# DO INNOVATIVE WORKPLACE CONCEPTS WORK FOR PSYCHIATRIC CLINICS?

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## Introduction

In CABE and BCOs' (2005) review of literature on the impact of office design on business performance, one of their recommendations for tenants and occupiers is "Shift from thinking primarily about the design of individual workplaces to creating the collective environments that are more appropriate for knowledge work". This and similar statements about the positive effect of collaborative workplace concepts on business performance and productivity have led large number of organisations to abandon their cellular office workplaces and introduce workplace concepts where communication and collaboration are considered a key element of work effectiveness. Organisations have ceased to focus on individual productivity and performance, and now rely on teams to grapple with complex problems whose solutions depend on expertise from more than one individual, discipline or department (Becker 2001).

In this paper the author presents the results of a post-occupancy evaluation (POE) of an out-patient psychiatric clinic for children and youth. The clinic's work place concept is a pilot project for both psychiatric and somatic units in a new hospital planned to be built after 2010. The workplace design is an Activity-setting environment[1] with shared office space for administrative work and review of research and theory related to patient treatment, shared spaces for treatment, i.e. work with patients and their relatives, and for formal meetings and counselling. Individual work stations are assigned one to one, while treatment - and meeting rooms must be booked in advance. The top management's motive for abandoning cellular offices for both administrative and therapeutic work

[1] Frank Becker (1999) characterises "Alternative officing" by three different lay-out principles or footprints, and by territoriality and telecommuting: Universal plan offices/work-stations; **Activity-setting environments**; and Team/collaborative environments combined with unassigned or assigned workstations and home-based telecommuting.

and introducing a new workplace concept was two-fold: More cost efficient use of space, and a more transparent environment to encourage communication and co- learning. Co-locating four (earlier dispersed) units in the new workplace was expected to encourage cross-departmental and cross-disciplinary collaboration. The purpose of the POE was to inform the hospital top management about "how effective and efficient the work place concept is for the clinic's work and activities" as well as "improve the hospital top management's knowledge and understanding about this kind of work place concepts and planning and implementation processes".

## Theory and research

### Effects of innovative workplace concepts on work effectiveness and efficiency

Research results are ambiguous about the effects of innovative workplace concepts on work effectiveness. Based on investigations into the costs and benefits of workplace innovation, van der Voordt (2003) concludes that not only are the findings contradictory and the "hard" data about the effects incomplete; there is also an unclear framework of concepts and a lack of clear, unambiguous methods to put them into operation. There is also insufficient knowledge about the relations between an accommodation and the performance of a user organisation and the interactions with intermediary variables such as organisational characteristics or the nature of the work.
The effects of introducing innovative workplace concepts on job satisfaction also provide a mixed picture (van der Voordt 2003). Critical factors in the *process* seem to be: an enthusiastic initiator, evident objectives, a sound balance between top down and bottom up (user participation), a transparent project organisation, serious consideration of user resistance and proper follow-up care. A sufficient amount of time must be reserved for notifying, assisting and training employees and for managing change processes. Critical factors in the *product* seem to be: the functionality and the perceptual qualities of the workplace and other facilities, and the extent to which a balance is found between efficient and effective working and the fulfilment of all kinds of psychological needs.

Heerwagen et al. (2004) has reviewed the body of research on the links between physical space and collaboration in knowledge work settings. They view collaboration as a system of behaviours that include both social and solitary work. The social aspects of collaboration are discussed in terms of three dimensions: awareness, brief interaction and collaboration. The central conflict of collaboration is as they see it: how to design effectively to provide a balance between the need to

interact and the need to work effectively by oneself? Their review of the research literature shows that features and attributes of space can be manipulated to increase awareness, interaction and collaboration. At the same time doing so frequently has negative impacts on individual work, resulting from increase in noise distractions and interruptions to on-going work. The effects are most harmful for individual tasks requiring complex and focused mental work.

**Methods for studying the user-building relationship**

Approaches to built environment research that incorporate all stages of planning, creating, producing and occupying buildings include for example the Building Performance Evaluation Theory (Preiser & Vischer; 2004) and methods for measuring buildings' serviceability (Davis et al. 1993). An alternative approach is based on the building user's experience. Here Vischer (2008) refers to evidence-based design – using data gathered from users *in situ* to identify solutions to specific design problems, and post-occupancy evaluation (POE) in the form of analysis of building functionality according to feedback from users.

According to Federal Facilities Council (2002) there is no industry-accepted definition for POE, nor is there any standardized method for conducting a POE. Academics and others working in the field has proposed new terms, including environmental design evaluations, environmental audits, building-in-use assessments, building evaluation, and building performance evaluations in an effort to better reflect the objectives and goals of POEs as they are practiced.

Stakeholders in how buildings perform include investors, owners, operators, designers, contractors, maintenance personnel, and users or occupants. The stakeholders' goals and objectives differ. Therefore a POE process can serve many purposes. The purposes listed by the Federal Facilities Council (2002) include societal interests like improvement of standards and guidance, investor/ owner interests like improving programming and design criteria, or generation of information needed to justify major expenditures and inform future decisions. Information generated by POEs can be used for decision-making in the pre-design phase of a new project to avoid repeating past mistakes or to improve building performance throughout a building's life cycle, by identifying and remediating problems or deficits in building functionality. POEs can be used to make designers and owners

accountable for building performance, by comparing performance measures with performance requirements and to aid communications among stakeholders such as designers, clients, facility managers, and end users.

**A user-centred approach to evaluating built environment**

Vischer (2008) claims that since built environment became a legitimate subject of research, user-centred theories have tended to be located somewhere along a continuum ranging between a deterministic definition of the environment – behaviour relationship and one that minimizes the impact of the built environment on the users (social constructivism). According to Vischer environmental determinism continues today in the ubiquitous form of user satisfaction as an outcome measure. She is critical to user satisfaction as a meaningful and measureable behavioural response to features of the physical environment and introduces for example appropriation, sense of territory, usefulness/usability, physical well-being, social interaction, competence, and legibility as more useful outcome measures of how humans occupy space. Vischer finds that the other end of the continuum provides a too simplistic perspective as well, referring to concepts such as defensible space, territoriality, space syntax, neighbourhood, and personal space that are widely accepted and used today. Any user-centred theory of the built environment is likely to be located somewhere between the two extremes, she asserts.

While user-oriented (or sympathetic) theories tend to identify the user as only one part or player in the built environment system, Vischer argues that the user's experience of the built environment is central. The user's perspective provides insight into both process (how it is created) and product (its impact, once built) theories of the built environment. The way to analyze, understand and evaluate ways in which the built environment supports the activities of users, is to explore systematically and in detail the users' experience. Vischer's user-centered theory of the built environment uses support to human activities as a measure of built environment effectiveness – or quality – and thereby assumes that inadequate support to users constitutes a negative situation. She of course takes into account that all user units – individual, group and organization – are susceptible to non-environmental influences that affect the building – user relationship and that time has a direct effect on how well built space supports users. The relationship between users and buildings changes over time and each situation must be studied and assessed on its own merits.

Data yielded by assessment tools, whether in the context of post-occupancy evaluations, design and environmental quality indicators, or building-in-use assessment, can be analysed both for what they say about the users' experience and for what they say about building performance. Vischer (2008) suggests three levels of environmental support forming an analytic framework that can be applied to three units of users, see figure 1.

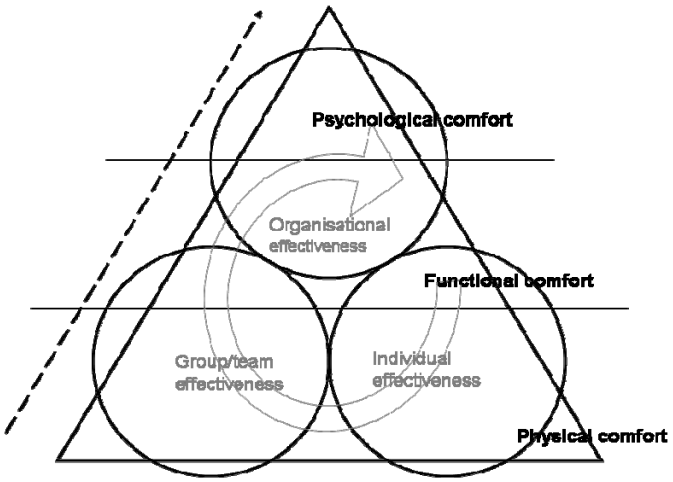


**Figure 1** Analytic framework for assessing the users experience (Vischer 2008)

## The workplace concept of the psychiatric clinic

### The workplace concept

The new clinic concept comprised a co-location of four different organisational units and the clinic management from six different locations, and a radical change of workplace concept. The workplace concept included shared office space as well as shared treatment-, examination and therapy space, electronic booking system for space, cellular phones and portable computers. For the therapist this meant a radical change from using their individual cellular offices as the main space for therapy, small meetings and other tasks related to work, to sharing office space with 3 to 6 persons, using small shared cubicles for telephoning or concentration work, and booking space for treatment and examination of patients and therapy, counselling and meetings with colleagues. The new clinic was dimensioned for 70 employees. At the time of the evaluation 55 people worked in the clinic.

An existing four story building that formerly housed shops on the ground level, offices on the next two floors and three apartments on the top floor, was rebuilt for the purpose. On the top floor one

apartment was kept for family treatment and one was converted into lunch room and space for meetings involving all units. The ground floor held the reception area, space for a service/secretary unit and office and treatment and therapy space for an infant poly-clinical team. The second floor held office space for two poly-clinical teams for children and youth and the third floor for two specialist units and the top management, and rooms for treatment, examination and therapy, counselling and meetings. (Floor plans are shown in annex).

Footprints of former use layouts are clearly visible in the new workplace design. Two, alternatively four former cellular offices were made into one three- or six persons office space and one or two concentration/telephoning cells. The three-person office space left two workstations by the windows and one in the passage by the entrance, too narrow for a workstation. Treatment rooms and office space were not separated physically but were placed adjacent to each other. Both sharing office space and mixing space for treatment and office work implied confidentiality problems. As the office workspace occupied most of the natural light facades a substantial part of the treatment areas ended up without daylight. The original footprint also gave the treatment rooms an unsuitable format. Refurbishing existing buildings with a scarce budget often creates second-rate solutions. Environmental conditions and sound insulation in the new clinic turned out to be a problem.

**The planning and implementation process**

The briefing and implementation process was a top-down process. The principal of the project was the CEO of the Hospital. The top management and hospital board made the initial decision to go for the new workplace concept. The clinic management who for long wanted to develop a more transparent environment for treatment and collaboration was positive to the concept and loyal to the top management decision. The council of patient representatives supported the new and more transparent clinic concept, and the co-location of units, improving the accessibility for the patients. The hospital's real estate department organised the briefing, design and building project.

The decision to aim for an alternative workplace concept was however met with scepticism and resistance from the clinic's professional employees. Due to the employee resistance it was agreed to carry out a post-occupancy evaluation of the workplace concept in use.

## The evaluation

### Evaluation methods

The methods used in the evaluation of the clinic are well known methods for conducting post-occupancy evaluations: user surveys, interviews, and structured walk-through (Vischer 2001). The purpose of the evaluation - to inform the hospital top management about "*how effective and efficient the work place concept was for the clinic's work and activities*" - guided the design of the survey methodologies. Supplementing the methods mentioned, electronic booking recordings of shared treatment and meeting space were supplemented by individual space use recordings including time, activity and participants, 6 and 12 months after the move. At the same two moments, therapists were also asked to record time and activity at their workstation. This was done to inform the evaluation about how much and for what, different kinds of spaces were used.
Also productivity data (patient therapy sessions per therapist) from two half-year periods before the move and one half-year period after the move were gathered. In addition spatial data (net m2) in the old workplace settings and the new clinic was compared.
During the first half year of use an electronic mail-box was established to register users' experience about how the building performed, both ergonomically and related to their work tasks.

The commission also included "*improving the hospital top management's knowledge and understanding about this kind of work place concepts and planning and implementation processes*". Therefore process questions were included in the questionnaire as well as in the interviews, and document studies, both text and drawings, included in the POE.

A reference group of users (no leaders) both therapists and secretaries, assisted in the evaluation preparations. This was initiated to create incentives for user participation in the POE, as well as for building trust between the evaluators and the employees.

### Survey results

The electronic questionnaire covered six main issues: Work requirements; Well-being and Health, Safety, Environment issues; Use of space; Workplace design; Interaction and social belonging;

Planning and implementation process; and Work efficiency and effectiveness. The number of employees (52 of whom 98 % responded) allowed for qualitative as well as quantitative questions as well as comments on every question.

The organisational units have different tasks and also work differently. Also professional and cultural aspects influence their assessment of the workplace. Therefore data are aggregated on two levels: total and unit (arithmetic average). Aspects were rated on a scale 1 – 5, 1 representing “to a low extent” and 5 “to a high extent” and 3, 7 representing acceptable or medium agreement or satisfaction.

The user assessment of the workplace concept turned out very negative on all six main issues surveyed. The clinic management and the secretary/service unit were generally much more satisfied with the work place concept than the therapists.

Assessments of the workplace concept in relation to therapeutic and other work requirements

Most positive rating (to a medium to high degree) concerning the work place concept’s ability to support their work gave the units to the following aspects:

- Collaboration with colleagues
- Sharing of knowledge

Most critical rating (to a very low degree) gave the units concerning

- Individual concentration work

In their comments employees point at factors which explain their dissatisfaction or satisfaction with the new work place concept and physical solution:

- Finding it difficult working efficiently in the cramped three-person office space
- Lack of flexibility in therapeutic work when having to book rooms for treatment, due to
    - Lack of available and suitable rooms
    - Improvisation difficult or impossible
- Functional mix of therapeutic and office space create confidentiality problems
- Lack of informal meeting places for therapists

The different units differed in their ratings of the work place concept's ability to support different aspects of their therapeutic work from "to a very low degree" and up "to a medium degree". This of course mirrored the units' different work tasks and practices revealed through interviews and walk-through.

Assessments of the workplace concept in relation to well-being and HSE

The data clearly shows that the therapeutic units neither feel happy nor think that the work concept contributes to a good social and professional work environment. Apart from the clinic management, all employees agree that the work place concept results in too much noise and disturbances and makes them feel tired at the end of the day.

Use of space and assessments of the design of the work space

The survey results confirmed space use recordings, f. ex. that rooms without were used less than rooms with daylight. The survey also confirmed walk-through data about considerable dissatisfaction with some of the treatment rooms with regard to their shape, look, size in relation to function, their suitability for treatment and their location in the building. Comments both in the survey and walk-through qualified that small and narrow rooms without daylight were unfit for psychiatric treatment.

Assessment of the work place concept concerning interaction and social belonging

Physical proximity and shared formal or informal meeting spaces were emphasized as very important for interaction. Among statements were:

> "Shared corridor with the top management and other units/teams contributes to us meeting while on the move between offices and therapy rooms"
>
> "Sharing therapy rooms makes us move in each others' "homelands" "
>
> "Physical proximity makes it easier to drop in and ask questions"
>
> "Physical proximity makes threshold levels for taking formal and informal contact about professional and other matters lower"
>
> "Easy and simple accessibility to colleagues"

Social and professional contacts with colleagues, social and professional discussions were answered by many on a question about what they liked best about the work place solution. Among statements were:

> "I'm happy that it's so easy to disturb and bother colleagues here, it makes it easy to discuss professional issues"
>
> "Proximity to colleagues, due to moving around in the same area and constantly bumping into each other. This way sharing of office and therapy space is a benefit"
>
> "Surprisingly positive to share office space, strengthens informal contact, stimulates the social"
>
> "To share office space makes it possible to have short, pleasant conversations or lines when we are all there"
>
> "To meet people in the corridors. It's less lonely than before, more social being together with everybody in the building"
>
> "More rapid access to co-workers and colleagues when I need them"
>
> "To exchange information, share frustrations, and that it's easier to make contact with others"

The answers to the question "*when you think about your work, what do you miss most in the physical work environment*" show a division between employees who like or dislike the workplace concept.

This statement covers a wish that the majority of the employees express:

> "An office where I can be alone and make telephone calls and talk to people without having to book a room and make allowances and which give some flexibility"

Employees who see more advantages than disadvantages in sharing office and therapy space point to shortcomings in the concept:

> "Offices and therapy rooms in general are too small and indoor air ventilation should be improved"
>
> "Areas for patients and office areas for therapists should be separated"

> "Miss more good and suitable therapy rooms with windows, flip-over, and AV- and other equipment that works"

Assessments of the planning and implementation process

The employees' assessment of the planning and implementation process paints a picture where they were informed about the workplace concept but feel they had no influence on the solution. In their opinion the hospital management did not give clear arguments for choosing the specific concept, the clinic employees were asked for advice only to a limited extent and their opinion not taken seriously. In their individual comments the employees point to what they regard as poor process competence and to efficiency goals only:

> "The whole process deviate from known theory about change processes"
>
> "Unbelievable poor process work by the top management of the hospital"
>
> "We had the impression that only money counted, that is: as many employees on as limited m2 as possible"

Assessments of the workplace concept in relation to professional goals for the clinic

None of the therapeutic units perceived the work place concept to be an appropriate step towards the following five professional goals that were listed: "*Improved -; more efficient -; and more uniform patient treatment; professional reputation of the clinic; and a workplace that many would like to belong to*". Only "*more professional transparency and exchange among colleagues and disciplines*" were rated a bit higher than the other goals.

Assessment of what is functioning best in the new workplace concept

The following two main aspects are mentioned most often:

1. *The work place concept is a step towards improved professional practice*

> "The sharing of office space, the co-location of units, meeting colleagues in the corridor and during lunch, bumping into each other when they move between office and treatment space, easy access to the clinic management make communication and informal professional exchange easy, on all levels".

"More informal discussions and cooperation with colleagues and more professional exchange will have positive effect on treatment of patients"

"The welcoming (both physical and social) reception of the patients and relatives on the ground floor is functioning very well".

"The centralized and very service minded secretarial unit is functioning superb".

2. *Improved social environment*

   The new proximity between units, the canteen where everybody meet for lunch, meeting colleagues in corridors on their way to meetings or treatment, the sharing of office space make colleagues working in other and even within units more visible than before. All this is assessed to improve the social environment.

<u>Assessment of what is functioning most poorly in the new workplace concept</u>

The assessments come in two groups:

*Assessment by employees who dislike the concept*

- Increased demand for planning at the sacrifice of work flexibility, both regarding administrative and patient work
- Feeling I'm disturbing somebody all the time
- Frustration because I feel that I don't get my job done because I can't concentrate due to many disturbances

*Assessment by the employees who like or accept the concept*

- Three person offices are too small for three persons and the workplace close to the door is not fit for working
- It is difficult to do concentration work and also problematic to handle telephones when everybody are in the office at the same time
- The booking system does not function "optimum"
- It's difficult to find a therapy room that is suitable on short notice
- The mixture of treatment and office space is not a good solution
- Inefficient sound insulation between rooms create confidentiality problems

### Work practice and production data

Both interviews and walk-through were useful for identifying work practice, and professional attitudes or other factors influencing work practice. The dominant factor influencing work practice turned out to be the economic reimbursement system financing the clinic's work. As reimbursement only covered one therapist per treatment, treatment activities were usually one therapist to one patient with or without relative(s). Work at the office workstations was individual concentration work related to treatment or research. Only the Family treatment unit worked as a team and was occupying a team office space. The interviews revealed slightly different practises between the units concerning collaboration and concentration work. The predominant pattern however, was that formal meetings were used for collaborative activities, either one to one or two persons, or group meetings.

Two different individual recordings during the evaluation showed that the therapists spent a substantial part of the working week[2] at their individual workstation, at a maximum about 70 %, at an average between 45 - 50 %.

The number of therapeutic activities per professional man labour year was higher in the first half of 2008 than in 2007 but considerably lower than in the first half of 2006. The resistance and frustrations among the employees about moving into the new workplace concept in June 2007 may explain the 30 % decrease in production per man-labour year in the first half of 2007. Production increased in the first half of 2008, but there's still some way to go to reach the 2006 production level.

Quantitative comparison of net functional space in the old and the new workplace settings showed that the amount of net functional space saved was only 11 % compared to earlier space use. Gross space recordings would have shown a much higher percentage.

## Do innovative workplace concepts work for psychiatric clinics?

Leaving out the clinic management and secretaries, it is clear that the users' assessments of how well the workplace concept is supporting their professional activities at work are consistently on the "to a low", or close to the "to a medium extent" part of the scale used in the survey. Several qualitative comments related to the survey questions, interviews and structured walk-through support the quantitative assessment results.

[2] Working week 35 hours

The most critical assessment of how well the workplace concept is supporting work activities is related to individual concentration work. It is known from other studies that workers in open office environments tend to judge noise and other disturbances to be a primary source of discomfort and reduced productivity (van der Voordt 2003, Heerwagen et al. 2004, Vischer 2007). The recordings show that the therapist spent a substantial part of their work hours doing individual concentration work at their workstations, which of course makes this a critical factor. The employees reported on high degrees of fatigue and workspace stress, which of course influenced their assessment of the workplace concept.

The physical and functional shortcomings of the design of the individual workspace added to the users' critical assessment of the workplace concept: air and temperature problems, the person at the workstation by the door being bumped into every time somebody passed through the door, the telephone/concentration cells assessed as unfit for work, telephone calls requiring a move to the telephoning cell carrying papers, catalogues, phone and personal computer and disturbing and/or bumping into colleagues on the way. Telephoning both in the office and in the corridor was restricted because of confidentiality.

According to Vischer (2008), if users indicate that environmental features or conditions support people and what they are doing, the built environment is effective and functional (functionally comfortable). It is evident from the user's assessment of the new workplace concept that the solution is neither physically nor functionally comfortable, and may not be suited in its present format.

However, users bring feelings, memories, expectations and preferences into their assessment of functional comfort. Therefore Vischer included psychological comfort in her analytical framework for assessing the user's experience (figure 1) in the rating of how well the built environment performs. Both survey results and interviews indicate that the top-down decision process and poor communication of the work related aims and purpose of the workplace concept created negative

and hostile feelings among the employees towards the concept, and thereby added to the critical user assessment of their new work environment.

Still, it is too easy to write off innovative workplace concepts as unsuited for psychiatric clinics. Despite the overall critical assessment of how well the workplace concept supported their work, both quantitative and qualitative answers state positively that the workplace concept supports, directly or indirectly, collaboration, communication, knowledge exchange and co-learning. This was the clinic management's main motive for supporting the concept and one of the goals of the hospital top management.

**Conclusion**

Apart from the physical and functional shortcomings of the workplace design, the concept as such may have worked better if the clinic's work modes were collaborative and not individual. And if individual working methods are necessary, the workplace concept may have worked better giving the therapist a choice of small transparent but sound proof cellular offices, grouped around a common space for informal meetings and socialising. In both cases, treatment space of course can be and should be, shared.

The critical *process* factors when introducing innovative workplace concepts are well known by now (van der Voordt 2003, Arge & De Paoli 2000, Becker 1994). The implementation process in this case seemingly lacked many of the characteristics of a successful process: it did not have an enthusiastic initiator, the objectives were not communicated in a clear way, the planning and implementation process was top-down and user resistance was not dealt with successfully.

The poor *product* may be the work of an unprofessional designer and/or an unfit existing building as a starting point. The survey data on the planning and implementation process also imply that the design briefing process had serious shortcomings, too. Brown (2001) claims that despite research and theoretical development in the field of briefing or programming, it continues to stay a simple and mechanistic activity which concentrates on the physical delivery and overlook the more comprehensive strategic questions related to the project. Research and development asserts that

programming is a process closely connected to organisational strategies and that programming and development of work place design are concurrent processes (Barrett and Stanley 1999; Fristedt and Ryd 2004; Blyth and Worthington 2005). This was not the case in the planning and implementation of the psychiatric clinic described in this study.

## Reflection on the contribution of my research findings to the future research agenda and the meaning for business practice

My research findings point at the following research and practice issues:

Research has shown again and again that innovative workplace concepts are supportive to collaboration, communication, knowledge exchange and co-learning in work, but are not supportive to individual concentration work. Despite this fact business practice proceeds to design and implement workplace concepts that are predominantly focussed on collaborative practises. There is a need for research and development comparing the effectiveness and efficiency of different workplace concepts, including cellular office concepts. A user-oriented approach addressing Vischer's (2008) three levels of comfort, physical, functional and psychological may be useful.

Research based practice seems to be scarce in real estate and facilities management. Post-occupancy evaluations informing programming and design processes are scarce as well. Until research and post-occupancy evaluations become an integrated part of practice, workplace concepts and buildings will continue to provide users with less physical, functional and psychological comfort than is necessary.

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