and that would make the design solution adaptable to more contexts and office spaces.
On the contrary, the hallway is not present in every office, there would be more safety issues to take into account (e.g., if too narrowed, it would create crowds of people) and it's considered more like a 'transitional space' rather than one where one stops by to have a conversation. From research, it has been found that unplanned interactions usually take place more frequently at a coffee area (Weijs-Perrée, 2018), and that is also the place where it is most common to meet new people beyond the current social circle (Granovetter, M. S.,1973).



2.3 DESIGN VISION

By considering the conclusions of the desk research phase and the definition of the problem, it was possible to formulate a vision for the design intervention. The initial collection of ideas from the problem owners supported the criteria of the design vision.

Design vision statement:

In order to create a sense of belonging and cohesion in hybrid working situations, the design intervention should create opportunities for social collisions in coffee corner areas between dislocated (and unfamiliar) colleagues.

The main conclusion of the research phase is that during the pandemic and in hybrid work situations, the sense of cohesion and belonging between colleagues is significantly reduced (see page 25, point 1). To improve this, there is a need to foster spontaneous (and informal) face-to-face social interactions amongst colleagues in the office building. This should be done through a design intervention that is located in coffee areas, and provides opportunities for socialization between both familiar and unfamiliar colleagues.

The design interventions should:

- **Create physical proximity and social affordances.** From the interviews, it emerged that proximity among colleagues increases opportunities for initiation of social interactions (see page 23). In fact, some respondents stated that they usually chat with colleagues they sit next to or are in the same room with. Proximity and visibility are important factors to spark a spontaneous chat with colleagues (Henning C. & Lieberg M., 1996). Therefore,in order to increase spontaneous social interactions among colleagues the design solutions should take into account these two spatial criteria.

"I usually interact more with colleagues that are in the same working island"

- Interviewee 1

- **Alleviate social awkwardness between non-familiar colleagues.** *"Engaging in social interaction with a stranger is difficult for many individuals and is a usually desirable goal"* (Mitchell, R. & Olsson T., 2019). The newly-recruited colleagues (during pandemic) who were interviewed, stated that they find it difficult to bond with the rest of their colleagues, especially with those who have been working in the office for a longer time. When in the office (in a hybrid situation), they find it "embarrassing" to take the initiative to talk to people they do not know in the office. Having a design solution that has characteristics of a game for example (see page 24), would create opportunities for spontaneous socialisation and make talking to strangers less awkward.

"I am a Phd, and some of these people are assistant professors who have been around for a longer time (e.g. 15 years). I feel like there is still a bit of a hierarchy."

- Interviewee 1

- **Low personal cost.** As emerged from the results of the research and interviews, spontaneity is a key element that must be taken into account in the final idea. With virtual encounters during pandemics, the naturalness, richness and flexibility typical of a casual meeting in person is missing (see point 1, page 25). Online encounters have been assessed as too planned, boring and exhaustive, and therefore should be avoided for the final design solution. While it's preferable to have unplanned meetings, it would be nice to have them at a certain time of the day so they don't interfere with working moments (see page 24). Therefore, it is important that the final design solution involves low personal cost in initiation in order to emphasize the serendipity of interaction. At the same time, it should be thought of at a certain moment of the day in order to fit within workers' daily schedules.

"I think I would prefer a bit more planning in that. It's also tricky since you don't want to schedule everything, and put in the agenda informal meetings."

- Interviewee 1

"The FIKA is actually a good design intervention. In that FIKA room within one week or two weeks I was there, I had sort of met everyone because everyone came to the room."

- Interviewee 2

- **Respect others privacy.** While users need to socialise, they also need their productive moments and privacy, especially when it comes to work that requires concentration. Therefore the design should not be too intrusive and give the user the free choice to participate or not without feeling 'socially constrained'.

"When I am here, I'm aso the kind of person people want to talk to. So I get diturbed and at the end of the day I didn't do half of what I intended."

- Interviewee 4

- **Increase awareness of presence and context of colleagues.** Interviewees stated that the dislocation of people in a hybrid work situation makes it difficult to understand where workers are and information about their context (e.g. identity and role) (see page 24). Therefore, the design intervention should create opportunities for colleagues to get to know about the context and identity of other people in the office building.

"I don't know about my colleagues, and what they are doing. I would also like to have a 20 minutes chat meeting but if I'm not even aware that they exist, this is not possible."

- Interviewee 7

2.4 DESIGN HYPOTHESIS

Design hypothesis:

The intervention increases the initiation of positive social collisions in the coffee corners inside the office building.

The initiation of the conversation is the focus aspect of the interaction, as the displacement of colleagues in a hybrid working situation does not allow opportunities to meet colleagues in the office building. On top of that, newly-recruited colleagues are embarrassed to start a conversation with unfamiliar colleagues.

The increase of conversation starters was also the parameter measured when testing and evaluating the final design at the IDE faculty.

3. DEVELOP

The Develop phase of the project aimed to explore the possibilities of how to increase the initiation of positive social collisions in the coffee areas of an office building. The first part of this generative phase was dedicated to define different design directions and based on these, a series of design iterations were carried out leading to the concept of the final design intervention.

Chapter overview

3.1 FIRST GENERATIVE PHASE

3.1.1 Co-creative session

Planning

The co-creative session has been organized in order to develop first concept ideas of the design intervention. The session lasted 1:30 hour and involved 3 IDE design students. As it took place during the summer holiday, and many participants were in different locations, the session was conducted online (via Zoom) using a MIRO board to perform a range of creative and brainstorming tasks (for more details about the co-creative session exercises, see appendix E). The setting up of the creative session followed the double diamond (see Figure 8) process and was guided by the question:

"How to initiate social collisions in coffee corner areas between colleagues located in different places in the office?"

PARTICIPANTS

3 IDE Designers

TIME

1:30 h

TOOLS

Zoom and MIRO board

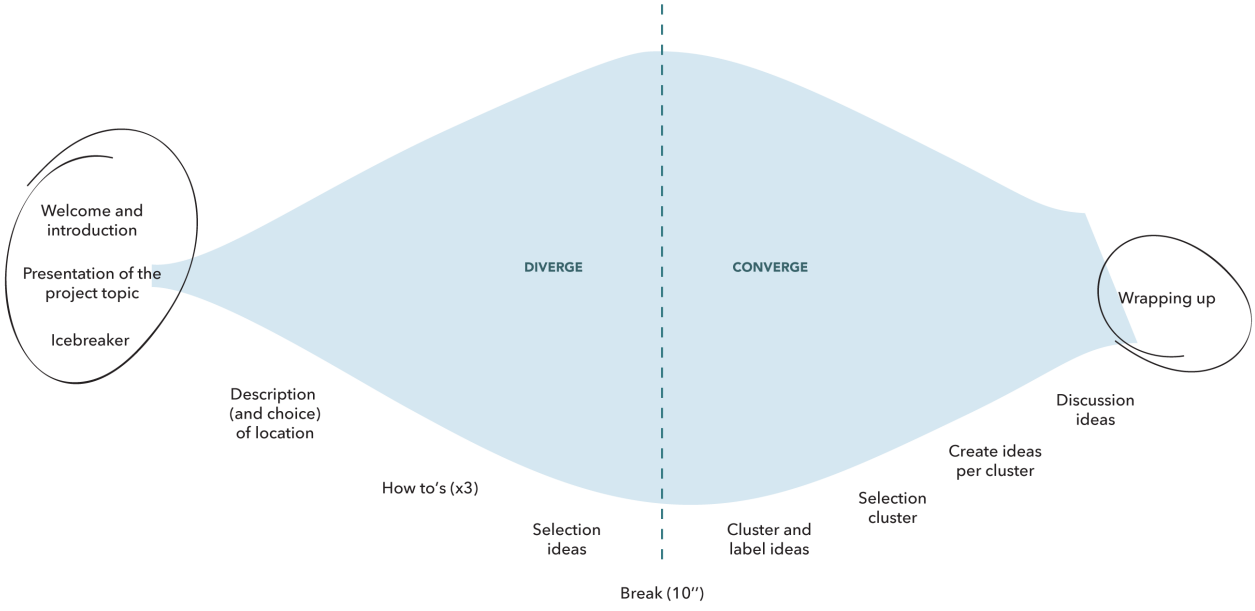


Figure 8. Structure of the co-creative session and exercises.

Results

- **Focus on location of social interaction: coffee corner.** During the co-creative session, candidates expressed their preference for the coffee corner as it is considered more suitable for enhancing social collisions (see Figure 9). In fact, the coffee machine is present in every office which makes the design more adaptable, and usually it's away from the working areas which avoid disturbing those who are working. Refreshment areas such as dining areas were the second choice, but were discarded as not always present in all offices. Moreover, the spatial characteristics of a canteen could be very diverse for each office building. These two aspects would then make the final solution less adaptable. The corridor option was not selected because the design in this location could create a concentration of people that would not meet safety standards. On top of that, rather than a meeting place it is seen more as a place of transition (to the coffee machines, the bathroom, etc.). As for the dining areas, not all offices have a corridor, and again the final solution would not fit a wide range of offices.

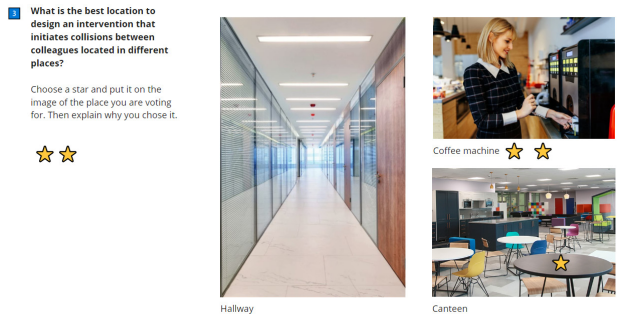


Figure 9. Results of the 'choose and describe a location' exercise.

The idea presented by the designers at the end of the co-creative session are as follows:

- **Front-projected holographic display + Zoom.** One of the designers' ideas is a front projected holographic screen showing a little entertainment show in the coffee corner (see Figure 10). The aim is to encourage employees to socialise by using the interactive show produced by the holographic screen as an enabler of conversation initiation (icebreaker).

This idea is supported by Zoom calls to involve colleagues from home.

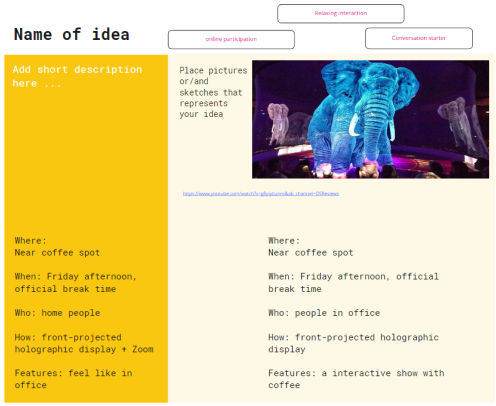


Figure 10. Front projected holographic screen idea.

- **Wearable topic cards.** Another idea was 'wearable tags' on which an employee could place their topics of interest (see Figure 11). The topics visible on the cards function as a visual trigger to initiate the conversation and suggest topics of conversation to get to know colleagues' preferences and interests. In this case, a 'private option' is also integrated, and the wearer can turn the card over to indicate that they are not available to talk.

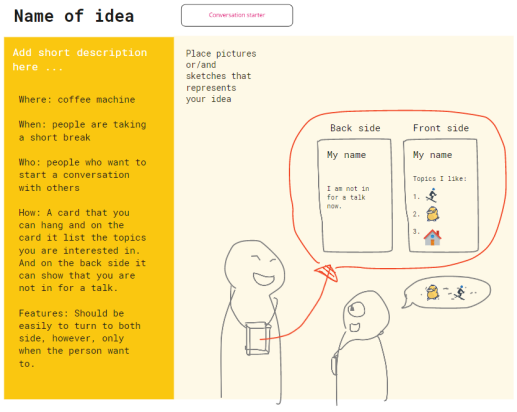


Figure 11. Wearable topic cards idea.

- **Chatting Tables.** Another idea of one of the designers was having 'chatting tables' in the coffee corner area (see Figure 12). These are coffee tables on which are placed cards with different topics of conversation. This idea has similar design goals to the previous one, which is to help initiating and facilitating conversations among colleagues by providing topics of conversations.

Figure 12. Chatting tables idea.

3.1.2 Re-conceptualization and design directions

Looking at the ideas presented by the participants of the co-creative session, I noticed that the first idea of the holographic screen is closer to the concept of initiation (by means of an 'element of surprise'), while the other two ideas are closer to the concept of facilitation (by suggesting conversation topics) (see Figure 13).

At this point I also realised that to the question *How to initiate a collision in coffee corners between colleagues located in different places in the office?*, two other sub-questions are implied:

- *How do you bring people to the coffee corner?*
- *How do you start the conversation?*

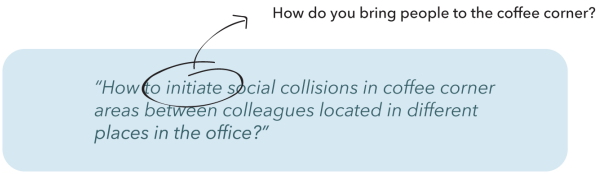


Figure 14. Question re-conceptualization.

Thus there are two important steps to consider in order to initiate collisions amongst colleagues in coffee corners: first is to physically bring workers to the coffee corner, and second is to get them to start the conversation.

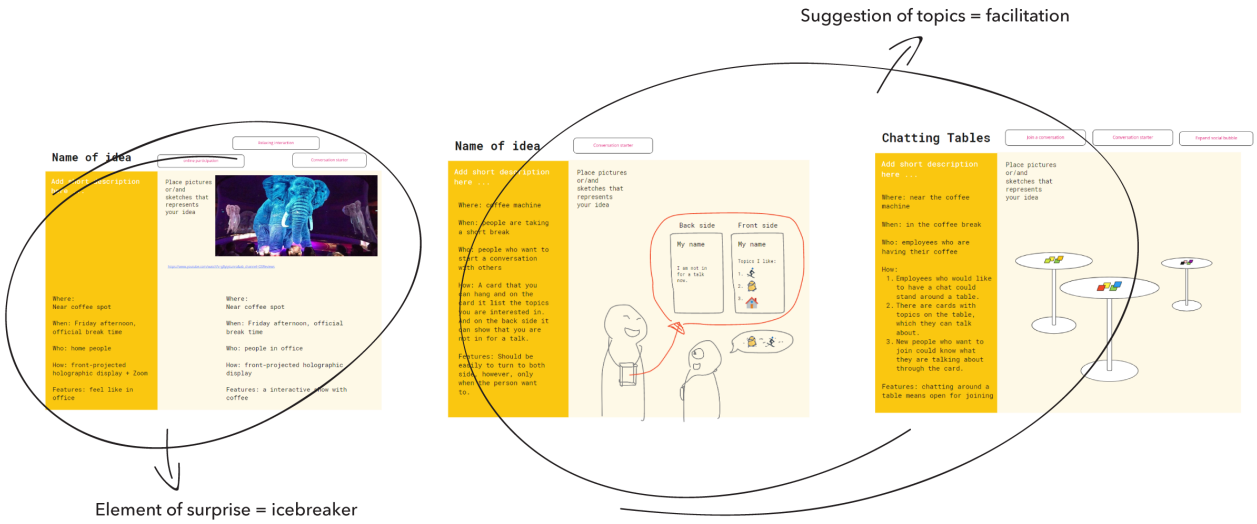


Figure 13. Co-creative session analysis.

Design directions

Taking into account the reflections made during the analysis of the co-creative session, I re-conceptualised the ideas presented by the designers and arrived at three design directions.

- **Institutionalised breaks (toolkit) + topic cards.** The first concept idea is to bring people together spontaneously by institutionalising coffee breaks in the coffee corner (e.g. FIKA culture in Sweden) (see Figure 15). This would create a ritual in the office where all the employees meet, and it would be seen as an "habit" of the office culture rather than a planned or forced activity. An educational toolkit (e.g. instruction cards), would help to integrate this ritual in the office environment and introduce it to the new employees. Once colleagues are in the coffee area, they are helped by conversation topic cards placed on the coffee tables that suggest topics to talk about (and relieve embarrassment amongst non-familiar colleagues).

Figure 15. Institutionalised breaks and topic cards idea.

- **Coffee interface extension + app.** The second concept direction, is an extension of the coffee machine interface and a supporting application/device (see Figure 16). Once a person orders a coffee, they are asked if they want to share the coffee break with someone in the office. In that case, they are taken to another screen that shows the users who are available to take a coffee break. At this point the user randomly chooses a colleague that appears on the screen and if the other person accepts (by means of an app or device), they can meet and take a break together at the coffee corner.

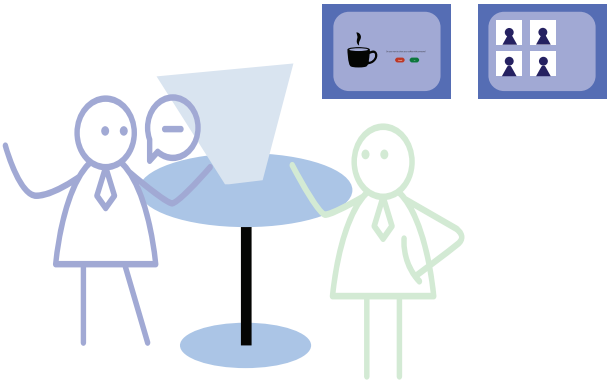


Figure 16. Coffee interface extension and app idea.

- **Holographic display at coffee table.** The third concept takes up the idea of the 'element of surprise' as an initiator (see Figure 17). This is done by means of a holographic display showing something curious and entertaining that attracts the attention of colleagues and leads them to start a conversation. The 'element of surprise' shown on the holographic screen can be the topic of discussions, news topics, fun facts or employees themselves can come up with an interesting topic for example. In this case, colleagues need to be already in the proximity of the coffee machine.

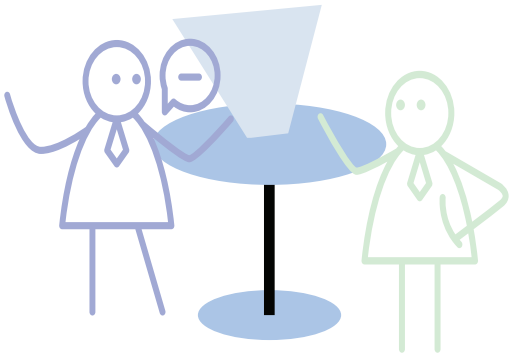


Figure 17. Holographic display at coffee table idea.

3.1.3 Evaluation sessions

Evaluation sessions with experts and IDE students

In order to choose a direction for the design intervention, the three concept directions were presented to some experts (from the Facility Management department, Head of department and Well-being experts) and other design students of the IDE faculty. Experts and designers were involved through an online discussion in which it was first presented the topic of the project, and then the design directions through a presentation (see Figure18). The aim was to get to know their opinions about the design directions and which one would best fit the design vision (see page 29).

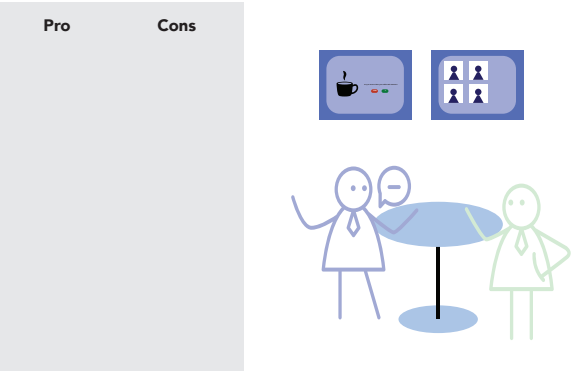


Figure 18. An evaluation sheet given to participants.

Evaluation sessions results

In general, preferences lean towards the third design idea (Holographic display at coffee table), which highlights the 'element of surprise' as a conversation starter in the coffee corner. The holographic screen placed in the coffee corner which shows something attention grabbing and unexpected (= 'element of surprise'), is seen as an icebreaker that encourages especially unfamiliar colleagues to start a short chat. Furthermore, it would push colleagues in the office to visit coffee areas more often, which in turn would increase opportunities for social collisions. This idea was also considered as a good example to address the 'paradox of spontaneity' (= forcing something to be spontaneous does not make it spontaneous) as it does not force colleagues to interact. The holographic display idea was also considered as a 'Trojan horse', which pushes people to interact spontaneously through a trick or trickery (in this case the holographic screen) without them realising it. The other two directions of ideas were less preferred. However, the Institutionalised breaks idea was considered interesting for creating a culture in the company that makes having recurring coffee breaks a 'ritual' that creates opportunities to spontaneously socialize with colleagues.
About the Coffee interface extension, it was pointed out that having a screen that allows you to see which people are available to have a break could be an extra feature to involve colleagues at home and to increase awareness of peoples' presence and context.

3.1.4 Conclusions

The holographic display design direction, highlighted the importance of having spontaneous social interactions through an 'element of surprise' that triggers initiation of conversation amongst unfamiliar colleagues. Moreover, it also increases opportunities for social collisions in the coffee corner area since having 'something unexpected' happening at the coffee corner would spark more visits. In addition, the concept of the 'paradox of spontaneity' that emerged during the evaluations led to observations of the IDE coffee machine areas, and the exploration of the concept of nudging. These were intended to provide insights and knowledge on how to get employees to interact spontaneously around the coffee area in a way that is not 'forced'.

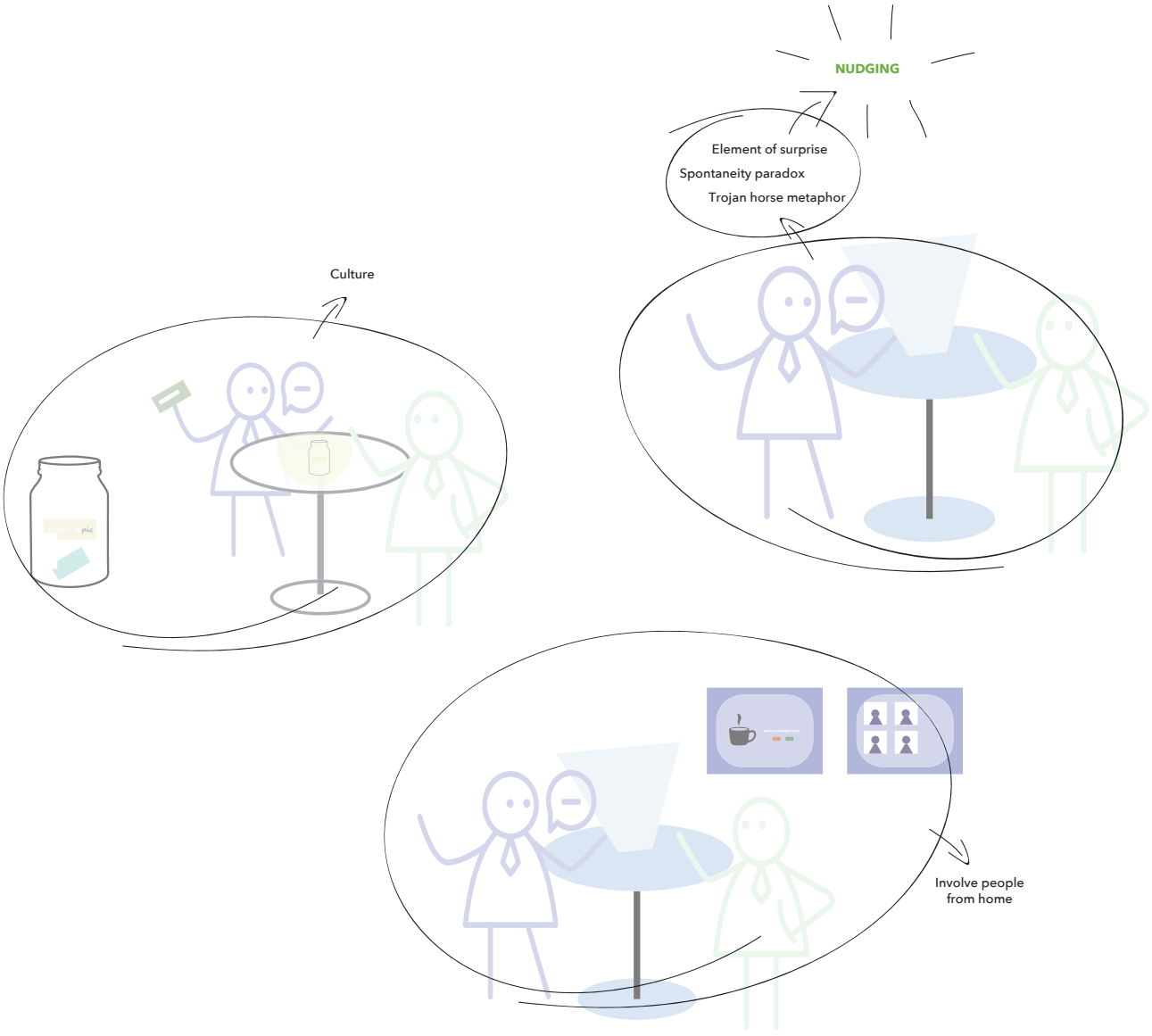


Figure 19. Analysis of feedback received in evaluations.

3.2 SECOND GENERATIVE PHASE

3.2.1 Ethnographic research and nudging theory

Observation studies

In order to formulate a rich understanding of behaviour and social interaction in the context of the coffee corner at the IDE faculty, it was conducted a short ethnographic research through observational studies in the IDE faculty. This helped to identify the general habits and behaviour of coffee corner users, and how this changes depending on which coffee corner, near which facilities and in which department. Before starting the observations, the various coffee machines located in the faculty were identified using the building map (see Figure 20).

The observations involved random passers-by going to the coffee machines to observe their 'natural' interactions. During the observations, detailed attention was paid to the kind of visitors, the actions and social interactions of visitors. The observation took place on a regular day of the week and at different times of the day (morning, lunchtime and afternoon) to ensure a varied research pattern. Each observation round lasted between 90-180 minutes. The data of observation were recorded through the use of written notes and pictures.

Results

The results of the observations were grouped into different categories: timing, location, activities, interpersonal interactions, etiquette and target (more details can be found in appendix F).

From the observational studies, it was concluded that the experience at the coffee machine for individuals and groups is not the same. Indeed, while for individuals the main activity is buying coffee and leaving the coffee area, for groups it is socialising (see Figure 21). Moreover, groups spend more time at the coffee corner than individuals, and sometimes stop at tables to chat. Another conclusion is that most interactions at coffee corners only occur between familiar people. Finally, safety rules and procedures (e.g. wearing a mask and following the queue) are followed by everyone, and this happens 'through the influence of others'.

In general, observational studies emphasised the importance of increasing the social interactions of individuals and unfamiliar people at coffee machines. In addition, it suggested 'the influence of others' (observed in following security measures), as a way to relieve embarrassment of individuals to socialise with strangers at coffee machines (e.g., observing two other strangers starting a conversation).

Limitations

- Only one observational session (one whole day of the week) has been carried out due to time constraints which clearly does not allow to generalize the results.
- The observation studies took place during a period when the observed environment (IDE faculty) was in a more "normal" than hybrid kind of setting. Therefore, the results may have little bearing on coffee machine behaviour and habits in a hybrid situation.
- The popularity of some coffee corners is due to the better quality of the coffee, which misleads the results concerning the crowdedness of some coffee corners.
- The type of users observed in certain coffee machines is due to the fact that some of them can be only used by employees (in the upper floors of the building for example).

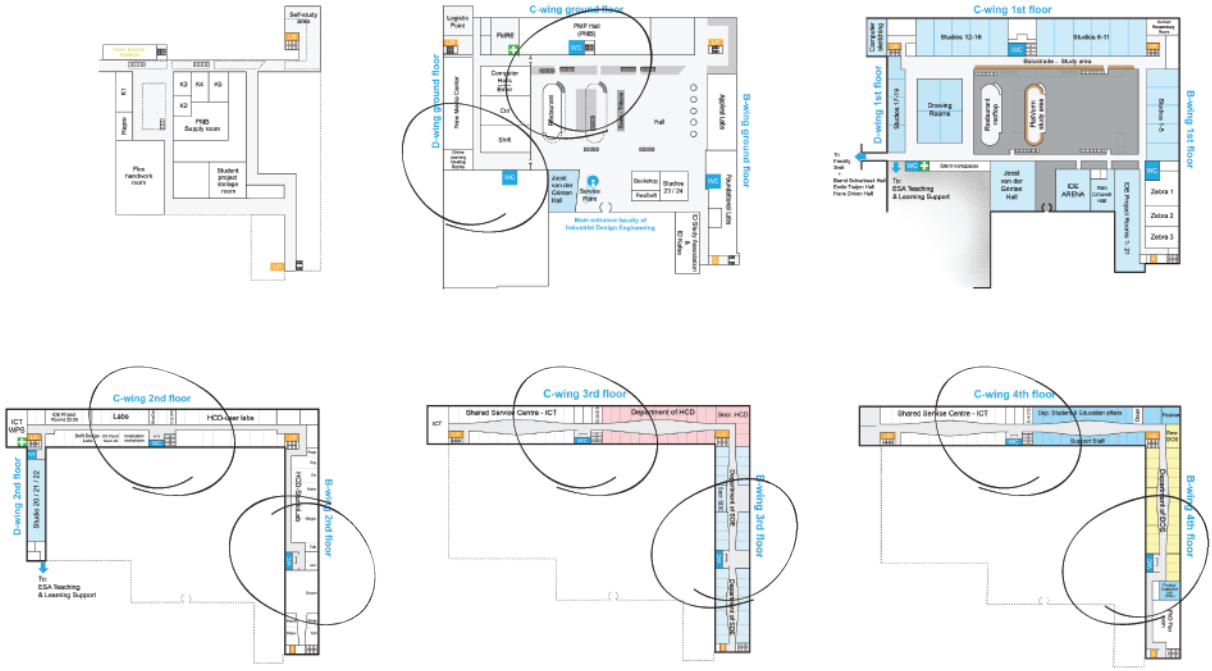


Figure 20. Spotting of coffee corners in the IDE faculty.

Figure 21. A picture taken during the observations representing the difference in tasks between an individual and pairs.

Nudging theory

Next to the observations of the IDE coffee corners, the concept of nudging was explored. This was aimed at getting more knowledge on how to get employees to interact spontaneously in the coffee corner area.

The nudge theory has been first articulated by Nobel Prize-winning behavioral economist Richard Thaler. According to Thaler, R. H., & Sunstein, C. R. (2009), a nudge helps people make better decisions for themselves without restricting their freedom of choice. It has been described as *"any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives".*

Three ethical principles of nudging have been identified, that requires nudging to be:

- Transparent and not misleading
- Easy to decide against a nudge
- The behaviour being nudged should improve the person's welfare

According to Sunstein (2019), there are several types of nudges. These are:

- Default rules (e.g., automatic enrollment in programs, including education, health, savings)
- Simplification (to promote take-up of existing programs)
- Uses of social norms (emphasizing what most people do)
- Disclosure (Information is both comprehensible and accessible)
- Warnings, graphic, or otherwise (e,g. Warning pictures on cigarettes packages)
- Increases in ease and convenience (e.g., making low-cost options or healthy foods visible)
- Recommitment strategies (by which people commit to a certain course of action)
- Eliciting implementation intentions (e.g. "do you plan to vote?")
- Reminders (e.g. by email or text message, as for overdue bills and coming obligations or appointments)
- Informing people of the nature and consequences of their own past choices

Among these, the one that uses social norms has been taken into account, since it linked well with the insights gathered from the observation studies at the IDE coffee corners. In particular, the nudge of using social norms emphasizes what most people do in order to trigger other people to follow (Sunstein, 2019).

"A nudge is any small feature in the environment that attracts our attention and alters our behaviour."

- Thaler (2009)

Urinals at Amsterdam's Schiphol Airport.

Figure 22. The idea of some designer of printing an image of a housefly inside the urinals to improve the cleanliness of the restrooms. The results, were that the spillage on the bathroom floor was reduced by 80% (Bikker, 2021). Courtesy by Peter BilWak (2013).

Piano stairs in Stockholm.

Figure 23. An example that encourages subway commuters to ditch the escalators and choose the healthier option: climbing the stairs (Bikker, 2021). Courtesy by The Oval Office (2013).

3.2.2 Brainstorming session

From observations and studies on the theory of nudging, it was concluded that making talking to strangers 'socially acceptable' might lead people to interact with unfamiliar people when they are alone at coffee machines. For this, the nudge of 'using social norms' is taken into account to help unfamiliar people to start the conversation between them. Taking the insights of this first generative phase into account (see page 38) in connection with the vision and design hypothesis (see page 29,31), a brainstorming session was conducted to explore further directions for the final solution. The following question was taken into account:

How to nudge people at the coffee corner to interact spontaneously?

The aim was to formulate more focused design directions to the conclusions drawn in this first part of idea generation. The brainstorming session was conducted by me and lasted one hour. For more details about the process and results of the brainstorming session, see appendix G.

Results

After the divergent phase of idea formulation, a convergent phase of idea selection and clustering followed. The resulting clusters were the following:

- **Visual triggers and instructions.** Making subtle suggestions to socialize in the form of visualisations.
- **Spatial constraints.** Creating 'spatial constraints' that lead more users to go to the coffee corner area, and therefore enhance opportunities for socialisation.
- **Events and collaborative activities in the coffee corner.** Creating opportunities of socialization in the form of events or collaborative activities (e.g. games).

The cluster 'Events and collaborative activities in the coffee corner' was chosen. and led to the discovery and exploration of the 'honeypot model'.

In HCI (Human-Computer Interaction), the 'honeypot effect' describes the way in which people interact with a system by passively stimulating passers-by to observe, approach and engage in an interaction (Wouters, 2016). The goal is to allow everybody to easily and freely participate in a shared activity or event, by making people observe others and opt-in to participate without feeling pressured. In this way, the physical space around the design intervention becomes 'marked' and creates a kind of social affordance where it becomes 'socially acceptable' to spark up conversations with others (Brignull H. & Rogers Y., 2003). The 'honeypot model' describes the user roles, trajectories, influences and triggers that affect how audiences engage with interactive systems. In this model, different stages and design implications bring users to become from 'passerbyers' to 'actors' of the interaction system. The single steps are described below:

1. **Rousing: From Passer-by to Bystander.** At first, people are made aware of the interaction system, which requires some form of advertising or visuals that lead to the interaction spot (e.g. symbols painted onto road surfaces, printed signage along main roads, and some digital signage).

2. **Learning: From Bystander to Audience Member.** In order to provide a context for one's own potential activities in the following phases, the concept of "learning by watching" underpins, even when people decide to refrain from any engagement. Learning also takes place through the direct social interaction between different user roles along the trajectory of the process.

3. **Engaging: From Bystander over Audience Member to Participant.** In this stage, the number of people simultaneously interacting with the installation influences the motivation of other participants. A number of spatial and social constraints should be taken into account, such as the visibility of the available interaction space, technological constraints (hardware and software) that limit how many people can actually be perceived or receive feedback in parallel, or simply the ergonomic dimensions of the system.

4. **Committing: From Participant to Actor.** In this phase, participants transform into actors

in two distinct ways: through participation and by initiating interactions with others. This transition requires that people feel sufficiently empowered to immerse themselves in their interaction and experiment with the system. In order to trigger collaborative behaviour, the interactive system should motivate people to join efforts, to experience the features of the system and positively influence the overall social experience. For this aspect, forms of gamification that encourage deliberate and synchronous activities should be involved, in terms of technical features (e.g. software that recognises collaborative actions), experience (e.g. visual and audio feedback that responds to collaboration) and physical manifestations (e.g. providing props that require participants to collaborate).

5. **Dropping Out: Transitioning out of Engagement.** Dropouts are not always negative, in fact they can build an experience that could be shared with those in other roles. Indeed, dropouts can take on the role of spark or facilitator, enthusing those who have yet to engage in the interaction and sharing their insights and experiences.

3.2.3 Conclusions

Looking at the different phases of the 'honeypot model' and the design implications involved, two main possibilities have been identified in order to encourage users to visit the coffee corner area and interact with others (see Figure 24).

1. In the early stages of the model (from Passer-by to Audience Member) the identified solution involves visual instructions that both gather people (through **'visual triggers'**) and instruct (through **'learn by watching'**) participants to engage in the coffee corner area.

2. In the later stages of the model (from Participant to Actor) once the user is brought to the interaction spot, the solution should involve a shared activity that encourages users to interact with each other (through a **'collaboration activity'** involving visual/audio feedback or props).

Taking into account these two possibilities derived from the study of the 'honeypot model', a number of design iterations have been carried out, and will be explained in the following paragraph.

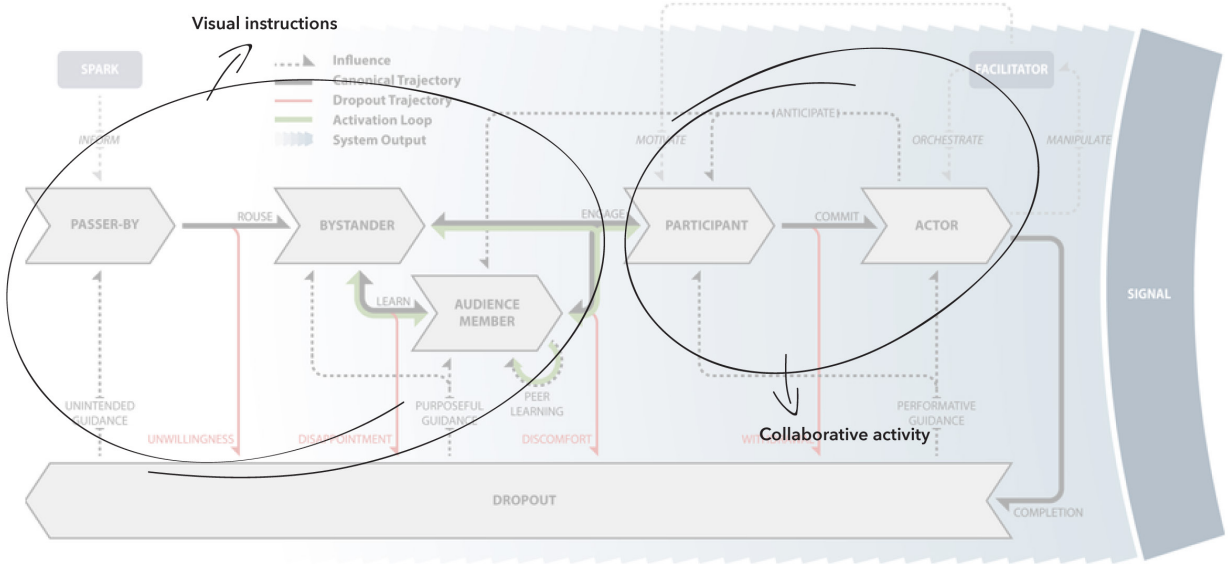


Figure 24. A picture taken during the observations representing the difference in tasks between an individual and pairs.

3.3 THIRD GENERATIVE PHASE

3.3.1 First design iteration

Taking into account the steps of the honeypot model described above, a small round of idea generation was carried out which led to an initial design concept (for more details, see appendix H).

Interactive board and visual instructions

The first idea was an interactive board showing automatically generated (or chosen) topics, games and fun facts for participants to discuss together (see Figure 25). This is supported by 'instructional visuals' (graphics) to nudge people towards the interactive zone. In particular, the graphic instructions are thought to mark the path to the interactive board (point of interaction) and the visual island around the board. The latter is designed to create a 'buzz' around the board and intrigue passers-by to observe and 'learn by watching' (see point 1, page 45). The activities proposed by the interactive board (games, video calls, conversation topics, news or fun facts) serve as a 'collaboration activity' that encourages users to interact with each other once within the interaction area (see point 2, page 45).

With the help of some IDE design students, the first design idea was evaluated. This was done through a short presentation followed by a free discussion on the concept. In particular, weak points of the idea were identified which will be taken into account for the next iteration (see Table 1).

First, with regard to the location and accessibility of the interactive board, the occlusion caused by too many people around it does not allow visibility by passers-by. In fact, having too many people in a single visual island could lead to dropping reactions from passers-by. Another aspect that emerged is that each coffee corner varies from office to office, and putting an interactive whiteboard in a room that is too small, for example, would not work. This would make the design not adaptable to more coffee corner spaces. Moreover, designers expressed that the static visual instructions would in the long run not be noticed. An alternative suggested was to make them dynamic (e.g. digital), so that users are kept surprised and intrigued to visit the coffee corner more often.

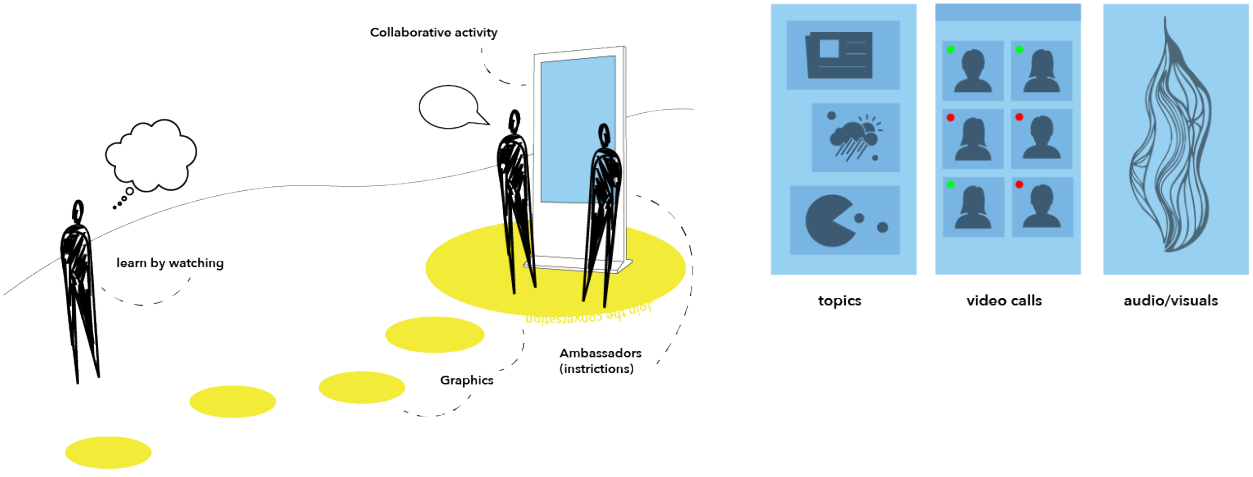


Figure 25. Interactive board and visual instructions idea.

Evaluation of the first design idea

3.3.2 Second design iteration

Features	Weak points
Interactive board	Occlusion of the board - Problems of visibility - Discourage passerby to join
	Spatially intrusive - Not adaptable to different type of coffee corner spaces
Visual instructions	Static graphics - Does not arouse interest in the long run

Table 1. The results of the evaluation of the first design idea.

3.3.2 Second design iteration

Based on the previous results, a second creative session was carried out which involved further literature research of design solutions, inspiration from art installations and requirements of the coffee corners spaces of the IDE faculty (for more details, see appendix I).

Interactive installation and desktop app

The second design idea consists of an interactive floor/wall system that responds to user input with visual feedback (see Figure 26). In particular, every time a user crosses the interactive floor/wall placed at the coffee corner, dynamic visual projections are reproduced on the floor/wall. The graphics change automatically each time users visit the coffee machine area, in order to spark curiosity each time they visit the coffee area. In addition to being a trigger for visiting the coffee machine area, the interactive graphics act as an 'element of surprise' to trigger spontaneous interactions between familiar and unfamiliar people who visit. Furthermore, the interactive graphics function as a 'visual trigger' to prompt passerby to observe and possibly participate.

Another element of the second conceptual idea, is a screen placed at the coffee corner showing people working from home who are available for a coffee break. For each colleague shown on the screen, some contextual information about them is displayed such as the city they are in, the department they belong to and what they are working on at the moment. This extra feature has been designed to increase the awareness of users' presence and context, which is one of the design criteria of the design vision (see page 29). Finally, the desktop app for video calls is designed not only to entice workers from home, but also as an extra trigger for visiting the coffee corner.

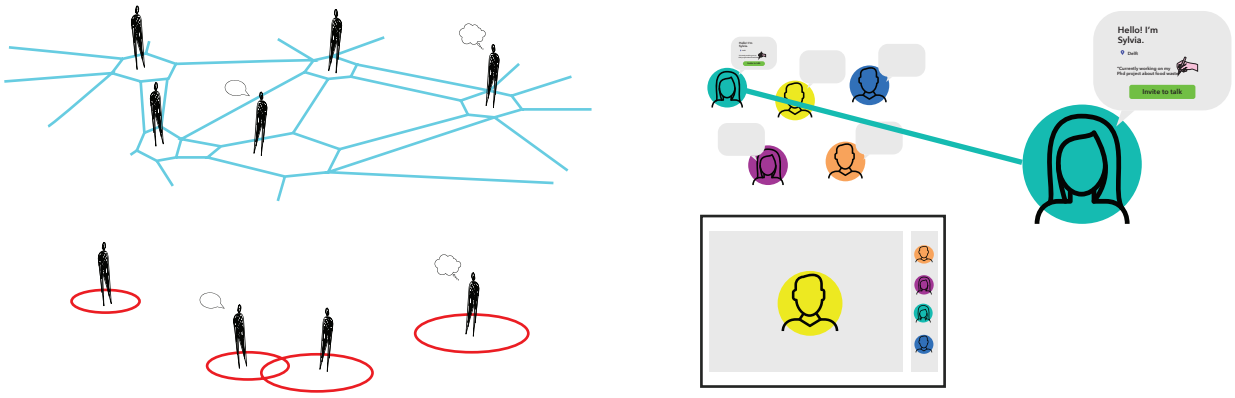


Figure 26. Interactive installation (left) and desktop app (right).

Evaluation of the second design idea

The interactive installation and desktop app idea has been further revised through a round of evaluation (and iteration) sessions which involved both IDE design students and light installation experts (for more details about the results, see appendix L). This was done through short presentations of the design topic and idea, followed by a discussion session. Each session lasted between 30-45 minutes. The aim was to spot weak points of the second design idea, and provide suggestions both on a conceptual and more technical level.

8 | 30-40'' | Online presentaton

Conceptual questions:

What do users think about the concept idea (general impressions)?
Which features need to be changed or added? And why?
What element sparks initiation of conversations?
How to involve people from home?

Technical questions:

Which space criteria should be considered?
Is daylight an issue? How to deal with that?
Are the floor characteristics important? Why (and what)?

To provide more spatial criteria for the implementation of the light installation, an analysis of the IDE coffee corner spaces was executed. The pictures taken during the analysis were posted on a moodboard, and successively observed to analyse specific characteristics such as the type and colour of the floor and walls, what facilities are present in the space and the organisation of the space in general (for more details, see appendix M).

Evaluation sessions results

One of the conclusions from the first evaluation with IDE designers (see table 2), is that the desktop app idea is 'disconnected' from the interactive installation and looks more like two designs with distinct aims. Moreover, it was not in line with the insights of the initial research (see page 25), that suggest that online calls are not desired by users as they are 'too planned' and 'not spontaneous'. Instead, a low-level interaction was suggested. For example, home users might approve changes to lights to communicate in subtle ways with people in the office that are located in the interaction area. Another aspect that was suggested during the evaluations was that the final idea should not include too many visual inputs, as normally employees already receive too many while working. In addition, it has been pointed out that the interactive installation requires a few technical considerations to be considered. For example, the amount of natural light in the room, the type of floor and other space criteria (e.g. ceiling height) to make the projection visuals visible.

The discussions with lighting installation experts confirmed that a projection mapping technology would require too many space criteria to take into account (e.g. type and color of floors and walls, daylight presence, furniture that produce cast shadows and overall lighting condition of the room). These would make the idea not adaptable to different kinds of coffee corners. In fact, the features observed during the IDE coffee corners analysis, confirmed the infeasibility of using light projections.

As an alternative to light (with projection mapping technology), it was suggested to use audio. The production of unexpected sounds would serve as an 'element of surprise' to trigger people to initiate a conversation between unfamiliar colleagues. Using audio instead of light, it would be less challenging from a technical and (spatial adaptability) point of view. Moreover, it would also be a good way to avoid giving too much visual input which was disadvantaged during the evaluations. While audio was suggested as the main feature, light was kept as a secondary one. Since using projection mapping technology was highly discouraged by the respondents, a smart LED light technology was considered. In this case,

Features	Weak points
Desktop app	Detached from the idea of the interactive installation - Two different design goals: it involves online calls which are not spontaneous
Interactive installation	Technical limitations regarding: - Amount of daylight in the room - Type of floor - Other space criteria (e.g. ceiling height) Too many visual inputs

Table 2. The results of the evaluation of the second design idea.

the light is made interactive by making user input (increased conversation) generating system output (change in light characteristics, such as intensity). This time, the light feature is thought of as a 'collaborative activity' (see point 2, page 45) that would engage users to interact with each other. At the same time, it has been thought of as a way to attract passersby to join the coffee corner through 'visual instructions' and 'learning by watching' (see point 1, page 45).

Key insights of evaluation an iteration sessions:

- *Re-evaluating idea as too challenging*
- *Considering audio as main feature*
- *Considering light as secondary feature (no projection mapping)*
- *Emphasise relaxation-mode over gaming-mode*
- *Integrating people from home in a low level of interaction*

3.3.3 Third design iteration and final concept

Taking into account the decisions made after the evaluation sessions and the analysis of the IDE coffee corners' spaces, I performed a short brainstorming session with IDE design students and a solo-creative session to conceive the third design idea (for more details, see appendix N).

Interactive object and home appliance

The final idea resulting from the creative session is that of an interactive object that has sound, movement and light functions supported by a home appliance to engage users from home (see Figure 27).

The interactive object placed on the ceiling of the coffee corners plays randomized sounds when detecting people in proximity. Whenever two or more people start talking, the object lights up (increasing light intensity) and grows as conversation grows. Moreover, depending on the depth of conversation, the light temperature increases (e.g. warmer when the topic is deeper). When people leave the interactive area, the object returns to its normal state leaving a 'mark of light' which symbolizes the earlier presence of other colleagues to a future passer-by.
With the home appliance, people from home can interact at a low level with the object (and employees at the office) by streaming the sound of the coffee corner. The recorded sound is being turned into a background sound when the coffee corner is empty. When someone is present in the coffee corner, people from home can hear their voices and eventually join the conversation.

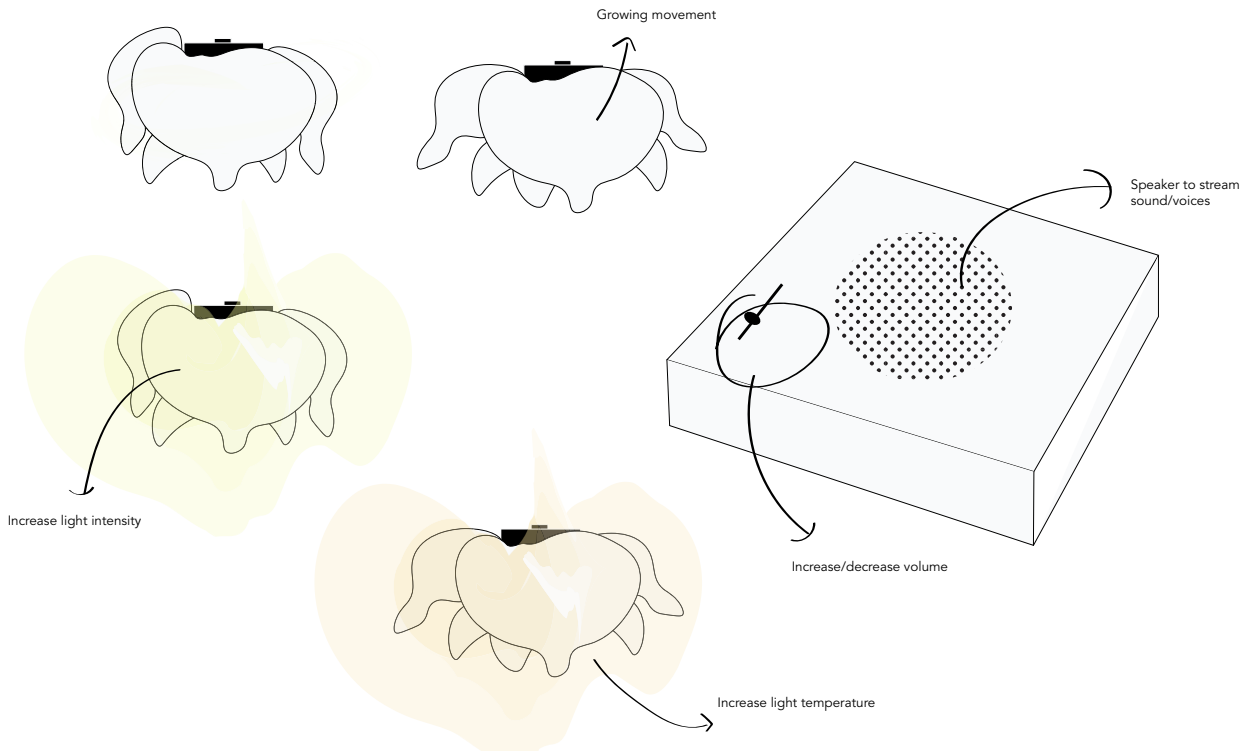


Figure 27. Interactive object and home appliance idea.

Interactive object

Functions	Connections to research insights
Audio function	
Randomized unexpected sounds	'Element of surprise' that is important to trigger initiation of conversation between unfamiliar users in proximity with the object (see page 36).
Light function	
Increase of light intensity	'Visual instructions' (HPM) that encourage passerby to observe the interaction and eventually join (see point 1, page 43). 'Collaborative activity' (HPM) that encourages users to join efforts and interact with each other (see point 2, page 43).
Increase of light temperature	'Visual instructions' (HPM) that encourage passerby to observe the interaction and eventually join (see point 1, page 43). 'Collaborative activity' (HPM) that encourages users to join efforts and interact with each other (see point 2, page 43).
Leaving a 'mark of light'	Increase sense of awareness of colleagues' presence and context (see page 28).
Movement function	
Growth/degrowth movement	'Visual instructions' (HPM) that encourage passerby to observe the interaction and eventually join (see point 1, page 43). 'Collaborative activity' (HPM) that encourages users to join efforts and interact with each other (see point 2, page 43).

Home appliance

Functions	Connection to literature
Sound streaming and conversation join	Need to increase sense of awareness of colleagues' presence and context (see page 28). Involve home workers at a low level through sounds (see page 47)

Table 3. The feature of the third design idea and connections with the research insights.

4. DELIVER

The fourth phase of this project, was aimed at defining the final design intervention in terms of feasibility, desirability and viability. First, technologies and functions were defined to make sure that the final design could be implementable, viable and with design goals linked to research. Once the final design was conceived, the prototype was tested in the IDE faculty through observations and short interviews. Finally, taking into account the previous results, an implementation strategy for the design intervention was defined and considerations regarding its viability were further elaborated.

Chapter overview

4.1 DEFINITION OF THE FINAL DESIGN INTERVENTION

Analysis of functions and technologies

The design of the last iteration was further re-defined through a series of analyses that identified features (well connected to research insights), viable and implementable technologies.
In order to get an overview of the final design intervention, the following questions have been considered:

- *What functions and technologies are needed in order to make the design implementable, viable and feasible?*
- *What sound programs does the object reproduce?*
- *What are the design purposes of the final design intervention?*

To answer these questions, evaluations were carried out with technology experts (AI and IoT).

Analysis results

- **Discarding the motion function.** The motion function was found to be an extra non-necessary feature (e.g., the increase in light intensity is already enough to act as a 'visual trigger'), and too complex to implement on a technical level.

- **Discarding the home appliance.** About the function of listening to voices in the coffee area, it was concluded that there might be too many privacy issues. For example, users at the coffee machine area might have a private conversation and it would be annoying and embarrassing to be interrupted. As for the function of turning the sound of the coffee corner into a background sound, according to experts it is technically impossible and not meaningful in terms of design purposes. In addition, it was concluded that the extension of the home appliance relates little to the insights of the previous research. In fact, the focus of the project is on increasing face-to-face social interactions between people in the office building (see page 12).

- **Discarding the light function (depth of conversations).** Another conclusion was the discarding of the change of color temperature depending on the depth of conversations. This function was evaluated by experts as being too complex at a technical level, and almost impossible. In fact, it would be difficult for the system to identify conversations that are 'deep' and give output accordingly without making mistakes. Furthermore, this function is not linked to any particular research insights, and the increase in light intensity is already enough to act as a 'visual trigger'.

An overview of the functions (and sub-functions) of the design intervention defined in the last iteration, and those discarded after the analysis can be found in appendix O. The final technologies resulting from the evaluation with technology experts are explained below.

- **Detecting people with a motion sensor.** Regarding the detection of one (or more people) near the interactive object, it was decided to use a simple motion sensor. Depending on the space (size and morphology), more than one could be placed within the interactive area. The motion sensor detects the presence of people, but does not understand how many and where they are located exactly in the space. For these purposes, more specific solutions were indicated by the experts (e.g. Kinect and Sonar) but they would be too complex to implement with the rest of the system and unnecessarily expensive. Most importantly, understanding the number of people around the object and where they are located in the space is not relevant to the design aims.

- **Using a microphone to activate/deactivate sounds and light.** As for the sound function, the microphone records the sound of the office and filters out the frequencies of the human voice to understand when people start talking and thus when to stop streaming the sound. As for the light functions, a microphone is also used to understand when to switch on and increase the intensity of the light (depending on conversations recorded). As during a conversation there are normally pauses, the system recognises different pause lengths when detecting people talking (e.g. 'short pause' = 0.50 sec, 'long pause' = 1.5 sec, or

'end of conversation' = 1 minute). Moreover, the light would switch off gradually to leave the 'mark of light' at the end of the interaction.

- **Making the audio function interactive (with a motion sensor).** About the sound feature, it was recommended to make the sound interactive as it makes the interaction dynamic and 'surprising' in the long run. In particular, the sounds played depend on the actions of the users. For example, if people in the interactive zone are moving fast, sounds played are also 'active'. On a technical level, randomized sounds would be played based on data collected by the motion sensor (which detects people in the vicinity of the object). An infrared motion sensor, it detects the presence of people in proximity of the interactive object by detecting the change in temperature of the given area (Xiong, J. Li, 2014). For example, if people move fast, a higher temperature is perceived by the motion sensor (or the opposite).

A summary of the final functions and related technologies is represented below (see Table 4).

Functions	Description	Technology
Audio	Produces randomized sounds depending on people's actions	Internet Bluetooth speaker Microphone (sound sensor) Motion sensor (infrared)
Light	Lights up when people start having a chat and changes light intensity depending on people's conversations: ~ Increase when conversations continue ~ Gradually dims when conversations end ("mark of light")	Internet Microphone (sound sensor) Smart light bulbs

Table 4. Functions and related technologies of the third design idea.

Definition of the sound programmes

Since the aim of the randomized sounds is to act as an 'element of surprise' to encourage visitors to the coffee corner to start a conversation, a research was made for sounds that are most 'attention grabbing' for human beings. According to SanMiguel, I., (2010), these are:

- Any kind of music
- Regular phone alarms
- Unusual sounds
- Short sounds (in intervals)

Among these categories, sounds that were more 'calm' or 'energetic' were identified. For example, for the programme 'calm sounds' more natural sounds (e.g. birds) or ambient music tracks were selected. For the programme 'active sounds' instead, glasses breaking, laughter or symphony music tracks were selected.

Another sound programme is related to volume. In particular, depending on the crowdedness of the interactive area, the volume of sounds is adjusted accordingly to ensure that they are audible enough to attract the users' attention. According to University of Michigan Health (2020), the minimum and maximum audible (and safe) volume for humans ranges from 30-80 decibel. These are the volume values that have been considered for the 'volume' programme.

A summary of the final three sound programmes is illustrated in the table above (see Table 5).

Sound programme	Description	Examples	Input
Volume programme	High = 80 decibel Medium = 50-60 decibel Low = 30 decibel		Background noise detected in the interaction area
Active programme	Scratch sounds Dogs barking Heart beating fast Symphony tracks Mosquito buzz	https://open.spotify.com/playlist/3RzLhN97Wxfl29hzBbt6U9?si=742bf0fb102b4439	People's movement (active = high temperature)
Calm programme	Rain sounds Birds singing Fire sounds Singing whales Ambient music	https://open.spotify.com/playlist/3fnyPczMfmVkURmr5kBSeC?si=c6ee2b0a343643d8	People's movement (slow = low temperature)

Table 5. Table representing the three sound programmes played by the system .

4.2 KIPINÄ

Kipinä (meaning '*a spark*' in Finnish), is an interactive object placed in the coffee corners within the office space that aims to increase the sense of belonging and cohesion among employees. This is done by increasing the amount of conversation starters through interactive sounds and lights.

For the audio function, randomised sounds function as an 'element of surprise' to trigger the start of a conversation between unfamiliar colleagues in the vicinity of the object. For the light function, switching on and changing the intensity of the light serves as a 'collaborative activity' and as a 'visual trigger' for passers-by. The placement of the interactive object in the corner of the café makes this place a 'honey spot' (= gathering point) that increases the opportunities for social collisions between employees in the office building.

Design intervention (features)	**Design purposes**	**Link to research**
Interactive object	Increase sense of belonging and cohesion amongst employees	Decrease of sense of belonging and cohesion because of hybrid and remote working mode introduced during covid-19 (see point 1, page 23)
	Increase conversation starters between familiar and unfamiliar colleagues	Newcomers (during the pandemic) feel disconnected from old colleagues and find integration and conversation initiation difficult (see page 23)
	Encourage more visits to the coffee corner to increase opportunities for social collisions (spontaneous social interactions)	With the few people in the office, there is less chance of bumping into each other in the office (see page 23)
Audio function		
Randomized sounds	Trigger chats amongst familiar and unfamiliar employees	Element of surprise (as icebreaker) (see page 36)
Light function		
Switching on and increasing light intensity	Encourage users to keep the conversation and spark curiosity of passerby (that observe and eventually join)	HPM - Collaboration activity (gamification) HPM - Learn by watching HPM - Visual trigger (instructions) (see page 43)
'Mark of light' (gradual switch-off)	Visual trigger for future passerby to sign an earlier presence	Reduced awareness of colelagues's presence during pandemic (see page 28)

*HPM = Honey Pot Model

Table 6. Table representing the functions of the final design intervention and their link with research.

INTERACTION STORYBOARD

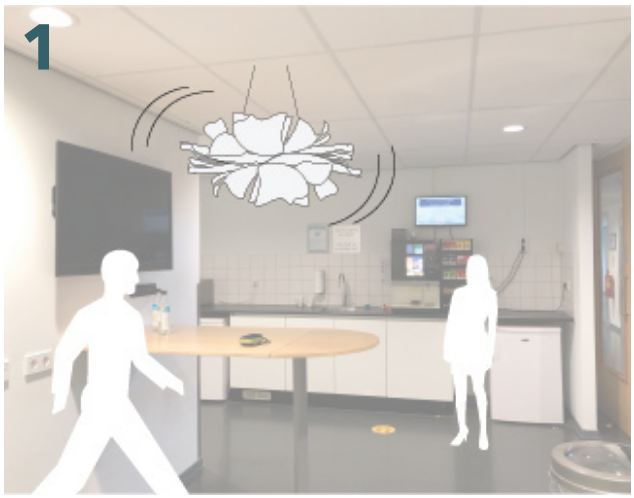
Image 1,2. When the interactive object detects people within the interaction area (who are not speaking), it starts playing randomized sounds (= 'element of surprise') to spark initiation of conversations.

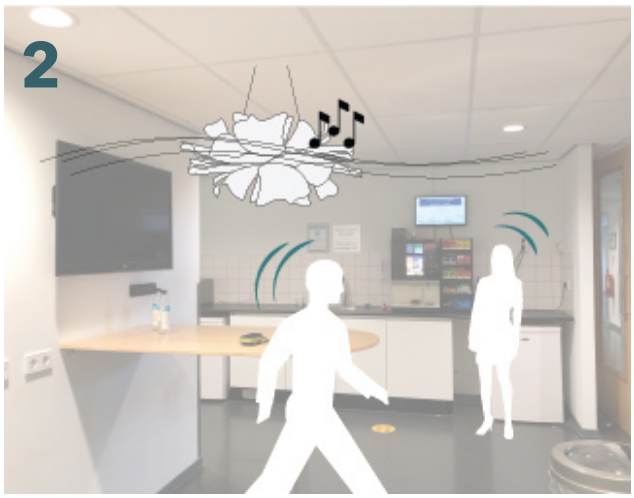
Image 3. When they start speaking, the sounds stops and the light turns on.

Image 4,5. As the conversation grows, so does the intensity of the light. This is meant both to encourage users to keep the conversation (= 'collaboration activity')...

Image 6,7. … and to nudge passerby to observe (= 'visual trigger'; 'learn by watching') and eventually join the interaction.

Image 5. When people leave the coffee corner area, the interactive object gradually dims leaving a 'mark of light' meant to leave a sign for future passerby of an earlier presence.



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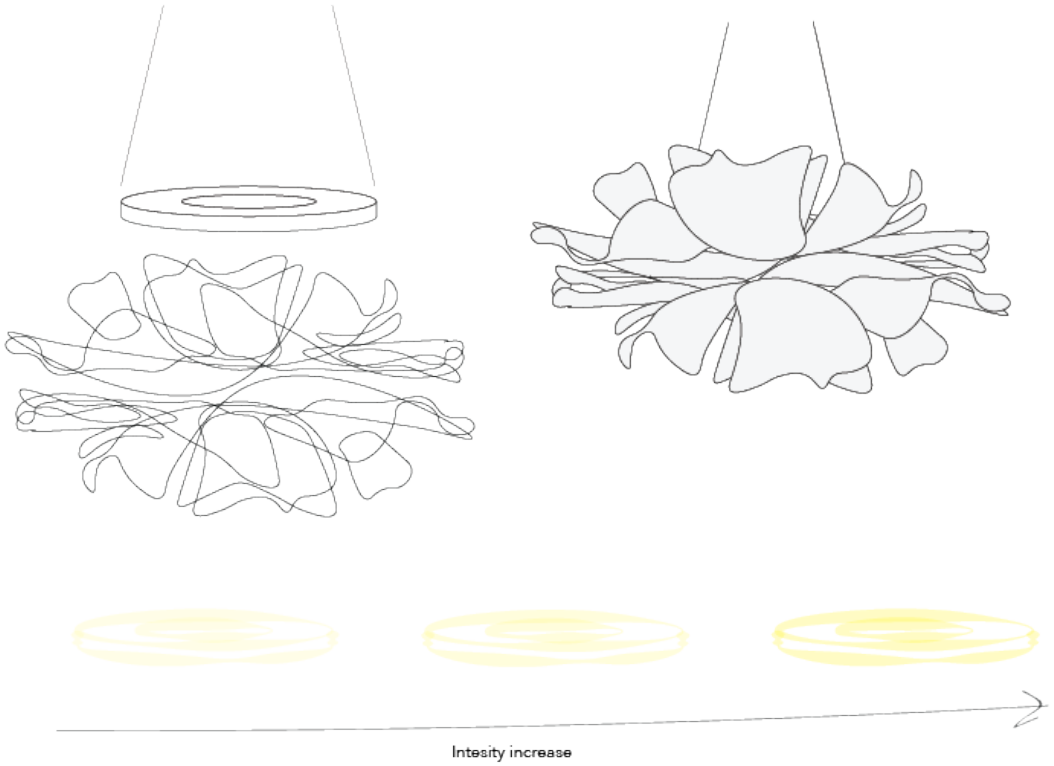
Aesthetic choices

The final aesthetics of the object are the result of a form analysis that took into account technical considerations (e.g., weight and size of technologies), analogies with design goals (e.g. bonfire recalling sense of cohesion and belonging), adaptability to different spaces (see Image 30), and an inspirational mood board which led to the final design sketches (see Figure 28).

The final shape of the object is organic, to give it a more human and warm sense in line with the sense of cohesion and belonging that the object wants to emphasise. Since it has to be illuminated and the light needs to be visible, the materials should be diffusive and transparent. The resulting shape is a rice paper sculpture that acts as a 'bonfire' element to gather people around.

Figure 28. Inspirational moodboard.



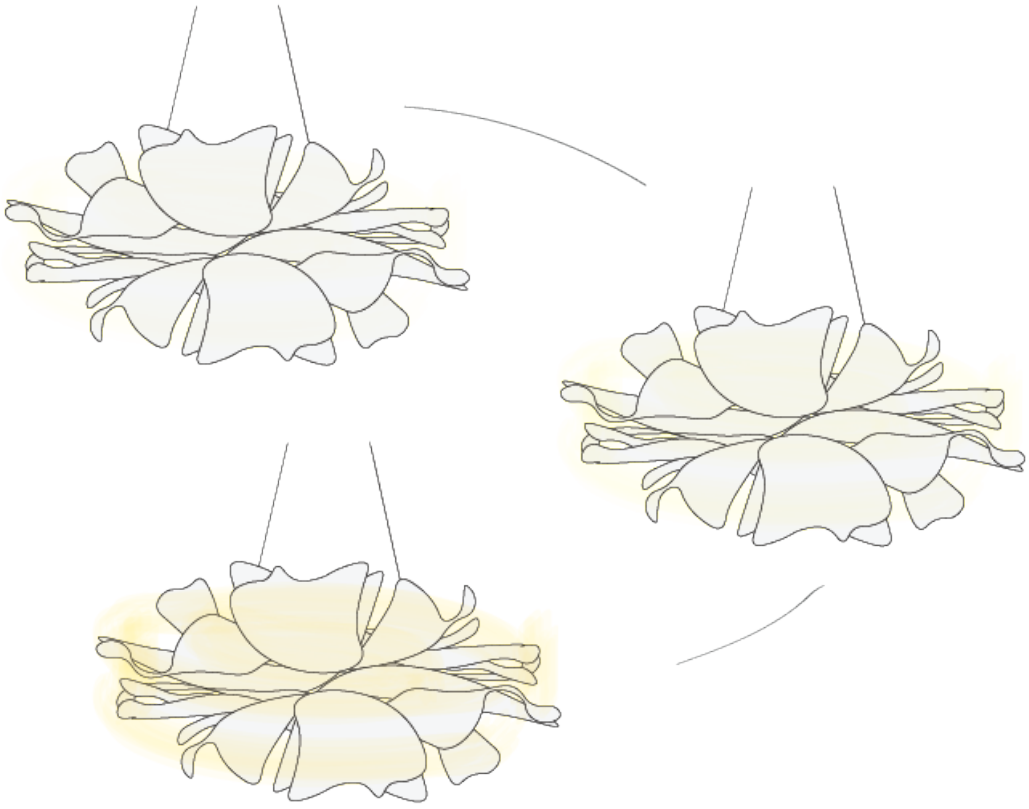


Figure 29. Sketches of Kipinä.

Figure 30. Adaptability of Kipinä in different coffee corner spaces. The object hangs from the ceiling to create few limitations regarding its positioning and problems related to occlusion.

Design prototype

To make a proof of concept and for the design testing at IDE, I developed a basic prototype of the design concept. For the reproduction of random sounds and light intensity change, I respectively used a bluetooth speaker and smart light bulb. The bluetooth speaker and smart light bulb (with holder) were merged through a laser cut structure that I have built specifically (for more details, see appendix P).

The inner structure was wrapped in a rice paper lampshade that resembles the design elaborated in the sketches. For logistical reasons (security and restrictions from the Facility Management Department), it was not possible to use a ceiling version in these spaces. Therefore, a desk version prototype (to place on the coffee corner tables of IDE coffee corners) was created.

Figure 31. Final prototype of Kipinä.

4.3 DESIGN TESTING AT IDE

The main objective of the design intervention is to increase the sense of belonging and cohesion among colleagues (familiar and unfamiliar) in the office. To achieve this, it is important to increase social collisions and conversation starters between colleagues (see page 25). These are induced by the object's production of unexpected and interactive sounds (= element of surprise, see page 38), and the function of light (= collaborative activity and visual trigger, see page 45) that make the coffee corner as a gathering point. To evaluate the effectiveness of Kipinä, the following design function (and purposes) have been tested:

1. ***Randomized sounds:***
   'Element of surprise' as a conversation starter between unfamiliar colleagues

- *Does the sound attract the attention of the visitors?*
- *Does the sound trigger social interaction between two or more people present? What kind? (e.g. laughter, short chat, long chat)*
- *Does the volume of the sound disrupt nearby areas?*

2. ***Switching on and change of light intensity:***
   'Collaboration activity' and 'visual trigger' to involve users (and passer-by) within the interaction

- *Does turning on the light and changing its intensity trigger curiosity of the people around the object? Do they interact with it?*
- *Does the presence of the people interacting with the object spark the curiosity of passersby? Do they observe and join the conversation?*

Methods and tools

The final design was evaluated by conducting observations at IDE coffee corners, and by following the Wizard of O.Z. method. The latter is a method in which participants interact with a system that they believe to be interactive and autonomous, but in reality is controlled by an 'invisible' human operator in a different room (Green, P. & Wei-Haas, L., 1985). This method was ideal as the spontaneous reactions of users needed to be observed, and it was important that participants were unaware of the testing and the functionality of the interactive object. During the testing, the final prototype was placed on the tables of the coffee corner observed (see Figure 32). The bluetooth speaker and smart light bulb were both controlled via apps installed on a smartphone. The sounds were played from two separate playlists ('calm' and 'active' sounds) on a streaming music app according to the movement speed of the visitors observed. For the volume programme, the sound was manually raised or lowered based on the perceived background noise in the coffee area.

When possible, users were approached at the end of the interaction and asked some questions about their opinions and impressions of the design intervention. This was aimed at gathering direct feedback from users and recommendations, after they have unconsciously interacted with the system.

Questions asked to users:

- *General opinions on the design intervention*
- *How did they experience the interaction?*
- *Did the sound grab their attention? Did it spark social interaction with people nearby? (If not, why?)*
- *Did the lighting of the object spark curiosity and willingness to engage with it? (If not, why?)*
- *How will the interaction change when they visit the coffee corner next time?*
- *Recommendations of improvement for the design intervention*

Because some of the coffee corners did not have outlets in the vicinity of the interactive area, only a few of them were observed.

As more security measures were introduced at that time due to the increase of coronavirus cases, the test lasted only a couple of days. In fact, the number of people in the building was poor, which made it not valuable to continue for the whole week. During the two days of observation, the same time slots were maintained and for each, one coffee corner was observed at a time.

Figure 32. The working prototype seen from the observation point.

Figure 33. Observation point in one of the coffee corner visited. On the desk, the notebook to note down insights. On the left, a student that helped with the setting of the observations.

Testing results

A total of 21 coffee visitors were observed during the two days of observations. Of these, 10 were alone, 5 were passersby, and 3 were couples (thus six people in total). Of the pairs, one consisted of two unfamiliar people, another consisted of two familiar people, and another one consisted of one who was in the interactive area and the other who was a passerby (and they did not know each other). Of the people observed, 5 were interviewed since the rest were not available at the time. Among the different time slots observed, no difference in crowdedness and in interaction were noted.

1. ***Randomized sounds: 'Element of surprise' as a conversation starter between unfamiliar colleagues***

The aim of conversation starters through the randomized sounds was found to be successful. All visitors to the interactive area were attracted by both the presence of the object (as a new element) and the sound reproduction.

In the case of the unfamiliar pairs, the reactions that the sound triggered were short chats and laughter at figuring out what the object was. In the case of the familiar pairs, it did not trigger conversation initiation but instead provided a conversation 'topic' (again, to understand what the object was). Between a passerby and a user in the interactive area, the reaction was a brief comment and short laughter, but it did not lead to a short conversation between them. The type of sound did not cause interaction differences, and users found it difficult to understand that based on movement (whether fast or slow) the sound changes accordingly. On top of that, the type of sound was not rated important by users for as long as it is 'unusual' to the context. For example, typical office sounds (e.g. telephone ringtones) would be best avoided as they could be confused with the sounds of the office environment. The sound volume was considered disturbing to users with offices or seating near coffee machines, especially in the long run. On the other hand, hearing the sound could be an indication of the presence of people in the coffee area, which could lead people to join in and socialize.

"Honestly, if I had an office near the coffee corner I would be disturbed by hearing constant sounds while I am working. But it would be a nice way to know when is a good time to go there for a chat."

- Participant 5

2. ***Switching on and change of light intensity: 'Collaboration activity' and 'visual trigger' to involve users (and passer-by) within the interaction***

Regarding the function of light as a 'collaborative activity' and 'visual trigger', the results have been partly positive. Of the couples observed around the object, all were attracted by the switching on and the gradual change in the intensity of the light. For both the familiar and unfamiliar couple, the light function served as a way to continue the chat by wondering what the object was, and interacting with it. Therefore the 'collaborative activity' aspect of the light function resulted positive. Regarding the function of light as a 'visual trigger', it was not possible to observe passerby when the illuminated object was surrounded by people. Therefore, it was not possible to draw conclusions for this aspect. During the interviews, participants expressed that both the 'visual trigger' for passerby and the 'collaborative activity' aspects of the light function may not work in the long run amongst colleagues who already know the object. Thus, once the object is known by the users, the two aspects of the light function would fail in the long run.

"If I know that the object plays sounds every time I visit the coffee machines, I would no longer be so 'surprised'. But if I am with someone, the type of sound might suggest a topic of conversation for example."

- Participant 2

As regards the 'mark of light' aspect, during the interviews the users considered it as a nice idea that serves as a sign of presence in the office, and that it would be optimal especially in hybrid working conditions.

"It seems an almost poetic way to symbolise someone's presence."

- Participant 4

During the interviews, participants rated the idea as nice and attractive since it playfully encourages interaction between colleagues without forcing it. Moreover, a few of them stated that they would be curious to visit that specific coffee corner more often when in need to socialize. For them, the aim of the interactive object was not explicit the moment they saw it, and that makes the idea even more attractive.

"I think it's an interesting and nice idea, and I would be curious to go there to see what's going on"

"I like it, because it's meant to push people to socialize in a subtle way"

- Participant 2

Interview participants expressed that the next time they visit the coffee corner in the presence of the object, they would generally be less intrigued by it. On the other hand, if they encountered someone they did not know it would still remain a good excuse to start the conversation (by providing a topic of conversation). On these aspects, it was suggested to make the aesthetic aspect of the lamp dynamic as well (e.g. a different lampshade every week), so as to keep the 'element of surprise' constant not only through sound and lights but also through 'sight'. On top of that, in case there are several coffee corners in a building, it is preferable to have the object only in one of them. In this way, it would create a 'unique' meeting point, and give the users the possibility to choose to go to a more quiet place when too busy or not in a mood to talk.

Limitations

During the development and testing of the prototype, some issues limited the evaluation:

- **Covid-19 measures and time constraints.** Observations were conducted in a partial lockdown situation, which led to less people to observe in the IDE building. Because of this, the time spent for the evaluation was limited within a couple of days rather than a whole week as it was previously planned (before the introduction of the new measures). A longer time of observations (e.g., one month), it could have provided more insights on an interaction level. For example, it would have been possible to observe the same users interacting with the object a second time (or more), or the reaction of passerby when the object is surrounded by people interacting with the object. On top of that, a longer time would be needed to see if the amount of social collisions in coffee corners increase, and evaluate the perceived sense of belonging and cohesion.

- **IDE coffee spaces**. Not all the coffee corners in the IDE building had an outlet next to the table to plug in the prototype. Thus, it was not possible to test the design in all the faculty coffee corners, which would have led to greater insights regarding different types of spaces and the influence of these on the interaction with the design.

- **Context.** The context in which the prototype has been tested is design-oriented, where people are used to seeing things a little bit "out of the box". This may have disguised the results regarding the curiosity of the object's presence and the interaction with it. Therefore the prototype may need to be tested in different contexts (e.g., governments, finance, etc.) and observe employees' reactions in these environments.

Recommendations

Solutions like having unexpected randomized sounds in coffee corners appeared to be an effective way to encourage users to initiate a conversation and actively interact with fellow co-workers. Moreover, using the light function as a 'mark of previous presence' of colleagues is considered to be effective to increase a sense of belonging and cohesion within hybrid offices. However, it was concluded that it is important to keep the users involved and surprised even in the long run. Some recommended features to keep in consideration are:

- Define sound programmes that can suggest conversation topics by association (e.g. rain sound = weather)

- Change the design of the lampshade (shape) recurrently to provide a visual 'element of surprise

- Make the light feature (as 'collaborative activity') changing recurrently to engage people also in the long run

The key is to have elements that are able to subtly encourage users to interact with each other, keeping their curiosity alive and triggering them to visit the coffee corner more often. This should continue to be considered when implementing new features.

4.4 STRATEGIC IMPLEMENTATION

The new concept of the 'social office' in the (post-)pandemic period involves a number of actions by the organisation. In the post-pandemic era, organisations should focus on the social wellbeing of their employees by adopting design interventions that stimulate spontaneous face-to-face social interactions, and enhance a sense of belonging and cohesion between colleagues in office spaces. Other interventions from the organization side include:

- Increasing collaboration of organisational expertise to monitor and address social well-being in the workplace.
- Rethinking of the workspace and invest in technology.
- Adopting a new scheduling (e.g. rotational) to invite different groups of colleagues in the office space.
- Build social capital between newly-recruited colleagues and the rest of the workspace
- Showing care, flexibility and clarity on the new measures of the organisation.

(for more details, see page 19)

Benefits of the organization (and employees)

"Whether organisations and their employees flourish, depends largely on the quality of social connections that they nurture"

Rosales R. M. (2016)

Having informal and positive social connections in the workplace benefits both the organisation and employees. In fact, if workers feel connected, the company will benefit financially and in terms of productivity. From the user side, it has been proved that social wellbeing in the workplace is connected to physical and mental health (see page 16). In fact, the quality of social interactions are linked to physical symptoms (e.g., influence on sleeping and eating patterns) and mental ones (e.g., psychological safety, emotional well-being, career decisions, and energy levels). If workers are mentally and physically healthy, they also feel more productive and positively connected to the working environment. This, in turn, leads to organisational well-being, and employee turnover and performance (see page 16). Moreover, positive social interactions facilitate organizational learning,

cooperation, effectiveness, and employee loyalty, among many other desirable outcomes (see page 16). If workers feel positively connected to their fellow-workers, this enhances their sense of cohesion and belonging to the working environment. This sense of connectedness is something to be pursued in the long term, and for the organisation this also means long-term profits.

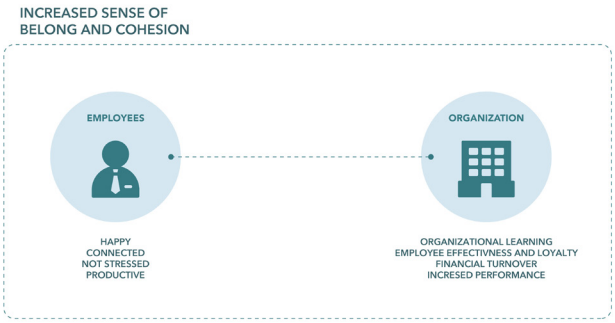


Figure 34. User and organisational benefits.

Steps (and actors) involved for the implementation

For the implementation of Kipinä, the following actors are involved on the organisation's side: Team Managers, Human Resources departments and the Facility Management department. Team Managers and the Human Resources department collaborate together to monitor the social interactions in the office and keep track of employees' reactions through constant user testing. In addition, Team Managers and Human Resources department are responsible for inviting more and different workers at the office (e.g. rotational schedules), communicate the introduction of the design intervention (e.g. via newsletter or during meetings) and be transparent and clear about the related privacy concerns (e.g. use of data tracked from the microphone sound sensor). The installation and maintenance of the object within coffee corners is the responsibility of Facility Management, who make sure to consider security measures.
For the production and design development, the organisation creates a partnership with a furniture company which contains a research centre for the development of healthy workplaces, and has the necessary expertise for the realization of the design intervention.

1. **User testing within working environment.** Before the design intervention is functional in the office, the prototype needs to be tested in the working environment (and spaces) of reference to provide insights for possible adjustments. A long-term design testing (e.g., one month) is needed in order to assess the number of social collisions and conversation starters caused by the design intervention. Consequently, it is important to assess (e.g. through questionnaires) if the perceived sense of belonging and cohesion has improved following the introduction of the object. A long-term design test is also necessary to assess the reactions of a sample of users who have interacted with the object a number of times. This would lead to better insights on how to make Kipina 'non-usual' in the long run for these type of users. Finally, it would be useful to test the design also in non-design environments to monitor the reactions of other types of employees.

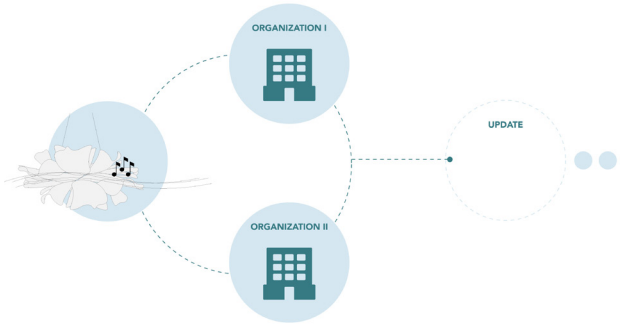


Figure 35. User testing in different organizations.

2. **Partner up with a furniture company.** The insights gained from monitoring the interaction of the object in the office through user testing, can be shared to the furniture company that takes charge of producing and assembling the design. An example of a furniture company that would be suitable for the realisation of the interactive object is Steelcase. This company produces office furniture, architectural and technology products for office environments, education, health care and retail industries (Steelcase, 2018). The Steelcase company has already established partnerships with different expertise (e.g. hardware technology, lighting design, etc.) and would therefore have the necessary resources to produce, assemble and develop the interactive object further (see Figure 36).

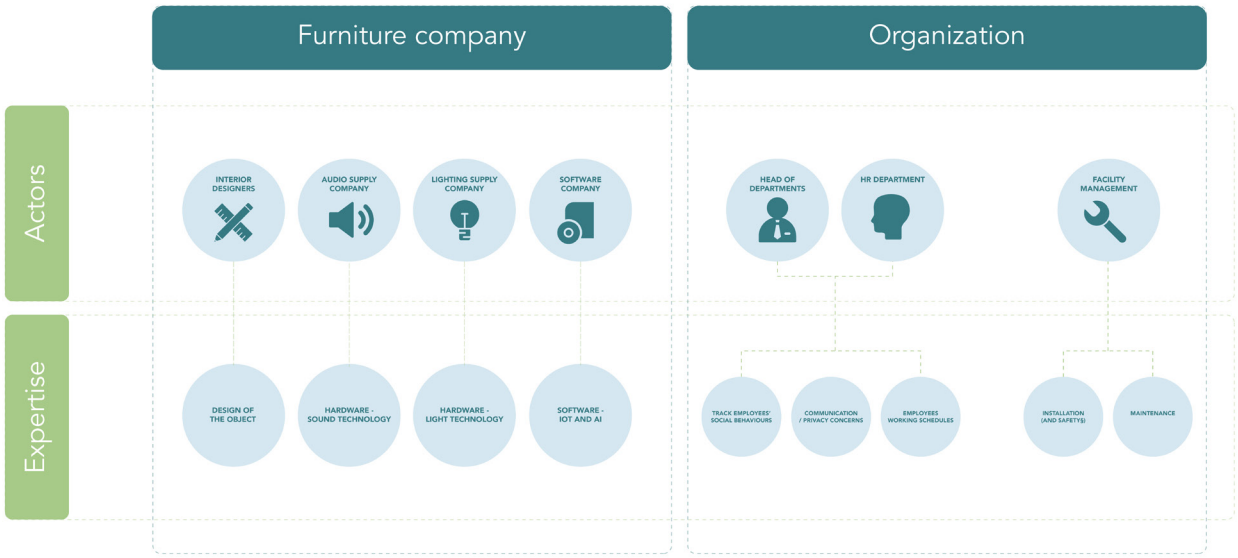


Figure 36. Overview of actors (linked to expertise) involved for the strategic implementation.

3. **Contribute to healthy and social working environments.** The Steelcase furniture company has a research center called 'Steelcase 360', that explores the latest research, insights and trends to improve the way people work, learn and heal (Steelcase, 2021). The research insights from user testing shared by the organization, can contribute to knowledge theory to make workplaces socially connected, especially in hybrid working situations. These are communicated through the '360 Magazine', (see Figure 38) which shares insights of research about developing healthy workplaces.

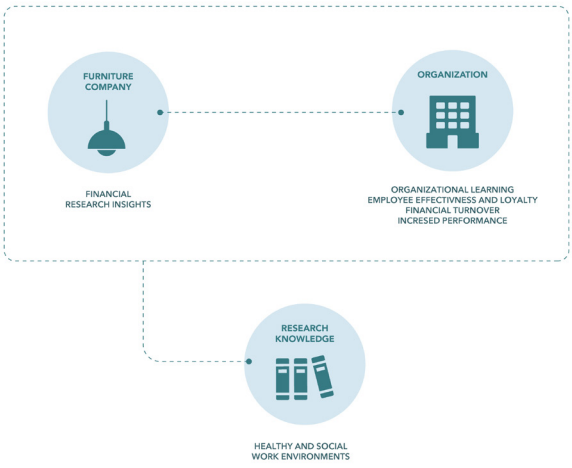


Figure 37. Furniture company and organization benefits.

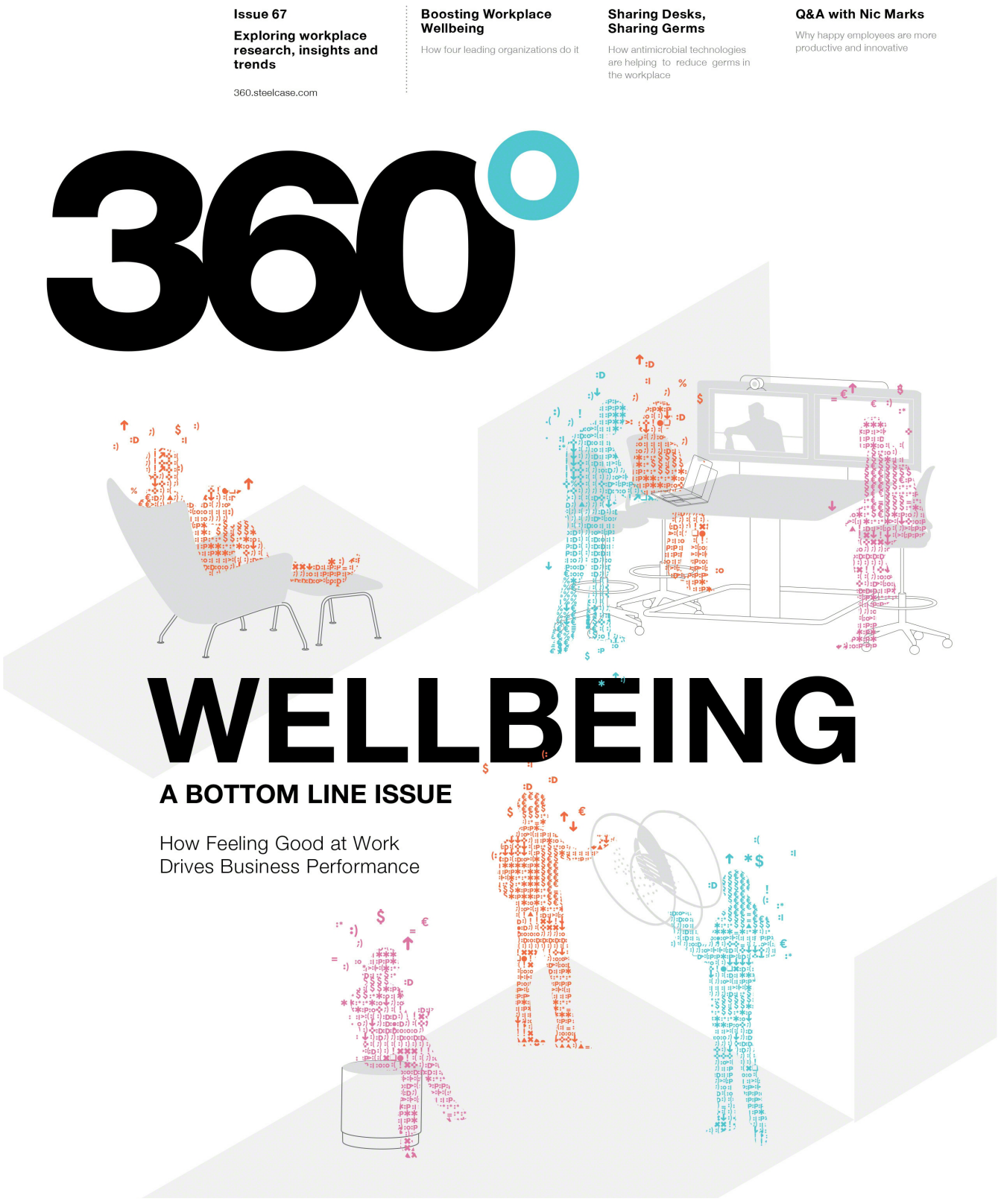


Figure 38. 360 issue about well-being. Courtesy by Steelcase (2021).

Considerations on organization spaces and types

- **Office types (and spaces)**. The design intervention has been developed in the IDE faculty that in terms of physical spaces, resembles a wide range of types of office spaces (e.g., Traditional Office Space, Creative Office Space, Coworking Space, etc., ...). As the interactive object has been developed by keeping in mind the adaptability to different office spaces, the design could work everywhere. However it could lead to different outcomes depending on the type of office. For example, in coworking spaces it may bring people together across two different organisations, while in a traditional office it may lead to a deeper level of connection between the same (or newly hired) employees. Furthermore, in the case of spaces with a closed door, the design would encourage people locked in their rooms to socialise and meet new people in the coffee corner. The same applies to open-plan offices. Even though it is common belief that in these spaces it is easier to socialize with people, this is not the reality. In fact, it has been proven that workers in open spaces develop a psychological 'fourth wall', which are conceptual boundaries that protect public solitude. For example, colleagues wear headphones or pretend to work intensively to avoid interruptions (Cohen A., 2019). Therefore, in both cases the design solution could work nicely to bring people to another space and nudge them to meet and socialize with colleagues.

- **Coffee corner spaces**. The design intervention was designed for the coffee corner spaces of offices. In fact, as identified in the initial research (see page 35), coffee corners are a good spot to place the design for the following reasons: they are present in all offices (thus making the design more easily adaptable), are a space that is generally away from work areas (thus not distracting), and are the types of space that are commonly connected to 'break time' and informal conversations. Although all offices have a coffee corner, not all of them are placed in appropriate places (e.g. too close to the work area). Since the design includes audio features and is meant to gather people that could be noisy, the design should be meant for offices that have the coffee area away from working areas so as not to disturb employees who are working nearby.

- **Organization type (number of employees).** In terms of organization type (number of employees), the design would better fit 'Midsize enterprises' with 100 to 999 employees for example. In fact, in a company with fewer employees, the problem of employee dislocation in the building and detachment from other colleagues would occur less, and the design would be less useful. Therefore, open spaces which host different kinds of organizations and Midsize enterprises contexts would be more suitable for the purpose of the design intervention.

Looking at the future

- **Pandemic evolution.** Kipinä is a design solution born out of a need created by the pandemic which is constantly developing, therefore the design needs constant updating. Subsequent versions take into account, for example, new working modes acquired by the organization, the number of employees called into the office, and spatial security measures.

- **Sense of belonging is always needed.** Belonging is a fundamental part of being human (Brower T., 2021), and it's something to be pursued in the long term. Regarding the design intervention, keeping employees 'surprised' is important in order to enhance social collisions in the office. Therefore, the design intervention has to be updated constantly by integrating new functionalities, or updating existing ones (e.g. new sounds, lampshade design or other types of lights).

The development of the object in the long run involves updates based on constant user testing, and the development of the virus regulations of the pandemic (see Figure X). While production of the upgrade is the responsibility of the furniture company, user testing and integration of virus regulation are upon the organization side.

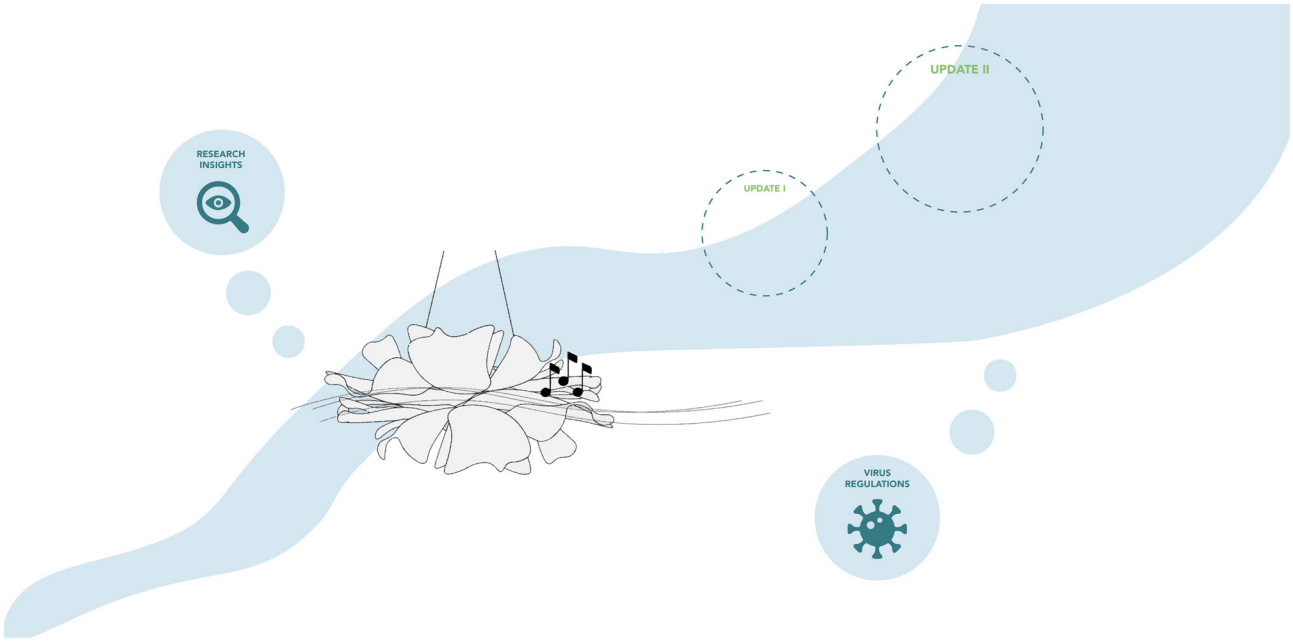


Figure 39. Long-run of the design intervention.

Kipinä: desirability, feasibility and viability

As proved by the design testing at IDE, the design intervention resulted in desirable for users. Moreover, the functions of the interactive object are rooted in research and designed to keep in mind the primary needs of the user. In fact, the final design was developed by involving the users throughout the design process through various evaluation and co-creative sessions. These gave them the stage to express their needs and wishes, and adjust the design accordingly.
On the feasibility aspect, the interactive object involves a range of technologies and expertise that make the design solution feasible. Audio and light functions require software (e.g. AI and IoT) and hardware technologies (e.g. motion sensor, smart light bulb) that are easily implemented and viable. This makes it a 'low risk solution' as it does not require the organisation to build new capacity, but to rely on partnerships such as furniture companies that can produce the interaction object and have already the knowledge and resources to implement it. The design intervention is also viable in the short and long-term. Investing in such a design intervention, leads to long-term profits as making employees feel more connected and satisfied, leads to greater productivity, engagement with the corporate culture and financial returns. Moreover, the design intervention will need constant updates based on research (through user testing) and the development of virus regulations, to make the design still 'surprising' and safe in the long run. Having constant updates keeps alive the sense of cohesion and belonging among colleagues, and produces theoretical knowledge to share with the supply company that consequently leads to long-term profits for the organization.

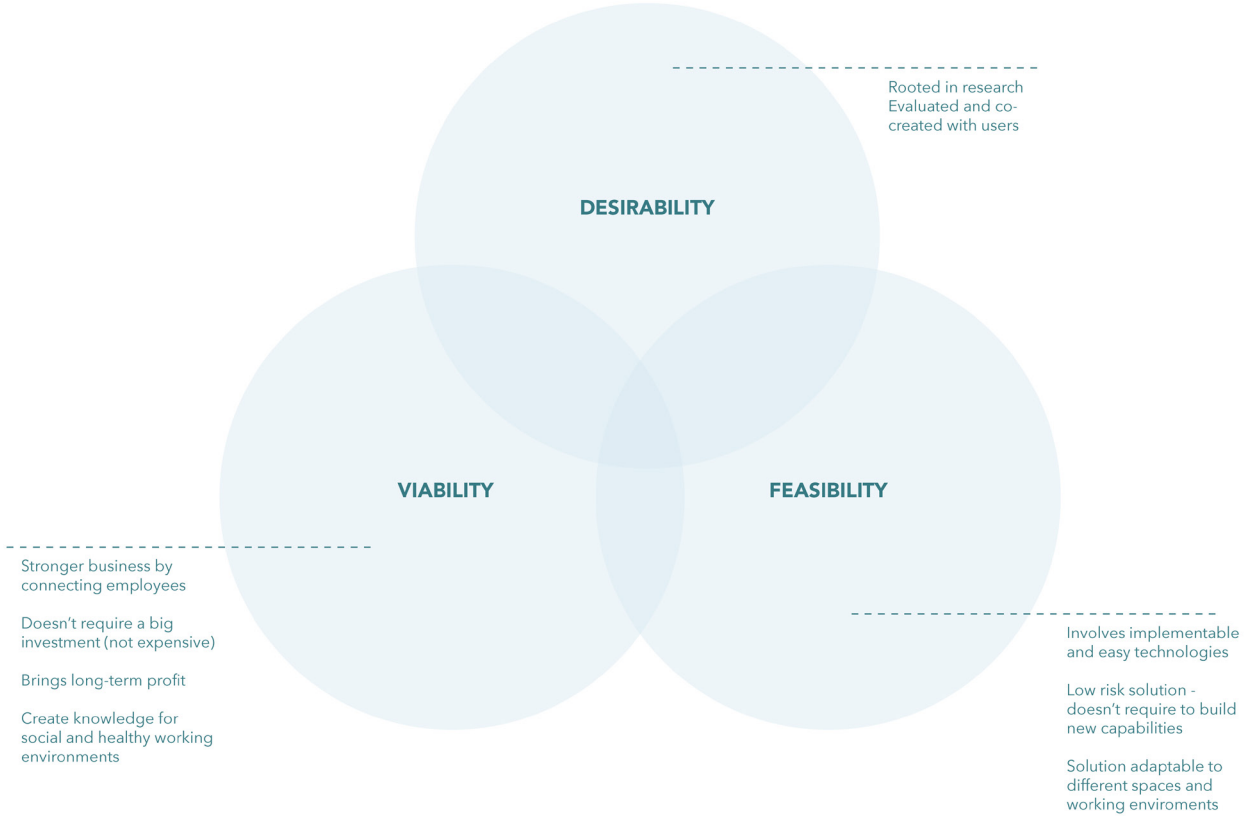


Figure 40. Desirability, feasibility and viability of the final design.

Figure 41. 'Social space' in hybrid setting. Courtesy by Steelcase (2021).

"Coming together in the workplace to socialize and collaborate will become the greatest purpose that the new office can fulfill."

- Steelcase (2020)

5. CONCLUSIONS

This chapter includes a summary of the project, contributions and future directions, recommendations, limitations encountered during the project and personal reflections.

Chapter overview

5.1 CONTRIBUTION AND FUTURE DIRECTIONS

The project explored ways to enhance the sense of belonging and cohesion between colleagues in hybrid work situations, by enhancing informal social interaction. The entire process involved mainly research, design and finally an implementation strategy. In the research phase, the IDE faculty members' experience of social interaction led to the identification of a common problem, namely the lack of a sense of belonging and cohesion that during the pandemic has deteriorated. In the design phase, a design intervention was generated to solve this problem by stimulating social collisions in coffee corners among familiar and unfamiliar colleagues. In the final phase, a strategy was devised to implement the design intervention, identifying the importance and benefits for the various stakeholders involved (organization, employees and company partners).

The hybrid mode is becoming popular and seems to be the way work will be conceived by workers and companies in the coming years. With the partial presence of people in the office, informal connectivity and the quality of face-to-face social interactions between colleagues must be in the spotlight. Therefore, the solution proposed in this project has the potential to bridge the social gap created by the pandemic, and shows how uncomplicated solutions lead to the enhancement of the sense of cohesion and belonging among colleagues, which positively affects the employees' and organization well-being.

Although the project was developed with an academic context in mind, the final solution can easily be adapted to any other office. The final solution is an interactive object, placed on the ceiling of coffee corners that every type of office has (both open-plan and traditional). The implementation does not require creating new internal capabilities, but relying on long-term partnerships that consequently lead to long-term benefits (both human capital and financial). Although for each type of company the stakeholders involved and the way it contributes to the sense of cohesion and belonging might be different, the final solution is relevant for any office.

By understanding the social and organisational implications of social interactions at a distance, it was possible to gather a broad field of knowledge at both theoretical and empirical level. The insights gathered during the exploratory and idea generation phase can be used as suggestions or guiding directions to explore future possibilities for the development of a new design, platform or business strategy. In addition, the conclusions drawn from the final evaluation can be taken into account for a further design version that develops or integrates new functions (e.g. different types of sounds and lights). Although the final solution was dedicated to workers who are physically in the office, ways to involve users from home were explored during the generative phase, and can be used as inspiration to develop a design solution that also includes colleagues at home.

5.2 LIMITATIONS

- **Coronavirus**. Since the project started during COVID-19, it was difficult to find a physically open office to conduct the research and tests. Because of this, the IDE faculty was chosen as the context of reference involving employees and design students of the faculty. Since the experiences gathered from the employees of an academic context could be different from employees of another company, the experiences of social interactions may not be generalisable in relation to a wider context of workers. Furthermore, during the whole project phase due to the coronavirus there were not many people in the faculty, which led to fewer people participating in the evaluation and testing. The latter mainly impacted the final evaluation, which was carried out immediately after the reintroduction of the partial lockdown which reduced the time spent from one week to a couple of days. Therefore, the insights gathered during these two days might not be enough to draw accurate conclusions. Finally, as the pandemic is still evolving and the consequences for working patterns are still uncertain, it makes many of the assumptions about working modes and the role of the office in the future difficult to predict.

- **Time.** Due to the limitation of time and resources, the final prototype produced was rough and simple which might not have accurately expressed the concept, and thus achieve inaccurate results in the evaluation. On top of that, time restrictions (and partial lockdown) did not allow for a longer final test (e.g. one month). Therefore, conclusions concerning the perceived sense of belonging and cohesion resulting from the introduction of the interactive object could not be tested, but were only based on assumptions made by the interviewed users.

5.3 RECOMMENDATIONS

- **Explore the design for hybrid settings - home workers.** As a hybrid workplace will become established as something common among companies, and a large proportion of workers will still remain at home, it would be interesting to explore creative solutions to enhance opportunities for informal spontaneous interaction even among employees at home and in the office.

- **Explore the design in different cultures.** The experience in social interactions in the Netherlands might be different from those in Italy, Finland or Africa. Thus, in order to achieve a globally oriented solution, it is suggested to test it with participants from different cultural backgrounds and see how the design works and what needs to be adjusted according to the different cultures.

- **Explore the design in different company contexts.** The design solution was created, developed and tested in a designerly environment. As a creative environment might be different from a more technical one (e.g. engineering) in the way people interact, it would be useful to test the design in a different context in order to achieve more insights based on the context of reference.

- **Explore ways to keep users surprised in the long run.** As concluded from the final evaluation, there might be differences between when people interact with the object for the first time and after a long time. Employees might be intrigued by the novelty at the beginning, but this might decrease in the long run. As it is important that the element of surprise remains to make the design effective, it is important that new functionalities (e.g. new sounds or aesthetic form) are explored in the long run and on a constant basis.

5.4 PERSONAL REFLECTIONS

The interest in the project stems from my personal interest in design for well-being. What inspires me as a designer is to create meaningful solutions that bring positivity and happiness into people's lives. I have always been fascinated by every aspect of well-being, whether it be physical, psychological, social or ecological. This graduation project was an opportunity for me to get passionate about the social side of well-being and design for it. It was also an opportunity to combine both the strategic and human interaction sides of design that I have been passionate about during my academic journey.

During the course of the project, I applied methodologies and knowledge in different fields learned during my academic path, as well as learning new ones. At the end of this process, I feel that I have acquired the skills to be an independent designer, learned new design methodologies, how to provide knowledge and inspiration to the scientific community, to communicate with various stakeholders, and to plan and direct in detail the entire execution of the project in its different phases. I also believe that I am now more confident in tackling complex problems through a way of thinking that looks at the problem from various points of view, and getting an overall picture of the situation to make valuable decisions.

Although my final project still needs to be improved and implemented, I am proud of the overall results I have achieved. Carrying out this project was an opportunity for me to challenge and learn, and I am proud that I was able to cope with the difficulties, stress and limitations of the pandemic. Finally, I am happy to have worked on an important issue that has gained special attention these days, and to inspire others towards a more socially healthy working environment.

Figure 42. One of the graduation workplaces.

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