Evidence-based workplace design and the role of end-user participation

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INTRODUCTION
Since 2003, the Center for People and Buildings in Delft (CfPB) has been systematically collecting data about employee satisfaction in the work environment, using the Workplace Diagnosis Instrument (hereafter referred to as WODI) toolkit (Maarleveld, Volker and Van Der Voordt 2008). Data collected in this manner is then applied to the development phase of an office concept. The CfPB has developed and tested instruments in areas such as formulation of goals and preconditions (Hartjes et al 2008), workplace needs (van Meel et al 2006, Koppejan 2007) and workplace use (Martens et al 2008). All of these instruments require a greater or lesser degree of participation by the end users. This article describes the effects of various forms of participation for the facility manager and the workplace designer, using a project utilised as a case study by the CfPB, as well as descriptions of the participation and the various instruments.

Participation, theory and advantages

Who, what and why
Participation simply means taking part in something. In this case, that 'something' is workplace making. The word 'participation' implies that people are involved, but it does not indicate which people or their degree of participation. De Swart (2001 in Bruyne 2007) states that there are various forms of participation, both in terms of the people involved as well as their degree of involvement. Swart uses the term 'direct participation' when all end-users participate in the change process. If only a select group of representatives of the end-users are involved, the term 'indirect participation' is used. Swart uses four terms to describe the degree of participation: knowing, talking, thinking and deciding.

There are two reasons for participation in most renovation and new construction projects:
*   increasing employee satisfaction with the final product,
*   utilising the knowledge and expertise of the end users' needs and desires.
These reasons determine who participates in the development phase of workplace making, and to what degree they do so. In this context, Boedeltje and Graaf (2004) discuss attention for the process and the product. Hoekema et al state that a correct process can result in a positive evaluation, even when the parties do not agree on the product (1998, in Boedeltje and Graaf 2004). This also applies the other way around: the final evaluation of the change can be positive due to one of the forms of involvement. Studies by Edelebos show that participants often emphasise their own contribution and the processing of their contribution in the final result (2000, in Boedeltje and Graaf 2004). A study performed by Tops (1999, in Boedeltje and Graaf 2004) indicates that a successful process is a necessary but not in itself a sufficient condition for a successful product. If the process does not run properly, it is usually difficult to achieve the desired result. When the process does run properly, however, this does not in itself guarantee that the product will be successful. The participants' own contribution to the change and the

recognition of that contribution in the product seem to play a significant part in the success of the project.

Tools for workplace making

WODI toolkit
The WODI toolkit enables various methods of measuring whether the housing goals have been met, at various times in the process. It also tracks any positive or negative unintended effects. The toolkit consists of four instruments: the WODI standard instrument, the WODI-light instrument, the Space Utilization Monitor (SUM) and the (dis)Satisfaction indicator. The first two assess the employees' satisfaction in their work environment. The WODI light examines the main factors, while the WODI standard delves into their underlying aspects. SUM measures the actual use of the workplaces. The (dis)Satisfaction indicator enables organisations to compare the satisfaction scores for their own building to the average of all other buildings measured using WODI light. Depending on the goal of the research, one or more of the instruments may be used. The WODI instruments utilise various research methods, such as questionnaires, interviews, group discussions, documentary research and workshops. The employees are invited to give input and to think along with the designers.

Figure 1: A page form the WODI-light questionnaire

Integrated Workplace Roadmap (IWR)
Undesired effects of workplace concepts ("it doesn't work the way we expected it to") are often caused by poor decision-making in the initial and definition phase of a housing project. IWR 2.0 (Hartjes et al 2008) deals with the process of realising the housing. This model can be used to determine the approach and goals and to identify an appropriate decision-making strategy. It optimizes processes through a systematic focus on the involvement of the various parties. The model makes choices regarding the participation of end users more explicit.

Workplace game

The Workplace game illustrates the change in office users' behaviour in a contemporary and flexible work environment. It brings different consequences of utilising a particular concept to the fore. The Workplace game is a board game in which four to six players walk through an imaginary office. Playing cards pose different multiple-choice questions about common situations in the new office environment. The players are stimulated to form opinions about work-environment situations, to share those opinions and to come up with common solutions. A player first answers the questions individually, and then the players discuss their opinions in order to come to a consensus, if possible.
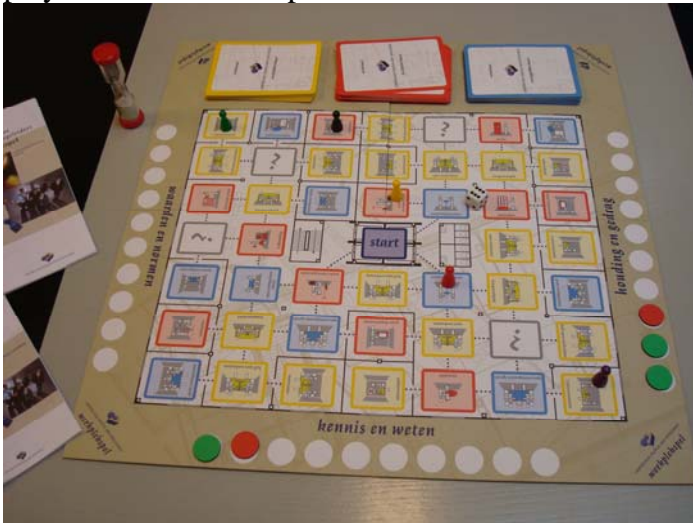

Figure 2: Workplace game

The Workplace game induces the employees to think about the consequences of their behaviour. They indicate what should and should not be desirable; instead of having management make a rule about desired practices, the employees create a form of etiquette themselves. Playing the workplace game seems to be a simple method for involving employees in the new office housing. The game addresses all four degrees of participation: knowing, talking, thinking and deciding.

Application of theory and tools

Case study in a large public organisation
The instruments listed above have been utilised in a public educational organisation (Maarleveld en Martens 2008). The organisation will move into a new building in 2011, and wants to capitalise on the opportunity to change the way they are housed. The housing of the organisation must be *process-oriented*; this means that the work environment must be organised based on the work processes and the business processes. The organisation also wishes to achieve a *better, more pleasant and less expensive* housing solution. In order to elaborate the goals 'better' and 'more pleasant', the organisation has opted for a new construction process with a great deal of employee and management participation. The first step involved three departments creating a pilot environment over the course of one year. The experiences in these three pilots will be taken into consideration in the search for optimal housing for the other departments in the

new building. The choices made in the pilots can be evaluated to optimize the housing before realising the larger-scale new construction. Users also get the opportunity to familiarise themselves with a new office concept.

Each pilot utilised indirect participation. A workgroup was formed consisting of a facility manager and department staff, including the manager. The workgroup was informed about the general goals and preconditions for the housing project. They then formulated department-specific goals based on the IWR. The work processes and activities were mapped out and the workgroup members visited two innovative offices. Using WODI light, they measured the department staff's satisfaction in the old situation. With the help of the (dis)Satisfaction indicator and the goals and preconditions for the housing programme, they determined the desired level of satisfaction and acceptable levels of dissatisfaction. Using the information gathered, the work groups and the designer(s) determined the number and type of workplaces needed. The architect then designed the interior, and the designs were presented to the workgroup for correction. The three pilot environments were then realised. The workgroups used the Workplace game to evaluate the use of the new environment (Maarleveld en de Been 2007). At the moment, the departments have been working in their new environments for three months, and the employees' experiences will be evaluated using WODI light.

The three workgroups for the pilots involved and informed their colleagues in different manners. The end users' acceptance of the work environment differs per pilot. The first pilot workgroup kept their colleagues informed each week and involved them in gathering the data and requests. This resulted in direct participation. Before the work environment was realised and the employees were able to move into their new workplaces, the majority of the department was enthusiastic and willing to start working in the pilot situation. Upon the introduction of the new environment, employees were full of praise for the concept. As such, the process, the content and the final product resulted in satisfaction.

Figure 3: Ideas for the workplace made by the pilot department

In the second pilot, the process did not go as smoothly. It involved a large department made up of different teams that all do the same work. In the initial phase, it was unclear which team would be housed in the pilot situation, and for a long period it remained

unclear who needed to be informed and involved. A workgroup was formed consisting of the department manager and employees who eventually turned out not to be housed in the new environment. The workgroup had a hierarchical culture: the employees were kept informed, allowed to provide input and to propose ideas, but the manager took all the decisions. The participation was indirect. The end users of the new concept were only involved in the project immediately before moving into the new office concept. The workgroup used the Workplace game to become familiar with the environment. The support for the new environment was low, and the department was generally dissatisfied. This dissatisfaction diminished slightly, however, after playing the Workplace game, when the department adopted more of a 'wait and see' attitude. This changed dramatically after the team moved into the new concept. The team manager stated that the majority of the employees were happy with their new work environment and its new possibilities. There was no employee participation in this pilot, but due to the involvement by the department employees in the workgroup it was possible to create a final product that the employees were enthusiastic about. In this case, it was the final result that created support for the concept.

Figure 4: Pause area of one of the pilots

The third pilot took place in an executive department. The workgroup was enthusiastic about the work, but had difficulty dealing with the freedom they had to gather the necessary information; the members repeatedly made comments stating: '*Just tell us what we have to do, and we'll do it'*. The workgroup informed the other department employees about the progress of the project only once per month. During the discussions with the architect about the design, the workgroup found it difficult to focus on the functionality of the concept; the appearance and atmosphere provided by the design distracted their attention from the type and number of workspaces. A minor organisational change occurred during the development of the concept, with consequences for the use of a number of workplaces. As a result, the use of the workplaces no longer matched their original purpose. The outcome of the Workplace game indicated a large difference in the workgroup's acceptance of the new work environment. One third of the employees were very enthusiastic, one third '*would wait and see*', and the last third were negative about the concept. The negative group and the enthusiastic group both shrank once the department moved into the new environment. In this pilot, neither the participation process nor the final results were optimal.

Figure 5: Playing the workplace game with a pilot department

Conclusion

Employee participation during workplace making appears to influence the office concept as well as the satisfaction with it. The CfPB instruments prove to be effective tools for this process, offering the facility manager support and enabling him/her to gather the appropriate information from the departments. Indirect participation can produce good end results and employee satisfaction, while direct participation has a positive effect on the process. The participation forms of knowing, talking and thinking appear to be necessary to create support, but deciding does not appear to be as necessary as long as the workgroup's ideas and choices can be recognised in the final product. The degree of freedom in participation seems to be dependent on the participants. The facility manager is to be aware of the workgroup members' qualities in order to maximise their input. Focus on the concept corresponding to the workplace needs remains vital to recognition and acceptance of the final result.

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