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Can participatory design support the transition into innovative learning environments?[1]

ABSTRACT

When changing from traditional classrooms to innovative learning environments it is crucial to include the users of the environment in the design process. However, participatory processes might be limited by contrasting expertise, cultures, priorities or project restrictions, which poses a risk to the alignment of spatial design and pedagogical practices. To meet this challenge, the article proposes a post-design participatory activation process aimed to support the transition into new learning spaces. This is exemplified in an empirical case, where co-design methods and physical design objects have been explored as tools to foster spatial literacy and competencies in a fifth-grade cohort (teachers and students), and potentially match pedagogical practices with spatial affordances. Participatory activation is believed to be an ongoing process because learning environments are not static designs – they keep evolving based on people, pedagogies and practices.

KEYWORDS

participatory design processes
innovative learning environments
co-design methods
spatial design
design research
design after design
post-design activation

1. Proceedings from the conference *Transitions 2018*, Copenhagen, 15–16 October 2018, first published in: W. Imms and M. Mahat (eds) (2019), *What Are Teachers Doing (Well) When Transitioning*

from Traditional Classrooms to Innovative Learning Environments? Proceedings of International Symposia for Graduate and Early Career Researchers in Australasia, Europe and North America, http://www.iletc.com.au/publications/proceedings/. Accessed 23 October 2019.

INTRODUCTION

When schools are built or rebuilt, there is a tendency to reduce classrooms and instead build new learning environments with a more open, flexible and activity-based interior. These environments are believed to promote a more personalized kind of learning and foster twenty-first-century learning skills like communication, creativity and critical thinking as they offer a variety of workstations to choose from.

It is often assumed that changes in teaching and learning will occur as a result of the changed spatial design (Blackmore et al. 2011) but changing space does not automatically change practice. Changing from traditional classrooms to these new flexible learning spaces can be difficult as the new spatial setting requires a different way of teaching because of its particular affordances that do not support 'classical' teacher-centred teaching (Bøjer 2018). Simply changing space is not enough (Bøjer 2018; Imms and Byers 2017), because, as Mulcahy et al. (2015) point out, there is not a strict causal link between a new learning space and pedagogic change.

Despite being designed to support student-centred learning instead of teacher-centred teaching, newly built learning spaces will not lead to innovative pedagogical practices if teachers are not prepared and provided with the necessary professional skills, tools and resources to change their practices (Blackmore et al. 2011). Instead, there is a risk of teachers retreating to the safety of their default practice if they are not being trained in how to utilize the affordances of the new space (Lackney 2008).

This article focuses on whether tools from co-design can be used to foster spatial awareness and bring focus to the potential of the space in supporting pedagogical practices, thereby becoming a means to help transitioning from one type of learning space to another. I examine this through a case study, using co-design tools to create a discussion about the relationship between the physical learning space and pedagogical practices with a class of fifth graders and their teachers.

THE POTENTIAL OF PARTICIPATORY DESIGN

Emergent research highlights the importance of involving the users in the process of change in a school (Blackmore et al. 2011) in order to create alignment between the spatial design and pedagogical practices (Könings et al. 2017). Participation in the design of learning environments is crucial in order to account for the different expectations and perceptions of stakeholders. However, participatory processes might be limited by contrasting expertise, cultures and priorities (Könings et al. 2017), which poses a risk to the alignment of spatial design and pedagogical practices. To meet this challenge, this article proposes a post-design participatory activation process aimed to support the transition into new learning spaces by using methods from co-design. Listening to and working with students and teachers can help transform both learning spaces and pedagogical approaches (Blackmore et al. 2011) and the involvement of students and teachers in participatory design

needs to continue throughout all phases from design to evaluation in order to achieve sustainable impact within a rapidly changing context (Higgins et al. 2005).

The term co-design refers to design activities where designers and non-designers (people who are not trained in design) work together to develop new designs. Co-design has its roots in the Participatory Design tradition, where users were given more influence and room to provide expertise and participate in the informing, ideating and conceptualizing activities in the early design phases (Sanders and Stappers 2008). Today, it spans across a broad spectrum of domains and makes use of a wide repertoire of tools, applications and techniques (Brandt et al. 2012; Sanders et al. 2010). Brandt et al. (2012) divide the co-designing activities into three different categories or 'toolboxes', telling, making and enacting, that respectively cover activities aimed to make people *talk* about existing practices and future visions or *make* tangible 'things' that are used to describe future objects, concerns, opportunities or ways of living or *enact* possible futures by trying things out – all of them to inform the following design process. The *tell*, *make* and *enact* activities are often intertwined and take place simultaneously in participatory design practices (Brandt et al. 2012).

The co-design approach has been chosen in this research project as it actively includes the participants in the design activities and has the potential to initiate a discussion about abstract pedagogical philosophical issues through a very concrete subject, for instance, the layout and experience of a learning space. In co-design, users, as 'experts' of their own experiences, become central to the design process as designers and non-designers work together to develop new design solutions. Users and other stakeholders are often involved in a series of workshops, where different tools and techniques are used to inspire participants to experiment and explore possible solutions by creating common tangible outputs (Lundsgaard 2011).

Co-design is almost always used in the predesign phase to create a common platform from where the design can evolve. In this case, the co-design activities were separated from any design phase as a means to explore whether a co-design approach could help create spatial awareness and if co-design tools could potentially be used to activate the learning space in a post-design phase.

CASE STUDY

The case study is a public school in Denmark. For three months, a class of fifth graders and their teachers tested two pieces of furniture, aimed to support co-creation (hence called co-creation cabinets) and participated in three co-design workshops of three to four hours duration. The furniture was developed by the design agency Rune Fjord Studio especially for the research project and consisted of two unfolding cabinets that contained different functions. One was a small design studio with a combination of unfolding tables, a lightbox and storage space for materials and tools that was meant to create a frame for creative teamwork (see Figure 1), whereas the other was a 'wunderkammer' with drawers and exhibition space, meant to be used when starting up a project or presenting results. Apart from the two co-creation cabinets, the spatial design in the learning space was the same as before the project. The participants were using both their regular classroom and an adjacent flexible learning space during the project.

The intention of the project was to examine whether different co-design activities would provide the teachers with more insight into the needs and

Figure 1: A co-creation cabinet in use. All photographs by Rune Fjord Studio and Bodil Bøjer.

experiences of the students in relation to the interplay between learning activities and space.

The methods used to collect data consisted of a mix of co-design tools (cultural probes and workshops) and ethnographic methods (observation, questionnaires and semi-structured interviews).

The workshops kickstarted, continued and closed the project. In all three workshops, the students were engaged in a series of co-design assignments with different telling and making activities, aimed to provoke discussions and create more awareness about the actual design of the learning space and the pedagogical practices taking place in the space. The assignments were planned in a way that was meant to build up to an increased reflection about learning spaces and activities. We started out in a more sensuous and non-reflective way in the first workshop by drawing intuitively to music, as shown in Figure 2, and ended up reflecting on different types of learning activities and building models of imaginative learning spaces. In the second workshop the object of attention was narrowed down from learning environment to learning furniture as the students were building multifunctional prototypes. The last workshop was mainly focusing on what they had learned and worked as an evaluation of the process, where the students rated pictures of learning spaces in relation to different learning activities, as shown in Figure 3, and answered a questionnaire.

In between the workshops, the students and teachers worked independently with the co-creation cabinets as tools in their everyday educational activities, which was documented in a visual logbook on Instagram.

Figure 2: Drawing to sound, eyes closed, because sound is also part of the space.

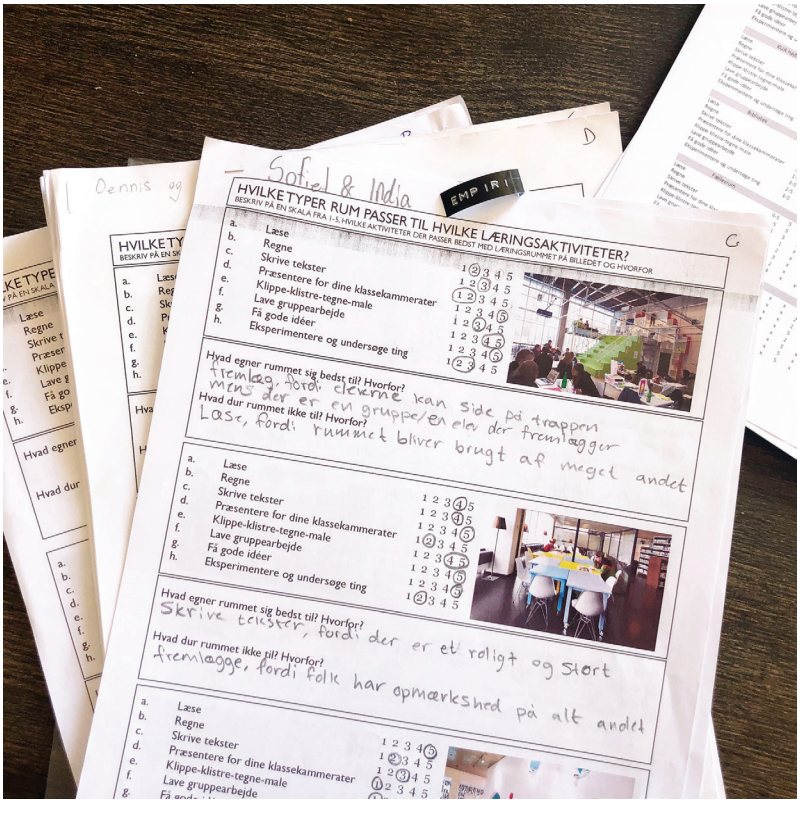

Figure 3: Matching learning space photos with learning space activities in workshop 3.

The first workshop focused on the sensation of the actual space, the range of learning activities and the adequate functions in a learning space to support the learning activities. At first, the students experienced the environmental qualities of the space by listening to music under a table and drawing to sound with their eyes closed. Then they explored their physical learning space by placing post-it notes on the places or things they liked the most and least with a short description of why, in order to visualize how they each experience the space in different ways as shown in Figure 4.

Subsequently, they listed and categorized learning activities and paired the categories with symbolic pictures, as shown in Figure 5 to form a foundation from which to build imaginative learning spaces, which was the final assignment of the workshop (Figure 6).

Figure 4: An old worn-out sofa received the most attention, both positive and negative – the students praised the affordance of the furniture as a comfortable place to sit, work and rest if you feel a little bad but did not like its appearance.

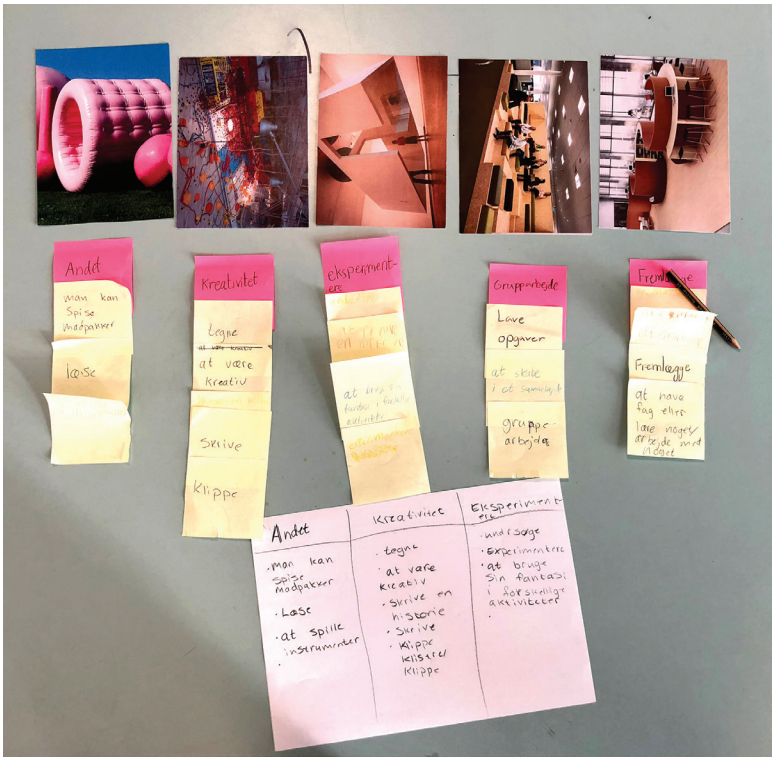

Figure 5: The results of the co-design activity where the students listed learning activities and matched them with symbolic pictures.

Figure 6: One of the finished models of learning spaces made by the students.

The second workshop took place midway through the process and had two purposes: to reflect upon the process that had passed and to continue the discussion about the relationship between learning space and learning activities. This time they only had one assignment, to design a prototype of a piece of furniture that would cover one or more needs in relation to the physical learning environment. The aim was to make them reflect upon and discuss their actual learning environment and the learning activities it supported – or did not support – in small groups, as well as gain insight into each other's needs and preferences in various learning situations. The most dominant need turned out to be tranquillity and concentration, and most groups designed a multifunctional space or furniture that provided a soft place, where the students could withdraw to do concentrated work or relax, for instance a nook incorporated into a hole in the wall (pictured in Figure 7). This need was backed up by the teachers in the following interviews.

In all three workshops, the students were reflecting on their actual surroundings while using them in a flexible way as they were allowed to individually choose where they wanted to work during the assignments. Many chose to sit on the windowsill, on the sofa, at a round table or in the hallway instead of at their regular tables when given the choice, which reflected their preference for a more diverse learning space.

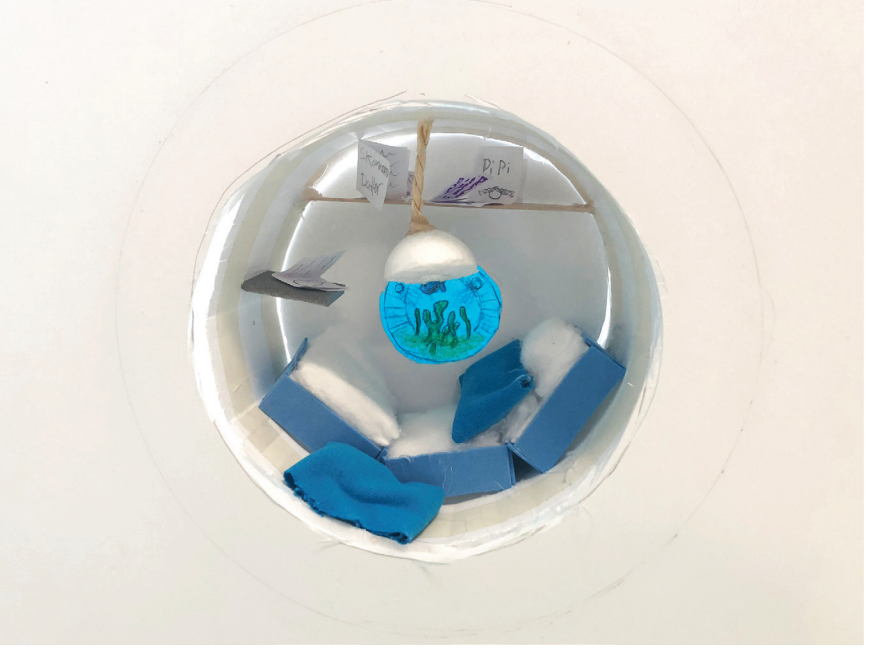

Figure 7: A model of a round hole in the wall where the students can withdraw to relax and read.

REFLECTIONS AND FINDINGS

The co-design tools worked well to provoke discussions about the learning space and learning activities in an accessible way for the students. Most students were engaged and productive throughout the workshops and the co-design activities helped them discuss the abstract subject of the relationship between space and learning activities through a very concrete subject, the layout and experience of their learning space. Working with a series of minor telling activities that led to the two making activities created a common basis for discussion and reflection about the experience of the learning space, the needs of the individual students and the relationship between space and practice.

The many activities during the workshops as well as the use of the co-creation furniture made both students and teachers reflect upon their surroundings, which questionnaires, observations and interviews also showed. The discussions in the individual groups, the discussions and presentations in a whole group forum and the actual products and prototypes made during the workshops provided the teachers with good insight into the way the students experienced the design of the learning space and the way teachers use them. During the following interviews, the teachers expressed intentions of working more actively and flexible with the learning space design in the future.

The combination of workshops and co-creation furniture challenged the teachers both spatially and pedagogically – the workshops were aimed at creating reflection about the space and use, whereas the co-creation furniture actually pushed them into working in a different way because they had to think about how to include the cabinets in their educational activities and actually use them. This resulted in a more flexible use of the classroom and adjoining learning space as well as more creative assignments, for instance creative book reviews in boxes and mathematical percentage games. I would argue, that the combination of reflective and practical work in their 'real' learning environment created an extra dimension of understanding that they would not have gained if either workshops or co-creation furniture were used independently or separated from their actual learning space.

DISCUSSION AND FUTURE WORK

In design research, there is a growing interest in design after design (Lundsgaard 2011). As mentioned earlier, co-designing mostly happens in a predesign phase to establish a common platform from where the design can evolve. This article explores how the co-design process can be extended to handle the transition into a new learning space by fostering reflections and a new awareness of the relationship between the physical environment and pedagogical practices. This might potentially serve to create a smoother transition for both teachers and students.

Co-design has the potential to become a tool in transition processes as it actively engages the participants in discussion and reflection about their physical learning space and pedagogical practices. In the featured case, both students and teachers became more aware of their learning space and the way they use it in their everyday educational activities, which might potentially help them create a better alignment between learning space and pedagogical practices.

The workshops presented in this article were not part of an actual design process but took place in an already renovated school. In the future, similar workshops should be facilitated as part of a design process, especially in the

transition phase after the design is implemented (Bøjer 2018), to further explore the potential of co-design activities as a means of transitioning into newly built innovative learning spaces. Often, when building new learning spaces, the interaction between the creators and the users of the spaces abruptly ends as soon as the new design has been implemented, which leaves the users with a spatial design they might not know how to use (Bøjer 2018). A co-design process, like the one featured here, has the prospect of becoming a tool to help the teachers discover the potential of their new physical environment, because, as Higgins et al. explain, 'the process of user involvement must be continually refreshed and iterated to support ongoing change' (2005: 3).

Many of the assignments used in the featured project could already be initiated in the pre-design phase and continue throughout the design process to the transition phase and beyond. Therefore, I propose co-design as a means of creating more spatial awareness that can be used throughout all phases of the design process and even as a separate tool after implementation of the design to potentially match pedagogical practices with spatial affordances. Participatory activation is believed to be an ongoing process because learning spaces are not static designs where 'one size fits all' – they keep evolving based on people, pedagogies and practices.

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