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Veitch, J. A.

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Forces of Constancy and Change in Office Design
A commentary on papers presented at ASID's FutureWork Forum
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Jennifer A. Veitch, Ph.D.[*]
National Research Council of Canada
Institute for Research in Construction

Abstract

The authors of the three FutureWork papers identified technology, social conditions, productivity pressure, and the nature of work as the pressures that will change office design in the next 20 years; to these I would add energy and environmental issues, potential side effects of new technologies, and security concerns. More importantly, we need to remember the most important force, the one that will not change: Human nature. Technological change is bringing change to work organisation and to workplaces, but the needs of the people in spaces should remain paramount in designing workplaces. Working on the road, in a car or airplane, working to a 24/7/365 schedule, place demands on people that they may be hard-pressed to meet. Work environment research can help to identify where problems may occur and may suggest solutions; but it is up to designers to create spaces that bring joy and meaning to work, where people will thrive.

Résumé

Les auteurs des trois documents de FutureWork ont souligné que la technologie, les conditions sociales, l'incitation à produire et la nature du travail sont les facteurs qui influeront sur la conception des bureaux au cours des 20 prochaines années; j'ajouterais les questions énergétiques et environnementales, les effets secondaires que pourraient avoir les nouvelles technologies, et la sécurité. Il faut cependant se rappeler la force la plus importante, celle qui ne changera pas : la nature humaine. Le changement technologique modifie l'organisation du travail et les lieux de travail, mais il importe au plus haut point de tenir compte, lors de la conception de ces lieux de travail, des besoins des personnes auxquelles ils sont destinés. Travailler en voyage, que ce soit en voiture ou en avion, ne pas compter ses heures, cela exige beaucoup de la part des individus. Les recherches sur l'environnement professionnel peuvent aider à cerner les problèmes et apporter des solutions; mais il appartient aux concepteurs de créer des espaces qui rendront le travail agréable et lui donneront un sens, où les gens pourront s'épanouir.

[*] Please address correspondence to: National Research Council of Canada , Institute for Research in Construction, Bldg M-24, 1500 Montreal Rd Ottawa, ON   K1A 0R6 Canada. Tel. +1 613 993 9671 /   Fax +1 613 954-3733 / E-mail: jennifer.veitch@nrc.ca.

For whom do you design? As businesses, design firms work for clients, the organisation or the person paying the bills. As an environmental psychologist, my interest is at a different level: the person in the space. Sometimes the client is the person in the space, but in office design this is the exception, rather than the rule. This perspective influenced my reading, leading me to different conclusions about how to achieve successful future office designs than these authors.

I tend to agree with Kent Spreckelmeyer: "The difficulty with writing about dramatic change in the midst of it occurring is that the very drama of the effects unleashed by the change will be mistaken for what the future will become" (1999, p. 262). Indeed, our fascination with the most prominent trends will bias our view, leading us to ignore other important current conditions to which we must respond. Although I don't disagree with the authors' judgement about the forces to which design must respond, I think there are other considerations that they have overlooked, both with respect to the forces that direct change in office design and in the constant influences that transcend time.

Change Themes

The Authors' Views

Technology. It can neither be denied nor ignored that technological changes allow people to use space in ways that was never before possible. My colleague who is out of town can access e-mail, receive and review documents in places as varied as the train or plane, hotel, or client offices. Many employees work at sites away from the main hub of the organisation, either working from home full or part time, at satellite offices near their homes, or travelling from site to site. Wireless technology, if it lives up to its promise, will accelerate these possibilities.

Social conditions. Hierarchical, command-and-control organisations, although not gone altogether, are less tenable under current conditions than formerly. When middle managers were lost to downsizing, the mass of employees were forced to develop a degree of individual responsibility for careers and jobs that formerly was unnecessary. With this came a change in expectations and increasingly egalitarian attitudes. Employees expect to be respected for their knowledge and skills, particularly when workers are in short supply and high demand. Part of employers' implicit recognition of this expectation is expressed in the quality of the workspace they provide.

Productivity demonstrations. The authors were unanimous on this point: that clients' focus on the bottom line will lead to demands that designers empirically demonstrate the benefit of their work.   de Kerchove and Pollack (2000) took this idea a step farther, suggesting that performance-based contracts would become the norm.

Nature of work. The authors were agreed that work in the future will be increasingly about the manipulation of information to create knowledge (even if embodied in a new physical product). Machines, they believe, will continue to take over tasks that formerly were performed by phalanxes of people – such as manually checking insurance claims against receipts.

Commentary

Despite good intentions, it is our nature to fail to see other important events or issues, being blinded by the exciting things around us (Nisbett & Ross, 1980). Here are a few

themes that I think are missing from these papers, but which will influence offices and their design in years to come:

Energy and environment. It seems clear from current events that environmental change is upon us; global warming is now widely accepted by scientists as being manifest in widely variable weather conditions and an increased incidence of catastrophic weather events. The insurance industry is responding to this threat (Kovacs, 1999), and surely will come to demand that buildings be designed to withstand greater extremes of wind, rain, and cold than previously, particularly in areas of known risk. Researchers have a responsibility to provide such information, but architects and designers will have to implement it.

In the hopes of preventing future environmental damage, the governments of Western nations all have programs of research, development, and implementation aimed at reducing the environmental costs of building construction and operation, and energy consumption in particular. Among others, the managers of Energy Star Buildings (USA), Energie [5th Framework] (EU), and C2000 (Canada) would be greatly disappointed if their work has no effect on offices of the future.

Side effects. The new technologies are exciting, but their side-effects, both on individuals and organisations, are largely unknown. The media recently reported that researchers in the UK have come to a cautionary, preliminary recommendation that restrictions be placed on cell phone use by children (Derbyshire, 2000). Although there is no clear danger from exposure to electromagnetic radiation in the wavelength range and intensity used by this technology, the researchers consider that the potential damage to developing nervous systems warrants extreme caution. We do not know what risks we might unleash as wireless and other technologies come into more widespread use, and it is certainly possible that today's great excitement could run aground on health problems. These unknowns could slow the changes in offices envisioned by the white paper authors.

Security threats. In recent months there have been several dramatic incidents of computer viruses and worms interrupting electronic communication and commerce ("ILOVEYOU" being a recent, very expensive example). These revealed structural flaws in the design of popular software (e.g., scripting to allow automatic forwarding to all addresses in the personal address book in Microsoft Outlook™), and vulnerable points in the construction of web-based commerce. Anecdotal reports abound that the widespread use of laptops in public places can provide significant opportunities for industrial espionage, as nearby observers can be privy to information not intended for public display. It remains to be seen whether the promise of 'take-it-anywhere' computing can be achieved in the face of such threats. Already some institutions do not permit off-site computing in order to maintain the security of their data.

Constancy Theme: Human Nature

The Authors' View

The constant in design is the person in the space. There is no limit to the creativity of interior designers or industrial designers or architects to create weird and wonderful spaces or furnishings. However, these creations will have no lasting value if they fail to take into account the characteristics, values, expectations and needs of the person in the space.

All of the authors pointed this out to one degree or another. de Kerchove and Pollack (2000) discussed these in greatest detail, identifying needs for social interaction, recognition, and participation as fundamental issues for designers to address. Degenhardt (2000) based his discussion on Maslow's hierarchy of human needs (Maslow, 1943), and in particular needs for affiliation and security. Wheeler and Smith's (2000) discussion used what they characterised as fundamental American values: 'life, liberty, and the pursuit of happiness', but which could be expressed in terms of the Maslovian pyramid.

Commentary

Of course, as a psychologist it delights me to see the consensus between the authors that that successful design of the future must accommodate human needs. It would be a further delight to see environment-behaviour researchers form part of design teams, and for participatory workplace design to be the norm, rather than the exception, as suggested explicitly by de Kerchove and Pollack (2000) and Degenhardt (2000), and implicitly by Wheeler and Smith (2000). However, I don't think the any of the authors went far enough in considering how human needs might influence design. This was particularly evident in the design scenarios.

Although it may be true that technology will free us from the chains the bind us to PCs on desktops and hard-wired telephones, and it may also be true that many corporations believe it to be less costly to hire just-in-time consultants, the danger is that we will repeat the failures of open-plan office design (in which loss of privacy and distraction occurred instead of promised advances in social interaction [Sundstrom, 1987]) by failing to take into account the whole person and focusing only on the hoped-for outcome. Let's take a moment to consider other consequences of these changes for individuals:

Work organisation. If the predictions of these authors come true -- and to some degree they are already happening -- then the future holds little relief for the ordinary worker. Technologies that allow instant wireless communications will lead to augmented job demands to keep up with the global economy, including pressure to work longer hours, at night, or while attending to personal tasks such a child or elder care. We see already the consequence of this in the increased interest in work-family balance, although I see no one publicly suggesting 'work less' as a solution for this problem. One interpretation of the practice of increasing employee amenities is as a cynical attempt to dominate all of the employee's life, the better to keep the nose to the grindstone.

Indeed, if companies or organisations implement ongoing productivity measurement then there is likely to be increased pressure to perform in future, rather than increased slack to develop a well-rounded life. The future, rather than becoming easier for most people, promises to be more demanding.

Workplace design. The employee who does not go to a workplace run by an employer will miss much of what employees currently expect: space, furnishings, and equipment adequate to do the task, building maintenance and equipment support, and regular informal interaction with co-workers, among other things. The home office worker in many companies will make do with the space and furnishings that he or she can afford, and will have little or no design support for lighting, acoustics, air quality, and ergonomics concerns. The cost of the space and its maintenance, including regular cleaning, will fall to the

employee. Workers whose workspace travels with them, in car or aircraft, can add to this chronic exposures to vibration and noise, lack of privacy, and truly inadequate seating and air quality. Physical as well as psychological stressors could well increase in future offices.

Even in offices that bear similarities to present-day offices, important issues remain unaddressed. One new technology that was little discussed is voice-activated computing. As yet in its infancy, this technology promises to reduce the amount of keyboarding one must do, replacing keystrokes with carefully articulated speech that the computer can recognise. Imagine an open-plan office with a few dozen computers talking at once! Despite the optimism expressed in media sources (Eisenberg, 2000), acoustics researchers are a long way from solving the problems of sound propagation in open offices. One of our present projects at NRCC/IRC is an experimental investigation of the properties of acceptable sound masking noise; it is the only such experimental work of which we are aware, despite an extensive literature search.[†]

The very forces that seem likely to drive changing work patterns and office designs hold not only the exciting promise that the authors see, but significant risks and challenges. Cultural and social practices have potent influence on workplace design that has been generally overlooked by both the design and the research communities (Spreckelmeyer, 1995). As we blithely consider the 24/7/365 economy to be the new environment that businesses live with, or die, these broader implications are more important than ever. Are we creating a world we really want to live in?

The Role of Work Environment Research

The proper role of the environment-behaviour research community is not to tell designers what to do, but to determine how non-designers perceive, assess, and use their environments, and to communicate this knowledge to designers (Kaye, 1975). Designers with this understanding of people in their environments should be able to create spaces that fulfil the occupants' complex needs, expectations, and desires.

One of the embarrassments of the environment-behaviour research community is (or should be) the lack of progress made in the past 15 years. In 1985, the Architectural Research Centers Consortium organised a workshop on "The impact of the work environment on productivity", held at the AIA in Washington, D.C. (Dolden & Ward, 1985). Many of the most prominent researchers from environmental psychology, ergonomics, environment-behaviour research, design, and building science attended this invited event. With the exception of the pace of technological change that they did not foresee, their conclusions about the important issues are disappointingly familiar: changing work process will stimulate change in the built environment; design and research in the new conditions require a broader range of participants and disciplines; and, clients need and will demand more and better indicators of how the physical building contributes to individual and organisational performance (p. 366-373). The disappointment comes in the realisation that the research community has not advanced far in providing high-quality, peer-reviewed empirical or theoretical advances beyond these general statements.

[†] For more information about this project, please visit our WWW page: http://www.nrc.ca/irc/ie/cope.

The broad environment-behaviour research community, of which I am a part, can and must do better. Although there are continual demands to demonstrate that physical environmental conditions influence the bottom line, I know of no convincing project that makes this link clearly. Productivity is a very complex problem; even the very word is often misused. Colloquially when we speak of productivity we often mean 'how much work I get done in a day', but for organisations the real need is for organisational-level data, whether output revenues exceed input costs. At this level the influence of avoided costs, such as reduced recruitment costs because of higher retention rates, or lower medical-benefits costs because of reduced illness, can be factored in, as they should be. Individual-level analysis and relation to micro-level physical conditions holds very limited promise in itself to address this question (Rubin, 1987).

We also remain woefully ignorant about optimal physical conditions in workplaces, and by optimal I mean in the sense that they meet the broad set of human needs. What are the lighting conditions that people prefer, and how much influence do they have on satisfaction or performance? How do ventilation rates affect comfort, satisfaction, or health? Most importantly, how do these individual conditions interact - or do they? What are the operational characteristics of a well-maintained building, in which conditions remain at a high level of suitability? Finally, given a wide variety of ways in which to design, install, and operate systems that provide suitable conditions, which is the most cost-effective, in lifetime cost including energy use? Any answer that a consultant -- even the best, most experienced in the field-- gives to these questions today, can only be preliminary. In most areas of investigation the specific information does not yet exist, although it's possible to estimate from existing research that improving indoor environments can be cost-effective (Fisk & Rosenfeld, 1997).

However, the contributions from the research side are not limited to these applied-academic questions. Accountability is among the demands that corporate boards and government agencies alike face, and the social science research community has the methods and tools to evaluate design success. Program evaluation is a well-established speciality with sound methods for demonstrating the success of interventions, which could include design and physical changes to workplaces (Cook & Campbell, 1979). These techniques could be applied both to demonstrate the effectiveness of changes to the physical workplace for organisations, and of changes to the design process for firms. Such an approach could help to validate innovations in office design, smoothing their acceptance by the corporate community.

Conclusions: Future Design for People

At age 90, Peter Drucker has observed many failed predictions of the future, and we should heed his warning that prediction is pointless (Drucker, 1995). Actions we can take now will enable us to make a better future. Although the forces of change are strong, we would do well to focus on the constancy than on the change forces. The change forces, by their nature, could be gone tomorrow; the constancy forces, human nature, will always demand attention. The person in the space, their needs and desires, should be the focus of design for offices today and for the future. Some of the specific needs and desires will change, but not all of them. With an orientation towards the quality of the person's

experience of the space as they live in it, the designer will never fail. Kent Spreckelmeyer expressed this eloquently:

> ...visual images of what work should be like in the age of information...[involve] a realisation that human beings will not live out their future worklives in a virtual fantasy of kinetic computer images and nomadic wandering, but rather they will be attracted to places that bring joy to the senses, a feeling of temporal continuity, and meaning and purpose to the nature of their work.
> (Spreckelmeyer, 1999, p. 265).

Bring joy, meaning, and purpose to us, and we will achieve great things in our new offices.

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