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# Developing a Community-Supporting Office Layout for Academics: A Case Study

Colenberg, S.[1], & Du Preez, M.[2]

[1] Delft University of Technology, Department of Human-Centred Design, Delft
[2] Center for People and Buildings, Delft, The Netherlands.
Contact: s.e.colenberg@tudelft.nl

## ABSTRACT

**Background and aim**. Currently, many organisations are struggling to adjust their offices to a hybrid working model and attract people to the office to facilitate in-person interaction, co-worker bonding, and collaboration. However, academic work also requires deep-focused work and online collaboration. This paper aimed to contribute to the user-centred design of academic workplaces by providing a short case study of developing a community-supporting office layout.

**Methods**. For a 43-person community, a new office floor plan was developed based on scientific knowledge and case-specific quantitative and qualitative data on the users' perceptions, preferences, and behaviour. The proposed floor plan was evaluated in two focus groups.

**Results.** The users' needs included more quiet workspaces and opportunities for socialising without disturbing others. The most appreciated features of the new floor plan were the addition of small rooms, increased diversity of workspaces, a stronger social core, and a more hospitable entrance displaying the identity of the users. Additionally, the evaluation provided insights for further finetuning to the community's unique needs.

**Originality.** This paper indicates discrepancies between an intended 'collaborative work environment' and the actual needs of academic researchers. It provides examples of interior design solutions that could serve as hypotheses for future research on academic workspaces.

**Practical implications.** The paper presents possible design solutions for community-supportive offices and illustrates how employees can be involved in office layout optimisation. Additionally, it presents an evidence-based design approach to identifying employees' needs and contextualising scientific knowledge.

**Type of paper** Research (short)

**Keywords.** Academic workplace, Layout, Offices, Sense of Community, User-centred design.

## INTRODUCTION

Due to the consequences of the COVID-19 pandemic, many organisations are faced with a profound change in the way employees make use of their work environment (Sailer et al., 2023). Although the increased working from home may support short-term productivity and a better work-life balance, in the long run, a lack of spontaneous encounters at the office may reduce employee engagement and innovation (Allen et al., 2015; Appel-Meulenbroek et al., 2023). Popular media already report that employees are more task-focused, busy and technologically overwhelmed when working from home, while at the same time experiencing less impact and fewer connections with colleagues outside of their

immediate team (Cavendish, 2022). Whilst in academic work environments, work is increasingly flexible, on-demand, augmented and participative in the work processes, placing increased emphasis on the interaction between colleagues (Alfes et al., 2022).

These developments imply that the office increasingly serves as a social anchor (Fayard et al., 2021), requiring workplace design that supports social interactions and fosters belonging. However, studies analysing office concepts, e.g. open-plan versus traditional cellular offices, often ignore that the office's specific spatial configuration may differ significantly from one design to another; adequately responding to this uniqueness requires case-dependent research (Sailer et al., 2009). This paper aims to contribute to more nuanced user-centred designs by reporting a case study on the alignment between workplace design and specific user needs in an academic work environment.

## LITERATURE STUDY

The nature of academic work requires a specific approach to workplace design. Since it involves alternating frequently between teaching, supervision, administrative tasks, and focused work, the balance between facilities for interaction and concentration is especially important (Indergård & Hansen, 2023). Traditionally, universities offered private offices or small shared rooms but recently a trend towards activity-based working. This usually involves desk-sharing and more open spaces although this may reduce productivity and well-being if employees are not engaged in the design decisions (Muhonen & Berthelsen, 2020). A large international study (Khoshbakht et al., 2020) found that in both academic and commercial office buildings, perceived productivity was highest in solo offices and decreased with the increase of occupants. Regarding shared workspaces, academics preferred fewer than six occupants, whereas at commercial workplaces users preferred six to nine.

The physical work environment is capable of impacting community-building behaviour and experiences, such as the social ritual of small talk (Methot et al., 2021). Some studies show that informal and unplanned interactions enhance employee's job satisfaction, productivity, and organisational commitment, while in others the benefits of increased interaction are undermined by the disadvantages of disruptions and disturbances (Kim & de Dear, 2013). This implies, that supporting community building among academics requires a careful balance between encouraging social interaction and offering privacy. The layout, referring to the spatial organization and boundaries within an office building and the arrangement of office furniture, is essential to facilitating social interaction and privacy. For example, access to breakout areas can increase the ease of communication (Davis et al., 2019) and workers tend to gather at shared amenities such as water coolers and printers (Fayard & Weeks, 2007). Design strategies to facilitate informal interactions include manipulating walking routes and creating attractive, comforTable, and demarcated social spaces (Colenberg et al., 2023). Fayard et al (2021) recommend a large variety of social spaces to suit organisational needs in the hybrid era.

## METHOD

To develop a community-building layout, a mixed-methods single case study design was employed. Single cases are useful for studying a group of people, such as work communities; they help to uncover

nuanced aspects of a phenomenon in its context and provide insights into the underlying mechanisms and dynamics (Yin, 2018). In 2019 an in-depth interview with the community manager provided data on the history and purpose of the existing layout and data about user perceptions was collected through a survey. Additionally, social interactions were mapped during four different workdays, eight times a day, at one-hour intervals between 9:30 AM to 4:30 PM, and following a predetermined route. After the COVID-19 pandemic, a new floor plan was developed, replacing and adding walls, doors, and furnishings while keeping the main structure and re-using amenities. In 2023, current and previous users were asked to reflect on the redesign in two focus groups (eight and three participants).

### Case description

The unit of analysis was one office floor in a Dutch university building. Its design was dedicated to stimulating social interactions and collaboration and building a community. In 2012, many interior walls were removed to create an open-plan workspace. With time, more separations were necessary to reduce distraction from focused work. Two large, shared workspaces were created and facilities for social interaction and gathering were introduced, such as seating arrangements, a kitchen, a picnic Table and large meeting rooms with folding walls to accommodate bigger groups (see Fig. 1).

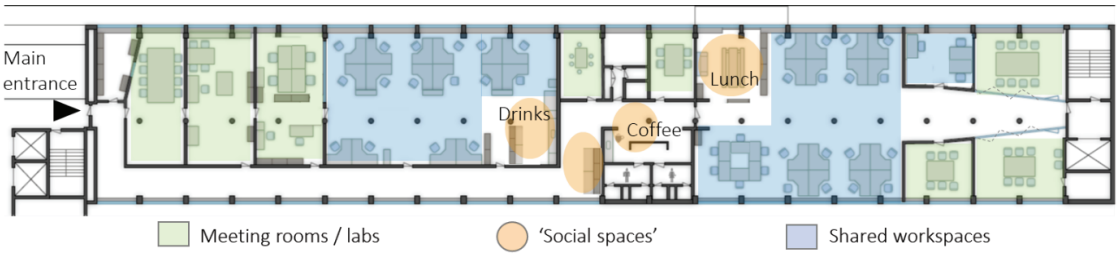



**Figure 1** Current office floor layout

Originally, the redesign was not accompanied by a desk-sharing policy but recently, the community has started to gradually adopt desk-sharing to increase the occupancy, and therefore liveliness, of their premises. The office floor featured 38 desks assigned to full-time staff and seven desks for flexible use by part-time staff and graduate students, six meeting rooms, and a room dedicated to design experiments (prototyping). The main entrance of the office floor is on the left side (see Fig. 1); the one on the right side is used less frequently and only accessible to employees, not students or visitors. The toilets, coffee machine and a printer are located in the centre. The work area and meeting spaces on the right side have soft flooring, the other floors have a hard finish. The upper side of the floor plan parallels the outside façade of the building which receives direct daylight; the bottom is adjacent to a large atrium and therefore lacks daylight and outside views. Load-bearing columns are placed in a straight line parallel to the façade, approximately in the middle of the floor.

## RESULTS

### Case context

The initial open-plan office resulted from the then occupants' desire to support creativity and collaboration and build a community of like-minded researchers who wanted to integrate design

processes into their research projects. To support this community-building, two employees were assigned as community managers and allowed to spend 10% of their working hours managing the environment, organizing activities, and introducing new members. The current layout aimed to create a workspace for iterative design processes and mingling and a quieter workspace for more focused work towards the 'dead end' of the floor. The picnic Table area and the kitchen inside the 'mingle space' aimed to facilitate social gatherings. Throughout the years, minor changes and additions have been initiated by employees to further improve the environment, for example, placing whiteboard walls, a modular couch in the corridor, and a room divider next to the picnic Table.

### User perceptions and behaviour

In total, 36 questionnaires were distributed and 34 were completed, a response rate representing 79% of the community's population. According to the respondents, the existing environment provided sufficient possibilities to meet others, personalize their workspace, and experience a sense of community but lacked visual and auditorial privacy and protection against distractions. Almost one out of five respondents regularly (27%) or sometimes (61%) reported using earphones when working in this environment, half of them to block noise. Other reasons were getting inspired by music (37%), getting energized or using the headphones as a 'do-not-disturb' sign. They did not feel crowded, probably due to the large L-shaped desks.

Regarding the most frequently used locations for their informal chats, 32% referred to the coffee machine, 26% to the picnic Table, and 15% to the hallway, all of them open spaces where you run into each other or have lunch. In contrast, favourite spots for personal or confidential talks were locations at a distance from the workspaces and in enclosed spaces, preferably those with solid walls and a glass door which provide more visual privacy than the glazed folding walls of the bigger meeting rooms. Remarkably, the coffee machine and hallway were still considered suitable for sensitive conversations by a small number of users, possibly because others were passing by rather than sitting within earshot which enables following the entire conversation. The self-reported hot spots of informal chats do not completely align with the observed locations of social interaction (Fig. 2), maybe because only visible interactions were recorded and not the nature of the conversation (informal or task-oriented).

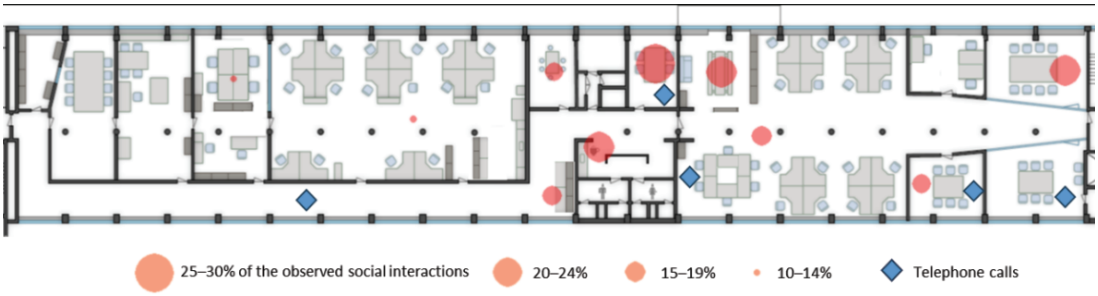



**Figure 2** Place-centred behavioural map of observed social interactions

Furthermore, the behavioural mapping shows that the users are looking for privacy when making telephone calls; they try to find an empty meeting room or move to the hallway (Fig. 2), which resonates

with the preferred locations for confidential talks reported in the survey. Headphone use was observed predominantly in the open workspaces in line with blocking noise as the most frequently reported reason.

### Floor plan re-design

In the new floor plan (Fig. 3), the adopted hybrid working model was taken into account by providing additional spaces for video conferencing and considering desk-sharing as the standard. To reduce distractions, smaller workspaces were created by adding walls, both glass and solid for a choice between eye contact with passers-by and visual protection. Additionally, visual privacy was increased by placing plants on the desks. Private booths were added for short stretches of focused work or video conferencing. The open 'mingle' workspace was maintained but the kitchen was moved to the floor's centre. One of the large meeting rooms was sacrificed to create smaller multi-use rooms.

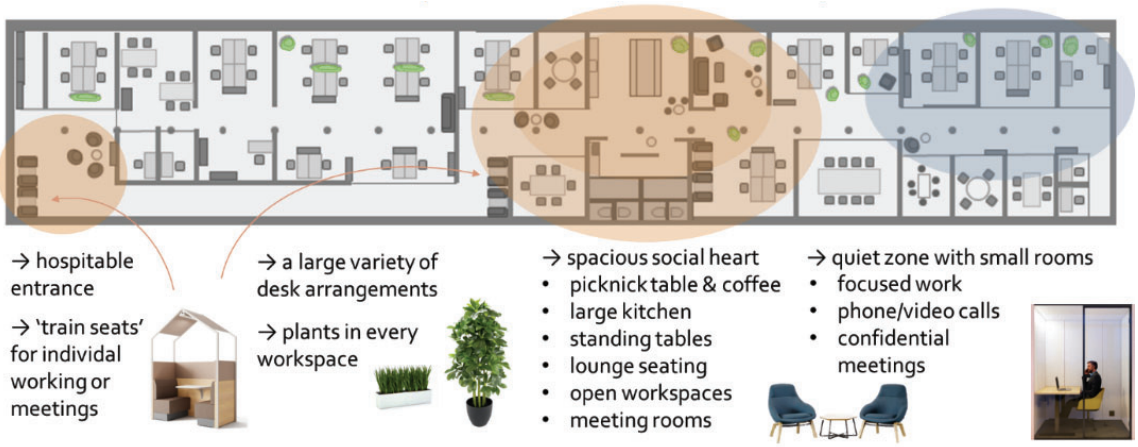



**Figure 3** The proposed re-design and its main features

Possibilities for spontaneous meetings and informal chats were increased by clustering social facilities at the centre and entrance. The coffee machine was kept in place but the rooms nearby were dismantled to create a larger meeting space accommodating the kitchen and picnic Table. Standing Tables were added to facilitate spontaneous engagement in chats while having coffee or being on the move to other places. To support expressing the community's identity a more prominent entrance to the office floor was created with space for informal meetings and displaying meaningful objects. In the new layout, efficient space use and smaller desks allowed 40 workstations supplemented with train seats and lounge seating.

### Evaluation of the proposed layout

In the focus groups, most participants took their assigned desks and preferred workspace as the point of departure for evaluating the proposed layout. Especially the PhD candidates expressed their contentedness with the increased possibilities for focused work although they preferred even more enclosed spaces. They explained that nowadays, most design processes are digitalised and writing is taking up most of their time. They would like to control distractions by working in a small room and

signal their openness to a chat by moving to a social space. Others indicated they preferred a larger room with semi-permanent roommates to build relationships. Overall, the participants welcomed the increased diversity, more hospitable entrance, and the larger social core with more room for chats 'without having to move constantly because someone wants to pass'. The usefulness of the couches was questioned but they liked the train seats. Additional ideas for facilitating social interaction were proposed, such as a 'maker space' where social encounters and work can co-occur.

## DISCUSSION AND CONCLUSIONS

In this paper, we indicated the increasing need for supporting social interaction and community-building in the academic work environment, brought about by hybrid working. We presented a case study to illustrate an evidence-based and user-centred approach to contextualising the problems and needs in academic work environments. The findings indicated a discrepancy between the intentions underlying the existing layout and the academics' needs which the re-design aimed to reduce. The evaluation of the proposed solutions with the end users closed the first iterative loop of the design process, making use of their expert view to highlight pitfalls and opportunities.

The low post-pandemic occupancy rates impacted the user participation in the focus groups. Although numerous users were invited to comment on the proposed design only staff who were at the office participated in the first feedback round. Therefore, long-term users were personally invited to participate in the second. IneviTable to conducting a single case study, the generated design solutions are not generalizable to other academic workplaces. However, they could inform design projects and the employed approach could serve as a basis for multiple case studies and field experiments. Future research on community-supporting layouts could use space syntax analysis for additional evaluation.

## REFERENCES

Alfes, K., Avgoustaki, A., Beauregard, T. A., Cañibano, A., & Muratbekova-Touron, M. (2022). New ways of working and the implications for employees: a systematic framework and suggestions for future research. *The International Journal of Human Resource Management*, *33*(22), 4361–4385. https://doi.org/10.1080/09585192.2022.2149151

Allen, T. D., Golden, T. D., Shockley, K. M., & Schockley, K. M. (2015). How effective is telecommuting? Assessing the status of our scientific findings. *Psychological Science in the Public Interest*, *16*(2), 40–68. https://doi.org/10.1177/1529100615593273

Appel-Meulenbroek, R., Voulon, T., Bergefurt, L., Arkesteijn, M., Hoekstra, B., & Jongens-Van der Schaaf, P. (2023). Perceived health and productivity when working from home during the COVID-19 pandemic. *Work*, 1–19.

Colenberg, S. E., Appel-Meulenbroek, H. A. J. A., Romero Herrera, N., & Keyson, D. V. (2023). Interior designers' strategies for creating social office space. *Ergonomics*, *online*. http://dx.doi.org/10.1080/00140139.2023.2270788

Davis, M. C. C., Leach, D. J. J., & Clegg, C. W. W. (2019). Breaking out of open plan: Extending social interference theory through an evaluation of contemporary offices. *Environment and Behavior*, *52*(9), 1–34. https://doi.org/10.1177/0013916519878211

Fayard, A.-L., & Weeks, J. (2007). Photocopiers and water-coolers: The affordances of informal interaction. *Organization Studies*, *28*(5), 605–634. https://doi.org/10.1177/0170840606068310

Fayard, A.-L., Weeks, J., & Khan, M. (2021). Designing the hybrid office. From workplace to 'culture space. *Harvard Business Review*, *99*(2), 114–123.

Indergård, K., & Hansen, G. K. (2023). Academic work – something else? *Journal of Corporate Real Estate*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/JCRE-04-2023-0014/FULL/XML

Khoshbakht, M., Baird, G., & Rasheed, E. O. (2020). The influence of work group size and space sharing on the perceived

productivity, overall comfort and health of occupants in commercial and academic buildings. *Indoor and Built Environment*, 1420326X2091231. https://doi.org/10.1177/1420326X20912312

Kim, J., & de Dear, R. (2013). Workspace satisfaction: The privacy-communication trade-off in open-plan offices. *Journal of Environmental Psychology*, *36*, 18–26. https://doi.org/10.1016/j.jenvp.2013.06.007

Methot, J. R., Rosado-Solomon, E. H., Downes, P., & Gabriel, A. S. (2021). Office chit-chat as a social ritual: The uplifting yet distracting effects of daily small talk at work. *Academy of Management Journal*, *64*(5), 1445–1471. https://doi.org/10.5465/amj.2018.1474

Muhonen, T., & Berthelsen, H. (2020). Activity-based work and its implications for the academic work environment. *Journal of Applied Research in Higher Education*, *Ahead of r*. https://doi.org/10.1108/JARHE-02-2020-0046

Sailer, K., Budgen, A., Lonsdale, N., Architects, S., Turner, A., & Penn, A. (2009). Evidence-based design: Theoretical and practical reflections of an emerging approach in office architecture. *Undisciplined! Design Research Society Conference 2008*. http://www.cochrane.org/index.htm

Sailer, K., Thomas, M., & Pachilova, R. (2023). The challenges of hybrid work: An architectural sociology perspective. *Buildings and Cities*, *4*(1), 650–668. https://doi.org/10.5334/bc.350

Yin, R. K. (2018). *Case study research and applications. 6th Edition*. Wiley.