Workplace affordances of social well-being

a conceptual framework

Colenberg, S.E.; Romero Herrera, N.A.; Keyson, D.V.

Important note
To cite this publication, please use the final published version (if applicable).
Please check the document version above.

Workplace affordances of social well-being:
a conceptual framework

Susanne Colenberg
Delft University of Technology
s.e.colenberg@tudelft.nl

Natalia Romero Herrera
Delft University of Technology
N.A.Romero@tudelft.nl

David Keyson
Delft University of Technology
D.V.Keyson@tudelft.nl

ABSTRACT
The prolonged working from home during the recent pandemic has increased awareness of the social function of the office: employees missed informal social interaction with co-workers, face-to-face meetings, and spontaneous encounters. If the trend of hybrid working persists, one of the main functions of the physical office will be to support face-to-face interaction and social bonding for increasing well-being, innovation, and organisational commitment. This short paper explores how workplace design could support the social well-being of its users based on established theory in the field of environmental psychology. First, individual social well-being at work and social workplace affordances are defined. Next, workplace affordances for social well-being are deducted from theories on the psychology of space, such as Space syntax theory, Privacy regulation theory, Behaviour setting theory, and Place attachment theory. From this analysis, three categories of workplace design features are induced which could support social well-being at work: interaction affordances, privacy affordances, and identity affordances. A conceptual framework is presented that connects social well-being components to these three categories of affordances. This framework can serve as a starting point for the collection of empirical studies, the deduction of specific social affordances from design practice, and the development of design strategies for enhancing social well-being in offices.

Keywords
Workplace design, Affordances, Social interaction, Privacy, Sense of community.

1   INTRODUCTION

The forced working from home during the COVID-19 pandemic confirmed that the advantages of remote working are a better work-life balance, improved work efficiency and increased flexibility and autonomy (Babapour Chafi et al., 2021; Ipsen et al., 2021). However, to fulfil the human need for connectedness, build trust for collaboration, and support creative processes, in-person interaction at the office is still required. Sander et al. (2021) conclude that as the availability of devices for remote work increases, proximity in face-to-face interaction becomes even more important. Face-to-face communication is essential to maintaining social relationships with co-workers (Nardi & Whittaker, 2002). Although online connections can protect from the harm of social isolation, their benefits are limited and online relationships do not foster well-being (Marinucci et al., 2022). Already in the early stages of the pandemic, many office workers wanted to return to their office, most of all because they missed people-

related activities, such as meetings, socialising with colleagues, spontaneous face-to-face interaction and feeling part of the community (Gensler Research Institute, 2020). In several studies, people considered isolation from colleagues among the biggest challenges while working from home (Babapour Chafi et al., 2021; Marzban et al., 2021). The homeworkers' thwarted needs refer to social well-being, which is an essential component of an individual's health (WHO, 2006) and subjective well-being (Gallagher et al., 2009). Hybrid working, i.e. alternating working from home with working at the office, may better fulfil workers' social needs if they work at the office regularly and for entire days on end, and do not just come in for meetings, to increase opportunities for spontaneous encounters. This means that the office has to attract people by offering workspaces that can compete with the home office for quiet, privacy and ambience, and make up for disadvantages such as commuting time by offering ample opportunities for socialising and feeling part of a community (Appel-Meulenbroek et al., 2022; Colenberg & Keyson, 2021; Leesman, 2021). How can we create social offices that attract employees and support their social well-being? The research on the relationship between social well-being and the physical work environment is limited and scattered across disciplines. This paper aims to provide a scope for further research. First, social well-being at work and workplace affordances are defined. Then, relevant and established theories in the field of environmental psychology are discussed. From these theoretical perspectives, social affordances are deducted and connected to components of social well-being at work. The presented conceptual framework can guide future research, for example, the collection and analysis of published studies and assessment of design practices.

2   SOCIAL WELL-BEING AT WORK

According to Fisher (2014), social well-being at work consists of 'feeling embedded in meaningful communities and having satisfying short-term interactions and long-term relationships with others.' This definition includes long-term eudaimonic well-being, which refers to the experience of growth, purpose and engagement, and hedonic well-being, which includes judgments of satisfaction, and experience of positive and negative moods and emotions. It may comprise the fulfilment of employees' social needs, such as feeling connected and having joyful encounters, affective responses to the behaviour of others, such as incivility and territorial behaviours, and the experience of co-presence with implications for crowding and privacy (Colenberg et al., 2020). The social well-being component of embeddedness refers to belongingness (Malone et al., 2012), or fulfilment of the innate need to belong (Baumeister & Leary, 1995). At work, a meaningful community may be a formal team, department or organisation, or an informal group of co-workers. Hagerty and Patusky (1995) view a sense of belonging as the experience of fit and valued involvement in relationships. They found that contact and fit with friends and shared backgrounds and experiences create belongingness. At work, feeling embedded may include a sense of community, group cohesion, and affective and normative organisational commitment (Fisher, 2014), while social exclusion and ostracism may undermine embeddedness and lead to loneliness. A sense of community results from feelings of inclusion, importance, mutual benefit, and shared emotions with others at work (Blatt & Camden, 2007). On the other hand, negative relationships undermine workgroup cohesion (Morrison, 2008). In summary, these studies imply that feelings of embeddedness result from positive social interactions and positive interpersonal relationships.

Social interaction includes verbal and non-verbal behaviour, such as seeing, hearing and smelling other people, eye contact and smiling or 'dirty looks'. It ranges from mere co-presence to communication in person or through media, and it can be one-on-one or in a group. Additionally, social interaction can be contextual, forming a background to individual activities, or enabling the transmission of information (De Jaegher et al., 2010). At work,

positive interactions support the experience of vitality, feeling appreciated and useful, and they aid in building and maintaining relationships (Stephens et al., 2011). Positive relationships provide emotional and instrumental social support (Dutton & Ragins, 2007). Unwanted social interactions at work can cause noise annoyance (Di Blasio et al., 2019), which may be expressed in negative social behaviour. Negative interactions, such as incivility and disrespect, lead to dissatisfaction with co-workers and psychological distress (Cortina et al., 2001). This indicates that not only the quantity and quality of social interactions at work but also their control influence the development of relationships and embeddedness.

3   SOCIAL WORKPLACE AFFORDANCES

The above conceptualization implies that to enhance social well-being at work, the workplace design should facilitate positive social interactions, support building and maintaining relationships, and evoke a sense of community and feelings of belonging. Additionally, the workplace should aid the prevention of negative social interactions and feelings of alienation. On the one hand, positive interactions can be facilitated by promoting the onset of social interactions at desired times or places. It could even include offering positive conversation topics. Disturbing others should be prevented to limit negative experiences of social interaction. On the other hand, facilitating positive interactions includes offering circumstances for longer and more intimate conversations that deepen relationships and foster belongingness. Characteristics of a physical environment or artefact that, in the eye of the user, enable or constrain certain behaviour are called affordances. Originally, affordances were considered to arise from direct perception. Gibson (1977) defined them as what the environment offers the user, 'what it provides or furnishes, either for good or for ill'. However, since the introduction of the concept of affordance to the design community by Norman (1988), it has taken on a variety of different meanings (McGrenere & Ho, 2000). Still and Dark (2013) consider all affordances to be *perceived* affordances resulting from a mixture of automatic perception and cultural processes. Their conceptualization aligns with Gibson's affordances as being dynamic and relational, and not fixed properties of a design. Additionally, they recognize that affordances can shape but never fully determine behaviour. As a subcategory of perceived affordances, Fayard and Weeks (2007) introduced the notion of *social* affordances of a work environment. They define them as 'the social and physical characteristics that produce the propinquity, privacy, and social designation necessary for an environment to afford informal interactions.' Similarly, Spreitzer et al. (2020) consider social affordances promoted opportunities for social connection at work. They argue that by activating prosocial behaviour and evoking prosocial emotions, the workplace design can stimulate the experience of high-quality connections and the development of positive relationships at work. Their examples include coffee bars and food spaces, affordances that signal an etiquette of quiet in certain work areas, opportunities for playful engagement, workspace personalization for social engagement, and team boundaries to strengthen the sense of belonging. Although Spreitzer et al. (2020) consider identity affordances a different category, it can be argued that these also promote social connection. Visual communication about group identity may enhance a sense of community, for example, by internal branding or display of team accomplishments. Symbols and objects in the physical work environment communicate organisational culture and values (Augustin, 2009; Elsbach & Pratt, 2007). The workplace design can signal activities and meaning, which lead to subtle changes in behaviour (Sander et al., 2019). Affordances can function as a nudge for social behaviour, for example by making it attractive and easy, referring to social norms, and prompting people at places where they are likely to be most receptive to it (Service et al., 2015). Nudging could be used to, for example, encourage informal interaction in dedicated social office spaces and promote quiet in areas for concentration work, for example

through visual communication. However, to our knowledge, the application of nudging to steer social behaviour through workplace design has not been studied yet. Reported examples of nudging through workplace design seem to be limited to physical exercise, food choice, energy use, recycling behaviour, and adherence to safety and hygiene rules (Venema & van Gestel, 2021).

4   THEORETICAL PERSPECTIVES OF SOCIAL AFFORDANCES

The field of environmental psychology comprises several psychology-of-space theories that tap into the influence of spatial design on the social behaviour and well-being of its users. Table 1 summarises the propositions of nine established theories and lists possible social workplace affordances that follow from the propositions and applications of each theory. Below the table, the affordances are grouped and their theoretical basis is discussed. Theories that may apply to social behaviour at work but were not developed to explain socio-physic relationships were excluded.

Table 1. Overview of established environmental psychology theories and related affordances for social well-being at work

Theory (founders)	Theoretical propositions	Social workplace affordances
Behaviour setting theory (Barker, 1968)	Social and physical features of a place (spatial unit) are related to consistent patterns of behaviour in that place	Visual communication of rules, customs and typical activities in the office space; adequate room capacity
Personal space theory (Sommer, 1969)	People have a dynamic and mobile territory around them that others may not enter	Ample or adjustable seat distance, back height, seat positioning, and size of rooms and corridors
Behaviour constraint model (Proshansky et al., 1970)	Perceived loss of control by environmental limits or interference leads to reactance and learned helplessness	Preventing obstruction or restriction of desired (social) activities; providing freedom of choice and adaptability
Defensible space theory (Newman, 1972)	Semi private spaces create a sense of ownership, allow for surveillance, and promote social cohesion	Clear boundaries, possibilities for personalization, visual accessibility
Privacy regulation theory (Altman, 1975)	People need to be able to regulate the level of social interaction to prevent feelings of crowding and stress	Enclosure to enable visual, physical or acoustical withdrawal alone or with a small group; boundary control
Environmental stress model (Lazarus & Folkman, 1984)	Daily hassles and ambient stressors can add up to serious stress levels when the benefits of coping are limited	Adequate ergonomics, including bodily, thermal, visual and acoustical comfort
Space syntax theory (Hillier & Hanson, 1984)	Spatial configuration explains how people move through, experience, and use places	Sightlines, crossing routes, physical accessibility, centrality or isolation
Territoriality theory (Brown, 1987)	Instinct and culture jointly lead to claims and defence of space, depending on setting and resources	Communication of ownership and customs, group identity markers, boundary control
Place attachment theory (Altman et al., 1992)	People can feel cognitive-emotional bonds with places and their visitors, which leads to proximity seeking	Clear place identity, room for gathering, appropriate ambience for social activities

4.1   Interaction: facilitating and stimulating social encounters

Among the listed theories, space syntax theory is the most explicit at connecting spatial characteristics to the frequency of social interaction. It suggests that the layout and enclosure of spaces and the connections between them determine the degree of physical and visual accessibility, which in turn influence people's eye contact, movement, and gathering. At office workplaces, the spatial configuration can increase random contacts, unplanned encounters, co-presence, and eye contact, and predict social network relations (Sailer & Koutsolampros, 2021). For example, having a large number of desks in their field of vision or behind their back negatively affects workers' team identity and cohesion (Sailer et al., 2021). Apart from spatial arrangement and openness, also presence or arrangement of objects and furniture may encourage social interaction. Osmond hypothesised that sociopetal seating arrangements where people face each other foster social interaction whereas sociofugal arrangements with people facing outwards hinder interaction. However, Gifford (1981) found no relation between sociopetal seating and sociability. William Whyte (1980) identified design features that promote social interaction in public places, for example, available seating, fountains, food stands, trees, activities to watch, and shelter. Like other principles of urban design, these examples could also be useful to office design. At a more general level, behaviour setting theory explains that the design of an environment creates patterns of behaviour and vice versa. In this perspective, workplace design can guide social interactions by communicating to what extent it is possible, allowed, or appreciated to approach others and have conversations in certain spaces. These affordances could be visual communication that guides social activities or physical features that enable proximity, eye contact, and specific types of conversations. People usually respond to the cues, try to take a role and conform to the rules and customs of the setting (Scott, 2005). In contrast, people may not use spaces when they do not understand which behaviour is acceptable, for example, regarding breakout spaces in offices (Oseland, 2009). Indirectly, stress caused by the environment can inhibit social interactions or change them from positive to negative experiences. Environmental stressors, such as noise and crowding, are known to reduce helping behaviour and increase aggression and withdrawal from social interaction (Gatersleben & Griffin, 2017), while the absence of those stressors increases the chances that people want to spend time in that particular environment. According to the behaviour constraint model, people will especially suffer from stress if they experience or expect the environment to hinder the desired social activities or the desired level of privacy, and they cannot change the situation. Affordances for freedom of choice (Proshansky et al., 2004) will therefore increase perceived control and reduce stress, which benefits social interaction and bonding.

4.2   Privacy: regulation of social interactions and reduction of negative effects

Affordances that facilitate desired interaction could be turned around to discourage or restrict unwanted social interactions and create intimacy. Expression of annoyance about unwanted interaction can undermine social well-being, whereas group privacy affords interpersonal bonding, increasing social well-being. In addition to the theoretical perspectives on increasing social interaction, several theories specifically address the regulation of interactions, which may reduce the risk of negative experiences of interaction. Privacy regulation theory considers privacy a dynamic process of seeking or avoiding social interaction to achieve the desired level of interaction according to circumstances and individual preferences. Too little privacy results in feelings of crowding and too much privacy creates social isolation. A recent conceptualization of perceived privacy at work includes control over how much others can see or hear of you and the absence of unwanted sound and proximity of other people (Weber et al., 2021). This means that office users need to have control of access from and to others. One way of privacy control may be seat choice. The theory of prospect and refuge (Appleton, 1984),

rooted in evolutionary psychology, states that people prefer places from which they can see over a large area and where they feel protected against possible enemies, as the human brain is calibrated to a savanna-like environment. This theory would imply that privacy affordances include long sightlines and back cover while seated or talking/working standing-up. However, there is limited evidence for this theory in application to design (Dosen & Ostwald, 2012). Altman (1975) proposed personal space and territoriality as mechanisms to control the level of privacy. Personal space is an invisible and mobile territory in a circular shape (Hecht et al., 2019) which people try to maintain towards others to prevent discomfort. Its size depends on the level of acquaintance with the other and therefore is dynamic. Hall's proxemic framework (1966) defines the preferred proximity of acquaintances, e.g. co-workers, as between 1.20 and 3.60 metres, while friends can come closer. Territoriality theory (Brown, 1987), applied to organisations (Brown et al., 2005), implies that the work environment should afford personalization and expression of ownership. Defensible space theory proposes that surveillance opportunities and territory markers reduce anti-social behaviour (Gifford, 2014), whereas the application of space syntax identified spatial isolation, not the reduction of accessibility, as a risk for negative encounters (Reynald & Elffers, 2009).
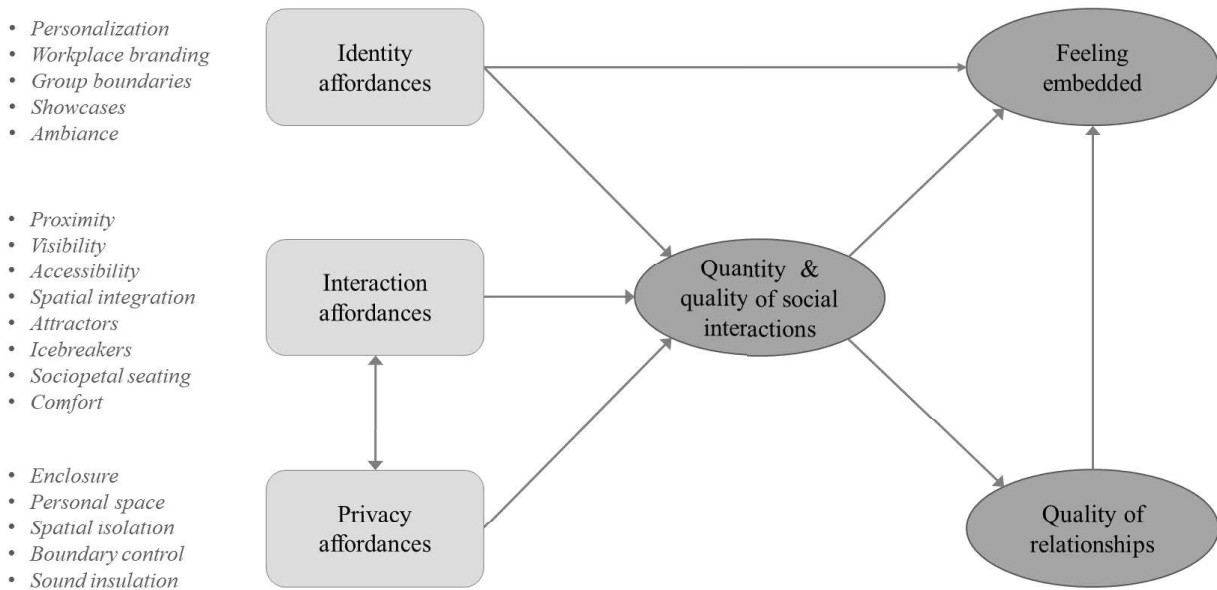
4.3 Identity: communication of group values and customs

Several theories indicate that the experience of embeddedness can be supported by the expression of group identity and physical or symbolic boundaries. Behaviour setting theory indicates that clear setting boundaries and expression of customs within them, provide users with a role to play in that setting, making them part of a small-scale social group (Popov & Chompalov, 2012). In organisations, identity marking of spatial territories raises a sense of belonging to social groups and can prevent conflicts (Brown et al., 2005). Affordances for personalization of workspaces therefore may support embeddedness and reduce negative interactions related to the use of office space. According to defensible space theory, symbolic barriers that communicate ownership, such as greenery, signage and other territorial markers, create a sphere of control where the behaviour of users is limited by social norms, while social bonds have been found to reinforce territorial behaviour (Reynald & Elffers, 2009). Clear boundaries and the identity of a place facilitate place attachment. Place attachment refers to people-place bonding, but the concept's definition has been ambivalent. The currently most promising conceptualization (Di Masso et al., 2017) explains how a person, as an individual or a member of a social group, can feel an emotional, cognitive or behavioural connection to a place regarding its physical and social qualities (Scannell & Gifford, 2010). This means that place attachment can be rooted in social ties or stem from aesthetics or functional qualities that fulfil the user's needs. Psychological ownership, e.g. through personalization, and time spent in a place predict place attachment, and frequent social interactions are important (Gifford, 2014). Place attachment leads to proximity-seeking behaviour which further strengthens the bonding. It decreases after long periods of separation (Scannell et al., 2021).

5 CONCEPTUAL FRAMEWORK

The following framework (Fig. 1) connects the social workplace affordances that were identified based on the theories about environment and behaviour to the components of social well-being.

Figure 1. Conceptual framework of relationships between categories of workplace affordances and components of social well-being at work

- *Personalization*
- *Workplace branding*
- *Group boundaries*
- *Showcases*
- *Ambiance*

Identity affordances

- *Proximity*
- *Visibility*
- *Accessibility*
- *Spatial integration*
- *Attractors*
- *Icebreakers*
- *Sociopetal seating*
- *Comfort*

Interaction affordances

- *Enclosure*
- *Personal space*
- *Spatial isolation*
- *Boundary control*
- *Sound insulation*

Privacy affordances

Quantity & quality of social interactions

Feeling embedded

Quality of relationships

Social interactions have a central position in this framework. As explained in section 2, social interactions create and maintain embeddedness and relationships. From the theories in section 4, interaction affordances were deduced that create opportunities for interactions, for example by facilitating co-location and visibility of workers, stimulating encounters and providing elements that spark conversations. Privacy affordances aid regulation of the number of interactions, for example by providing boundary or access control and places to hide if desired. Both identity affordances and privacy affordances can reduce the risk of negative encounters by establishing physical or symbolic territories. Additionally, identity affordances can provide conversation topics. More directly, identity affordances can support a sense of community by facilitating the expression of group values and showcasing accomplishments. Since affordances for interaction can limit satisfaction with privacy and vice versa (Kim & de Dear, 2013), it may be necessary to separate spaces for spontaneous interactions from spaces for intimate conversations and private calls. The next step towards further development of this framework could be a systematic search of empirical studies that studied examples of these types of affordances and provide evidence of their effect on short-term and long-term social well-being. This search should expand from the field of interior design to product design, human factors, architecture, and environmental psychology, which is transdisciplinary by nature. Additionally, research on urban design, retail design and consumer behaviour may provide useful examples of affordances for interaction and identity, whereas research on hospitals and doctor's offices may provide examples of privacy affordances. Another step would be the identification of intervening variables within the relationship between workplace affordances and social behaviour. In environmental psychology, it is recognized that the physical environment can increase the probability of certain behaviour, but will not determine it. According to the eclectic model of Bell et al. (2001), factors that influence the perception of the actual workplace design are individual differences, such as preferences and disabilities, situational factors, such as work tasks or workload, social conditions, such as social climate at work, and cultural factors, such as work ethics. For example, Budie et al. (2019) demonstrated that both personal characteristics and workspace type affect workplace satisfaction, either directly or mediated by individual needs that depend on work activity.

6 CONCLUSION

This paper explored the relationship between components of social well-being at work and affordances of the workplace. Established theories in the field of environmental psychology were used to identify social workplace affordances. These theories show that social well-being at work can be enhanced by providing affordances for social interaction, privacy regulation and expression of group identity. The conceptual framework resulting from the theoretical exploration can serve as a start for further research on workplace design for social well-being, such as collecting evidence and identifying mediators.

REFERENCES

Altman, I. (1975), *The environment and social behaviour: Privacy, personal space, territory, and crowding*. Brooks/Cole Publishing Company.

Altman, I., Low, S. M., Altman, I. (1992), Place attachment. In *Place Attachment*. Plenum. https://doi.org/10.1007/978-1-4684-8753-4_1.

Appel-Meulenbroek, R., Kemperman, A., van de Water, A., Weijs-Perrée, M., Verhaegh, J. (2022), How to attract employees back to the office? A stated choice study on hybrid working preferences. *Journal of Environmental Psychology*, *81*, 101784. https://doi.org/10.1016/j.jenvp.2022.101784.

Appleton, J. (1984), Prospects and refuges re-visited. *Landscape Journal*, *3*, 91–103. https://doi.org/10.2307/43322970.

Augustin, S. (2009), *Place advantage. Applied psychology for interior architecture* (1st ed.). Wiley & Sons.

Babapour Chafi, M., Hultberg, A., Bozic Yams, N., Molina-Sánchez, H., Giorgi, G., Guajardo, D. C., Ariza-Montes, A., Chafi, M. B., Hultberg, A., Yams, N. B. (2021), Post-pandemic office work: Perceived challenges and opportunities for a sustainable work environment. *Sustainability*, *14*(1), 294. https://doi.org/10.3390/su14010294.

Barker, R. G. (1968), *Ecological psychology*. Stanford University Press.

Baumeister, R. F., Leary, M. R. (1995), The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin*, *117*(3), 497–529.

Bell, P. A., Greene, T. C., Fisher, J. D., Baum, A. (2001), *Environmental psychology, 5th New edition* (5th ed.). Taylor & Francis.

Blatt, R., Camden, C. T. (2007), Positive relationships and cultivating community. In J. E. Dutton, B. R. Ragins (Eds.), *Exploring Positive Relationships at Work: Building a Theoretical and Research Foundation.* (pp. 243–264). Lawrence Erlbaum.

Brown, B. (1987), Territoriality. In D. Stokols & I. Altman (Eds.), *Handbook of environmental psychology* (pp. 505–531). Wiley-Interscience.

Brown, G. (2009), Claiming a corner at work: Measuring employee territoriality in their workspaces. *Journal of Environmental Psychology*, *29*(1), 44–52. https://doi.org/10.1016/j.jenvp.2008.05.004

Brown, G., Lawrence, T. B., Robinson, S. L. (2005), Territoriality in organisations. *Academy of Management Review*, *30*(3), 577–594.

Budie, B., Appel-Meulenbroek, R., Kemperman, A., Weijs-Perree, M. (2018), Employee satisfaction with the physical work environment: The importance of a need based approach. *International Journal of Strategic Property Management*, *23*(1), 36–49. https://doi.org/10.3846/ijspm.2019.6372

Colenberg, S., Appel-Meulenbroek, R., Romero Herrera, N., Keyson, D. (2020), Conceptualization of social well-being in activity-based offices. *Journal of Managerial Psychology*, *36*(4), 327–343. https://www.emerald.com/insight/content/doi/10.1108/JMP-09-2019-0529/full/html

Colenberg, S., Keyson, D. (2021), Expected user needs towards the post-Covid office: better support of social interactions and concentration. *The Proceedings of the 20th EuroFM Research Symposium 2021*.

Cortina, L. M., Magley, V. J., Williams, J. H., Langhout, R. D. (2001), Incivility in the workplace: incidence and impact. *Journal of Occupational Health Psychology*, *6*(1), 64–80. https://doi.org/10.1037/1076-8998.6.1.64

De Jaegher, H., Di Paolo, E., Gallagher, S. (2010), Can social interaction constitute social cognition? *Trends in Cognitive Sciences*, *14*(10), 441–447. https://doi.org/10.1016/j.tics.2010.06.009

Di Blasio, S., Shtrepi, L., Puglisi, G. E., Astolfi, A. (2019), A cross-sectional survey on the impact of irrelevant speech noise on annoyance, mental health and well-being, performance and occupants' behaviour in shared and open-plan offices. *International Journal of Environmental Research and Public Health*, *16*(2). https://doi.org/10.3390/ijerph16020280

Di Masso, A., Dixon, J., Hernández, B. (2017), Place attachment, sense of belonging and the micro-politics of place satisfaction. In G Fleury-Bahi, E. Pol, & O. Navarro (Eds.), *Handbook of environmental psychology and quality of life research* (pp. 65–84). Springer International Publishing.

Dosen, A. S., Ostwald, M. J. (2012), Testing prospect-refuge theory: A comparative methodological review. *46th Annual Conference of the Architectural Science Association*.

Dutton, J. E., Ragins, B. R. (2007), Positive relationships at work: an introduction and invitation. In J. E. Dutton, B. R. Ragins (Eds.), *Exploring positive relationships at work* (pp. 3–25). Lawrence Erlbaum.

Elsbach, K. D., Pratt, M. G. (2007), The Physical Environment in Organisations. *The Academy of Management Annals*, *1*(1). https://doi.org/10.1080/078559809

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

Fisher, C. D. (2014), Conceptualising and measuring wellbeing at work. In P. Y. Chen & C. L. Cooper (Eds.), *Wellbeing: A complete reference guide, work and wellbeing* (pp. 9–34). Wiley Blackwell. https://doi.org/10.1002/9781118539415.wbwell018

Gallagher, M. W., Lopez, S. J., Preacher, K. J. (2009), The hierarchical structure of well-being. *Journal of Personality*, *77*(4), 1025–1050. https://doi.org/10.1111/j.1467-6494.2009.00573.x.

Gatersleben, B., Griffin, I. (2017), Environmental stress. In Ghozlane Fleury-Bahi, E. Pol, & E. P. Navarro (Eds.), *Handbook of environmental psychology and quality of life research* (pp. 469–574). Springer.

Gensler Research Institute (2020), *Back to the Office. U.S. Work from home survey 2020*. https://www.gensler.com/gri/uk-workplace-survey-2020

Gibson, J. J. (1977), The theory of affordances. In R. E. Shaw & J. Bransford (Eds.), *Perceiving, Acting, and Knowing.* (pp. 67–82). Lawrence Erlbaum.

Gifford, R. (1981), Sociability: Traits, settings, and interactions. *Journal of Personality and Social Psychology*, *41*(2), 340–347. https://doi.org/10.1037/0022-3514.41.2.340

Gifford, R. (2014), *Environmental Psychology: Principles and Practice* (5th ed.). Optimal Books.

Hagerty, B. M. K. K., Patusky, K. (1995), Developing a measure of sense of belonging. *Nursing Research*, *44*(1), 9–13. https://doi.org/10.1097/00006199-199501000-00003

Hall, E. T. (1966), *The hidden dimension*. Anchor Books.

Hecht, H., Welsch, R., Viehoff, J., Longo, M. R. (2019), The shape of personal space. *Acta Psychologica*, *193*, 113–122. https://doi.org/10.1016/j.actpsy.2018.12.009

Hillier, B., Hanson, J. (1984), *The social logic of space*. Cambridge university press.

Ipsen, C., van Veldhoven, M., Kirchner, K., Hansen, J. P. (2021), Six key advantages and disadvantages of working from home in Europe during COVID-19. *International Journal of Environmental Research and Public Health*, *18*(4), 1–19. https://doi.org/10.3390/IJERPH18041826

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

Lazarus, R. S., Folkman, S. (1984), *Stress, appraisal, and coping*. Springer.

Leesman (2021), *Workplace 2021: Appraising future-readiness*. https://www.leesmanindex.com/workplace-2021-appraising-future-readiness-launch/

Malone, G. P., Pillow, D. R., Osman, A. (2012), The General Belongingness Scale (GBS): Assessing achieved belongingness. *Personality and Individual Differences*, *52*(3), 311–316. https://doi.org/10.1016/j.paid.2011.10.027

Marinucci, M., Pancani, L., Aureli, N., Riva, P. (2022), Online social connections as surrogates of face-to-face interactions: A longitudinal study under COVID-19 isolation. *Computers in Human Behaviour*, *128*, 107102. https://doi.org/10.1016/j.chb.2021.107102

Marzban, S., Durakovic, I., Candido, C., Mackey, M. (2021), Learning to work from home: experience of Australian workers and organisational representatives during the first COVID-19 lockdowns. *Journal of Corporate Real Estate*, *23*(3), 203–222. https://doi.org/10.1108/JCRE-10-2020-0049

McGrenere, J., Ho, W. (2000), Affordances: Clarifying and Evolving a Concept. *Proceedings of Graphics Interface 2000*.

Morrison, R. (2008), Negative relationships in the workplace: Associations with organisational commitment, cohesion, job satisfaction and intention to turnover. *Journal of Management & Organisation*, *14*(4), 330–344. https://doi.org/10.1017/S1833367200003126

Nardi, B. A., Whittaker, S. (2002), The place of face-to-face communication in distributed work. In P. Hinds, S. B. Kiesler (Eds.), *Distributed work* (pp. 83–112). MIT Press.

Newman, O. (1972), *Defensible space*. Macmillan.

Norman, D. A. (1988), *The psychology of everyday things*. Basic Books.

Oseland, N. (2009), The impact of psychological needs on office design. In *Journal of Corporate Real Estate* (Vol. 11, Issue 4, pp. 244–254). https://doi.org/10.1108/14630010911006738

Popov, L., Chompalov, I. (2012), Crossing over: The interdisciplinary meaning of behaviour setting theory. *International Journal of Humanities and Social Science*, *2*(19), 18.

Proshansky, H. M., Ittelson, W. H., Rivlin, L. G. (1970), *Environmental psychology - Man and his physical setting*. Holt, Rinehart and Winston. https://www.ojp.gov/ncjrs/virtual-library/abstracts/environmental-psychology-man-and-his-physical-setting

Proshansky, Harold M., Ittelson, W. H., Rivlin, L. G. (2004), Freedom of choice and behaviour in a physical setting. In *Environment and the social sciences: Perspectives and applications.* (pp. 29–43). American Psychological Association. https://doi.org/10.1037/10045-003

Reynald, D. M., Elffers, H. (2009), *The Future of Newman's Defensible Space Theory Linking Defensible Space and the Routine Activities of Place*. *6*(1), 25–46. https://doi.org/10.1177/1477370808098103

Rietveld, E., Rietveld, R., Martens, J. (2019), Trusted strangers: social affordances for social cohesion. *Phenomenology and the Cognitive Sciences*, *18*, 299–316. https://doi.org/10.1007/s11097-017-9554-7

Sailer, K., Koutsolampros, P. (2021), Space syntax theory: Understanding human movement, co-presence and encounters in relation to the spatial structure of workplaces. In R. Appel-

Meulenbroek & V. Danivska (Eds.), *A Handbook of Theories on Designing Alignment between People and the Office Environment*, pp. 248–260, Routledge.

Sailer, K., Koutsolampros, P., Pachilova, R. (2021), Differential perceptions of teamwork, focused work and perceived productivity as an effect of desk characteristics within a workplace layout. *PLoS ONE*, *16*(4), e0250058. https://doi.org/10.1371/journal.pone.0250058

Sander, E. (Libby) J., Rafferty, A., Jordan, P. J. (2021), Escaping the cubicle: Exploring the physical work environment of the home. In Wheatley, Daniel, I. Hardill, & S. Buglass (Eds.), *Handbook of research on remote work and worker well-being in the Post-COVID-19 era* (pp. 181–201). IGI Global. https://doi.org/10.4018/978-1-7998-6754-8.ch01

Sander, E. J., Caza, A., Jordan, P. J. (2019), Psychological perceptions matter: Developing the reactions to the physical work environment scale. *Building and Environment*, *148*, 338–347. https://doi.org/10.1016/j.buildenv.2018.11.020

Scannell, L., Gifford, R. (2010), Defining place attachment: A tripartite organising framework. *Journal of Environmental Psychology*, *30*(1), 1–10. https://doi.org/10.1016/j.jenvp.2009.09.006

Scannell, L., Williams, E., Gifford, R., Sarich, C. (2021), Parallels between interpersonal and place attachment: An update. In L. C. Manzo & P. Devine-Wright (Eds.), *Place attachment: Advances in theory, methods, and applications* (2nd ed., pp. 45–60). Routledge.

Scott, M. M. (2005), A powerful theory and a paradox: Ecological psychologists after Barker. *Environment and Behaviour*, *37*(3), 295–329. https://doi.org/10.1177/0013916504270696

Service, O., Hallsworth, M., Halpern, D., Algate, F., Gallagher, R., Nguyen, S., Ruda, S., Sanders, M. (2015), *EAST: Four simple ways to apply behavioural insights*. https://www.bi.team/wp-content/uploads/2015/07/BIT-Publication-EAST_FA_WEB.pdf

Sommer, R. (1969), *Personal space: The behavioural basis of design*. Prentice Hall.

Spreitzer, G., Bacevice, P., Garrett, L. (2020), Workplace design, the physical environment, and human thriving at work. In O. B. Ayoko & N. M. Ashkanasy (Eds.), *Organisational Behaviour and the Physical Environment* (pp. 235–250). Routledge.

Still, J. D., Dark, V. J. (2013), Cognitively describing and designing affordances. *Design Studies*, *34*(3), 285–301. https://doi.org/10.1016/j.destud.2012.11.005

Thaler, R. H., Sunstein, C. R. (2008), *Nudge: Improving decisions about health, wealth, and happiness*. Yale University Press. https://doi.org/10.1007/s10602-008-9056-2

Venema, T., van Gestel, L. (2021), Nudging in the workplace: Facilitating desirable behaviour by changing the environment. In R. Appel-Meulenbroek & V. Danivska (Eds.), *A handbook of theories on designing alignment between people and the office environment* (1st ed., pp. 222–235). Routledge.

Weber, C., Gatersleben, B., Degenhardt, B., Windlinger, L. (2021), Privacy Regulation Theory. *A Handbook of Theories on Designing Alignment between People and the Office Environment*, 68–81. https://doi.org/10.1201/9781003128830-6

WHO (2006), *Constitution of the World Health Organisation*. Retrieved from: https://www.who.int/governance/eb/who_constitution_en.pdf

Whyte, W. H. (1980), *The social life of small urban spaces*. The Conservation Foundation.