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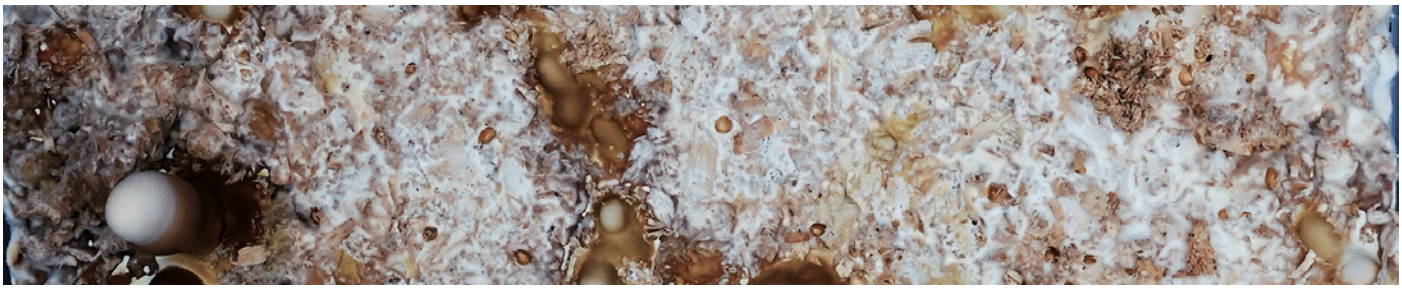

Vid. 1: Reishi fungus growing in woodchips in grow tent. Video by Elina Koivisto and Kalle Kataila.

Rethinking material relations through feminist architectural practice

Elina Koivisto

Abstract

This practice-led research exposition by architect-researcher Elina Koivisto explores how conducting architectural practice through the framework of feminist spatial practice can provide possibilities for un-learning harmful habits and reaching towards uncertain speculative futures. The case study project *Kudos – Library for Material Relations* realized in Espoo, Finland as a co-creative process between human and non-human participants, provided a lens through which the current material and social relations in architecture-making were challenged, applying the conceptual thinking of posthuman feminist thoughts on care and interconnectivity. Reflecting on the project, architecture is seen as a tool for feminist becomings rather than as a producer of mere artefacts, and meaning and significance are found in the process of its making.

Keywords

Practice-led research; architecture; feminist spatial practice; posthuman feminism; relations; care; bodily knowledge; unlearning; co-creation; more-than-human; mycelium; clay

"The strangest thing is not what you don't understand, what you didn't understand to begin with. The strangest thing is what you thought you understood but the understanding of which you suddenly lost. Then obvious becomes incomprehensible. The simplest of things can loose it's foothold, turn into a question."

(Liehu 1998). Translation by Koivisto.

Material texture by Ganoderma Lucidum, Elina Koivisto and recycled sawdust. Photo by Elina Koivisto.

Introduction

This exposition examines the evolving process of making the architecture and research project *Kudos – Library of Material Relations*, conducted mainly at the campus area of Aalto University, Finland in 2024, funded by Kone Foundation and Aalto University. The project explores how posthuman feminist[1] concepts of reciprocal care (e.g. Bellacasa 2017) and distributed agency (e.g. Bennett 2010) could be embedded in architectural practice. The aforementioned theoretical concepts were turned into practical action, through principles provided by feminist spatial practice[2]. Theory and practice slowly seeped into one another during the practice–led research[3] process which was documented and reflected on both during and after the process.

Background

We are living on a damaged (Tsing et al. 2017) and a broken planet (Fitz & Krasny 2019). It is not only an environmental crisis that we are living through but what critical theorist Nancy Fraser calls a general crisis of environmental, political and social degradation that forces us to question many of our current habits (Fraser 2014). The entanglements of architecture in these crises are strong. The construction sector accounts for half of the world's usage of raw materials. One third of global green house gas emissions are related to the built environment. The effects of environmental changes are felt most in the global south, although they are often caused by the activities of western countries. The need for turning this development towards a less harmful path is urgent. (IPCC 2023) However, the search for more sustainable solutions in architecture is often approached as a techno-scientific, mathematical exercise where relationalities, interconnectivities and the lived, human experience is neglected (Brennan 2011). Jane Rendell claims that: "The modes of working characteristic to a feminist approach to critical spatial practice are highly appropriate for tackling the three-stranded collapse of ecology, energy and economy that faces us now - -" (Rendell 2018). A more caring and embodied approach is needed.

I search for new paths through posthuman feminist thought. Feminist thinker Maria Puig de la Bellacasa claims that: "Interdependency is not a contract, nor a moral idea - it is *a condition*." (Bellacasa 2017, italics orig.) A condition we must accept to be able to continue living on this planet. Posthuman feminist thoughts on interconnectivity are not new ideas. Even in Western discourse they have been discussed for quite a long time (e.g. Uexküll 2010 [orig. 1940]).

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1 Posthuman feminism is an umbrella term coined by feminist philosopher Rosi Braidotti for gathering several relevant streams of thought in the posthuman turn for feminist theory and practice, calling for solidarity, care and compassion in the reconstruction of possible posthuman futures. (Braidotti 2022).

2 Feminist Spatial Practice, coined by Professor Meike Schalk et al. (2017) and built on Professor Jane Rendell's (2004) concept of critical spatial practice, entails different forms of spatial practices combining research and practice in order to reveal and research possible futures. Rendell's concept sees architecture as a methodology, not only an end result (Rendell 2011, p.92). By replacing the word critical with feminist, Professor Meike Schalk et al. then added a perspective of projecting, activating and enacting alternative ideals to the former's questioning and opposing. (Schalk et al. 2017, p.15).

3 Practice-led research is a research approach where design practice itself is used as a form of research and exploration. (e.g. Mäkelä 2006). Scholarly thinking and knowledge production through making has been researched for example in the realm of design (e.g. Groth 2017, Vega 2024). The dual stance of the designer-researcher enables access to tacit knowledge or "knowing from the inside" of the design process (Ingold 2013). The practice-led research approach has lately been taken from design to the context of architecture (Suomi&Mäkelä 2024).

Outside of western, academic discourse, there are entire cultures and knowledge systems relying on forms of interconnectivity, such as the Sámi here in Finland (e.g. Magga 2022) or the Latin American indigenous communities resisting "ontological occupation" described by Arturo Escobar (Escobar 2017).

In order for a shift of the necessary magnitude towards a more sustainable building culture to be possible, a multitude of current Western habits must be unlearned and rethought. However the architectural industry in Western countries is firmly tied in to the complex financial, legal and political systems in place at the moment (Frichot et al. 2018), leading to apathy I have experienced myself during my decade long career in the industry. Open-ended experiments and exploration seem difficult, or impossible even, at a time when they should be paramount. Avenues for curiosity, space for failure, courage for vulnerability and new ways of knowing must be sought.

In her essay "Architecture and Care", feminist architecture and care theorist Elke Krasny critically examines three harmful divides in western architecture. She traces *the separation of architecture from nature* back to Vitruvius (1st century BC), whose architectural principles are often considered the timeless fundaments of western architecture. *The division of architects and craftspeople* is traced to Leon Battista Alberti in the 15th century, promoting the architect to a position of intellectual and creative autonomy. Lastly from the era of the enlightenment, Krasny brings up the founding of the first school of modern architectural education, the École Polytechnique in Paris for "free and equal citizens" which at the time meant only free, white men, restricting agency to a narrow group of people (Krasny 2019). This practice-led research exposition explores whether the first of these divides, the separation of architecture from nature could be challenged by addressing the other two: expanding the practice of an architect from automous creation to other areas of the building project and opening the creative process to other ways of knowing and living.

There are numerous scholars calling for different forms of knowledge and knowledge practices (e.g. Krasny 2019, Tsing et. al 2017, Puig de la Bellacasa 2017, Haraway 1991, Ingold 2013) in the quest for confronting the multifaceted crises at works. We must look past the technical, financial and political to see material becomings in architecture. Architect Juhani Pallasmaa calls for a more sensory and embodied approach to architecture and reminds us of the reciprocal nature of our relations with the world (Pallasmaa 2009, 2012) as does architecture critic Sarah Williams Goldhagen from the point of view of cognition studies (Williams Goldhagen 2017). In this exposition I am working with bodily knowledge and more-than-human ways of knowing which ultimately get blended with the corporeal feminist concepts of, for example, the human body as a holobiont (Margulis 1991) – describing the human body as a community of microbial beings – and trans-corporeality (Alaimo 2010) meaning that those bodies are in constant interchange with their surroundings. Margulis and Alaimo remind us that the human body is not a closed object with sharp edges but in fact a constantly changing and interchanging porous system.

"Architecture is a supremely material art", says professor of the History of Architecture and Technology Antoine Picon (2020). The creation of architecture requires moving immense amounts of matter from place to place. However, materiality in architecture is also a way for humans to "relate to matter and materials through the prism of their beliefs, knowledge and practices." (Picon, 2020) Thus, material considerations become central when evaluating any environmental, social or experiential implications of architecture. Architecture professor Katie Lloyd Thomas claims that the privilege of form over matter in contemporary architecture disguises the resources used, hindering us from solving environmental problems (Lloyd Thomas 2007).

The way we are used to seeing people as intellectual beings, and everything else as passive matter with which we can do as we please, has been questioned in recent decades. We are of the same origin as the matter surrounding us. Political theorist Jane Bennett suggests we move on from dividing the world "into dull matter (it, things) and vibrant life (us, beings)", calling for 'vibrant matter' instead (Bennett 2010). She draws connections between our conception of matter as a dead instrument and our tendencies toward consumption and destruction, which is the framework that our current construction culture is based on. If we understood matter as something with agency, would we still feel comfortable imposing a design upon it? Hylomorphic making (see e.g. Ingold 2013), already known in Ancient Greece, would have to make way for a more shared ways of designing and making – ways that may be

found in the realm of more-than-human design, which emphasise "the sentience, intelligence, and agency of all organisms" (Rosén et al. 2024). An example of this, for example, might be designing together with fungal mycelium (Sydor et al. 2022).

At the same time as needing to move away from making *out of* materials to making *with* them, we should also consider designing *with* people rather than designing *for* them. There is a broad vocabulary on designing collectively. Terms, such as *human-centered design, participatory design, co-design* and *co-creation* embody slightly different approaches (e.g. Petrescu&Till, 2005, Malpass 2017). In this exposition, I have chosen to use the terms *co-creation* and *co-speculation* (Lohman 2018), as a way of including more-than-human participants and avoiding the terminology of business, the corporate world and politics as usually practiced. "Collectivity" is also one of the key principles of feminist spatial practice (Schalk et al. 2017). "In participatory projects, the process is somehow more important than the result, the assemblage more important than the object - -", claims Doina Petrescu. (Petrescu 2005) Bruno Latour's suggestion that we live in a collective of humans and nonhumans (Latour 2004) merges the roles of people and things even further and requires us to broaden Schalk's understanding of collectivity towards multispecies assemblages.

Just as anthropologist Tim Ingold proposes that "knowing is in making" (Ingold 2013), I suggest that *un*knowing should be too. Ingold sees making with active materials as *growth*, where sentient practitioners learn from the active materials they work with (Ingold, 2013). Picon has critizised Ingold's thinking of making *with* as something romanticized and idealized by saying that "deprived of human intentionality, matter actually often resists those who want to use it" (Picon 2020). But both Alaimo (2008) and Puig de la Bellacasa (2017) describe the pain and hardship that interdependency and care might cause, so the premise for the approach is hardly naive or romantic. Co-creation, co-living and all interconnected relations – human, nonhuman, material or otherwise – always bring conflicting needs, burdens and responsibilities with them. Stepping down from the throne of the autonomous creator brings the architect to a terrain of all kinds of trouble that they must learn to stay with, to borrow the words of Donna Haraway (Haraway 2016).

This exposition is based on a practice-led research project conducted with methods that fall under the concept of "diffraction in action" (Sanches at al. 2022, Vega 2024). It broadens the concept of "reflective practice" (Schön 1983) which entails that knowing is in the action and should be reflected upon both during its course (in action) and afterwards (on action). For data collection, ethnographic and autoethnographic methods were used. Workshops were documented through participant journaling, audio and video recordings and interviews. Autoethnographic documentation was conducted by keeping a diary of text, drawing and audio recordings as well as by photography, methods which have been studied by for example Maarit Mäkelä and Nithikul Nimkulrat (2011). Journaling forced me and the participants of the summer course to reflect on our actions and emotions as well as implicit values during the design process and for me to evaluate their effects on the process and the results of the project (cf. Schön 1983). The physical artifacts created during the process also served as data. The reflective process of theory and practice stayed in motion, moulding the original aims and plans, and myself, along the way, enabling an open and exploratory outcome.

Material texture by Ganoderma Lucidum, Elina Koivisto and common reed. Photo by Elina Koivisto.

Kudos – Library for Material Relations

The architecture and research project this exposition is based on, *Kudos – Library of Material Relations*, becomes an architectural apparatus, following the posthumanist definition of the term by Karen Barad. She describes apparatuses as "material-discursive - - boundary-making practices that are formative of matter and meaning - - [and] are open-ended practices - -." (Barad 2007) The aim of the project is to illustrate possible new, desirable futures which simultaneously reveal underlying harmful habits in the current, western architectural industry, while making and understanding "the situated knowledge" (Haraway 1991) embedded in the project itself. It is a communicational and pedagogical tool inviting all those involved into a process of reconsidering and unlearning. In other words (again Barad's), it is an ethico-onto-epistemological apparatus, intertwining ethics, knowing and being (Barad 2007) which sits in the long continuum of feminist spatial practices combining research and practice in order to reveal and research possible futures (Schalk et al. 2017).

Fig. 1 The pedagagogical dimensions of the apparatus in action through a workshop with children and fungi. Harvey Shaw instructing children in making substrate.Photo by Elina Koivisto

Fig. 2 The physical embodiment of Kudos – Library of Material Relations illustrating new, desirable futures and questioning current material habits. Photo by Elina Koivisto.

The apparatus of *Kudos – Library of Material Relations* consists of a temporary, small-scale, movable structure; and the activites taking place there; the process of its making; and eventually its unmaking. The first part of the project took place during 2024, mainly at the Aalto University campus in Espoo, Finland. The process of making architecture was condensed both temporally and spatially, and disconnected from many of the financial, technical and political entanglements and prevailing values mentioned in the introduction. This strategy was first tested in our (architect Maiju Suomi and I) previous project, Alusta pavillion (Suomi & Koivisto 2022a & 2022b, Suomi & Mäkelä 2024, Suomi & Pelsmakers 2025). It allowed for an exploratory, speculative process with room for co-creation and failure (see relations 1-5). It also allowed for me to expand my own agency from the need for narrow specification that architects are oftern restricted by, to other aspects of the process. An educational context was chosen for the workshops, and the first appearance of the project, because in educational environments people are often more open to taking novel approaches.

Fig. 3 Discussions activating the ever changing space. Fungi growing, clay ageing, humans breathing, spores floating. Photo by Elina Koivisto.

The aim of *Kudos – Library of Material Relations* was to rethink the process of making architecture from the point of view of care. What should be done differently by the architect and others if the goal was increasing care and emancipation at every step instead of subjecting the process to the needs of the physical outcome? Rather, the goal was to see architecture as an evolving process and an assemblage of relations, rather than an object frozen in time and space. It was acknowledged that the existence of a human-made structure, regardless of whether it is built for a week or a century, is ephemeral and in constant flux. Therefore, all its matter should be considered as being 'on loan', and its journey to and from the physical embodiment of architecture should be seen as part of the process. Communities and assemblages of human and non-human participants gathered in and around the project were also considered as being part of the apparatus and the ethics and agency of everyone involved was considered. Architecture was seen as a tool for feminist world-making and community-building.

The project, conceptualized by myself (architect-researcher Elina Koivisto), evolved as a co-creative process of making with several human and non-human participants, led by architects Elina Koivisto and Maiju Suomi. The first part of the process, which is discussed in this exposition, can be divided into five main parts, introduced more closely in sections Relations 1-5.

1. Hunting and gathering
2. Growing and caring
3. Learning and failing
4. Exploring and creating
5. Activating and changing

The physical structure has now been disassembled and reassembled once, and will be reassembled in different places to enable different collaborations and reach new audiences. Fungi remain either actively alive or in hibernation. Eventually the live fungi will be relocated to a landscaping project where they may continue their life, accelerating the decomposition of fallen trees and providing habitats for other forms of life. Other materials will be either reused or returned to nature. Human communities have dispersed, carrying with them the material and immaterial implications from this project into new assemblages they may take part in.

This exposition concentrates on the relations built in the making of *Kudos – Library of Material Relations*. The spatial experience and bodily relations of its visitors will be discussed in further research, after more data has been obtained from its future appearances.

Material texture by clay, wood chips, sand and a workshop participant. Photo by Elina Koivisto.

Relations 1 – hunting and gathering

Commonly a process of architectural making would begin with the client's wishes, and a phase of sketching and hylomorphic design ideas would lead the way. In *Kudos – Library of Material Relations* we questioned this approach and included material gathering in the creative practice, an intimate material approach, enabled by the condensing of the project temporally and spacially. The posthuman feminist concepts of care and interconnectivity translated into the following practical material strategies:

1. Sourcing extremely local materials minimizes harm related to transportation and global supply chains both to the environment and humans, and enables building relations between people and their immediate surroundings.

2. Sourcing materials causing no harm and/or having a regenerative effect on the environment either through their removal and later return with regenerative capacities or through recycling if already in human use.

3. Growing materials ourselves (described in Relations 2).

4. Working with materials that can provide positive bodily affects or relations with people participating in the making and/or visiting *Kudos – Library for Material Relations*

These are not new inventions but rather a reintroduction of age-old practices. Frugal and caring material practices are built into many indigenous cultures (e.g. Kimmerer 2020). The remnants of a more relational use of materials can also be seen in the countryside of Finland, where the remains of old houses, built with local wood, clay and stone are returning to the environment, causing no harm but providing nutrients to fungi, insects and plants instead. Currently, however, the mainstream building industry is operating on a vicious cycle of extracting natural resources carelessly, creating building products that do not last long or age well, and cannot be returned to the natural cycles either.

Because *Kudos – Library of Material Relations* took place at the Aalto University campus[4] (Figure 4), materials were also to be sourced there to achieve an extreme degree of locality. The combination of human and non-human environments on campus led us into a material selection of common reed, clay, and recycled plywood (and communally shared fungal spawn, see Relations 2). The process of local material gathering provided me with a deeper understanding of material relations than when purchasing materials from a provider.

4 The campus area is located on the south coast of Finland. It is a 1,4km2 peninsula in an inner bay of the Baltic Sea, with 4000 inhabitants, several university buildings and 35% green area. It is a 10min metro ride away from Helsinki center but also has vast protected Natura areas with endangered bird species nesting.

Fig. 4: Otaniemi campus map with material relations: 1 Common reed, 2 Clay, 3 Plywood, 4 Woodchips, sawdust, cardboard, 5 Space 21 fungal workspace, 6 Designs for a Cooler Planet exhibition. By Elina Koivisto

When gathering and transporting the materials oneself, it is impossible to overlook the effects these processes have on the environment (and on the individual), and the energy they require. In case of the common reed[5] for example, I felt the joy in discovering it, I felt in my body the hardships of cutting the reed (and my hand in the process), sinking into the sticky mud of the shoreline and transporting the reed by bicycle (electric bike, but a bike nonetheless) to the workshop to minimize use of fossil fuels. I also formed a deeper connection to the material's place of origin, its conditions and inhabitants. I also needed to consider the suitable time for collection (between the last snow melting and the beginning of birds nesting season). As a result, I begun paying closer attention to the birds and grew attached to two swans living in the area. I saw them each day building their nest on a rock in early spring, the spring floods washing the nest away, seeing them on the bay when winter was creeping in, wondering whether they were going to migrate and feeling anxious about not knowing whether they had when they weren't there one day. At the moment (January 2025) I am expecting their return. (based on notes from my journal) (See figure 5&6)

5 "Common reed *(Phragmites australis)* is a perennial grass plant, found in wet habitats. As a competitive species, it often forms large, monotonous stands. Reed has benefited from climate change, eutrophication, and the cessation of shoreline grazing. In recent years, the lakes and bays of Finland have experienced significant eutrophication, and the growth of reed beds has been rapid. The stems renew themselves annually." Originally in Finnish at https://www.ely-keskus.fi/web/ruoko/jarviruoko accessed 20.2.2025.

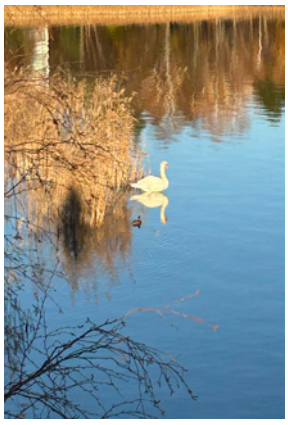


Fig. 5 Gathering materials herself, architect-researcher Elina Koivisto felt the weight of material choices in architecture in her body. Local common reed collected into a recycled container by hand, swans in the background, transported by electric bicycle. Photos by Elina Koivisto. Fig. 6 The material gathering practice created relations between myself and a swan couple. They observed me cutting reed, I have observed them ever since. Photos by Elina Koivisto. [more in exposition]

Fig. 7: Material practice of searching materials for reuse created human and temporal relations to the previous owners and locations as well as others in need of materials. Me organizing transportation for materials at the construction site. Photo by Elina Koivisto.

Clay suitable for construction was found and sourced from the building site[6] of Alusta pavilion (see Suomi & Mäkelä 2024), which was being built on the campus at the time. Clay ties us to the soil and place, it carries long cultural ties as well as strong sensory potentials.

As it became evident that a supportive structure for the more experimental material explorations was to be built for aesthetic, structural and functional support (see Relations 2), the hunt for recycled wood began. Instead of muddy boots, this material gathering practice required relentless emailing and telephoning. Eventually recycled plywood, on its way to waste[7], was found at a construction site on campus. Tire marks, stains and dents remind visitors to *Kudos – Library for Material Relations* of the material's previous use. The dimensions of the structure were designed based on the aim of zero waste. The scraps were collected and fed to the fungi. Unexpected relations were formed during this process as well, as I discovered generous amounts of materials on their way to waste and added to the project an operation of distributing them to several other designers and researchers to salvage them. In addition to plywood, smaller amounts of wood chips from the university wood workshops and cardboard from the offices and retailers were sourced.

6 In the Helsinki metropolitan area, 1.0 million m3 of unspoiled surplus clay is transported from construction sites to landfills annually. (Kallio&Pakkala 2021)

7 248000 tons of wood waste was generated on construction sites in 2022 and only a fraction of it is reused. (Suomen virallinen tilasto) A lot of it consist of secondary materials such as packaging, protective materials and surplus. (Perälä 1995)

When pondering our material choices based on reciprocal care, increased agency and vibrant matter, fungal mycelium caught our attention. In *Kudos – Library of Material Relations* the role of fungi is both concrete and symbolic. They offer possibilities for new material working methods based on growing and caring instead of extraction, and opportunities to create with a being that has been traditionally categorized as a thing, rather than as an actor. They are profoundly feminist as they are the invisible care workers of nature, creating life and death, embodying interconnectivity and entanglement.

The interest in fungi has increased over the past years in several fields from biology to anthropology and from architecture to medicine. Biologist Merlin Sheldrake and anthropologist Michael J. Hathaway call them "worldmakers" and argue they have the potential to shape the future of both our planet and us in unrecognizable ways (Sheldrake 2020, Hathaway 2022) whereas anthropologist Anna Lowenhaupt Tsing uses them as a symbol for our need to build new livable worlds for us and others living in the ruins of capitalism (Tsing 2015). For the architecture and design industry, the non-extractivist nature, the possibility to make *with* rather than make *of*, and finding uses for agricultural and industrial sidestreams, have all proved appealing. Some projects in this realm include *Hi-Fy* by The Living (Frearson 2014), *MycoTree* by Block & Hebel (Frearson 2017) and *In Vivo - Living in Mycelium* by Bento Architects & philosopher Vinciane Despret (Fakharany 2023), which the authors describe as "the historical starting point of this new era, called 'Mycelocene.'" (Despret et al. 2023)

The live fungi helped us in our quest to rid ourselves of the habit of imposing our design ideas onto dead matter (see Bennett 2010). Instead we let the material beings guide us. A process of material tinkering and exploration began in January 2024 and continues to this day, taking different forms from semi-passive observing to relentless production. At first I hung onto my habitual ways of working. I bought a grow kit product for growing oyster mushroom (Pleurotus Ostreatus) from a commercial provider and placed it neatly on my office desk (Fig.8&9). I immediately felt a sense of responsibility and worry over my new companion, but I also felt anticipation and joy as thin white strands of hyphae begun to appear in the box.

Fig. 8&9 Shop bought Pleurotus Ostreatus growing on my office desk. Photos by Elina Koivisto.

After my first, timid experiment, I understood that I had to let go of my preconceptions about how an architect works and change my habits to accommodate the needs of the fungi and how to work with them. While I built suitable conditions[8] for the fungi, their transformative potential began to reveal themselves to me as simultaneously a community of people and things started to form. Fungi are builders of networks and connections in the forest (Hathaway 2022) as well as human communities and alternative economies (Tsing 2015). Mycologists agreed to be interviewed, local fungal entrepreneurs and designers shared information and guidance, fungal spawn was distributed communally between researchers and experiences and experiments were shared. My neighbours collected glass jars and cardboard boxes and a local candy store donated plastic boxes. Fungal species joining the community were Ganoderma Lucidum (Reishi), Pleurotus ostreatus (Oyster mushroom) and Trametes Versicolor (Turkey tail mushroom).

8 The conditions were created at a workspace at Aalto University Space 21 where a grow tent with temperature and moisture monitoring was set up along with a ventilated tent for drying. Biofilia laboratory for bioart provided a sterile space and training for laboratory work.

Fig. 10 The story of the panel that made me let go of control from a jar of shared reishi spawn in a glass jar donated by a neighbour, through inoculation in sterile Biofilia laboratory and first growth in grow bags to spreading into a formwork, growing again in the warm and humid tent to finally drying in room temperature over my summer vacation growing fruiting bodies and creating a fascinating surface of textures and colours. Photos by Elina Koivisto.[more photos in exposition]

This process of care and nurturing strengthened my sense of responsibility for all the living beings affected by the sourcing of any materials. After trying to fit them into my realm, I created suitable conditions for them, fed them, looked after them and made shapes with them, after which I dried them into hibernation instead of killing them by heat shock as is habitual (e.g. Alemu et al. 2022, Mycela Labs, Mycelia). Afterwards they will return to suitable conditions and they can continue their lives as active worldmakers, a plan deemed viable by a mycologist (Timonen 2024). I simultaneously felt the burden of care because I needed to balance my schedules between their wellbeing and the rest of my life. I felt guilty when I failed to provide them with approriate conditions, something I never felt when working with more common shop-bought building materials.

Maria Puig de la Bellacasa reminds us that: "Instead of focusing on the affective sides of care - - staying with the unsolved tensions and relations - - helps us to keep close to the ambivalent terrains of care." (Puig de la Bellacasa 2017) Fungi resist the romanticism that Picon blaims Ingold for (see Introduction) in making *with* materials. One cannot touch or caress or mould fungi as one does with clay for example, because sterility must be maintained to avoid contamination. However, my journal notes and the experiences of workshop participants (relations 3&4) demonstrate how caring relations can create a sense of intimacy nonetheless. Maria Puig de la Bellacasa reminds us that "Care is not about fusion; it can be about the right distance." (Bellacasa 2017) and Donna Haraway has written about "intimacy without proximity" (Haraway 2016).

"Clarity can be extremely dangerous. Clarity can have the stink of death about it, for it allows no compromise, no alternative visions, however indistinct and unsure." (Frichot 2019) A vital lesson for co-surviving and co-creating I learned from the fungi was tolerance for uncertainty and letting go of the illusion of autonomy and control that have led us to the mess we are in. Even though it was always the goal to let go of the designer ego and see where the open-ended process leads, it took some time to transfer from theory to bodily practice. In my journal, one can see exactly the moment when I gave up control and started to trust the process:

"I wonder if any of this is going to work. I can't breathe. I have a weight on my chest. A bit teary-eyed too."(My journal on June 26th, 2024, original in Finnish, translation by me)

"Today I realised that working with fungi is a perfect exercise for giving up control. Until now I have thought about it from an aesthetics point of view, but also this process is strongly out of my hands. No tool, that I have previously used to control the [design] process and keep schedules, is valid."(My journal on July 8th, 2024, original in Finnish, translation by me)

"The panels are growing by themselves in Otaniemi. I feel like laughing. It's somehow funny that while I am on vacation, the fungi do what they please. I don't feel anxious anymore, I feel tingly."

(My journal on July 18th, 2024, original in Finnish, translation by me)

The conventional side of the design process took place in stages. Whenever we needed to provide the fungi or workshop participants with information, a decision on form or dimensions was made. The uncertainty described above informed the design process. The possibility of all the experiments failing loomed over us and unpredictable aesthetics was a given. Thus a supporting structure was decided upon for framing the experiments, to allow them to fail and take unintended forms but also to support the experience of those coming across fungal materials for the first time as some sense of familiarity and security is necessary to allow one to open oneself to new things. During the period of material tinkering we studied the aesthetics and forms the fungi would suggest. What we understood was that they are not interested in formgiving. They follow nutrients, moisture and oxygen into which ever shape you provide for them. Thus any shape one intends to co-create with fungi is eventually the creation of the human. However, what fungi seem to have creative potential for are textures. Thus we decided to play with textures instead and rely on conventional rectangular forms to, again, support the experience of visitors and to direct attention to the sensory and relational experience instead of 'fancy' forms.

Phases in practical making with fungi:

1. Acquire fungal spawn and organic substrate.

2. Sterilize substrate and equipment.

3. Inoculate substrate with fungal spawn in sterile environment and let grow in a growbag in suitable conditions.

4. Design the shape and make a mould.

5. Move substrate colonized by mycelium from bag and break to mould in sterile environment and let grow in suitable conditions.

6. Remove mould and let grow some more.

7. Let dry in room temperature in a ventilated space.

8. Assemble.

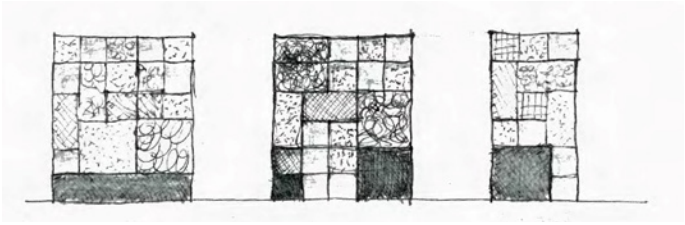


Fig. 11 Sketches from design sessions of Elina Koivisto and Maiju Suomi. [more in exposition]

Relations 3 - learning and failing

On the quest that Elke Krasny sent us on in the introduction, namely dethroning the autonomus architect, including different situated, bodily knowledges of participants is a necessity. Through "co-speculation" (Lohmann 2018) or "distributed thinking through making" (Vega 2024) with different people it is possible to access several approaches and experiences through a co-creative process. Participatory approaches in design and architecture are often understood as taking part in processes concerning oneself. Since *Kudos – Library of Material Relations* is a transformative act battling the global crises, I see all living beings, ultimately, as stakeholders. With this in mind, the project allows architectural practice to expand to its pedagogical dimension, following the ideals of feminist spatial practice.

A week-long summer course for eight 10-12-year-old children called "Rihmasto" (mycelium in Finnish) was organized in June 2024 in collaboration with Annantalo cultural centre for children and youth in Helsinki. Annantalo organizes courses, exhibitions and events, which are open for all. The summer courses have a fee, but an exemption is available for low income families to enable participation for everyone. I had architecture student Cisil Havunto and design student Harvey Shaw assisting me. Staff from Annantalo were also involved.

Program:

3.6.2024	Drawing of fungi/mushrooms as an ice breaker excercise, starting of growth for home grow box of oyster mushroom, pressing fingerprints on petridishes
4.6.2024	Making an object with pregrown mycelium for taking home
5.6.2024	A fieldtrip to Aalto University
6.6.2024	Making panels for *Kudos – Library for Material Relations*
7.6.2024	Arts and crafts, researcher interviews

Fig. 12: Participant of the Rihmasto course exploring working with fungal mycelium, making a bowl for himself at Annantalo in June 2024. Photo by Elina Koivisto.

Fig. 13: Participant of the Rihmasto course familiarizing themself with a block of fungal mycelium through visual, olfactory and sensory means at Aalto University, Space 21 in June 2024. Photo by Elina Koivisto.

Children were chosen as a group usually overlooked in decision-making processes but also for their lack of harmful preconceptions. Their open-mindedness became evident on several occasions during the course, when I asked the participants whether making with fungi sounded odd (transcription from 3.6.) or whether touching fungi felt strange when working (transcription from 4.6.) but they didn't see it as odd at all. Also, on the first day when asking them to draw or paint fungi, several of them drew imaginary settings where fungi were presented as actors. This led to a discussion about how fungi are commonly perceived as stationary, passive things, when in fact they are active beings with agency.

The practical aim of this course was using architecture and bodily making as a pedagogical tool for futures thinking, to co-create elements for *Kudos – Library for Material Relations*, and explore how children interact with the fungal mycelium, thus producing diffractive knowledge of making with fungi. A week-long program of creative activities and discussions was planned, prioritizing individual possibilities for learning and creating through bodily processes following feminist pedagogies. A learning environment with simple enough tasks and low-tech solutions was created to support the learning of everyone regardless of background and skill level.

A field trip to Aalto University familiarized the children with the university facilities, broadening their vision of their own future possibilities and those of the society in general. In Biofilia laboratory they learned about the transcorporeality of their own bodies through exercises of seeing the bacterial growth transferred from their fingers on a petri dish, and the microbial life of their saliva on a microscope. In Space21, where Harvey and I both work, the children got to experience mycelium objects with all senses, some fresh from the grow tent and some already dried. All of the children reacted to the strong fungal smell of fresh mycelium.

Three excercises included working with fungi. On the first day everyone received a starter box for home-growing oyster mushrooms. Three of the children immediately formed caring relations with their fungal boxes and named them. On the second day, objects for taking home after the course were made. The children wanted to make, for example, swords, axes and stars. After warning them of the complexity and possibilities for failure, we helped them finish the task. The last fungal exercise concerned the panels intended for the *Kudos – Library for Material Relations*. Square formworks had been prepared for them to decorate and fill with pre-grown mycelium-straw-composite. They found paper maché balls in the classroom which weren't meant for the task. Again, I explained the risk for contamination and considered forbidding them for the sake of successful execution of the physical structure but decided against it to support their creative processes and respect their freedom of choice instead. Even after serious contamination issues, I stand behind my choice. I see ensuring their true agency in the process important; to avoid using them for my own purposes. Doina Petrescu, for example, has warned against exerting control through participatory processes (Petrescu 2005).

For a week after the course I fought a desperate battle against contamination in many of the swords, axes and panels, salvaging some, losing most. First I grieved for the deformed panels and what I saw as the aesthetic failure of the *Kudos – Library for Material Relations* but soon the devastation of failing the children overcame it. When co-creating with vulnerable participants (humans or otherwise) the architect should be well aware of the power they hold over the participants and the responsibility they must carry should something go astray. One can not be too idealistic but truly consider the consequences of failure. However, the disappointment soon turned into an understanding that this is the trouble we have to stay with (Haraway 2016) if we are to overcome the exclusivity and disconnect of architecture. The design decision of having a stable frame for the experiments proved crucial.

"Only now did I realize what a responsibility this embodies. Beforehand I only considered the pride and joy the children would experience from seeing their elements as part of an architectural artefact, but I didn't consider at all what the consequences of failure would be!" (My journal 10.6.24, original in Finnish)

However, the interviews (7.6.24) revealed that the children were content with the week, they learned new things that they carry with them and they made new friends. Making friends seemed to be priority to them, which once again strengthened the notion of the importance of relations and community that can be built around a common subject. Architecture worked as a tool for social value making. One clear observation from the course was the importance of making as a tool for learning and knowledge (Ingold 2013). The children were quite restless through my speeches and all printed instructions were left crumpled on the floor, but when working with their own hands they transformed into a focused and excited group asking questions and concentrating on the task at hand. Even if the physical objects failed in practice, the knowledge embodied in the process remains.

(reflections based on my journal, audio recordings and interviews of children conducted on 7.6.)

Fig. 14: Blue moulds joined the creative community uninvited preventing oyster mushroom from growing and creating a panel intended for Kudos physical structure. Photo by Elina Koivisto.

Fig. 15: Elements made by children and fungi transformed from vertical panels to horizontal objects of different sizes and shapes, some with fungal fruiting bodies. Photo by Elina Koivisto.

Relations 4 – exploring and creating

Another summer school was organized in August 2024. Participants of the summer school were architecture students (including landscape and interior architecture) from Aalto University. The seven participants of the summer school were invited to learn and engage with fungal mycelium, design and make elements for the physical embodiment of *Kudos – Library for Material Relations* and reflect on their experience through their learning diaries. Exercises for experiencing different stages of creating with fungi were planned.

"During the workshop we will learn to understand fungi as living beings, we will learn how to grow them and how to mould them. Each participant will ideate and create mycelium building elements that will be exhibited at the Designs for a Cooler Planet exhibition in September as part of Kudos – library of material relations." (from the email I sent to the mailing list of the Department of Architecture 31.5.24)

With the children I clearly had to retain a leadership position and control the learning situation to prevent it from getting out of hand (at one point nitrile gloves as water balloons were thrown).

With the students a more equal community of practice (Lave & Wenger 1991) was formed. Doina Petrescu discusses how "in participative approaches, the architect should accept losing control. Rather than being a master, the architect should understand himself/herself as one of the participants" (Petrescu 2005). As I had only explored working with fungi for less than year, I couldn't have taken the role of an expert even if I wanted to and this truly turned into a process of co-speculating and co-creating.

"The atmosphere in the workshop was charged with creativity and curiosity. We were all stepping into the unknown together, experimenting with something that had no guaranteed outcomes. This shared sense of exploration made me feel more confident about my own contributions and excited to see how our experiments would turn out." (From the learning diary of student 1)

Fig. 16&17: Results of the first assignment. When asked to search for substrates from the area, Yulan Li brought fallen leaves and Sini Hinstala brought thistles. Reishi spawn grew well in both. Photos by Elina Koivisto.

Beginning the course with a visit to a nearby forest set the tone for understanding that we would be working with unpredictable, living beings, the likes of which are everywhere in and around us doing their invisible care work. Student's observations led to lively discussion on capitalism, biomaterials and relations among others.

After some theory, tools and the workshop space had been introduced, it was time to dive directly into experimenting to reach the full potential of bodily knowledge in the learning process. The first exercise was to gather some organic material to use as a substrate for the fungi. The diversity of materials was delightful as the students came in with fallen leaves, tree bark, garlic peels, thistles, flowers, linen cloth and more. We practiced using the still air boxes (SEB), sterilizing substrates with boiling water and inoculating it with the live spawn prepared by me. Even though we worked on a campus where state of the art laboratories and equipment are available, I wanted to promote low-tech, approachable techniques for their empowering qualities. All of the experiments were successful despite the low-tech work methods and natural materials, which surprised us all.

The main task of the course was to design and create elements for *Kudos – Library for Material Relations* together with fungi. I had imagined brick or panel-like elements to fill the compartments in the structure but the students created fantastic ideas from a hat to a linen-fungi millefeuille block that I never would have been able to explore by myself in such a short amount of time. This process was co-speculation in action.

Program:

19.8.	Visit to a forest & Introductions
20.8.	Mycelium theory & workshop introduction Assignment for gathering substrates
21.8.	Inoculating brought substrates & sketching
22.-23.8.	Visit to Alusta pavilion & sketching Building moulds
26.-27.8.	Making elements with pre-grown substrate
28.8.	Assembly of Kudos frame
29.8.->	Unmoulding elements when fully colonized

Practical assignment:

The design task on this course is to design and create an element or elements together with fungal mycelium to be exhibited in 1 or 2 rectangular spaces (size: W373x-H373xD385).

The elements are exhibited as part of "Kudos – Library for Material Relations" spatial installation at the Designs for a Cooler Planet exhibition in Väre from September 5th to October 3rd. The elements in the exhibition will be credited to the students.

Each student will receive two grow bags of mycelium growing in recycled wood chips sourced from Väre wood workshops. One bag is reishi and one is turkey tail mushroom. They cannot be mixed in the growth phase but can be used in the same installation as separate elements.

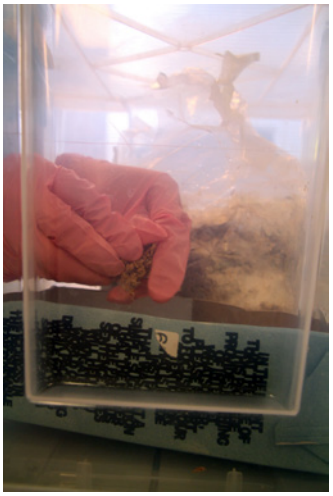


Fig. 18: A student breaking mycelium grown into wood chips into a formwork made with milk cartons. Photo by Elina Koivisto.

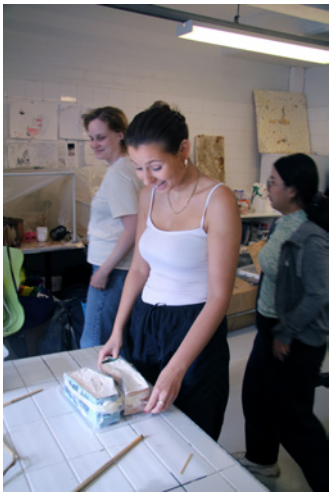


Fig. 19: Students reacting to seeing the creative work of fungi and themselves after a period of growth in the tent. Photo by Elina Koivisto. [more in exposition]

Fig. 20: A sign someone made in the workshop put on top of a drying fungal object showing the bonds forming between students and fungi. Photo by Elina Koivisto.

Fig. 21: Fungal ikebana sitting among petridishes, glassjars and growbags of fungi growing. Photo by Elina Koivisto.

Once again the role of bodily knowledge and "knowing from the inside" (Ingold 2013) could be detected as several students experienced the theoretical information distributed on the first day as complicated and intimidating, but after testing, the process begun making sense. Some students experienced knowing through making quite clearly:

"As soon as I got my hands into the fungal substrate I understood better, how to work with it. The situation reminded me again about baking sourdough, where you inquire from the dough, through your haptic sense, what stage it is in, what it needs and what could be made with it. It is easy to understand when you have haptically familiarized yourself with the dough or fungal substrate but explaining it with words is very difficult. Maybe this is exactly what bodily knowledge is?" (From the learning diary of student 2, original in Finnish, translation by me)

The students also discovered what multisensory potentials working with fungi holds. I myself realized how much I had learned to rely on my sense of smell in assessing whether the fungi were well or unwell in the grow tent. The substrate test on garlic peels threw me off. Every time I opened the tent, it smelled odd and threw me off. I was also able to pass on this olfactory knowledge as one of the grow bags that the students begun to work with looked fine but smelled sour. The smell of fresh fungi, on the other hand, transported the students back to the forest:

"the earthy scent of the mixture transported me back to the forest, evoking a sense of calm and connection to nature - -" (From the learning diary of student 1)

The last task on the course was assembling the supporting structure of Kudos – Library for Material Relations together with the students. It was the first experience of 1:1 size construction for many of them, giving them the perspective of what construction is outside of their drawing boards. We also lifted some bricks for weights inside the structure which made some of the students realize it was the first time they held an actual brick, felt its weight and understood how much energy moving it requires, which led to a discussion on the use of fossil fuels in construction and how drastically our way of building would need to change if they weren't available anymore.

Again, the products of this co-creation resulted in unexpected results. Uninhibited experiments were made and the co-creative making surpassed my own imagination and skill. As to the question of knowledge in the body and in making, the data from the workshops reveal that personal interaction with the fungal mycelium was crucial in the learning process of the participants. They experienced a shift in their worldviews and their professional viewpoints.

(Reflections based on my journal and audio recordings unless stated otherwise)



Fig. 22: Examples of elements and objects created during the course. Hat by Julia Töyrylä, reishi and ricepaper. Chessboard by Sini Hintsala, reishi, turkeytail and woodchip. Photoframes by Yulan Li, reed, reishi and woodchip. Photos by Elina Koivisto.[more in exposition]

Relations 5 – activating and changing

Reflecting on new materialist thinking about all matter being vibrant and in motion (Bennet 2010), we should learn to think of built architecture as an ever changing process instead of an unchanging object, frozen in time and space. Change is inevitable due to temperature, humidity, microbial activity and interaction with different human and non-human beings, among other factors. When architecture aims at stability, change is seen as a failure – rendering architecture 'out of date' quickly after completion.

The physical embodiment *Kudos – Library for Material Relations* is designed to be in constant process of evolution. The making of it did not end the first time it was erected in September 2024. The design process remained in motion until and beyond the moment of installation. The success and appearance of most of the panels and objects wasn't certain until the last minute. The library of fungal explorations kept growing throughout the duration of the exhibition both in number as the panels and objects appeared from the grow tent, and concretely. As the fungi were not heatshocked to death but dried to hibernation, some of them continued growing, some grew fruiting bodies, some changed colour, and some of them reacted to the touch of the visitors. A reishi fungus (Fig. 23) (whether the singular form can be used when referring to fungi, is another discussion) kept growing, eating straw in its glass jar, reminding visitors of the vitality of fungi in suitable conditions, even making an attempt to escape once, reminding us of their life force. Clay elements appeared. People came and went, leaving some of their microbial companions in the space and picking up new ones from it.

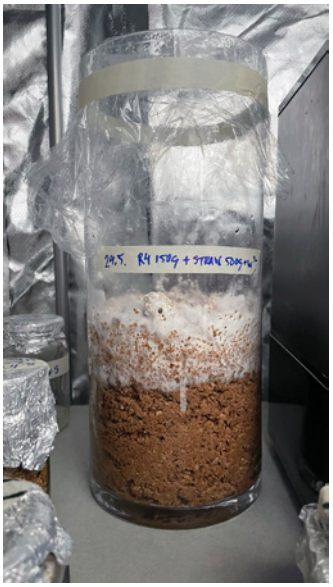


Fig. 23: A live reishi growth took part in the exhibition. Having eaten most of the provided straw, it begun growing fruiting bodies towards the filter providing it oxygen, at the end of the exhibition nearly escaping through a microscopic gap -symbolising the strength of fungi. Photos by Elina Koivisto.

Fig. 24: Elements with clay and natural fibres being made by workshop participants on 17.9.2024. Photo by Elina Koivisto.

Fig 25: Elina Koivisto and mycologist Sari Timonen discussing "What can we learn from fungi?" on 9.9.2024. Photo by Maiju Suomi.

Fig. 26: Interchange of human visitors and the material space. On the left a child interacting with the material samples provided for the purpose. On the right a stool by Harvey Shaw, reishi and curly birch slowly turning orange due to the touch of exhibition goers. Photos by Elina Koivisto.

During the month *Kudos – Library for Material Relations* was displayed, two discussions and two workshops were organized as part of the transformative apparatus. Both promoted change on the level of attitudes and ideas, the discussions through academic thought and the workshops on the level of bodily learning. All the events were open to the public and promoted through the information channels of the *Designs for a Cooler Planet* exhibition[9]. However, the promotion wasn't very succesful and participation was minimal, mainly consisting of students, faculty, visitors and alumni of the university.

In the two discussions "What can we learn from fungi?" and "Designing with the more-than-human" the themes embodied in the project were deepened, small communities were formed and the space was activated. Two clay building workshops were organized in collaboration with clay artisan Mari Hermaja. Different clay building techniques were introduced, participants got to try them out and elements for the physical structure were created together. Through clay, aspects of the sensory experience of making and physical collaboration of humans and material were brought to the process as well as aspects of different temporalities. It takes aeons for clay to form and minutes for people to reform it. In buildings, raw clay can be worked on with bare hands, it can be easily repaired and reused endlessly.

As mentioned, there were only a handful of participants in the workshops, so no broad conclusions can be drawn. However, there was one participant who came to all the events. She was quite doubtful and full of questions. During the clay workshops, she complained she had never been good with her hands and she found her creation ugly. While mixing a light clay mixture with her feet, she continued explaining how uncomfortable and physically demanding she found the physical labour which led me to ask why she kept coming to the events. She replied she didn't know exactly but it felt important and that somehow her body guided her; that these events had made her realize she should value her body more and not only the brain. She, thus, activated the transformative potential of *Kudos – Library for Material Relations*.

Kudos – Library for Material Relations can change shape in different locations. At the end of the *Designs for a Cooler Planet* exhibition, the plywood frame was stored in cargo boxes to wait for new appearances. The frame will travel and welcome new libraries of local material relations in each locality. The library conveys stories of the local environment, of socio-material relations and collaborations. Library-goers can check out attitudes, worldviews, material practices, information, sensory experiences or microbial connections. The spatio-material experience of visitors will be analysed in further research[10].

9 https://www.aalto.fi/en/designs-for-a-cooler-planet/designs-for-a-cooler-planet-throughout-the-times#0-makers-of-the-impossible---designs-for-a-cooler-planet-2024

10 This exposition is the first of three articles in my doctoral dissertation.

After the project, the materials will not disappear but will instead change shape. Clay elements can return to the ground, slowly melting and changing shape from their rectangular form to organic formations, providing nutrients for different lifeforms through the organic fibres incorporated into them. Plywood structures can be repurposed further and finally decomposed. Fungal panels will be revived and assembled into a landscaping project on campus, where they may accelerate the decomposing process of felled trees thus regenerating natural processes held back by humans.

Vid. 2 Reishi fungus grown in captivity moving to an urban forest in the spring, greeted by birds.

Material texture in Kudos by Ganoderma Lucidum, Elina Koivisto and common reed. Photo by Elina Koivisto.

Conclusions

The aim of this exposition was to explore how architecture could be used as a tool to rethink our current material relations in architecture and shift them towards a direction based on care and interconnectivity, how broadening the scope of architectural practice from autonomous intellectual work to more bodily modes of making and opening the process to other actors could facilitate the shift, and how uncertainty and vulnerability could be embraced in the process. The project presented through this exposition, *Kudos – Library for Material Relations*, becomes a situated answer to these questions.

The feminist concepts of reciprocal care and interconnectivity found resonance in this research project as it became evident that while we, human participants, shaped the fungal and clay elements, they were simultaneously shaping us in the process, physically and mentally. Our relation to them, and matter in general, evolved, and our perception of our material surroundings expanded and our worldviews shifted. Ingold's idea that one learns best by making something oneself also found strength in this practice-led study. This is something that should perhaps be considered in the way architectural education is planned.

Seeing the project in its entirety as an apparatus and treating design choices as questions allowed for the themes of the research to unfold. The decision to grow, gather and reuse materials opened possibilities for new kinds of material relations and care practices, because the designers were pressed into taking on the roles of material providers and builders as well as designers. Building a frame of a more conventional shape and structure to support the unfamiliar and unknown, aesthetically, structurally and experientially, allowed for free experimentation and failure within its protection. The decision to prioritize the creative freedom and pedagogical learning opportunities of student participants over aesthetic cohesion enabled reassessment of the values of architecture in general.

During the process where agency was distributed from the architects to other human and more-than-human actors, and the architects were expanding their role to providing materials, physically making and operating the space, we saw the value-creation and meaning-making process of architecture turning backwards. We started by searching for ways to make architecture using regenerative and caring means, but in the process

the architecture turned into an instrument that allowed for human communities and multispecies assemblages to be built around a common endeavour, for different forms of life to flourish, and for relations to form. In the beginning of this project the conceptual division between materials and people was still clear even though vibrancy of all matter and transcorporeality were underlying thoughts behind the project. However, during the process, this division begun to give way to a more entangled understanding.

The repeated failed attempts to create the planned material elements, as well as the unexpectedness of working with different human and non-human co-creators, gave a sense of vulnerability to the designers. Through the initial pain and embarrassment of failing, there grew an understanding and humility that is required when making, living and surviving with others. Making peace with the vulnerability itself allowed for questioning of the whole concept of failure. In the contemporary, capitalist perspective, failure is a result that deviates from a set plan. Unexpected aesthetic properties of mycelium panels or unexpected outcomes from human participation are small deviations, the acceptance of which require a change in attitudes and expectations. But as mould taking over a mycelium panel precludes its incorporation in the architectural composition altogether, does that then pass as failure? Since the goals of architecture were turned backwards in this project, maybe fostering new life on this damaged planet could be seen as a triumph of sorts after all.

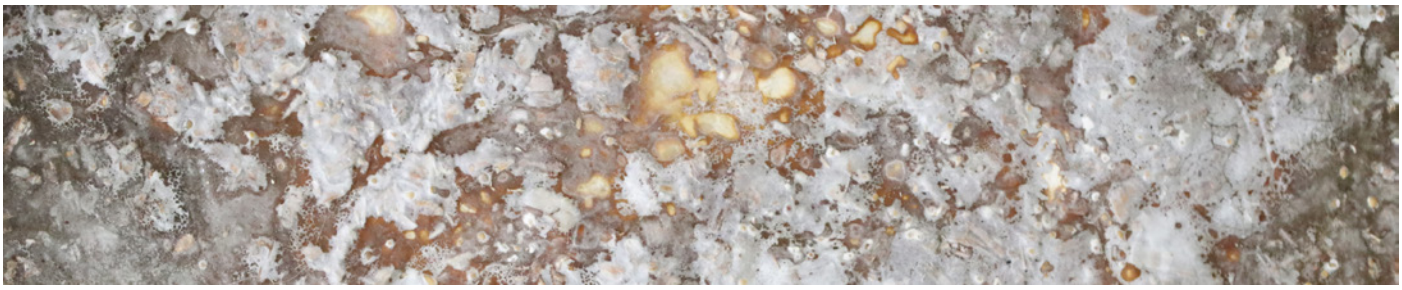
A multitude of considerations arose during the making of *Kudos – Library for Material Relations*, which deserve more attention than can be given in this exposition. First of all, the project is still ongoing. Data from the subsequent phases (namely new appearances and material circulation) await their formulation. Ethical questions on co-creating with fungi from the point of view of both will be explored in further articles or expositions. Deeper understanding of reciprocal, transcorporeal spatial experiences also await further investigation. A strategy for transferring the knowledge built in this research into the realm of the building industry and architectural pedagogies should be formulated in the future. Some trajectories include the use of surplus clays and materials from building sites, reed and other easily collectable natural materials, side-streams and waste from various industries, working with microbial beings and the participation of people.

When considering the scale of the global construction industry, the international supply chains and the magnitude of the change required, this project might seem insignificant. It does not bring rapid macro-level change in the economic and political climate prevailing in the western countries at the moment. However, the aim of speculative and transformative design approaches are not to create immediate change on a practical level. The transformation is aimed at the level of attitudes and worldviews. Children remember the microbes they saw on the microscope. Architecture students shift their professional focus and grow more aware of their immediate living and material surroundings, as do we ourselves. Visitors sense buildings differently and start questioning the status quo of the built environment. The invisible was made visible, through architecture.

Critical approaches to design and architecture are sometimes criticised for their elitism or disconnect from what some call "the real world". "The concern is that experimental pavilions at design fairs, biennials and galleries are a path to 'closeted irrelevance'" (Jervis 2015). However, in order to truly rethink and unlearn our current building habits we need to step aside from the tight realities of the profession as an industry. Finding a safe setting for the project was crucial for maintaining an open mind and enabling experimentation, and also failure. Simultaneously, it is vital to open the process more to the public in the upcoming steps to use it as a tool for learning, engaging and imagining possible futures together. In the autumn of 2025 *Kudos – Library for Material Relations* will make an appearance in Turku, Finland in a public commercial space, precisely for this purpose. Later, the last phase of the project (relocating the fungi to landscaping purposes) will take place in a public outdoor area. When aiming at hyper-local material practices, next steps could be to collect and isolate local fungal spawn from the forest and return it there multiplied.

A claim of elitism might also be directed at the geographical, cultural and demographic setting of the project. However, it is the reckless individualism and careless material practices of the Western urban dwellers that are the cause for many global inequalities and environmental issues. Thus, transforming the worldviews and attitudes here as well as revealing the harm and illustrating options for the global supply chains so often hidden and taken for granted is paramount when looking for solutions on a larger scale. Also, testing novel approaches and unreliable materials

on people in vulnerable positions isn't always ethical. As an apparatus, *Kudos - Library for Material Relations* is transferrable to different locations and environments. The frame can physically travel and the library of material relations can be rethought and rebuilt in each locality to remind each community of their own local material, social and environmental relations, their agency and potential for action. The ideas and attitudes travel in the minds and bodies of those involved.



Material texture by Ganoderma Lucidum, Elina Koivisto and recycled sawdust. Photo by Elina Koivisto.

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