

MIND GAMES

Nigel Oseland, director of AMA Alexi Marmot Associates and a chartered psychologist, assesses the impact of psychological needs on workplace design by looking at the core theories



Psychologists working within the building design industry are often asked why an architectural practice would employ a psychologist. The simple explanation is, using the sentiment of Le Corbusier, that buildings are machines for living, working, learning and healing in. Thus to provide successful and functional buildings, we must understand the needs of the occupying people and organisations. There are several theories to consider when designing an office:

Personality theories

One of the most central theories describing personality is that of introversion and extraversion. Introverts are characterised as preferring to spend time alone engaged in solitary activities and focusing on a single task, while extroverts are gregarious individuals more content in social gatherings and easily distracted when alone. In reality, most of us have personalities that have a mix of introvert and extrovert traits.

Another core personality theory is that of the "locus of control". A believer of the external locus of control feels that behaviour is guided mostly by fate, luck or other outside influences. Conversely, those who believe in an internal locus think that behaviour is guided by our own personal decisions and efforts. At work, internals are more likely to be self-motivated and driven, so they may need less supervision than externals. Therefore, internals may be more suited to flexible working, where they have control over where and when they work, whereas externals may require workplaces supporting management by sight (such as open-plan team areas). Personality will undoubtedly influence people's choice of profession.

Motivation theories

A key fundamental theory proposes an inverted U-shaped relationship between our performance and our level of arousal (excitement or interest). We perform better if we are stimulated or motivated, but only up to a certain point, as too much stimulation can lead to stress and reduce our performance. To maximise the performance of office workers, we need to design stimulating, but not over-stimulating, environments. Individuals have a different base level of arousal. Complex tasks (or working under time pressure) are demanding and therefore increase our level of arousal, so people need subdued environments to maximise performance. In contrast, repetitive or menial tasks require more stimulating environments to increase



Extroverts require stimulating environments to enhance their performance

the level of arousal. To complicate matters further, extroverts and introverts have a different base level of arousal. So, in simplistic terms, stimulating environments with vibrant colours, music or noise, and a buzz of activity, may enhance the performance of extroverts or those conducting simple tasks. But more calming environments will better suit introverts or those involved in more complex tasks.

American psychologist Frederick Herzberg discovered that our optimal performance at work is affected by what he termed "motivators" and "hygiene factors". The motivators are organisational factors such as recognition, responsibility and achievement, the provision of which has a positive impact on our performance. In contrast, the hygiene factors, which are related to environmental conditions such as temperature, daylight, noise and privacy, can have a negative impact on our performance if they are not well designed. The upshot is that if we do not provide workplaces that match our base needs, such as temperature and noise, then it is unlikely that superficial changes, such as layout and colour, will have a major impact on our performance.

Seminal research showed that it takes approximately 15 minutes to achieve a state of concentration, or "flow", and any distraction means that another 15 minutes of emersion is required to achieve the same state of flow. The solution is as much to do with the management of the space as it is the design and acoustic properties, but a choice of different types of space is essential

Environmental psychology

This relatively new field of psychology explores the interrelationship between people and their physical settings; the main focus here is the research related to space in buildings. Kurt Lewin shook the psychological world when he declared that our behaviour in a particular space is a function of the person as well as the environment, rather than the previous view that our behaviour is simply a deterministic response to the physical world.

Lewin argues that our individual experiences and different expectations of a space will affect how we interpret and interact with that space. Other environmental psychologists have built upon his work, introducing the notion of behavioural settings where the preconceived social etiquette associated with the setting influences behaviour (for example, consider how we automatically behave in churches and libraries). In terms of offices, the physical appearance of and assumed normal behaviour within a space (the behavioural setting) will affect its use; it is therefore not uncommon to see breakout spaces left unused when the associated acceptable behaviour is not understood.

Much of the environmental psychology research has focused on aspects of space such as territoriality and privacy. One such example is Edward Hall's Proxemic Framework, in which he estimated the preferred distances between people interacting with each other. Hall proposed four interpersonal distances: intimate, personal, social and public. The social distance includes business acquaintances

and is estimated to be between 1.2 and 2.1 metres, but personality factors (such as introversion/extroversion and internal/external locus of control) affect our preferred interpersonal distance, as do gender, age and culture. With the current trend for using smaller (touchdown) workstations for mobile workers, it is not uncommon to see desks only 1.2 metres wide. Such desks will not only be perceived as an intrusion into space and cause discomfort, but may also generate more noise and distraction.

In the mid-1970s, Irwin Altman brought all the theories of personal space, territoriality and crowding into one unifying theory. Privacy is generally regarded as a state of social withdrawal, but Altman conceptualises privacy as control access to ourselves regulated by dialectic and dynamic processes. By "dialectic" he means whether we are seeking or avoiding social interaction, whereas "dynamics" means the desired level of interaction varies according to individual differences and circumstances over time. Altman proposes that not achieving the desired level of privacy will result in discomfort and stress; too little privacy leads to feelings of overcrowding, whereas too much privacy will create social isolation. The upshot of this is that we need to provide building occupants with a means of controlling the required level of privacy depending on their personality and the task in hand.

Evolutionary psychology

Evolutionists believe that over time, our biology has developed, through natural selection, to ensure we survived as a species. Similarly, evolutionary



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psychologists argue that our innate behaviour is governed by adaptations of our psychological processes which evolved to aid our wellbeing. "Man" evolved about two million years ago and Homo Sapiens about 400,000 years ago, both in natural environments, but we have worked in offices for only about 100 years. As a consequence, our psychological processes are probably still more aligned to living on the African savannah than they are to working in offices.

A key theme within evolutionary psychology is "biophilia", which explains our tendency to affiliate with the natural environment. Some psychologists argue that nature provides a setting for "non-taxing involuntary attention", and as a result, we are gradually refreshed by being in natural environments.

The design implications for evolutionary psychology are self-explanatory, but nevertheless many offices would fail to meet these basic psychological needs. We need to provide a variety of spaces that allow people to gather, preferably with food and drink ("watering holes") made available, offer a stimulating and interesting environment, and allow us to move around and explore, rather than stay working in one place. Places will also be required that offer quieter

environments away from our colleagues, so that we can concentrate or just contemplate. Well-designed facades offering views out and daylight ingress will meet our biophilia needs, as will good landscaping externally and planting internally. Ideally, natural ventilation should be provided and control of internal temperatures, or failing that good fresh air ventilation and the option to work in locations with a different temperature. Desks should also be planned to offer views across the office and to the outside, without the occupier feeling at risk of being overlooked by passers by (for example, if located with their back to a main circulation route).

We are social animals, but it is also proposed that there may be a limit to our ability to recognise the members of our social group. Robin Dunbar, a British anthropologist, discovered that the size of our social network is limited to about 150 members because of the capacity of our cerebrum. Dunbar derived his estimate from his studies of the size of social groups for a range of primates. He found that a group's size correlated with the size of its members' neocortex and then extrapolated the social group size for humans from the size of our neocortex. The size of a typical African tribe, Neolithic farming village and Christmas card lists all verify "Dunbar's number".

The design consequences of Dunbar's number are to keep floorplates on a human scale. A current trend, particularly in London, is to create office buildings with large floorplates that accommodate 400 to 600 staff sitting at rows of desks. In such circumstances, it would be better to create business villages or communities, both physically and organisationally, which provide a sense of belonging and support spaces for teams.

Conclusion

Design should focus on meeting the individual needs of the occupants and functional needs of the organisation, rather than on saving space or creating great-looking but dysfunctional buildings. Designing for individual requirements is a challenge in a world of open-plan office space, and key to the solution is providing a choice of work settings to support different tasks and environmental preferences. The design of the space also needs to address our affinity with nature and be planned on a human scale. Shallow-plan buildings with good daylight, natural ventilation and a sensibly sized floorplate at a comfortable occupational density are more likely to meet our psychological needs than the current trend for deep-plan, densely occupied mega-floorplates. ■