

Children and design students practicing playful co-creation in a youth creativity lab

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Biography

Eva Liisa Kubinyi is a designer focusing on children's roles within society, alternative educational systems, and the importance of free play. Her works include installations, workshops, services, products, and patterns. She holds a Master's in Child Culture Design from HDK-Valand (SE). She is currently based in Tallinn where she works as a designer in a youth creativity lab called VIVISTOP Telliskivi. She also teaches elective courses on social design and design for play at the Estonian Academy of Arts.

Vera Naydenova has a background in psychology and previous teaching experience at the primary level. She obtained a master's degree in Social Design—Arts as Urban Innovation from the University of Applied Arts Vienna in 2016. She is currently employed at VIVISTOP Telliskivi and is responsible for creating content for workshops and guiding children's activities.

Kristi Kuusk is an Associate Professor and senior researcher in the Design Research Group at the Estonian Academy of Arts. She is also Head of the Textile Design department and co-head of the Art & Design doctoral school. Her interest is in finding alternative futures for clothing and textile design via the implementation of technology. She combines practice of collaborating as a selected laureate in EU projects such as STARTS Residencies, WORTH Partnership Project with presenting and publishing research in international venues.

Abstract

This paper reports on a university course focused on child-centred design and conducted in spring 2020 in a local creative lab for children in Estonia. In the project described in this paper, through playfulness, children and design students experienced a shared reality, overcame power differences, and built trusting, respectful relationships. Children’s participation was based on their own free choice and triggered experiences of wonder. Co-creation was further aided by transparent objectives, shared decisions, and collective reflection on outcomes. The co-imaged concepts developed in the course evidenced the value of involving children as design partners at the fuzzy front end of an open-ended design process.

Keywords

Child-centred design, Playfulness, Design education, Co-creation, Co-design, Children’s participation, Creative learning spaces

Introduction

Throughout history, socio-economical, cultural, and demographic changes have affected the perceptions of childhood and the expectations of children’s roles in society. Until the late 19th century, children as young as 7-8 years old were considered “pocket-sized adults” (Dasberg, 1975; as cited in Jans, 2004, p. 32), and expected to contribute financially to their family by way of active employment. The social construction of childhood, a product of modern philosophical and scientific thought, marked the beginning of the era of the “cherished child”: a “transition from a command household to a negotiation household” (de Swaan, 1982; du Bois-

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Raymond, 2001; as cited in Jans, 2004, p. 33), characterized by a redefined, equal relationship with children both in the family, where they benefit from the care and protection of their parents, and in society, where they have become a distinct and respected social group (Jans, 2004). A new level of children's participation seen as "the process of sharing decisions which affect one's life" (Hart, 1992, p. 5), was sought after and encouraged in the end of the 20th century especially when decisions were directly related to their learning and development. These fundamental changes in attitudes towards children, however, were not positive alone. The pendulum in the 21st century swung towards overnutrition and pre-planned leisure activities, with children enjoying progressively less time and freedom to organise their play and recreation. Overregulated spaces, structured time, and goal-oriented learning, rather than free exploration and play, has since become the norm. Nevertheless, children's ability to self-organise is critically connected to democratic practices and their capacities for active citizenship later in life. The activities described in this paper implicitly address children's need for active participation and emphasize the value of involving children in the decision-making processes that allow the practicing of democratic values from an early age.

Children and design education

Childhood as a social construction cannot be viewed separately from the design of children's environments as the latter affects their health, autonomy, and imagination. From toys to playgrounds to schools, design practices influence children's abilities to exercise their rights and participate in democratic decision-making processes (Lange, 2018). Design could empower children, but also hinder their voices, depending on whether it treats them as plain product consumers rather than co-creators of their own realities (Table 1). The protection of children's need for unconstrained and self-directed exploration of their surroundings, so crucial in the development of skills necessary for the future (e.g. creativity, self-initiative, collaboration), necessitates

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a certain conscientization and responsibility on the part of design practitioners. Successful outcomes depend on the level of awareness on behalf of design practitioners regarding the value and potentials of departing from the child's point of view in the design process.

1	<p>Everyone can use. I need a product that does not discriminate against characteristics such as gender, age, ability, language, ethnicity and socio-economic status. Keep in mind that I might use your product even if it is not designed for me.</p>
2	<p>Give me room to explore and support my growth. I need to experiment, take risks and learn from my mistakes. If/when there are mistakes, support me to fix them by myself, or together with an adult. Encourage my curiosity, but consider my capabilities.</p>
3	<p>I have purpose so make my influence matter. Help me understand my place and value in the world. You can help me do this by involving me as a contributor (not just a consumer). I want to have experiences that are meaningful to me.</p>
4	<p>Offer me something safe and keep me protected. Make sure your products are safe for me to use and do not assume anyone else will ensure my safety.</p>
5	<p>Do not misuse my data. Help me keep control over my data by giving me choices about what data to share, for what purpose and let me know how my data is used.</p>
6	<p>Create space for play, including a choice to chill. When using your product or service, consider different moods, views and contexts of play. I am active, curious and creative but guide me to have a break and do not forget to also offer me some breathing space.</p>
7	<p>Encourage me to be active and play with others. My well-being, social life, play, creativity, self-expression and learning can be enhanced when I collaborate and share with others.</p>
8	<p>Help me recognize and understand commercial activities. Label advertising clearly so I do not confuse it with other information.</p>
9	<p>Use communication I can relate to. Make sure that I understand all the relevant information that has an impact on me. Consider all forms of communication and make it accessible to all. Keep in mind that age, ability, culture and language impact my understanding.</p>
10	<p>You don't know me, so make sure you include me. You should spend time with me when you design a product or a service that I may use. My friends, parents, teachers, and communities also care about your product or service so include them in the process as well.</p>

Table 1. Key principles in designing for children (adapted from the Designing for Children's Rights Guide).

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Nevertheless, even when designers are well-intentioned and sensitized to these issues, they encounter practical barriers to involving children in their design practice. These usually stem from educational methodologies which neither compensate for a general unfamiliarity with children and their everyday lives, nor allow access to relevant knowledge, tangible experiences, and interdisciplinary exchange (Feder, 2019). Moreover, the limitations and inapplicability of conventional user-centred design methods, e.g. interviews and surveys, when co-creating with children, are rarely addressed in design education. Sanders and Stappers (2008) argue that making co-creation part of design practice results in blurring the boundaries between design and research and calls for new design tools and methods, but also new ways of thinking about and approaching how we design, what we design, who the designer is and how data is analysed. Expertise in facilitating the initial stages in the co-design process is viewed not only as a necessary part of the designer's skillset but even as a potential design specialization (Sanders and Stappers, 2008). The authors discuss further the current confluence of various design approaches, from the user-centred (i.e. the user as a subject) to the participatory (i.e. the user as a partner). In the context of these changing landscapes of design, they suggest the broader term co-creation to delimit "any collective act of creativity" (Sanders and Stappers, 2008, p. 6), and co-design to refer to specific instances of co-creation or "collective creativity as it is applied across the whole span of a design process" and "the creativity of designers and people not trained in design working together in the design development process" (p. 6). Co-creation design practices have been evolving to overcome the shortcomings of traditionally passive possibilities for children's participation. As opposed to participatory projects—where children are invited to take part in inquiries—in co-design, designers are welcomed into the environments and experiences of children.

The responsibility to utilise tools that create relationships of non-hierarchy and reciprocity between adults and children lies with designers. Genuine participation, characterised by trans-

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parent objectives, shared analysis, decisions, and reflections on outcomes, leads to a design process that holds the potential to empower participating children to articulate their needs, communicate their realities and generate new, transformative knowledge for all involved parties. Co-creation practices in the preliminary stages, commonly referred to as ‘the fuzzy front end’, where the objective is to determine what—if anything at all—needs to be designed, influences positively design projects in the long run. Thus, they precede a traditional design process where ideas are developed from concepts to prototypes to refined products, services, interfaces, or experiences. Moreover, when used throughout the process at key decision-making points, they potentially contribute to the handling of complex situations involving specific user groups.

The growing need for design education to adapt to new ways of living and making sense of the world and to involve various social groups in the design process increased the demand for unique, individual approaches as well. Over the past decade, courses designing for or involving various social groups and individuals into design practice have taken place in University College London (Rogers et al., 2014), Sense (Vogelpeel and Jarrold, 2014), The Open University (Giles and Linden, 2015), Newcastle University (Meissner et al., 2017), Bauhaus-Universität Weimar (Honauer et al., 2019), among others. Also, the Estonian Academy of Arts has involved stakeholders of different backgrounds into the textile design curricula to explore the rich space of social design (Chen et al., 2016) from various angles. Most recently, in 1) 2017, students designed educational tools involving therapists working with children with various spectrums of alertness sensitivities in a local children’s hospital (Kuusk and Nimkulrat, 2018); 2) 2018, people with various cognitive abilities and their therapists at a support centre were involved to create interactive artifacts for their daily life (Kuusk and Nimkulrat, 2019); 3) 2019, children studying at a boarding school for children with special needs were involved to design developmental and fun artefacts for children to enjoy during break times (Kuusk and Nimkulrat, 2020). Those collaborative experiences have resulted in rewarding design processes, where design stu-

dents tap into an unknown environment and contribute to the lives of people they design with. However, as the projects have taken place in very delicate settings, the communication between the students and people with various cognitive abilities has primarily been mediated by the therapists in the involved institutions. In order to close that gap and for students to experience how to develop a co-design process in direct contact with children, in 2020 an elective course at the Estonian Academy of Arts focused on co-creation with children in the context of a local creative lab for children and youth.

Playful co-creation practices with children

Stemming from the above implications, the objective of the course reported in this paper, titled *Social Design*, was to offer a specific situation and guide design students through co-creation with children at the fuzzy front end, allowing them to experiment with, develop and incorporate some of the essential elements of playfulness into their design practices. Within the frame of the project, a common understanding was reached among students of *child culture* as distinct from the *culture constructed for children*. Child culture is mediated through play and characterized by free choice, while play is understood as the particular forms of expression and communication, and ways of meaning creation inherent to children and inspired by the culture they live in (Mouritsen, 2002). The value of play and playfulness as a vehicle for creativity and key to children's learning has been long recognised in the social sciences (Dewey, 1944; Huizinga, 1955; Piaget, 1971; Vygotsky, 1978). More recently, it has been tapped into in the context of educational research in school settings, for example, the Pedagogy of Play, Project Zero (2015) research initiative, carried out in collaboration with the International School of Billund in Denmark and the LEGO Foundation. The ongoing processes of democratisation in institutionalised spaces of learning are accompanied by a growing demand for alternative environments where project-based learning, play, and creativity are encouraged and to various

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degrees driven by the participating children themselves, such as after-school activities, hobby clubs, makerspaces, innovation labs. In this paper, it is argued that such settings, characterized by ambiguity, spontaneity, and autonomy, provide suitable experimental grounds for the testing of playful co-creation design practices. Design research and education conducted in the context of creative learning spaces for children can benefit from this experience and in turn inform *child-centred* educational practices.

However complex, the debate around the notions of play and playfulness has reached a degree of consensus regarding play as a pleasurable, spontaneous, non-goal-oriented activity, and playfulness as an attitude, a predisposition to interpret an activity as play (Barnett, 1990; Barnett and Owens, 2015; Lieberman, 1977; as cited in Mardell, et al.). Playfulness can therefore be viewed as an approach to reframe a situation so that it enables enjoyment, exploration, and flow (Csikszentmihalyi, 1990). As a guiding principle, playful activities should be purposeful and related to the design objectives. They should promote creative thinking, encourage a playful mindset in all participants, the testing of new ideas through role-play and reversal of roles, and be implemented in collaboration (Mardell, et al.).

In a process of co-creation, play emerges when children and adults engage based on shared and free choice, driven by intrinsic motivation arising from the meaningful implications of the design problem at hand. In play, children and adults co-create a shared reality, overcoming the power gap in their relationship (Christensen, 2004). They experience a sense of wonder getting to know each other and the newly created shared space, and delight in the sense of community that is formed in the process. These elements of choice, wonder, and delight have been identified as indicators for playful learning (International School of Billund, 2019). Choice is understood as a sense of ownership, autonomy, and intrinsic motivation. Design should allow for enough ambiguity for children to be able to create meaning through their actions, through play. This ensures that their “action capacity” translates into the design outcomes without any

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“fixed actions” prescribed (Gielen and Leeuwen, 2016, p. 95). Wonder relates to the readiness to improvise, explore, imagine, and invent, learn through trial and error. In line with the above, the Theory of Loose Parts proposed by architect Simon Nicholson in 1972 addresses the downsides of static environments, especially for children, and offers an alternative way of creating spaces using modifiable elements or “loose parts” that invite more playful inventiveness, discovery, and creativity (Nicholson, 1972). The playability of these variables is what allows children to take part in the design process of a space. Thus, in this project, playful practices were employed and supported by the open-endedness and adaptability of the design process in a laboratory-type environment to encourage participation. This created an engaging and safe atmosphere that allowed for emotional bonds to form between children and students which in turn generated delight, i.e. feelings of satisfaction, inspiration, excitement, joy, and belonging.

Project context

VIVISTOP Telliskivi, part of the international VIVITA network, is an open-plan workshop and innovation studio which offers local children an after-school environment to experiment with professional tools and materials. VIVISTOP is driven by the value of giving children between the age of eight to fourteen a possibility to learn at their own pace and driven by their interests. With the support of professional mentors, engineers, programmers, designers, and pedagogues, children realise self-initiated creative projects. The timeframe of the academic course aligned with VIVISTOP’s relocation plans and therefore the conceptualisation and design of the new space served as a starting point for the collaboration between VIVISTOP Telliskivi and our team from the Estonian Academy of Arts.

Participation in the course was voluntary for both the children and the design students. Altogether, fourteen children aged seven to thirteen and eight design students participated in the course. The students had various cultural and professional backgrounds: four of them came

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from Estonia, one from Latvia, one from Columbia, one from Belgium, and one from Australia. Three students were studying Textile Design at MA level and one at BA level, the others were studying Glass Art and Accessory Design at MA level, Interior Architecture and Industrial Design at BA level.

The children, as the future inhabitants and users of this space, were intrinsically motivated to take part in the project. Through multiple encounters and playful scenarios enacted by the team of students and tutors together with the children, familiarity and trust gradually built between the students and the children. The experimentation with various everyday materials in a safe atmosphere triggered meaningful interactions and the sharing of information in the group organically.

Course structure

The course took place from January until May 2020 with weekly or bi-weekly meetings (Table 2). The co-creation sessions numbered 1 to 6 involved students co-designing with children. The meetings moved from the old to the new premises of VIVISTOP Telliskivi as soon as renovation works were completed. In April 2020, due to the global COVID-19 pandemic, which affected both the university and the creative lab's activity, the remaining half of the course continued via online sessions. The course had two tutors who also work in the creative lab as designers leading children's workshops and activities.

The course started with an introduction to the key principles in designing for children defined by the *Designing for Children's Rights Guide* (n.d.). Inspired by this, the below steps in the design process were formulated by the students under the tutors' guidance (Table 3).

In the first co-creation session, students were led blindfolded by the children through the space of VIVISTOP Telliskivi in an exercise to shift power relations (Figure 1). Children and students first experienced co-designing arcade games out of cardboard.

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Week 1	Defining the design process. Introduction to the context and the course objectives. Introduction to tutors' and students' backgrounds. Visiting the new space and planning next steps.
Week 2	Co-creation session 1: Meeting with the children. Play mapping of the neighbourhood area. Playful introduction to the space of the creative lab. Arcade building with children.
Week 3	Theoretical framework. Discussion of reading assignments. Identifying project guidelines and committing to common values. Planning on how to involve the children in the design process.
Week 4	Co-creation session 2: Ideation. Active ideation through drawings and open discussions. Playful experimentation with materials.
Week 5	Independent work: desk research.
Week 6	Co-creation session 3: Analysing data and choosing ideas. Reflection on the design process so far and the data collected. Planning on how to involve the children in the analysis of data. Further idea generation in small groups.
Week 7-8	Independent work: mid-term self-reflection and documentation.
Week 9	Meeting halfway. Individual tutoring (online). Mid-term feedback and reflection session. Analysis of collected materials visual and textual data. Identifying children's needs and underlying values. Reflection on how ideas relate to students' expertise, skills and interests. Planning for the next session with children.
Week 10	Independent work: materials research and experimentation.
Week 11	Co-developing concepts. Individual tutoring (online). Further generation of ideas. Preparation of prompts for children to co-develop concepts. Planning for the next session with children.
Week 12	Independent work: prototyping.
Week 13	Co-creation session 4: Sharing feedback (online). Interactive session with children via video conferencing. Feedback and refinement of ideas.
Week 14	Independent work: preparation for final presentations.
Week 15	Co-creation session 5: Planning presentations together (online). Interactive session with children via video conferencing. Commitment to present concepts together. Planning further prototyping.
Week 16	Co-creation session 6: Presenting concepts together (online). Public interactive session with children via video conferencing. Presentation of the current state of the concepts. Discussion of future directions.

Table 2. Weekly distribution of course meetings and co-creation sessions. © Estonian Academy of Arts.

Next, students discussed relevant theoretical texts selected by the tutors to situate the project in the wider context of child culture (Hart, 1992; Jans, 2004; Mouritsen, 2002). They committed

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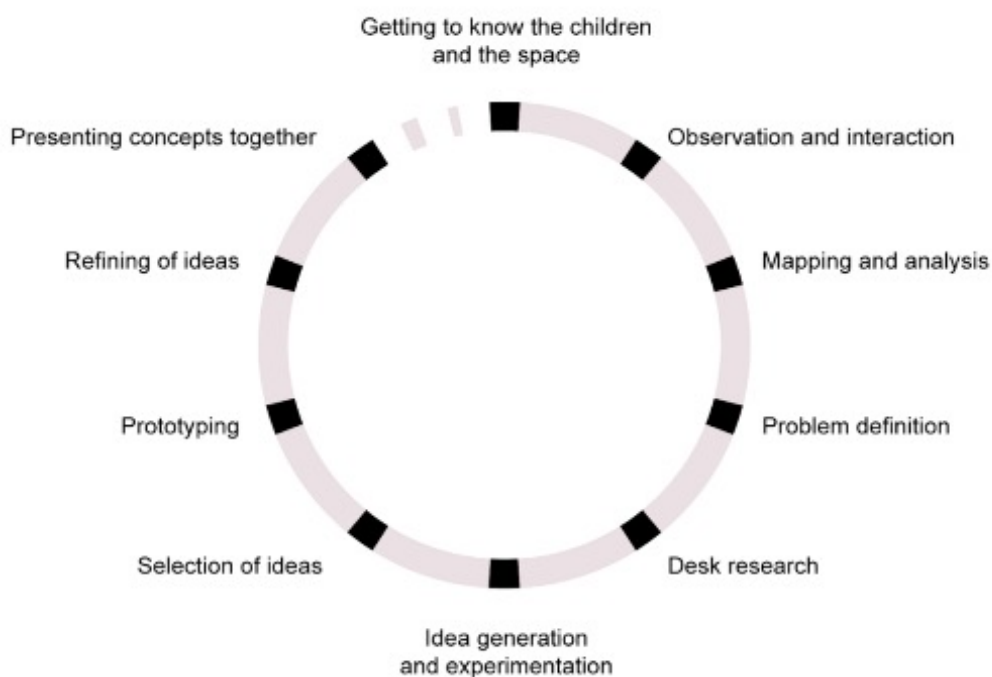


Table 3. The design process as negotiated with students. © Estonian Academy of Arts.



Figure 1. Children navigate students through the creative lab. © Estonian Academy of Arts.

to “shared decisions with children”, meaning that children were to be involved throughout the whole process, from defining potentials to ideating, and presenting synthesised ideas to debating final outcomes. After an introduction to the project’s objectives, active ideation with children

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began. Students tested familiar ideation methods using only pen and paper and tested other self-made or leftover materials (Figure 2).



Figure 2. Children and students ideating. © Estonian Academy of Arts.

The students proceeded to analyse the data with the children. Ideas were collectively written down (Figure 3), then further developed by the students, then shared and commented on by the children. The students were encouraged to analyse the process through written self-reflections, making sure that their partnership with children was based on shared motivations. Due to the restrictions related to the COVID-19 pandemic from this point onwards future co-creation sessions were held online and communication with students and children happened via email.

For the children to get familiar with the proposed concepts, the students created open-ended practical challenges, such as drawing sketches, on VIVISTOP Telliskivi's Instagram page. Meanwhile, they participated in individual tutoring sessions online to receive feedback from the tutors and plan the next steps. After no response to the proposed practical activities, children were invited to meet with the students via the video conferencing platform Zoom. Different interaction possibilities were actively used: from open discussion to writing and drawing directly on the shared screen to commenting in the chat (Figure 4).

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Figure 3. Children present their dreams to other children and students. © Estonian Academy of Arts.



Figure 4. Meetings continue through interactive sessions online. © Estonian Academy of Arts.

The next online session focused on the children's and students' shared responsibility to communicate their co-created concepts. In the final online presentations, students and children shared their collectively imagined concepts with VIVISTOP Telliskivi's team members, professors from the Estonian Academy of Arts, and tutors. Six concepts in total were presented and

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analysed, with children being given the possibility to explain the ideas in their own words, show practical examples they prepared to illustrate them, and highlight what was most important to them.

Students' and children's co-imagined proposals

Throughout the process, from the various ideas expressed by participating children surfaced their need to not only create and play actively but also relax in VIVISTOP. They wished to be “alone together with others”, enjoy a moment of solitude and the opportunity to share their creative projects both within VIVISTOP and publicly, with their friends and families, and the community. The spatial qualities of the new studio allowed for children's creative projects to be scaled up, but also for new possibilities of action and play to be seized. In comparison, the new premises consisted of two floors connected by staircases, a well-lit spacious common area, woodworking workshop, many niches, and nooks (Figures 5, Figure 6).



Figure 5. Arcade building in the old premises. © Estonian Academy of Arts.

Playfulness, relaxation, and solitude were seen by the children as part of their creative process and needed to be incorporated into the studio experience. The open-ended design process

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Figure 6. Playful experimentation with materials in the yet to be inhabited new premises. © Estonian Academy of Arts.

enabled the students to reveal the children's genuine desires. The students were initially surprised and eventually motivated by how imaginative, sincere, and eager to share the children were:

The feedback from the children after each meeting was immeasurable and really helped me push forward with the project. They often mentioned a lot of things that I hadn't even thought about myself. (Student's self-reflection)

In playful collaboration, they explored multiple possibilities to recreate the space which informed seven different design concepts (Figure 7 to 13), from permanent structures to workshops and events which considered VIVISTOP Telliskivi's existing program and available resources.

These concepts reflected children's interests and offered novel insights that had not yet emerged during their visits to VIVISTOP Telliskivi. Even if not finalised design proposals, they represent fruitful outcomes of the children's participation and the students' open, explorative mindset. The design students were encouraged to view these co-imagined concepts as the

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Figure 7. “Games with elastic rings” workshop. A project exploring the play potential of textile leftovers from the socks manufacturing. Children created various objects from elastic rings that inspired play interventions. © Carolin Freiberg & Estonian Academy of Arts.



Figure 8. “Free experimentation with materials and kitchen tools” workshop. A workshop concept exploring unconventional ways of using kitchen tools to create various textures and surfaces, with the aim to develop children’s creativity and let them explore, discover, and learn alongside adults as supportive and inspirational figures. © Zane Shumeiko & Estonian Academy of Arts.



Figure 9. “Pontsik” soft modules. A soft modular object enabling kids to relax, but also to design various activities through interaction. It is made of several geometric modules which can be combined, stacked as a tower, or used separately. © Grete Rüttnann & Estonian Academy of Arts.

actual starting point in the design process and articulated their willingness to continue developing them through further iterations and prototyping outside the course timeframe.

From playfulness to child-centeredness

Involving children in the preliminary stages of the design process without any agenda is a crucial element of child-centred design practice which takes the child and their needs as the starting point in the design process, as analysed by Feder (2019). As opposed to product-oriented and material-based approaches, it prioritises engagement and shared learning that lead to relevant outcomes (Kolb, 1984, as cited in Feder, 2019), and not outcomes themselves. Among other characteristics of child-centred design, identifiable and discussed above in relation to this project, are sharing a safe, familiar space (Stålberg et al., 2016), an honest dialogue (Smith, et al., 2016), being driven by inner motivation and open to experience unexpected

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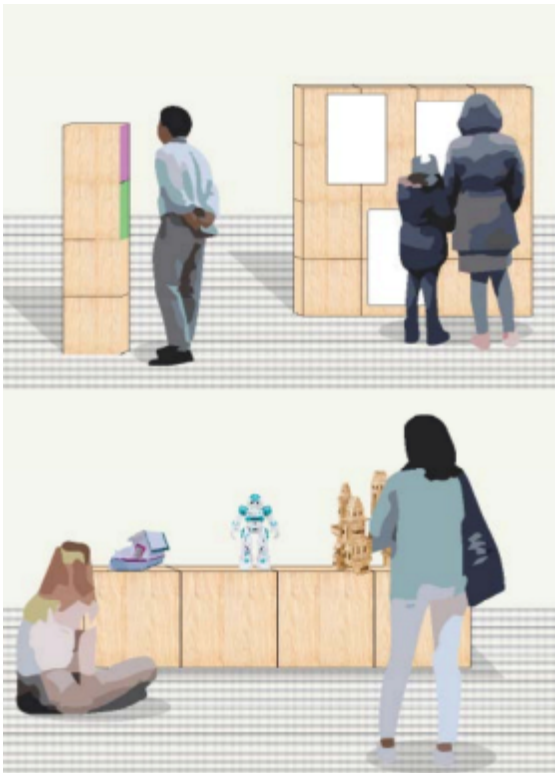


Figure 10. “BUILD-A-BOX” workshop and public events. A workshop for children to build and personalise their own wooden cubes. These DIY structures can be combined into a bigger storage unit as well as used by the children to organise an exhibition of their projects. A series of pop-up exhibitions would follow for the children to share their creations with friends and family. © Courtney Beth Daniels, Florence Libon & Estonian Academy of Arts.

surprises, accepting the child as the expert and the designer being self-reflective on their practice. Leading the design students through an open-ended exploration of a new environment and situation served as a basis to address the underlying design mindset needed when co-creating with children. The project could be viewed as a first attempt in the direction of “teaching for mindsets” (Feder, 2019, p. 162); however, more research and application of playful methods in design education is necessary. Students could be further guided in adapting co-creation tools known from the disciplines of user-centred or participatory design, but also methods used in psychology, anthropology, ethnography, etc. such as shadowing and observation. Playful co-



Figure 11. “Tree with your names” wall installation. A concept offering children the possibility to build their own wall installation: a tree with leaves carrying the children’s names, and a small hiding space inside. © Kerli Tamm & Estonian Academy of Arts.

creation practices could be considered preliminary to a child-centred design process, allowing for potentials and opportunities to be identified without any prior preconceptions or expectations. Sharing playful experiences with children, designers enter an exploratory state of mind and become more accepting of and open to the unknown and the surprising. This prepares them to move observing from the outside to being in the experience with children, and thus beyond co-creation tools and methods and towards co-creation *mindsets*, i.e. designing *with* rather than designing *for* children.

Discussion

The process described here in detail offered design students unique insight into children’s perspectives, desires, and needs. It also inspired children by exposing them to the design students’ motivated engagement and their ways of working. Creating the right conditions for

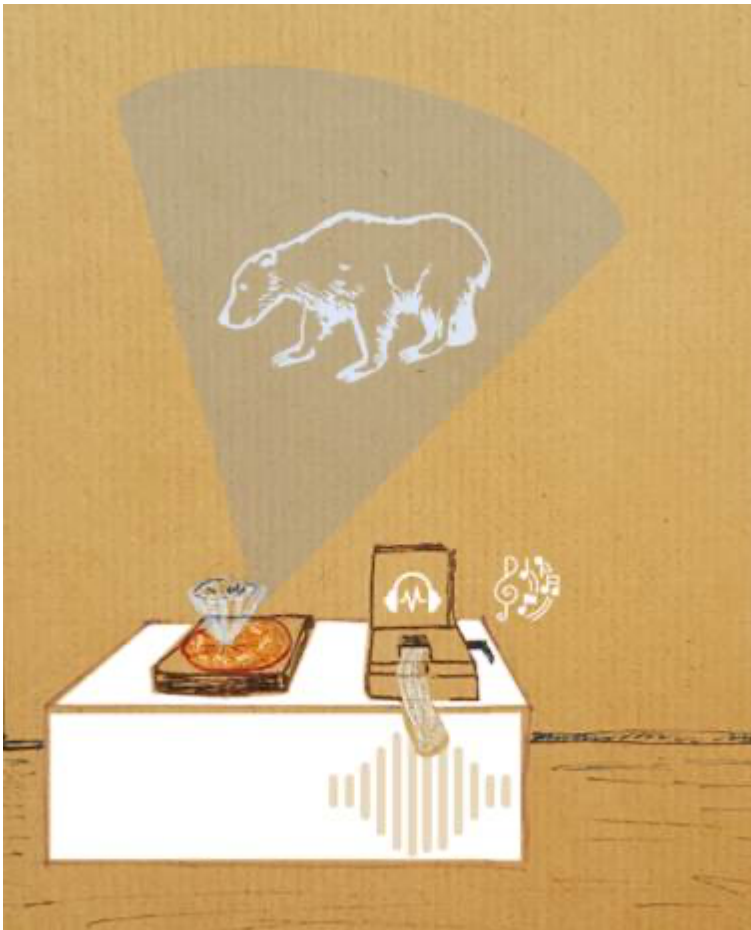


Figure 12. “Draw and compose” analogue machine. An interactive machine consisting of a praxinoscope and a music box, for children to play intuitively and create sound and visual experiences. © Claudia Marcela Diaz Reyes & Estonian Academy of Arts.

children to participate in a design project allows them not only to articulate their own voices but also to discover and learn to respect the rights of others that might have very different voices (Hart, 1992).

Children and design students as partners

As the project was realised in partnership between the Estonian Academy of Arts and VIVISTOP Telliskivi and thus was adult-initiated, students and tutors committed to a process



Figure 13. “Wigwam” structure. A wigwam structure offering children a cosy shelter. Made of branches and natural fabrics which children can decorate using different printing techniques. © Anete Vihm & Estonian Academy of Arts.

that would enable shared decision-making. This made it possible to engage children as equal design partners and supported genuine participation. The process-oriented approach to the initial design brief meant that students had to let go of any preconceived notions and attitudes they might have had regarding designing for children and assume new responsibilities in designing with children. They could no longer rely on familiar ways of using materials as starting points or collecting information through interviewing. Instead, they also had to identify where their personal skills and preferences intersect with the children’s expressed needs and interests while responding to them and interpreting their interactions in an authentic and open manner:

While working as an extra tool that is driven by children’s dreams, we are currently ears and translators into this specific context. (Student’s self-reflection)

Eventually, this is what led to child-centred design concepts co-imagined in partnership between children and design students. Most importantly, the process allowed for the practic-

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ing of soft skills: listening, asking open-ended questions, making sure everyone's opinion is heard, communicating decisions openly, and being honest, to oneself and others. Having built trust through playful interactions with the children, designers felt more confident in interpreting their words, behaviours, and creative output, and identifying hidden values and desires, beyond what's explicitly expressed. Students learned to embrace the ambiguity and unpredictability of the process and grew more comfortable with changes and iterations, a shift in thinking they noted themselves:

At first it was difficult to realize or to define the ways and the design tools to use since we have trained to fix a concrete problem using concrete tools for it in quite a narrow way. It took a second to realize that the process of what we are creating is already something and surely the importance of it. (Student's self-reflection)

An effective partnership in co-creation with children involves the designer's ability to self-reflect on their practice and experiences. Engaging in playful co-creation allowed students to experience unexpected surprises which triggered self-reflection and had the potential to lead to changes in their mindsets. Because of sharing responsibilities and collaborating with children, students needed encouragement in relying on their own expertise, skills, and strengths, as well as in following their real interests. This uncertainty that came with designing at the fuzzy front had to be navigated by the tutors, which is why every session ended with a reflection round, where students openly expressed their current state of mind and discussed future steps. As a result of this, students became more aware of their own practice and were able to make deliberate readjustments to their approach while designing with children (Schön, 1983).

Mutual understanding, transparency, and dependability are key to building a trusting partnership between children and designers. This, in turn, leads to the design of objects, environments, or situations which tend to the children's genuine needs. In the long run, child-centred

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approaches provide for more sustainable and durable design solutions. In the final co-creation session, the children shared that it was interesting and enjoyable for them to take part in the project, and what they appreciated the most was being listened to and treated with respect. They found it important that their participation continued online despite the challenging circumstances. Even if it was no longer possible to interact in person during the second half of the project, some students saw an opportunity in including their own children in the design process. The course inspired a new perspective on their role as designers in the context of their home and family life and vice versa, highlighting the potentials for bringing these together:

Playful, free-experimentation process itself had great value. It felt also as a stress release and contributor of togetherness and child-parent connection. (Student's self-reflection)

Elements of playful co-creation: experiential learning

The children's strong sense of ownership of the space and hence their motivation to get involved were supporting preconditions for the project and informed the course conceptualisation. However, from the onset of the project, the students had freedom and control over the process, with practicalities and the applicability of specific methods being discussed with tutors and decided upon along the way. Learning through experience, they identified key elements that encouraged playfulness and thus influenced children's participation and their building of an effective partnership. The importance of both students' and children's voluntary participation, i.e. free choice, in this project was evidenced by the participants' high level of motivation to engage in the activities and communicate with each other. The different methods used to collect and analyse data, make insights and decisions together further complemented and supported genuine participation throughout the process. In group discussions, children had the opportunity to

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talk about their ideas and feelings in detail, as well as to vote on which ideas to explore further, sharing their arguments.

Led by the children, design students responded with concepts that offered open-endedness and multiple action possibilities based on the choice of materials. For instance, one workshop concept combined kitchen tools with unconventional materials (e.g. salt dough, sand, bioplastic) to create various surfaces and textures. Another involved using leftover fabric rings to create ambiguous, playful objects. These ideas were born from playful practices that yielded conclusions regarding the choice of materials and their playability, i.e. the materials' capacity to create a situation where communication and trust arise from play. In such circumstances, when children feel connected to the topic being researched and trust is built with the adults around them, simple tools such as pens and paper can suffice as prompts for further cooperation. However, materials that are inherently more playful, such as the elastic fabrics and bean bags brought by the design students, stirred more excitement and physical interaction, serving as better triggers for the sharing of untold stories and secretly harboured desires.

A sense of wonder was evoked not only by experimentation with materials but also by the incorporation of "loose parts" during the co-creation sessions and within the final proposals. Among the proposals which reflected free choice in their support of children's action capacity and ability to self-organise were the modular storage unit and the 'Pontsik' soft modules. They both had to take proportions and materials into account so that they would be easily lifted and rearranged by children themselves.

Playfulness through using loose materials blurred differences in power, allowed for open interpretation, and created more fun. Coupled with different ways of arranging, making use of, and being in the space to incorporate the elements of choice and wonder (Figure 14), it led to a relaxed, informal atmosphere and a sense of delight among all participants.

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Figure 14. Design students and children working together with loose materials. © Estonian Academy of Arts.

Challenges

Since the deliberate open-endedness of the course accounted for confusion and lack of direction among students, in hindsight, an introduction to more practical examples and hands-on methods suitable for co-designing with children is deemed necessary. Although some tools were brought up in open discussion, their application in the process, with the children present, proved difficult to plan and control. However, the ability to improvise creatively with methods and tools and to respond appropriately to the requirements of the situation is necessary for a preliminary design process. Time is another important constraint in any design project and even more so when children's participation is concerned. In the future, similar projects could benefit from different timeframes, to allow participants to interact intensively and in a more focused manner over a shorter period. Overall, the COVID-19 pandemic significantly impacted the structure, the outcomes of the course, and the engagement level, hindering group work, negatively affecting children's motivation to participate, obstructing direct and playful interactions, and making joint physical prototyping impossible. Lack of experience about online co-creation methods

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made children's participation very challenging, unfortunately; students had to take an active role finalising the concepts as children primarily gave oral comments. Communicating through online platforms turned out to be challenging not only to children but also to the students.

Despite the theory pointing towards the need for practicing children's participation at the fuzzy front end of the design process, this project met only partially this objective. Genuine children's participation is much more complex and time-consuming; therefore, creating new methods within this discourse needs more practical experience. However, a mindset shift among the design students has been certainly achieved. This project is the first attempt towards the active involvement of children in an academic course in the Textile department of the Estonian Academy of Arts. A partnership between the design academy and VIVISTOP Telliskivi has only started and it hopes to create more meaningful co-creation knowledge with children in the future.

Future steps in the project

This collaboration project was yet another attempt to close the gap between theory and practice. Welcoming design students in the creative lab for children generated insights that would have otherwise been difficult to access. VIVISTOP Telliskivi as an environment marked by children's voluntary and self-motivated participation offered ample grounds for designers to practice co-creation design while sharing meaningful experiences with children. This paper discussed relevant theories in this field that formed the wider theoretical background for the presented project, offered an alternative structure for a design course built around children's participation, and mentioned the potential challenges arising from it.

As the collaboration between the design students and the children only arrived at concept proposals, the students were offered further support by VIVISTOP Telliskivi to continue co-designing and implementing the imagined ideas physically in the studio, after the end of the

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course. Two of the students expressed their interest to materialise their workshop proposals. “Free experimentation with materials and kitchen tools” and “Games with elastic rings” workshops were organised over summer 2020. In the future, VIVISTOP Telliskivi could serve as an open platform for design students to get acquainted with the lives of children and co-develop any concepts together that are also of interest to the children. In the context of design education, the partnership could continue in the form of short-term, intensive learning experiences for design students to test, practice, and develop playful co-creation methods with children.

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