FACILITATING NEW WAYS OF LEARNING IN DUTCH HIGHER EDUCATION

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ABSTRACT

Literature shows that 'new ways of learning' cause a shift in learning settings with a growing attention to facilitating autonomy, interaction and knowledge exploration anytime, anywhere. These trends show evident similarities with developments in office environments known for as 'new ways of working'.

The purpose of this paper is to explore how facility managers in Dutch higher education perceive developments in learning and teaching in order to keep the learning facilities aligned to the changing demands of modern education.

The study first describes the similarities between existing theory of new ways of working in offices and new ways of learning in educational environments, resulting in a conceptual framework that links learning space to new ways of learning. The framework is empirically explored based on interviews with facility managers in 14 Dutch Institutes for Higher Education.

The findings show that new ways of learning requires an integral approach that considers new ways of education, the new student, digitisation of learning and teaching and new learning space. The study presents ten points of attention to pro-actively cope with new ways of learning in higher education institutes.

The results of the research contribute to a better understanding of the alignment of learning space to the evolving needs that come from new ways of learning supported by advanced information and communication technology (ICT) and can be used by facility managers and corporate real estate managers to support strategic decision-making.

Keywords

Space management, learning spaces, new ways of learning, higher education

1   INTRODUCTION

The field of facility management shows an increasing interest in the educational sector and the way educational processes can be accommodated and serviced (Dunyar, 2010; Kok et al., 2011; McConnell & Alexander, 2012; Van Sprang, 2012). That makes sense because at the start of the 21th century education stands for substantial changes (Johnson et al, 2011; Robinson, 2010; Collis & Van der Wende, 2002). Today's schools educate young people for the knowledge economy of tomorrow and they must teach them in 21st century skills (Voogt & Pareja Roblin, 2010). New learning outcomes, new kinds of learning processes and new instructional methods currently stressed in psychological and educational theory have resulted in new ways of learning (Simons et al., 2000). There is a shift from a supply-driven approach of traditional learning to new, more customise and demand oriented ways of learning (Van Aalst & Kok, 2004). Students (have to) transform into self-directed learners who take responsibility for their own learning process, learn how to build and use networks, cooperate with others and use information and communication technology (ICT) as a tool to find resources that can help them to achieve their learning goals. The role of school is changing from a place of instruction to a place to produce learning (Barr & Tagg, 1995).

The developments in the education sector are reminiscent of the changing needs of knowledge workers in the early 1990s, known as new ways of working (Vergunst, 2011). In new offices work is characterised by a high need for autonomy and interaction of the knowledge worker (Duffy, 2000). The developments in ICT make it possible to work 'anytime, anyhow and anywhere'. New ways of working have resulted in a shift in the appearance of workspaces. In new offices space is designed to stimulate meeting. Office buildings progressively look like grand cafés, restaurants and trendy clubs combined with flexible non-assigned activity-based places for concentration work, formal and informal meetings, and all kinds of information-processing activities.

These developments may lead to the question if and how school buildings and learning environments will undergo similar changes as workspace settings in modern offices? The present study aims to explore the alignment of learning space to new ways of learning in higher education from the facility management perspective, making use of theories of new ways of working in office environments.

2   FRAMING NEW WAYS OF LEARNING

In literature and practice of facility management there is a persistent attention for workplace innovations and new workplace design (Becker, 2004; Greene & Myerson, 2011; Maarleveld, Volker & Van der Voordt, 2010; Van Meel, in Jensen & Nielsen, 2012). Research concerning workplace design not only focuses at the physical office environment. From the beginning publications like 'Workplace by design' of Becker & Steele (1995) and 'The New Office' of Duffy (2000) tried to picture a holistic view of workplace design by linking place to people and process and discussing the subject in relation to developments in ICT, work processes and individual preferences of office users.

An important characteristic of new ways of working is that developments in ICT changed the time - place nexus, resulting in a concept of *hybrid spaces* where knowledge workers have the choice for synchronous and asynchronous interaction on different times and at different places (Kojo et al, 2011). New ways of working are associated with several 'space' dimensions, like physical, virtual, social, emotional, mental space. In essence there are four focus points in terms of new ways of working formed by four opposite values:

organisational focus   ◄───────►   focus on the individual knowledge worker

physical workplace   ◄───────►   virtual world

These four focus points lead to four basic principles of new ways of working, underpinned by literature (see table 1):

• The organisational focus is concerned with changing roles of and relationship between managers and employees. Managers have to manage knowledge workers based on results (output-oriented leadership).

• The individual focus refers to knowledge workers that are self-managing and have varying needs for autonomy and interaction in their activities.

• The virtual world is the enabler of working anytime and at any place and makes free and unlimited access to information possible.

• The physical workplace has to be tuned to knowledge workers being able to work anytime and anywhere. The office workplace supports the need for meeting others and also the need to do concentrated work.

Concerning the four focus points (organisation/individual and physical/virtual) literature shows that there are many similarities between new ways of working and new ways of learning (table 1).

Table 1 Basic assumptions of new ways of working and new ways of learning - comparison from literature

	New ways of working	**New ways of learning**
Organisation	Changing roles and relationships between managers and employees (Baane et al., 2010). Output-oriented leadership: knowledge workers are managed on results (Baane et al., 2010).	The teacher doesn't have the monopoly on knowledge. That leads to new didactical forms and a shift in the relation teacher – student. The role of the teacher is changing from 'the sage on the stage to the guide on the side' (Martin et al., 2007).
Individual	Distinction of different types of knowledge workers (Green & Myerson, 2011). Individualisation of the employee: not one size fits all, but one size fits me (Baane et al., 2010).	Characterisation of new learners with different needs and preferences: • homo zappiens (Veen & Vrakking, 2006) • net generation (Oblinger & Oblinger, 2005) • digital natives (Prensky, 2010) Individualisation of the student. From one size fits all towards individual learning routes (Veen & Vrakking, 2006).
Physical	Diversity of spaces that support the need for autonomy and interaction (Duffy, 2000). The new office (Van Meel, 2012). An increasing use of third places (Oldenburg, 2001; Fruianu et al., 2011).	Traditional class room space replaced by variety of learning settings in school buildings and at campuses (Fisher, 2005; SFC, 2006; JISC, 2006; Beckers et al., 2013a).
Virtual	The virtual organisation (Sotto, 1997). Development of the virtual world in knowledge work like Skype, video conferencing, E-business; groups and networks in the cloud (Kojo et al., 2011).	Development of the virtual world in the class room like E-learning, distance learning, web lectures; social media used in education; digital learning environments; groups and networks in the cloud (Jamieson et al., 2000; Oblinger & Oblinger, 2005; Veen & Vrakking, 2006).

Yet, new ways of learning can be framed in a figure that builds on the four opposite values: 'physical/virtual environment' and 'organisation/individual'. The four areas that appear are defined as: 'new learning space', 'digitisation of learning and teaching', 'new ways of education' and 'the new student' (figure 1).

In the next sections this paper explores how the four areas of new ways of learning come together in practice and in what way the separate fields are considered in the alignment of physical learning space to the changing demands of education.

physical

NEW LEARNING SPACE

organisation

NEW WAYS OF EDUCATION   Matching   THE NEW STUDENT

individual

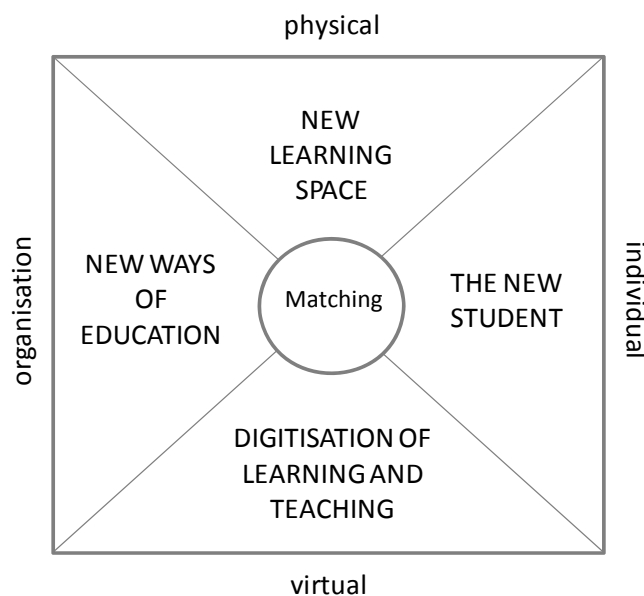DIGITISATION OF LEARNING AND TEACHING

virtual

Figure 1 New ways of learning framework

4   EXPLORATIVE STUDY

4.1   Methodology and data analysis

For the practical exploration of the framework interview data were used of a PhD-study from the first author into the effects of new ways of learning on learning space in higher education. First findings of this study will be published in Beckers et al., 2013b.

Interviews were conducted in Dutch Higher professional Education Institutes (HEI), also indicated as University of Applied Sciences. The Netherlands counts 39 HEI with a total of 423,776 students (reference date 2011). The study involved 14 of the largest Dutch HEI that together represent a total market share of 84% of all students in Dutch higher professional education.

The research concerned semi-structured in-depth-interviews with the facility manager, corporate real estate manager or a facility professional in the role of internal consultant or policy officer.

All interviews were tape recorded and transcribed for subsequent analysis. Because multiple data collection contributes to strengthening the grounds of the findings (triangulation) document analysis of annual reports (2010) and strategic plans of all 14 institutions and building walk-throughs were included in the research design as well.

4.2   Results

This section describes how facility managers in HEI experience the four areas of new ways of learning.

New ways of education

Facility managers confirm visible changes in the learning and teaching processes. Education at school shifts from a cognitive process to education as a social process. In new ways of learning there is an increasing 'need to meet'.

Besides the proven concept of teaching in class rooms with one teacher and thirty students, students progressively work together in small project groups. When learning takes place in the class room most groups are smaller than the regular 30 students because of changing educational principles.

Modern education shows more variation in teaching and learning activities that doesn't fit with the scheduled class timetable; for example classes start nowadays often with a short instruction, then students start working on an assignment in small groups and after that students come together again for a plenary closing session.

The new student

Interviewees indicate remarkable differences between students of different faculties e.g. students of an education faculty stay longer at school at the end of the school day and attach much importance to face-to-face contact, whilst economic students leave school immediately after the last lesson is finished and keep in touch online.

The interviews also point out that there are dissimilarities between the preferences of students who study at urban oriented HEI (in large cities) and students who are enrolled at an HEI in rural areas. The latter type of students conduct their individual study activities often at home, while the urban school students prefer to study at school.

In general there is an increase of student expectations and demands, not only regarding their education, but also about the place where they study. There is a strong 'experience factor' in education, due to the new generations. School must be fun and attractive.

> Interviewee: "Education isn't only about learning and teaching, but above all about the whole context around learning and teaching and the atmosphere in which learning and teaching take place".

Digitisation of learning and teaching

Interviewed facility managers mention the increase of ICT and the increasing use of virtual space as one of the most notable aspects of the changing context of learning and teaching. However, according to the interviewees it is not obvious that the increase of ICT leads to a decrease of physical space.

> Interviewee: "The influence of digitisation on school buildings is heavily overestimated".

Respondents don't see a significant incorporation of ICT in the way HEI teach their students apart from the growing use of smart-boards and digital presentations. In the opinion of facility managers the impact of technology will only have serious consequences for the number of square meters if students are stimulated not to come to school to attend lessons, for example because lessons are available online.
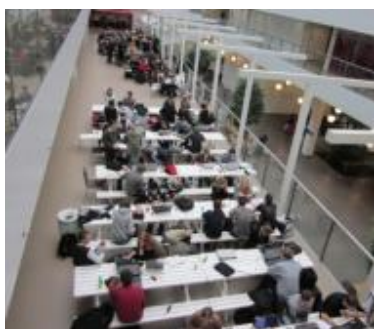
New learning space

Considering space for learning and teaching there are two areas of interest: the quantity and quality of space. The main focus is on quantity: taking care of enough square meters of space.

> Interviewee: "the panic of having a lack of space is more stressful than offering the right space quality".
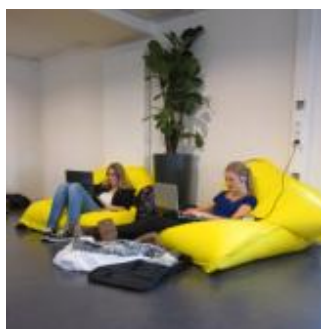
Yet, there is a trend in reducing the number of square meters per student in the last years. This isn't related to supporting new ways of learning in the first place, but due to a strong focus on efficiency and cost reduction.

Concerning the quality of space facility managers indicate that traditional classroom space is progressively being replaced by a variety of learning settings to support learning activities of students (figure 2, 3 and 4), not only inside the building but also by other kinds of learning spaces all over the campus. There is a shift from the classroom as place for learning to the campus as learning space. The growing 'need to meet' leads to an increase of informal learning space where students can work together and being facilitated by hospitality services like grand cafés, restaurants, coffee bars, etc. Due to these 'Starbucks concepts' in schools and the experience factor there is higher standard level of the finishing of building interior.

> Interviewee: "a place to meet is not possible without good coffee and service with a smile".

Space that supports collaboration   Informal learning space   'Starbucks concept' in school

Figure 2, 3 and 4 New learning space

A dilemma of the focus on space efficiency and 'the campus as learning space' is that the supply of generic space for multi-use is at the expense of students who want to identify themselves with a group and want to recognise that group in the building.

Matching

Beside the four areas of new ways of learning another important aspect is how to match the four areas. The interviews show four key items in the matching process:

- The various stakeholders involved don't speak the same 'language'. In the perception of facility managers the educational professionals formulate their needs based on that what they used to do or what they used to have, whereas they should try to formulate what they want to do and how they want to do that (now and in the future) in terms of processes and core activities. Needs and requirements are often operationally and focused on problem solving, such as 'can you remove that wall for me'.

- 'The user' doesn't exist and part of the end users is hardly approachable. In general educational managers are the conversation partner for corporate real estate or facility managers. Only in new construction projects or large scale building renovations teachers and students are involved in the planning process of learning space. Students are difficult to reach, because they are like passers-by and often not even interested in having influence on their future learning space. So in most cases educational managers formulate their idea of the student needs. What students really want or need often keeps implicit.

- Fixed scheduling (timetables) of lessons that align a class room to a teacher and a group of students doesn't comply with new educational activities that alternate more quickly.

- There is a gap between the planning horizon of education and accommodation. Education institutions have 'strategic' plans with a maximum scope of four years. Facility managers and corporate real estate managers have to plan buildings for at least 10 years; in case of new buildings 30 years or even longer.

5   DISCUSSION & CONCLUSION

Many authors have concluded that learning can be affected by the physical environment in which learning takes place (Tanner, 2000; Higgins et al., 2005; Kok et al., 2011).

Despite the wide range of subjects most research focus on 'hard' technical variables in the school environment such as air quality, temperature, noise, etcetera. Only a few publications consider learning space design integrally. Studying these publications showed that all present characteristics of learning spaces as 'design principles' (Jamieson et al., 2000; Oblinger & Oblinger, 2005; JISC, 2006). These 'design principles' are more like points of special interest for new ways of learning as a whole. They not only respond to the physical learning environment, but refer to all four main focus points related to new ways of learning: organisation/individual and physical/virtual. However, most studies are not extensive and are modestly supported by empirical research. Based on the literature review and interviews, our own study may contribute to a better founded understanding of the alignment of learning spaces to new ways of learning. Table 2 summarises the main lessons learned by presenting a set of ten points of attention.

Table 2 Ten points of attention to cope with new ways of learning

Organisation	Anticipate on the shift from a cognitive focus to a social focus in education;
	Consider increasing flexibility in education processes;
	Face the need to meet;
Individual	Pay attention to the 'experience factor' in education;
	Anticipate on dissimilarities in student background;
Physical	Offer a variety of different learning settings;
	Take care of sufficient informal learning space;
	Add high quality services to space;
	Offer a balance between 'the campus as learning space' and visible identification in the building;
Virtual	Make advantage of ICT opportunities;

To incorporate the ten points of attention in space management and to take care of an integral approach of new ways of learning, four matching criteria should be taken into account:

- Try to develop a common language between education people and people that are responsible for real estate and other facilities;
- Organise user contact at all levels;
- Deal with differences between planning horizons of education and accommodation;
- Consider the effects of fixed scheduling of lessons in classrooms.

Although the present study is based on the perception of the supply side i.e. the perceptions and experiences of corporate real estate and facility managers, the results show a remarkable similarity with a Dutch study (Borgijink, 2011) that looked at the perception of educational professionals concerning new ways of learning. Borgijink also comes to the conclusion that the implementation of new ways of learning is "a transition that affects the entire organization" (p4).

This study focused on the perceptions and experiences of facility managers and real estate managers. It turned out that new ways of learning and teaching are an important factor in accommodating higher education. In addition, many other factors have an impact on accommodation decisions, such as cost-effectiveness, the need for nice experiences according to the experience economy (Pine & Gilmore, 1996), the societal need for sustainability, and so on. As such, aligning learning environments to new ways of learning should be an integral part of performance based value adding management. Conceptual frameworks regarding adding value by facilities (see for instance Den Heijer, 2011; Jensen et al., 2012) can be helpful to balance different needs and objectives from a core business point of view and requirements from other stakeholders such as the end users and technical managers.

To conclude

At the start of the 21th century the principles of new ways of working of knowledge workers in offices are more and more being applied in other contexts as well, inter alia in schools and hospitals. New ways of education, digitisation of learning and teaching, a new generation of students and new learning settings come together in 'new ways of learning'. School buildings are progressively developing from buildings with long corridors and mainly classroom settings to a variety of physical and virtual learning environments.

This study makes clear that an integral vision on education and accommodation too often is missing. Integral alignment of the four focus points related to organisation, individual, physical and virtual environment is essential to implementing new ways of learning.

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