Space and service design into educational practice

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Abstract

Contemporary global challenges such as social inequalities, ageing, food crises, nature disasters have encouraged designers worldwide to scrutinise their new role in these matters and to respond with design solutions. Through purposeful sampling, this paper describes how an interior design course has shifted from a more traditional spatial emphasis in the design projects to an approach focalizing on social-cultural challenges and therefore equally addressing the intangible context of design projects.

In the new pedagogical strategy the design of spaces goes hand-in-hand with the design of public services and customer experiences. The educational approach leads to new design skills, knowledge and attitudes in the interior design discipline.

Finally, the paper illustrates these insights by the live project Design for Education. Aspirant interior designers respond to the challenge of creating new learning and teaching environments for socially disadvantaged districts and interact with stakeholders in order to develop better user experiences.

KEYWORDS: service design, interior design, educational approach, space and service design, design challenges

Introduction

Worldwide phenomena over the past decades have had an important influence on society. Contemporary global challenges such as social inequalities, influx of refugees, religion conflicts, global warming and nature disasters, globalization, relocation of industrial production to developing countries and economic crises, ageing, threatening new diseases and food crises encouraged designers worldwide to look at their (new) role in these matters and to respond with design thinking and design solutions (Boyer, Cook & Steinberg, 2011; IDEO, 2015; Curedale, 2017).

Consequently, all over the world new design approaches and disciplines have emerged such as social design, user-centred design, co-design, multidisciplinary design, strategic design, interaction design, service design. All these concepts are related to each other and can be applied to and combined with traditional disciplines in design: product design, graphic design,

furniture design, interior design, architecture, etc. While traditional design disciplines aim at designing tangible products (graphics, objects, spaces, buildings), the emerging disciplines and approaches all share the idea that design thinking can be the basis to find solutions to contemporary challenges by designing activities and interactions too (Felix, 2011; Sanders & Stappers, 2012; Curedale, 2017).

One of the emerging design disciplines is service design. Service design was first introduced in 1991 as a design discipline at the Köln International School of Design. Only in 2001, the first Service Design office for business consultancy opened in London. In 2004, Köln International School of Design, Carnegie Mellon University, Linköpings Universitet, Politecnico di Milano and Domus Academy founded the Service Design Network in order to create an international network for service design academics and professionals. Over the past decade several design schools worldwide have acknowledged the importance of service design and the related design fields and are offering courses or course modules which address this discipline (Van Geetsom, 2016).

Although there is no consensus definition of the emerging discipline, one could describe service design as a "(marketable) set of products and services capable of jointly fulfilling a user's need." (Goedkoop & Van Halen, 1999; Felix, 2011)). This also involves a new mind-set where services are created from the user perspective, in a holistic and systematic way, taking time and sequencing into consideration (Stickdorn & Schneider, 2010).
When organizing a specific service there are always a set of tangible (tactile) components necessary to realize the service such as a website, a brochure, an app, a plan to provide the information, a device, a tool, an object to assist the user, a space, a room, a building to host the service. These components are also referred to as touch points. The user interacts with these appliances. A deeper understanding of how service and product/object/space interact with each other, how they can strengthen each other is subject to research for and through design (Van Geetsom, 2016).

As society and therefore design disciplines keep evolving, education needs to evolve too in order to prepare future-proof designers. Purposeful sampling methodology is used to describe a new educational setting at Thomas More University of Applied Sciences (Mechelen, Belgium) where future spatial designers are trained to design innovative and relevant intangible services and the necessary tangible spaces and objects in order to make the service work, to create better user experiences (Creswell, 2005). They focus on concrete, exciting and challenging new design contexts that contemporary interior designers and architects have to deal with.

Space and Service Design

From an international project to an institutionalised approach, from social services' demand to a new design programme

An Interior & Service Design studio was firstly introduced in the Interior & Design department at Thomas More University of Applied Sciences in Mechelen, Belgium as a specialization track in the bachelor in Interior Design in 2014. In 2017 this design studio also evolved to a new postgraduate in Space & Service Design.
Both the specialization track in Interior Design as well as the postgraduate were established because of the growing need of society and therefore also the design work field to form interior (spatial) designers with the knowledge and skills to translate the new needs for better service spaces and service products/furniture into relevant, desirable and functional outcomes (Sanders & Stappers, 2012).

In addition, the international collaboration with other design schools made this evolution visible. In 2003, together with Leeds College of Art & Design, Thomas More initiated GIDE (Group for International Design Education). Throughout the past decade, Thomas More, together with design schools in Milan (Polimi), Dundee (DJCAD), Lugano (SUPSI), Leeds (LCAD), Magdeburg (Hochschule Magdeburg-Stendal), Slovenia (School of Design) and China (Jiangnan University) has focussed on contemporary socio-cultural design topics such as hospitable cities, sustainable transport, sustainable food consumption and production, crossing borders. Year after year, students, teachers and researchers have collaborated cross-disciplinary on these topics (Fassi et al., 2012). The GIDE semester project became a part of the curriculum of the GIDE universities. The multidisciplinary design collaboration on social innovation projects, joint research papers, multiple teacher team discussions and especially student outcomes, revealed that the design of spaces, objects, services and experiences need to go hand-in-hand in order to create holistic and sound solutions. Spatial design and service design in the GIDE projects are intertwined although this was not yet explicitly translated and embedded into the course curricula of the involved interior design institutions in contrast with the Product Service System Design course at Jiangnan University where it was made explicit in the curriculum and course title (Gong, Van Geetsom, Valsecchi & Lv, 2015).

Furthermore, student internships monitoring and systematic contacts with design enterprises revealed that more and more design offices in Belgium also shifted from conventional interior design practices to new business models and are combining traditional design assignments with service design thinking and co-creation with stakeholders.

> *"Students in this specialization (Interior & Service Design) show great social awareness and put architecture and interior at the service of the end user. For our company, this attitude is very important in her search for the right balance whereby sustainability, experience, programming and TCO constantly challenge each other. " (Van Hees, J., sr interior architect, www.ar-te.be)*

However, higher academic institutions still lack the integrated approach of combining space and service design although design practice shows that they are inseparable (Felix, E., 2011).

At the same time Flemish governmental organizations and organizations which promote design and are supported by the government, such as Flanders District of Creativity and Flanders in Shape, support new disciplines and design methodologies such as service design, user-centred design and design thinking by offering design toolkits to designers, by organizing workshops for public organizations and designers and by offering a platform for future-proof designers with design exhibitions.

Yet another manifestation of change is the rise of the demand from public services in Mechelen and beyond to the Design department of Thomas More to help them with the improvement of their existing services by adapting their spaces, furniture, interiors and communications or to enhance their existing spaces by improving the service systems and experiences of the users. These organizations offer care and health environments such as elderly communities and hospitals, public spaces in the community e.g. allotments and city squares, learning spaces such as a library, nature experience spaces and school buildings. All these organizations behind the buildings face new customer expectations and needs.
The concrete and ongoing demand from the local society have created the urge for a new design specialization and a new approach: Interior/Space & Service Design.

Shifting the educational context and approach

The Interior Design course at Thomas More University of Applied Sciences was established 50 years ago. Students are traditionally taught to understand and create proportions and configurations of spaces and functions. In subjects such as design methodology, students still learn how to adequately apply the language of shapes and forms. Manufacturability, technical equipment and materialisation are key factors for a solid practice based interior design project.

Space is considered as a container and the end result of a design assignment as a finished project.

The education of designers is currently moving from the concentration on creating things towards a preoccupation with designing to serve people with their specific needs, acting in specific contexts (Sanders & Stappers, 2012). Some define it as a new discipline (Holmlid & Evenson, 2008), others as an evolving design attitude that includes a holistic approach of services from the user's perspective (Stickdorn & Schneider, 2010). Be that as it may, these new concerns and contexts entail an alternative educational approach.

Since 2014, bachelors in Interior Design at Thomas More have the choice of the five design specialization tracks in the third year of the bachelor. The study option Interior & Service Design is one of them. In this course, space is no longer considered as a container but as a touchpoint for services, supporting organisations, people and activities. The design supports a continuing use of spaces and objects, meeting the needs of all the users (Felix, 2011). The design of the space is not the end but the start of continuous interaction with people using that space. Therefore the aspirant designer should learn how to create a space as a system by identifying the services and defining the interactions between people, space, objects and communication tools. Spatial design ánd service design is used to create better experiences.

The conventional interior design process follows the double diamond model (British Council, 2005; Design cube, 2018). In space and service design education we combine this model with the service design approach and tools (Felix, 2011; Vezzoli, 2014; IDEO, 2015; Thoelen et al., 2015), in order to offer the students the necessary knowledge, skills and attitude. Based on the demand of real-life clients, in Interior & Service Design there is always a space, spatial object or context, or a building involved in the design process. We consider an Interior and Service System Design (ISSD) as a set of spaces, objects (e.g. furniture, communication tools) and services jointly capable of fulfilling the user's need.

The following table (Fig. 1) illustrates this modified approach in spatial design education at Thomas More University of Applied Sciences. Hereunder we attempt to unfold a framework consisting of a few key principles to integrate service design principles in interior design education.

	SPACE AS CONTAINER ⟷	SPACE FOR SERVICES
Design brief set up	Teachers invent design brief for imaginary space and function or teachers invent a design brief for an existing space.	Real (public) organisation seeks advise and offers a live problem with concrete challenges and a concrete tangible and intangible context.
Research phase	Teachers create the criteria and conduct the research, students investigate mainly the tangible context of the building.	The organisation offers insights into their context. Teachers and students research the intangible and tangible context (observations, interviews, case studies, literature review, SWOT-analysis). Students and teachers re-formulate the design problem including spatial and service oriented targets.
Ideation phase	Individually or single discipline teams. Design ideas through brainstorming, brain drawing, associative inspiration. Feedback from teachers or design professionals.	Multidisciplinary student teams. Design ideas through brainstorming, brain drawing, body storming, service design toolkits methods, co-creation or/and participatory design. The visual communication methods are stakeholder-centered. Feedback from teachers, design professionals, stakeholders.
Idea evaluation phase	Individual or team evaluation by matching the ideas with the brief criteria. Tutorials from teacher/professional.	Individual or team evaluation by matching the ideas with the design problem and goals. Feedback from teacher/professional/stakeholders.
Idea selection phase	Selection of idea by matching ideas with the teacher's brief criteria. Feedback from or pitch for the teacher/professional. Visual communication tools are design-industry oriented.	Selection of idea by matching it with research outcomes and design goals, using service design toolkits. Feedback from or pitch for the teacher/professional/ stakeholders. Visual communication tools are stakeholder-centered.
Iteration	Possible repetition of process for specific design components.	Possible repetition of process for specific design components.
Implementation phase	Students elaborate on design and present their design of spaces with (technical) plans, 3D's, models, prototypes to the teacher/professional. Visual outcomes are mainly design industry oriented.	Student teams elaborate on design and communicate a holistic design with (technical) plans, 3D's, models, prototypes, system maps, personas, customer journeys, story boards (…) to the teacher/ professional /stakeholders. Visual outcomes are twofolded: stakeholder-centered and design industry oriented.
(Project execution)		Possible execution of the project, follow-up by the student team

Figure 1. Evolution didactical approach from Interior Design education towards Interior & Service Design (by Van Geetsom, N.)

Key principles of the Space & Service design course

The key values of service design formulated by Design Flanders[i] are the central starting point and function as the basis of the methodology: *user-centered, iterative, holistic, sequential, qualitative insights* (Thoelen et.al., 2015).
The key principle in Interior & Service Design is *user-centeredness* in order to design spaces and services which first and foremost respond to the needs of the users and stakeholders. Although design should be aesthetically pleasing, designers often dedicate more time on how interior spaces look (design as a container), rather than how it works (design as a service space). One has to reassure that the tangible spaces and objects and intangible experience are desired and user-friendly. To this end, the stakeholders and end-users are closely involved in the design process as professionals or user-experts providing the aspirant designer with information, as future-users giving feedback or/and as co-creators of design ideas and concepts (Boyer, Cook & Steinberg, 2011; Felix, 2011; Manzini, E., 2015).

The design briefs of the Interior & Service Design courses at Thomas More cover only real-life design problems of real-life projects to make it possible to involve the actual users and stakeholders in the research phase, the ideation phase, the production phase and the evaluation phase. This does not only allow the students and teachers to arrive at authentic insights, but also provides for creating desired outcomes. The aspirant designers understands that if the user experience improves and thus, (emotional) profit, efficiency develops and costs are reduced. By generating personas and by looking into the entire customer journey within the existing or future spatial context, all the users are consciously taken into account in the service design process. Interior & service designers students use also visualization techniques such as scenarios, customer journeys and story boards but immediately in the realistic, tangible spaces in order to arrive at embedded, tailor-made solutions and communication besides the traditional plans, models end 3D visuals.

The involvement of the stakeholders is essential in gaining up-to-date, accurate insight information. They can participate as trend-watchers, test panel, co-designers, usability testers, co-creators, co-owners and evaluators (Nigten, 2010). The users will have to convert the final service design into service practice. The design process is an *iterative* process. The design students will involve the knowledgeable users at different stages in the design process and start the process again for specific underlying components or sub-functions if relevant. After all, a designer is not a nurse or a teacher, nor a social care worker.

Consequently the qualitative communication between (aspirant) designer and user is also important. Therefore the student is taught to orally and visually communicate their research, ideas, concepts and design outcomes in such a way that it is clear for all the stakeholders, hence non-designers. The development of these skills is supported by subjects such as Design Communication and Intercultural Communication

Interior & Service Design is *holistic*. Each link and each step is essential in service design, as well the pre-service, as the service itself and the post-service are significant. As a consequence it is important that the touchpoints including spaces, objects and communications and the services and experiences are composed as a well-orchestrated entity. Each phase of the customer experience is supported by a logical space and the relevant objects and communication tools. Interior & service design is *sequential*.

Interior & Service Design briefs demand a thorough research of the tangible and intangible context. A subject in Applied Research for Design provides the necessary knowledge and skills. Students work in multidisciplinary research teams and conduct mainly qualitative research, using techniques such as (group) interviews, body storming, workshops with users, observations, cultural probes, experience interview toolkits and customer bull's eyes. They yield *qualitative insights* expressed in research presentations and user friendly reports, personas and giga-mapping. The often emotional background of the users cannot be uncovered by means of quantitative research methods. We tend to not train future designers to write academic papers to report on their research but to produce adequate stakeholder-centered communication tools such as comprehensive reports, self-explanatory posters and well-structured oral presentations. The stakeholders can use the visually clear reports in their turn in the communication toward users, for fund-seeking and in the realization of the project.

The following part of this paper illustrates the didactical approach by means of an example of a real- life interior & service design project at Thomas More.

Space and service design into education practice, the case "Design for education"

The design problem

From the requests received from social or cultural organization, public services or NGOs, three design challenges are annually chosen. In order to meet the key principles of the course, the choice of the design brief is determined by the following criteria:

- The design challenges aim at sustainably tackling contemporary socio-cultural design problems.
- The organization is willing to contribute, participate and interact before, during and after the design process.
- The project is a real demand, a real challenge.
- The client is prepared to share knowledge.
- It is likely that one of the student teams' outcomes will be executed or that the research and outcomes will be used in tackling the design problem.

In 2016 Interior & Service Design worked for the social non-profit organization, subsidized by the Flemish government, Samenlevingsopbouw Provincie Antwerpen vzw[ii] (Community development Province of Antwerp asbl).

The focus of the interior & service design brief, *Design for education*, is on the design of mobile spaces/objects and services/experience in order to invite toddlers to go to primary school. In this challenge, children of vulnerable families are invited and encouraged to go to school by means of a "Play&learn-bicycle", an attractive cargo bike which contains all kind of information about 'going to school' in a sort of mobile outdoor furniture and thus becomes a sort of mobile school environment in and of itself. It is an essential touch point in the service design for the parents, toddlers, teachers and social workers.

The design context

Child poverty numbers have been growing enormously over the last decade. Recent research of OESO shows that the number of Belgian children and youngsters living below the poverty level increased from 10% in 2007 to 12,8% in 2010. In 2012 22,5% (n=4426) of the children between 0 and 19 year old in Mechelen have been living in a family with an income below the limit for financial compensation by the government.

Child poverty is shown in many dimensions: lack of material welfare, poor accommodation and living environment, problems with education and upbringing, health problems and lack of wellbeing. In terms of education, school delay is common in vulnerable families. Stumbling blocks are lack of knowledge about how schools operate, shame of low socio-economic status and problematic school experiences of the parents themselves.

Increasing the collaboration between schools and parents can positively influence toddlers' school participation and educational opportunities during early childhood. Schools have to show interest in the parents and vice versa. Proactive support can bring the vulnerable and disadvantaged families out of isolation and can lead them to community participation (Canon Design, VS Furniture & Bruce Mau Design, 2010; Devos, & Nicaise, 2016).

The organization Samenlevingsopbouw aims at supporting these vulnerable families in giving them a voice, in offering concrete help, in looking for structural improvements. To improve educational opportunities they launched the pilot project Schoolstart in 2016 in three particular districts (Arsenaal, Oud Oefenplein and district Tervuursesteenweg) in Mechelen. They established a care network with volunteers who filled the gap in the professional assistance network. Social workers and volunteers inform and support young parents before the child actually starts at school. The main goal is to get all toddlers enrolled in early childhood

education and to enhance a good school-parent collaboration. This will ensure a better school participation. To accomplish this goal they work with house visits and offer different activities.

But how can designers contribute to this challenge of society? How can (interior) designers proactively intervene and enhance the involvement, encouragement and learning of parents and young children?

Spatial service design result and evaluation

In 2015-2016, students of Interior & Service Design designed the new Laboratory-classroom and its' services for future early childhood teachers in collaboration with the Teacher Training Department of Thomas More Mechelen. Students conducted research and delivered relevant designs for future proof learning spaces and experiences. One of the design was executed and is currently in use.
These experiences together with research for future proof learning environments conducted by Thomas More teacher-researchers provided excellent knowledge and inspiration for the Design for Education project (Coorevits, S., Marit, K., Tutenel, P. & Van Geetsom, 2016).

The examination of the current service system of Samenlevingsopbouw Antwerpen Provincie revealed the lack of tangible touchpoints. Interior & service design student teams developed and optimalized the current service design of " School start" by means of a "small mobile school". This "mobile school" contains all the necessary information about "going to school" and triggers parents and toddlers to explore school experiences by means of educational tools. Before the start of the design process Samenlevingsopbouw vzw applied for funding for this project to BNP Parisbas Fortis Foundation and won the competition. The budget for realization of the project was 7000€.

The "mobile school" was designed by multidisciplinary and international design teams.
The composition of these diverse teams was possible due to the participation of Thomas More interior & service design students and exchange students from different design disciplines such as product design, environmental design and graphic design.
Throughout the research and design phase which ran over seven weeks, starting in September 2016, teacher training students and teachers and Samenlevingsopbouw management and social care workers were involved once or twice a week. Design students conducted qualitative research via observations, interviews, literature review and case studies (Fig. 2 and 3).
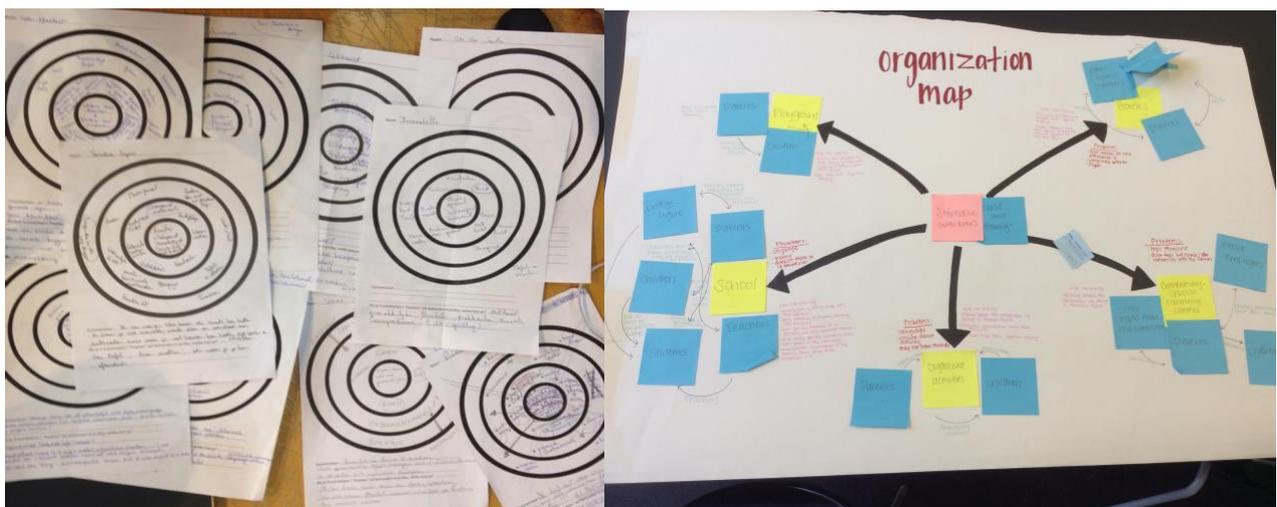

Figure 2 and 3. Research tools and research visualization tools examples (Photos: Van Geetsom, N.)

One project was chosen by the client: Playbike (Fig. 4). With this electrical cargo bike the volunteers can easily access districts of attention in Mechelen. It is an approachable touchpoint in the customer journey of parent and child. The information, tools and plays in the cargo of the Playbike reassures that parents and children get acquainted, informed, sensitized, excited and inspired about early childhood education (Fig. 5) . Playbike is supported by other touchpoint such as matching folders and 1:1 scale drawings of Playbike on school buildings. The realization of the prototype fitted within the pre-set budget offered by BNP Paribas Funding. The student team of Playbike looked for a sponsor for the e-bike and collaborated with a social wood workshop ('t Houtatelier – Mechelen) for the pricing and realization of the cargo. Together with the teacher and a social care worker they supervised the realization. They tested several components of the Playbike with children. Ergonomic and technical standards for the "mobile outdoor furniture" were crucial.

The prototype of the Playbike (Fig. 4 and 5.) was was put into use in May 2017.

Figure 4 and 5. Playbike design: Tytgat, E. (PG Space & Service Design), Blockx, L. (BA Interior &Service Design), Fendt, T. (Erasmus exchange student from Industrial Design, Hochschule Magdeburg, Germany) (Photo: Rottiers, I.)

The evaluation of the project

After completion of the interior & service design brief Design for Education (December 2016) for Community development Province of Antwerp, researchers analysed the dynamics between the different stakeholders involved in the design process and the process itself in order to get a deeper understanding and to anticipate shortcomings and pitfalls. A group interview involved the interior & service design students (n=4), students of the teacher training department of Thomas More who will use the object of design during their internship (n=2), design teachers (n=1) and teacher training teachers (n=1), a graduating student in family sciences involved in the design process and the social workers who would have to use the object of design and coordinate the service (n=2) (Fig. 6 and 7).

Figure 6 and 7. Group interview with researchers, designers and stakeholders concerning Interior & Service Design process evaluation (Photos: Van Geetsom, N.).

The group interview revealed that the consequent involvement of (future) users empowers the users. It gives them the feeling of having a voice, in being able to provide valuable information. Through the assessments of critical components, it offers the possibility to predict and avoid potential problems when using the actual space/product/communications and service. Subsequently, the viable design will be economically sustainable.

The group interview's transcripts show that also non-designers understand the different steps in the design thinking process but are not always aware of the role they can play in the process. They mostly stick to their role of information provider. Consequently, they sometimes refrain from of giving creative input, feeling overwhelmed by the more experienced design students. Furthermore, the group interview showed that aspirant designers have the impression that they are designing relevant outcomes because they were checked by the end-users and service providers, more than when only a teacher tutors. The financial constraints forced them to request information from manufacturers and companies which they never had to do before, making this holistic approach take two-to-three times as long as a the "design as container" approach. At the same time, however, the constraints never served as a barrier to creativity but created a greater sense of reality.

In addition, social workers currently using Playbike have communicated their satisfaction about the collaboration and the end result.

> *"The collaboration with the students and teachers of Interior & Service Design led to a fascinating design process, with a lot of educational exchanges between different actors, paying attention to the needs of socially vulnerable families and with a beautiful final result: the Playbike!" Vandenbossche, S., Social Worker, Community Development Province of Antwerp asbl*

Completion of the service system

The user experience of Playbike unfolded that more service design touchpoints were necessary in order to expand and optimize the dialogue with parents.

Interior & Service Design student teams contributed once more to this new challenge of Samenlevingsopbouw, Design for Play, by creating attractive Play-spaces and the necessary objects for existing community spaces in community house Abeel and Oud Oefenplein in Mechelen. The service system of the Play spaces and the relevant touchpoints needs to be developed and shaped. The Play spaces should contain surprising, attractive, challenging and educational play objects. They aim at enhancing the involvement, encouragement and learning of parents and their young children through play activities and to preparing children for school with pre-school skills. Parents play with children, children play with children, parents socialize

with parents and social workers. Social workers can pro-actively intervene when discovering latent problems. Design will be used as a strategy.

Consequently, the same design methodology and educational approach was being used: user-centered design by involvement of the stakeholders, international and multidisciplinary teams, thorough research of the tangible (e.g. available spaces) and intangible context (e.g. current users and future users), a holistic design paying attention to the sequencing of actions, supported by relevant spaces and objects. As a result of the evaluation of the Playbike project process, the stakeholders were informed about their roles and encouraged to contribute with their ideas and not solely with feedback. By doing observations of interactions with Playbike, design students also detected some technical errors and malfunctions in Playbike. These errors will be solved by students when executing the Play Space project.

Samenlevingsopbouw vzw won the Queen Paola Award in 2017. The money will be used to build the prototype of the Play Cabinet. Also in this real-life project (illustrated by Fig. 8 and 9.), the budget needed to be taken into account during the design process. The chosen project will be realized in 2018.

Figure 8 and 9. Example The Play Cabinet (design: Schepers, E. (BA Interior & Service Design); An, J. (exchange student MA Design management, Jiangnan University China), Liebregs, E. (BA Interior & Service Design).

Conclusion

The design of spaces and public services are intertwined. The real demand of social or cultural organizations, public services or NGOs to adapt, reinvent or converse their spaces and services created the need for a new design approach: a combination of spatial design and service design. Thomas More University of Applied sciences offers this combination in a new course with a specific approach. The design of spaces and services demands a user-centered approach, is holistic and iterative. Services for public spaces are sequential. A thorough qualitative research of the tangible and intangible context is a key principle of the process.

As a consequence, collaborating with real-life clients is essential in the learning and design process. The collaboration with stakeholders enriches stakeholders, aspirant-designers and the design school. Although the engagement is time consuming for all parties and weighs on the collaborative organisations, it is essential to create the adequate learning circumstances for Interior & Service Design students.

One of the social challenges tackled by the Interior/Space & Service Design course is the challenge of future educational environments. The project Design for Education led to an

enhanced and broader service for the local communities. The completed projects are rather small scale interior, furniture and communication solutions. A future challenging project could be a complete school building, a library, a learning centre. Further research in order to evaluate and improve methods and tools should be undertaken.

In order to create authentic learning environments for Interior & Service Design students, the ideal situation would be that a design proposal can be executed. Obviously an execution of students' interior/space & service design is not always guaranteed.

The design of spaces for services necessitates more than a new design attitude. It entails specific knowledge and new skills on top. By offering a course which addresses two inseparable concepts we aim at setting up a constructivist, authentic learning environment for future-proof designers.

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[ii] http://www.samenlevingsopbouw-antwerpenprovincie.be/nl/over-ons_2.aspx