

Sustainable Choices

Potentials and Practices in Performance Design



Edited by
Tomi Humalisto
Raisa Kilpeläinen

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Introduction

In the last decade, concepts of *sustainability* and *ecology* have changed from the sectors of scientists, green movements and environmental activism to questions that touch the everyday lives of everyone. Since global irreversible environmental changes already threaten the social tranquillity, well-being and world economy in a much more tangible way, sustainability and ecology have saturated politics, media and commercial advertising as words. In addition to extensive scientific, multidisciplinary research and a popular perspective, more targeted discourses are also needed, where sustainability and ecology can be clearly understood from the nature and practices of the fields.

In this volume, we aim to outline the relationship between performance design and its education to questions of sustainability; but the most important task for our publication is to move from the mood of hopelessness to the world of active hope and opportunities. The designers, artists and educators in this book have tried to meet the same challenge of sustainability as global and governmental actors are trying to do. They have developed more sustainable practices and are generously willing to share their thoughts, ideas and practices to inspire the reader. Art that considers its ecological effects can also be attractive and exhilarating for both the artist and the public in the future. There seems to be choices.

In an open call for this book, *Sustainable Choices – Potentials and Practices in Performance Design*, we asked the contributors to discuss *ecological* and *sustainability* questions in their artistic work and in the field of performing arts. We encouraged the writers to reflect on sustainability from different points of views and possibly combine them.

The twelve chapters in this publication provide perspectives and background on the challenges of performance design and performance, but also clearly reflect a desire for more sustainable creativity. Examples of practical applications and more sustainable practices can be found in several texts. In some texts, the experience and observations of the authors have formed lists, questions and suggestions that reflect a strong desire to share knowledge and contribute to future professional realities.

We have divided the texts under two sub-headings. In the first section, *More Sustainable Potentialities*, the authors' reflections are united by their desire to shape a more sustainable future through an understanding of history and the present.

In the first chapter, Kaisa Illukka discusses the potential of scenography to let go of its own appropriation and teach us to better understand our relationship with our environment, organisms and materialities. In the second chapter, Raisa Kilpeläinen discusses aspects of sustainability from the perspective of pedagogy for more sustainable performance design. She introduces her selection of points of view to tackle the planetary broad issue in artistic work and art education. In the third chapter, Tomi Humalisto traces the resurgence of the concept of aesthetics catalysed by ecoscenographic thinking and, through an MA thesis works by two Finnish lighting design students, explores the possibilities of defining the ecological aesthetics of performance. The fourth chapter, by Jari P. Kauppinen, looks beyond the obvious technological factors for sound design and explores the possibilities for sound designers to rethink their design practices and their relationship to tools, technologies and systems.

In the second part, *More Sustainable Practices*, the authors generously share various performance design processes and pedagogical experiments.

In chapter five, Tanja Beer, Tessa Rixon and Ian Garrett report on eco-scenographic conceptual designs implemented by Canadian and Australian design students as part of the wider project ‘The EcoDesign Charrette’. Chapter six, written by Liisa Ikonen, provides an insight into the production of more ecologically sustainable stage paints and the development of methods for educating scenographers in Finland. In the seventh chapter, Saara Hannula discusses her situational and relational approaches through a site-specific art installation project on Ärjä Island in northern Finland. The eighth chapter is a case study and deals with Vespa Laine and her team’s design of *Mareld* (2020) for the Turku City Theatre, with light-producing live algae and marine biologists. In Chapter Nine, Liisa Pesonen reflects on the life cycle of the performance and shares her experiences with compostable or recyclable costume design in a Finnish performance concept, starring two Siberian flying squirrels. In the tenth chapter, two lighting designers, Milla Martikainen and Meri Ekola, discuss the possibilities for more sustainable choices, sharing knowledge that is rooted in the materiality of their practices in artistic work. In the eleventh chapter, Anna Rouhu highlights the challenges of assessing the environmental sustainability of LED light sources and equipment for performance when making acquisition decisions. Finally, Roberta Mock describes the genesis of the British publication *The Theatre Green Book* (2021) and the impact of the recommendations it articulates on three different British performance companies: the Royal National Theatre, the Tinderbox Theatre Company and Theatre Alibi.

We hope that *Sustainable Choices* will be of great interest to students, pedagogues, scholars, researchers and practitioners. We hope that the articles in the book reflect the diverse potential of the arts to stay with sustainability issues and overcome the environmental crisis. We encourage all readers to take sustainability, ecological

thinking and environmental awareness as an enlightening and essential circumstance, not a problem.

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Helsinki, May 2023

Tomi Humalisto & Raisa Kilpeläinen

Part 1

More Sustainable Potentialities



Figure 1: *Studio 5*. (2005). Working group Kaisa Illukka & Pärttyli Rinne. Theatre Academy, Helsinki. Photo: Noomi Ljungdell.

Scenography as a Teacher of Ecological, Environmental and Material Worldview

KAISA ILLUKKA

Until now, there has been no need to know where and from what environments energy and materials come from. There has been no need to commit to materials, the places where they are sourced or where they end up after the production. Can disposable, extravagant stage art still be justified? Arts may have been regarded as inherently good; therefore, nothing in artistic work could be harmful, as scenographer Tanja Beer has reflected on the ethics of the industry. Theatre has been seen as being somewhat above climate change. (Beer 2021, 5) Meaning-making compensates for physical emissions. Also, with slogans such as “artistic autonomy”, makers may ignore the social-ecological reality, and managers treat the crisis simply as a case of efficiency or compensation management. (Beer 2021, 8)

The stage designer is responsible for what is happening in the world in exactly the same way as anyone else. The ecological worldview and understanding of the designer are also reflected in the works: material choices, commitment to materials and process and the concept of the performance. In a time of acceleration and abundance, rush and insignificance are also reflected in stage art. In artistic work, it is worth understanding what it causes to oneself and the environment, and to be prepared to justify one's actions in

public. (Naukkarinen 2003, 153) Yet, as a result of a rather short chain of reasoning, it must be stated that almost any human activity is structurally harmful to nature.

Eco-theorist Tim Clark has reminded that while notions of “bio-diversity” and “eco-friendly” are ubiquitous truisms, environmental degradation continues to accelerate. (Clark 2014, 77) Everything is currently framed in terms of sustainability or ecology, even if the actual impact on consumption, emissions or worldview is negligible. Yet, ecosystem observation requires knowledge of the components and impacts, e.g., species and processes. Ecological holism is not just a “feeling”. (Beer 2021, 31)

Tanja Beer, who has introduced “ecoscenography”, is critical of sustainability as a concept. Sustainability has been seen as economic and technological efficiency, and the focus has been technocratic and instrumental. (Beer 2021, 12) A carbon-neutral circular economy is likely to be the objective for performances and productions, as in other areas of society. While this is a worthwhile goal, the concept of sustainability is ambivalent. For example, the wood used in the staging may replace plastics or be sustainably certified, but in reality, the certification criteria are loose and not monitored. (Frilander 2020) Anything goes as “sustainable forestry”. How does the stage designer ensure not to increase the plight of forest ecosystems?

The Brundtland Commission (1987) failed to shift conversations of sustainability beyond a mechanistic framework, being guided by a narrow, anthropocentric definition of what sustainability is. People’s positions stayed above nature and the needs of humans above other species. The doing-less-harm approach has also been contested by many sustainability experts, who have argued that ecologically responsible practice needs to start by doing the right things rather than the wrong things better. (Beer 2021, 64) Especially a much-repeated concept of eco-efficiency is a paradox: the more efficient, the

more consumed. Eco-efficiency is the first step, but often just that. We must do more than just minimise negative impacts. (Beer 2021, 66)

According to Beer, circular economy and local materials are needed in stage design, but above all, an ecological worldview: understanding of dependence and relationships. To understand how stage designers' work affects wider communities and living processes. (Beer 2021, 33) I find this new performance space/stage worldview highly interesting, how it, more or less, consciously reflects or even teaches a more ethical environmental relationship to the audience.

To See or Not to See the Material's Materiality

The matter relationship of scenography has been problematic: how to look at materials, commit to them, understand their impacts and how to perform with them. Applying new materialist thinking, performance makers are required to open themselves up to the "more-than-human materials" they are working with. (Lavery 2018, 5) Performance is a more-than-human practice in which both human and non-human actors engage alongside and are intermingled with each other. (Donald 2018, 25) Performance presents an alternative to exclusively human systems of communication and ways of looking, thinking and knowing, which unsettles our persistent sense that we humans are exceptional. (Ibid.)

In order to understand the difficult development of ecoperformance or ecoscenography, we need to look at the tradition of the art form. According to performance researcher Baz Kershaw, theatrical logic is an obstacle to the development of so-called ecological theatre. (Kershaw 2007, 311) Traditionally, theatre (space) presents the environment in the service or as a background of human drama, and this is achieved by turning nature into a human metaphor. In drama theatre, there is a desire to hold on to the idea that the frame formed by the stage does not allow the viewer to see the

materials as materials or the stage as a stage. The theatrical sign, or the rules of play, or the fictional frame prevent the audience from seeing the “reality” of the materials and place. According to Kershaw, this abstraction is most commonly defended by the fact that this kind of theatrical distancing puts audiences in a better position to understand or grasp the world. (Kershaw 2007, 305)

Distancing may also be a longing for the control of that world. A closed cosmos that doesn’t leak too much from its frames into reality is also a controlled cosmos, a narrative that moves toward its scripted, predictable conclusion. It can be harder to perceive the world in the middle of its messiness and entanglement. The empty stage concept presents a platform that elevates the situation of theatre beyond the messiness of lived geographies. Researcher Rachel Hann sees the stage concept representing a human desire to position the world as singular, as a unit, which can then be studied and understood. In reducing the complexities and multiplicities of the “world” concept to stage, this is to reduce worlding to a human scale. (Hann 2019, 81)

Perhaps our contradictory and crisis-ridden modern relationship with nature is reflected in the performances precisely in that they deal with the subject on the level of content and metaphors, but forgetting their material reality and commitment. The material logic of the stage is similar to the logic of consumer society. The real raw material is presented and experienced as something other than itself: our material base is forgotten. The playful contract of the theatre is reminiscent of the material relationship with nature: goods, consumption, energy, etc. are not seen to be taken from nature, or as nature, but are full of (status) symbols, style icons and other social and cultural meanings. The spectator’s mind starts to find metaphors and symbolic meanings in the materials. It seems as if cultural perception denies nature.

Hann considers the studio stage, the black box, as an ideological key concept of the performance's alienation of the world. (Hann 2019, 84–86.) In the 20th century, the idea of a stage as a dark void that exists beyond the time-space logic of its own architectural geography became popular. The intention of the black box is to reflect nothing, to allow the ritual of drama to emerge from a performed nothingness. The black box attempts to recede from its immediate socio-political geographies, to start afresh each time. (Hann 2019, 85; Hann 2021, 193) Hann sees here a connection between an empty stage and a colonial urge to conquer land, claimed as “empty”:

Empty space is a colonial concept. Global North philosophies of world are predicated on continual growth from “nothing”. Resources are not unlimited. Histories of colonialism are histories of “discovering” seemingly empty spaces. If they were not empty, there would be a focused effort to empty those spaces of pre-existing people, histories and philosophies. The imagination that spaces can be cleansed gives political permission to acts of colonialism. (Hann 2021, 192)

The black box and its associated environments rely on a convention of spectatorship, and making that denies the material circumstances of a stage place (Hann 2019, 85).

While the classical notion of a stage which is looked upon from a distance has been challenged and potentially transgressed, a material understanding of scenography has remained relatively stable. From the 1600s onwards, Hann argues that scenography had been the agent for an ideological separation of stage from the world. (Hann 2019, 91) Yet, no stage-scene is neutral. Scenographies always emerge with the geographics, people and histories that intermingle during the act of performance (Hann 2021, 193). The theatrical medium is supposedly focused on human concerns alone, but in the

very interplay of its internal mechanisms, it is always already “more than human”. (Lavery 2018, 3)

Although there are many ways to break the closed structure of theatre that have already become conventional, it is dominated by its own laws and the internal connection of the parts, which stand as a fictional reality against the environment. (Lehmann 2009, 174) In the so-called post-dramatic theatre this “fictionalisation” of materials no longer seems to be central, but the viewer is allowed to face material reality. Post-dramatic theatre exploits the theatre’s presentness – the fact that it happens here and now. The same idea is applied to the material presentness compared with symbolic or illusory; the space is a shared presentness of humans, materials and other actors of the assembly. Spectators now inhabit a stage or witness a stage action from a position of equivalence, where the scene in the post-dramatic black box studio is all-encompassing. (Hann 2019, 92)

Hann sees a change in how we start to see the black box today: it no longer recedes into an imagined void, but reasserts itself as a site of potentiality. Yet, lest we forget that the material experience of a black box is crafted through means of scenography. (Hann 2019, 86) The mixed reality contexts do not exceed a feeling of place; rather, a networked assemblage sustains a particular orientation that shapes a worldly connectedness (Hann 2019, 89).

Material Agency

Current discussions about the relationship between human and non-human are influential in thinking about how scenography works and how spectators experience it. Theories of new materialism consider technological and natural materialities to be “actors alongside and within us”. (Bennett 2010, 47) These theories have been influential in developing the idea of agentic capacity of materials in scenography. (McKinney & Palmer 2017) The ecological focus of new materialism

argues for the dissolving of the subject-object binary of the natural/material world. Such understanding calls into question the givenness of the difference between the categories of “human” (associated with having agency) and “nonhuman” (associated with not having agency) and examines how these differential boundaries are stabilised and destabilised. (Bleeker 2017, 127) New materialism connects with more complex, egalitarian and ecological modes of being. (Beer 2021, 34) A heightened awareness of lively materials might be a way to resist dominant anthropocentric views of human/environmental relationships. Materials participate in processes in which they come to matter in the double sense, observed by their concrete materialisation is inseparable from how they come to signify. (Bleeker 2017, 125)

Matter is thus seen as an active agent in the intra-activity of the “doing” or “being” in the world. (Barad 2007, 178) This is a new view of matter, which is no longer the passive inert substance described in the mechanistic world view but a new dialogue between humans and nature. (Beer 2021, 35) All non-human things – water, soil, stones, metals, minerals, bacteria, toxins, electricity, cells, parasites and garbage – are viewed as vital, vibrant and alive, and therefore possessing “agentic capacity”. (Beer 2021, 35–36) By rethinking our tendency to separate the world into dull matter (it, things) and vibrant life (us, beings), political theorist Jane Bennett reimagines things as actants and assemblages which belong to the compound nature of the human self, too. (Bennett 2010, viii) The image of dead or instrumentalised matter feeds human hubris and earth-destroying fantasies of conquest and consumption. It does so by preventing us from detecting a fuller range of the nonhuman powers circulating around and within our bodies. (Bennett 2010, ix)

So, how can we change our attitude towards nonhuman power and agency? It is obvious that the performer and the performance participate in assemblies, are assembled and penetrated by many more-than-

human forces, but how can we perform those forces? How do we change the cultural look that instinctively pays the most attention always to a human subject? According to environmental research, natural phenomena which are not immediately sensed (or which do not touch our existence) do not come into our experience. (Willamo 2009, 226–228) Also, Bennett admits that it is very difficult to focus on thinking about all the forces that permeate a person at any given moment. Our observations or perceptions are not based on such. We are heavily conditioned by culture when it comes to the distinction between the living and the inanimate or the active and the passive; it may even be an evolutionary psychological tendency. (Bennett 2010, 119)

Thus, how is it possible to *stay focused* on the more-than-human assemblies in the performance? It seems that the performer and the “environment” always separate as the source of the action and the background (the “framework”, the circumstances or even the stage) of the action in the way we look. For example, performance researcher Annette Arlander has observed that performing a landscape easily becomes performing *in* the landscape. (Arlander 2012, 250) Bennett suggests that the question of human ontology, its primary interest or difference from other beings could be postponed for a moment. Focusing away from the human actor still secretly provides us with information about humans through our connection, attitude and research methods. Still, it is difficult to “postpone” a powerful, central human actor in a performance as well. At least, the human experience stays at the centre of the performance.

Scenography can also be considered in the light of wider, even global, spatial involvement that stems from the recognition of materials. Ethics has been thought to arise from a fairly immediate and local response. (Nevanlinna 1999, 154) When raw materials are sourced around the world, this response no longer works as before, and the ethical relationship is blurred. In the performance

space, one can see (at least) two landscapes overlapping: the artistic space created on the stage and the donor landscape of the materials. Every material or object is like a window to the place from where it was originally delivered on this stage. In order to understand, rather than forget, these simultaneous spaces, a material knowledge, imagination and sensitivity are needed. This may be the so-called post-fossil spectatorship, where the materials and objects of scenography no longer appear as artistic signs, but raise questions about the origin of “artistic materials”. Other organisms, rocks and natural phenomena may have their *spatial rights*, too. A tree used for stage design may have been a vital resource or habitat for many species.

We can talk about the notion of *new stage geography*. Rachel Hann reminds that stage-scenes are always enacted as part of a wider ecology of material circumstances, although potentially only fleetingly. Stages are open to many and multiple places, although they may have been divorced from the socio-political politics of their immediate geographies. A stage space can also be read as ultra-space, which exceeds material geographies of the real. (Hann 2019, 83)

Yet, this new way to look, “ecospectation”, which emphasises material agency and seeing performance through ecological aesthetics, has also been criticised. The ecological attention needs to be brought to bear on all aesthetic practice, not just that which is badged as being “environmental” or as taking place in “natural” sites. It is different from a traditional ecocritical approach on how a text or work may represent nature or actively engage in environmental debates. Ecospectation implies a particular ideological orientation: “nature” is a focal point that compels us to assume certain attitudes. (Heddon 2018, 105)

Yet, performance researcher Deirdre Heddon understands her ecospectations as conformist orientations, which partially risks closing down options. This orientation frames and then fixes the work

in the encounter. (Heddon 2018, 105) Personally, I doubt, if ecospec-tation fixes the work; we look at various things with a “predicting” look. After all, what is a free speculation, without any presumptions? Yet, I recognise the risks of morally fixed art works, and normative lessons of environmental “good and bad”, especially with truly complex phenomena and issues.

Co-Creating Inter-Species

Often, the “nature objects” of performances are imported goods. Humans are, of course, members of the animal kingdom, but they are less often portrayed in this light. Yet, all material is natural, also digital. In the live installation *Studio 5* (Theatre Academy 2005), dramatist Pärttyli Rinne and I grew fungal mycelium, received from the University of Helsinki, samples originally collected from different continents. Because the conditions of the theatre studio were far from the hygiene of the research laboratory, microscopic mould spores attacked the nutrient jelly and invaded the fungi growing beds. The fungi lost the competition to the mould and dried back to its original state.¹

Mould is not the only natural phenomenon of interior space. Buildings, theatre houses and performance spaces are based on using natural materials: sand, water, wood, minerals, oil, coal, electromagnetism and so on. Air conditioning blows oxygen for us to breathe. The room temperature is balanced. Gravity keeps us on the ground. Asphalt and city gardeners prevent plants from penetrating the building. Society makes sure that human basic needs (nutrition, warmth, protection) are met so that we can focus on art.

The mould case accidentally made visible an invisible and self-evident non-human nature in the institution that has traditionally been

1 Fungal spores do not “die” when they dry or freeze.

quite human-centred. Thus, the forces of nature no longer remained as silent and passive “conditions” or imported goods, but penetrated the work of art and changed its nature. The black box no longer felt artificial, isolated, controlled and man-made, as it used to be: it was inhabited, among other things, by fungal spores imperceptible to the human eye. The spores had their own lives and purposes. We attracted hidden natural objects and connections from the performance space, i.e., layers of natural culture.

In performance situations, it may be easier to grant cooperation to another animal present in its original form or even to a plant (which grows and seems living) than to a “lurking mould”, a ham sandwich in the theatre cafeteria or for the heating energy of the performance space, which are “invisible” natural organisms, materials or phenomena. Yet, all the staging is fundamentally done in collaboration with trees, minerals, sunlight, cotton, water and the whole biosphere.

Framing the interaction in a performance situation into something other than superficial or purely visual interaction can be more challenging. Annette Arlander writes about her own performance that there was no real interaction between a human and a living tree in the end. (Arlander 2012, 212) Depending on the organism or object, modelling interdependence in an understandable way can be challenging. Yet, if we look at it from the perspective of ecological connectivity, we are inevitably in a kind of interaction all the time, including with trees, at least through the exchange of oxygen and carbon dioxide.

But what if non-human nature doesn't respond at all; why should there always be obvious communication? Equating and waiting for interaction and a sense of vitality will change our relationship with the environment: how are we able to value beings that are not mammals that are somehow identifiable as potential co-performers with us (or even serve us) if we don't feel they are alive? (Ibid.)

After all, what does it mean to co-create with nature? Are we really co-creating or manipulating? How do these human manipulations affect habitats for species, as well as disturbing the organism's function? (Beer 2021, 81) I've seen artworks with technical equipment put in bee hives or animal routes, insects in galleries and cameras monitoring nonhuman organisms 24/7. No one has asked the non-humans if they wish to participate. There is a lot of bio-design which mixes the astonishment at the workings of nature with a desire to master it. Beer (ibid.) sees the notion of mastery aligned with creativity as an alluring force in design with nature, eclipsing the energy and self-organising capacity of nature herself. (Ibid.)

Epilogue

According to the principles of Beer's ecoscenography, staging should be more committed and local in its materials, or simply avoiding new materials. It is possible to make inter-species gardening performances, to produce the electricity with muscle power or to restore the local nature in a performance project. These practical solutions can help to change the worldview, which is argued as the most sustainable main goal. When educating new scenographers, the subject of material studies would become a lesson in the agency and entanglement of materials, too. Not only are materials and productions being made more "sustainable" or recycled, but the constant desire for new art, the desire for new creation and, on the other hand, the art world's high-quality expectations are being called into question. (Beer 2019, 9) An interesting vision for the future is also the abandonment of the artist's identity as an individual creator. Future scenographers might create participatory, community-oriented practices rather than exemplify personal expression of artistic individuality. (Beer 2021, 13)

A change in the way we perceive is also needed. Art has often been thought to question familiar and learned ways of looking and

experiencing, with values and meanings hidden in them. We've learned to look at people's differences, but looking at and seeing non-human nature still seems to involve some kind of break or oblivion, or romantic tradition of a highly subjective experience. Yet, experiencing ecological complexities and long-term commitment is problematic in the temporary landscape of performance, which prides itself on ephemerality. (Beer 2021, 47–48) Long-term observation and coexistence produce the most intuitive information about other creatures. Of course, this is possible only with a fraction of beings. According to Bennett, the political goal of vital materialism is not the perfect equality of actants, but a polity with more channels of communication between members. (Bennett 2010, 104)

Art may also fail in ecological objectives. The failure of the ecological performance is quite a different approach to arts compared to the discourses of sustainability, hope and revolution. Performance researcher Carl Lavery considers as a “best achievement” a theatre that highlights its own incapacity to signify its own failure to act. As such, theatre's paradoxical “power” would be found in its weakness. Instead of a “strong performance” that would succeed in meeting its targets, weak theatre holds out the possibility of an alternative kind of eco-practice, rooted in a recognition of limits and capacities (Lavery 2018, 4). As an art of weakness, theatre's role is not to produce the real, it is to corrode it, to make the world problematic, multiple and complex (Lavery 2018, 5).

As for the scenographer, the aesthetics of “taking over” a space would shift to the ethics of giving space. In a few site-specific performances, compared with traditions, I have felt scenographic “non-work” to be liberating: everything is already here.

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Reflections on Sustainability in Performance Design

RAISA KILPELÄINEN

Introduction

For more than two years, I worked on writing an article for this book. I explored the topic of *sustainability* for several years. I read about critical posthumanist, philosophical and practical perspectives and sustainability topics, studied sustainability education, attended lectures and events. I took up the challenge called for by the field, sought my own angle on everyday activism and integrated the themes of sustainability, eco-social education and ecology into my work as a performance design¹ pedagogue. In my own artistic work, I have been exploring aspects of sustainability and doing things differently for years. The theme of sustainability also became part of my doctoral research.

My text became too long, and still I felt I hadn't said enough. The subject was expanding to planetary dimensions, and the information was adding to the pain. I felt powerless over the subject. I put the text aside and started again. I considered that maintaining hope and perseverance, staying active and sharing knowledge

1 *Performance design* (see, e.g., Hannah & Harsløf 2008) is an alternative concept to *scenography* and has helped to create new connections and relations with a very wide range of practices.

were the core ideas of the sustainability theme. It helped me to make the endeavour. Suddenly I knew what I wanted to write about and how I wanted to write it. The result is the article you are reading now.

This writing is a summation of my learning and formation of knowledge at this point, a kind of pedagogical-artistic-practical theory-of-use, a way of thinking that guides my pedagogical work, based on my conception of learning and art, my worldview, my relationship to sustainability and my socio-cultural history. My article relies on ongoing observation, university pedagogy, artistic and pedagogical experience, application of multidisciplinary knowledge and continuous learning.

In my article, I reflect on sustainability in performance design education. I discuss sustainability, sustainability skills and concepts, and environmental anxiety. Alongside material and economic sustainability, I consider aspects of social and cultural sustainability. Performance design practices are approached through the concepts of ecoscenography, ecodramaturgy and aesthetics, which have a cross-cutting impact on performance design. Finally, I gather observations on my topic.

1. What is Sustainable Development?

Sustainable development was pioneered by the United Nations (UN) in the so-called (Gro Harlem) Brundtland Commission Report in 1987. Since then, sustainable development policies have been developed at local, national and international levels. The classic definition of sustainable development, according to the Brundtland Commission Report (1987), is: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs". This definition took a broader view of sustainable development than before,

emphasising not only the environmental but also the economic and social dimensions.

Sustainable development is about changing society. Our goal is to secure opportunities for a good life for present and future generations. The realisation of all the pillars of sustainable development – environment, economy, social and cultural – is globally challenging. In many welfare countries, living standards and well-being are often based on exploiting the welfare and natural resources elsewhere. The earth and nature have been seen as a resource for continuous growth and consumer-led prosperity.

In 2015, the UN member countries agreed on sustainable development goals (SDG) and an action plan. The purpose is to guide global development efforts until 2030. In 2016, sustainable development goals took effect. (UN 2016.)

2. On Sustainable Development Skills

The skills for promoting sustainable development (Wiel et al. 2011) are the following: systems thinking, foresight, normative competence, strategic thinking and interpersonal skills. UNESCO (2017) also adds critical thinking and problem-solving skills.

Our global responsibility for sustainability sets targets for sustainability fences. Some universities have integrated sustainability themes into common competence objectives. In my opinion, it would be important for every performance design student to learn within their degree 1) to recognise both local and global sustainability issues and the interconnectedness between them. I would hope that students would 2) learn to understand the different dimensions of sustainability: ecological, social, cultural and economic. I would see that the student would also 3) benefit from understanding the concepts of systems thinking and circular economy. I also believe that students should 4) be able to be critical of their work and

working conditions and organise their activities in a goal-oriented way towards sustainable development solutions, 5) understand the culture of sufficiency and deceleration and the right to well-being at work and 6) strive towards a good, hopeful life. I would hope that future designers would have acquired in their training the ability to apply and increase their knowledge and skills in the field of sustainable development. Also, the ability to feel compassion and empathy for nature and other people is becoming increasingly central to the cultivation of civilisation (Cantell et al. 2020, 260).

Integrating sustainability issues into education is the responsibility of all educators, and everyone should face the challenge of sustainability education (e.g., Cantell et al. 2020, 260). Every performance designer, teacher and student can be an *agent of change* and implement sustainability and everyday activism in their actions and thinking (e.g., Hiltunen 2016). In the performing arts, this could mean, for example, an artist who combines performance and activism or a pedagogue who develops participatory art activities. Any active designer can become an agent of change in performance design in the field of environmental responsibility; new approaches to work, material and art can be put into practice in their own concrete fieldwork and thus contribute to the development of the field.

3. On Eco-Social Education

The concept of *eco-social education*² is introduced in the Finnish curricula for basic and general upper secondary education, and it can respond to the challenge of *lifelong learning* (Laininen 2018, 17). Transformative learning is the enabler of the civilization process. Laininen (ibid.) states, that “– – civilization can be regarded as a transformative learning process through which the core values of eco-social education – systemic worldview, responsibility, sufficiency, interpersonality, connectedness to nature, and future orientation – are refined into internalized competences.”

Applying to our field, an eco-socially civilised performance designer can be seen as an individual who is able to promote the goals of eco-social education as a compassionate and responsible global citizen. A person who has a socio-ecological worldview and who has internalised the value hierarchy of strong sustainability and the relevance of sufficiency and the finiteness on the planet. A person who practices systems thinking. A person who actively seeks to join other people and nature and enrich lives, foster interpersonalism and expand the scope of care. A person, who has the ability and will to sincerely envision alternative futures and make

- 2 The five thesis statements (Keto et al. 2022, 59–60, translation RK) for eco-social education are the following: “1. The human community is understood and encountered as a diverse community. 2. Autonomy as an educational ideal is refined into a concept of humanity that takes into account multiple individuality and multiple human relationships. 3. Participation in the eco-social community must be understood holistically: human beings as perceiving, sensing, feeling, willing and aware beings. 4. The practice of eco-socially sustainable participation and the positive interaction skills that sustain it are an essential part of education. 5. Art-based and contemplative methods have the capacity to produce eco-social inclusion and therefore their role in education will be strengthened.”

them real together. (Salonen 2016; Laininen 2018.)³ We can extend this idea to *planetary civilisation*, which also considers the well-being of non-human nature and the interconnectedness of ecosystems. Huhmarniemi and Salonen (2022) have reflected on how art can strengthen the sensitivity to produce experiences of knowing together or make human reality, such as knowing the earth or knowing with the earth, visible and understandable to people; contemporary art can support the transhuman experience of belonging to the world and the construction, expansion and multiple ways of knowing of the future.

4. On Sustainability in the Context of Art Universities

In the ongoing curriculum renewal work at the University of the Arts Helsinki's Theatre Academy, the themes and actions of sustainability, especially ecological sustainability, should be present in the curriculum throughout the degrees, not just as individual, occasional specific courses, and certainly not as cosmetic greenwashing. Fancy, Beer & Vivian (2021) consider how set, lighting and costume design can be undertaken in a sustainable manner and how the concerns they evoke resonate with other aspects of theatre production, the design of theatre buildings themselves and the practices of the audiences attending them. Fancy, Beer and Vivian (2021, 2023) suggest: "Ensure that curricula include systems thinking, the circular economy, bio-inspired design, biophilia

3 This raises questions and some calls for action in relation to my field: 1) What do we already have? What do you need more of and what do you need less of to live a good life, to work sustainably? 2) Be aware of the interdependence of humans, animals, insects, plants and inanimate nature. 3) Orient yourself outwards and share knowledge and materials. Listen to the beings and ecosystems around you and learn from them. 4) Find out where you are involved through your choices: How do you act, what do you choose to do and how? Where do materials, both visible, tactile and immaterial, come from?

and regenerative development, and examine precedents across art, architecture, interior, installation and theatre design.” Fancy, Beer and Vivian (2021, 203) also advise to connect sustainable practices to issues of decolonisation and indigeneity. According to Värri (2018, 133), it is crucial for our common goals to determine if the starting point for curricular thinking is the global competition or the global responsibility.

The University of the Arts Helsinki’s strategy for 2021–2030 (University of the Arts Helsinki 2020) is based on the idea that art is part of a good life. It includes the following as one of its objectives: “Art is part of the solution to the ecological sustainability crisis.” The University of the Arts Helsinki (2022) also has The Code of Conduct, an ethical code, which covers all members of the university community, regardless of function or role, and to which every member of the community is expected to be familiar and committed. They (The University of the Arts Helsinki 2022) mention as one of the starting points, among others, “I promote sustainable development and the effort to find a solution to the sustainability crisis” and “I organise pedagogical interaction responsibly with consideration for the requirements of ecological, social and cultural sustainability. I also take the multi-faceted questions related to the participants’ consent into consideration.” In spring 2023, the Uniarts Helsinki published an environmental programme with three themes, resulting in 23 measures. The programme states, that the Uniarts Helsinki’s operations are going to be carbon neutral by 2030. The goals and measures of the environmental programme were defined during 2022 through a process for

members of the community. (The University of the Arts Helsinki 2023.)⁴

5. On Environmental Anxiety

Environmental change arouses a wide range of emotions in both students and teachers, and *environmental, climate- or eco-anxiety* is common. An environmental feeling is a feeling that is affected by environmental issues in some significant way (Pihkala 2019a, 11). The spectrum of emotions ranges from worry, anger and guilt to healthy pride and hope (Pihkala 2019b).

Painful environmental feelings and anxiety can be relieved in many ways. Learning general emotional skills helps in dealing with environmental feelings (Pihkala 2019a, 315). Ensuring safer opportunities for discussion, expressing feelings and listening to students are important practices (Pihkala 2019b).⁵ The ability to feel compassion and empathy for nature and other people is becoming increasingly central to the cultivation of civilisation.

As artists and educators, we are all encountering environmental feelings. I think it's important to stay in action. How do you cultivate

- 4 The University of the Arts Helsinki is involved in a number of future-oriented projects and actions. At the moment, Uniarts Helsinki also employs a project manager and a lecturer in ecology to support the university in its sustainability goals. In 2016–2018, the Theatre Academy ran a pilot MA programme for Ecology and Contemporary Performance (MAECP). The Theatre Academy's theatre technical support services also contribute to the ongoing development of guidelines for sustainability.
- 5 According to Pihkala (2020, 256–257), the present and the future challenge environmental education to integrate both a sense of tragedy and hope. Pihkala (2020, 257) states that the participants in environmental education have important opportunities to strengthen their sense of meaningfulness, as promoting ecosocial sustainability brings meaning to life. The findings of environmental education are not as widely known as they should be (Pihkala 2020, 256).

and practice *active hope*, what do you choose or aim to bring about, to hope and act for (Macy & Johnstone 2009)? I believe that we can support hope, sustainability and encourage a more sustainable way of life through our actions. We can learn to live with challenges, *staying with the trouble*, to live with the threats of the future (Haraway 2016). Haraway's concept *becoming with* emphasises that we are constantly intertwined with multiple others, co-evolving, negotiating, being formed, becoming with (see Haraway 2008). We can strive for Bennett's (2010) *ecological sensitivity*, the interconnectedness of all that exists, and emphasise *ethical sensitivity* (Törmi 2021). Art is not a process to be completed, but an opportunity for encounter (Törmi 2021, 472). The power of art is an ability to transfer ideas into reality, transcend the boundaries of conventions and transform ideas of good life (Salonen 2021).

6. On Asking and Sufficiency

When designing productions, courses, or study periods from a sustainability perspective, one can pay attention to pedagogical approaches. You can for instance ask whether your content and methods are able to strengthen participants personal environmental relations, environment-friendly values and attitudes, interdisciplinary environmental knowledge and skills, dealing with environmental emotions, environmental citizenship and environmental participation (Cantell et al. 2021, 238).

The central vision for environmental education should be education for sufficiency (Cantell et al. 2020, 261). One tool to examine sufficiency in the performance design, and its teaching, is to use the same often repeated questions regularly: What do we already have, what is enough for us, and what will make us happy? What makes our particular project, working group, design and work happy? What is enough for our art and what is enough for it to happen? Or

how can we do what is necessary in our art with the minimum possible environmental footprint? These questions need not prevent us from making and from concrete design processes; on the contrary, the questions can guide our work towards *sufficiency*, *ingenuity* and *imagination*.

Another means of sufficiency in performance design, and in teaching it, could be an even stronger focus on experiences; positive experiences can be derived from non-consumption, such as relationships with nature, cultural experiences and interactions. Shared experiences can bring to the common landscape of learning and to the common work of art performative elements and perspectives that do not rely on, for example, materialistic representation or individual imaginaries, but can refine and diversify thinking through a common resonance and a richness of perspectives. In addition, sufficiency can be supported by an ongoing discussion, for example, by reflecting together on the need for sufficiency and why it is important to discuss the topic in particular. If it is a brave enough space, different personal, experiential perspectives can be brought to the table. The discussion could also focus on what might be preventing us as performance designers from making more sustainable choices in our work and art.

Like many colleagues I am interested in what slower, new-materialist performance design, practice and scenographic work can be. And I want to underline, too, that even if we are seeking the ways of experiencing, not-knowing and slowing down, let's not entirely forget design: it still lies in the very core of scenographic work, in many forms. Some of my ongoing questions include the following: How do we design in a more sustainable way? What does slowing down mean in terms of design? What would slower performance design, slower scenography or slower lighting design

look like?⁶ Could we performance designers and educators adopt different concepts of time and more applied art methods to learn to slow down and incorporate environmental and sustainability considerations into our art and work, to seek for example Rosa's (Lijster 2018) *resonance*?

6. Perspectives on the Practice of Sustainability in Performance Design

Recent examples in Finland include, among other things, the development and use of ecological and organic scenic materials and paints, the study and minimisation of the carbon footprint of performances and design, the focus on sustainable and energy-efficient lighting systems, and various low-emission, immaterial, site-specific and multi-sensory performance concepts, as well as improving the sustainability of the way the work is done. Performance design education in Finland is increasingly focused on sustainability and ecology, and the learning is multi-directional. It takes place between teachers, students, educational support services and the professional community, among others. Many large institutions, such as the Finnish National Opera, have also visibly developed their production machinery from a sustainability perspective, sharing information and gaining attention for their work, also internationally.

6.1 On Ec scenography

In recent years, the concept of *ec scenography* has been applied in the performing arts and performance design. The term was coined

6 I have, in the past (Kilpeläinen 2017/2019), considered the concept of *expanded lighting design* alongside expanded scenography. Could we also talk about *expanded performance design*?

in 2008 by ecological designer Tanja Beer. It refers to the consideration of sustainable theatre making from a scenographic perspective. The key to ecoscenography (Beer 2015) is to explore the potential for ecological thinking and the *new materialist* approach, where materials are co-creators. Another aspect is to learn and design with nature and create designs that enrich the whole community. This can be working with living systems, growing things, getting in touch with local ecologies and climate, experiencing the environment, not as something to tame or control, but rather as an extension of oneself (Beer 2015). The *concept of positive legacies* (Beer 2015) means, that we are not only responsible for the consequences of our actions, but also for the general health and well-being of the environment of which we are part of. Ideas of ecoscenography are partly related to community art and socio-cultural aspects of art.

Relational thinking is a key strategy of ecoscenography (Beer 2022). The challenge is to seek out the possibilities of place, acknowledge the potential of its unique surroundings and the technicalities and materials of the theatre itself (ibid.). We are called to reinvent and remake our profession (Beer 2022). The current ecological crisis and turning is a pivotal point both for today's and tomorrow's designers. The aim of ecoscenography is "to catalyse ecological practices in performance design, providing a foundation from which new practices, new aesthetics and novel thinking can emerge" (Beer 2022a).

The three strategies of ecoscenography are as follows: *co-creation* (pre-production), *celebration* (production) and *circulation* (post-production) (Beer 2021, 104). This framework allows for the integration of relational thinking into the whole process of performance. The ecoscenographic approach directs the theatre maker's action towards the living world, and responsibility for it, and allows one to imagine ideas well beyond the performance, into wider

systems, where performance design can be a force for regeneration and a mode of more-than-human engagement (Beer 2022a).

Ecoscenography is often seen in *site-specific*⁷ and environmentally sensitive works, or in experimental events and on found stages, but it can and should also take place in theatre houses and in designs based on tradition. In some cases, *expanded scenography*,⁸ or collaborative ways of working, may also be associated with ecoscenographic thinking. An ecoscenographic ethos can be implemented across the different fields of performance design. For instance, the *ecoscenographic futures*⁹, in other words the future of performance design in a climate-changed world, is something that I think will be more widely interesting for designers.

6.2 On Ecodramaturgy

Dramaturgy is one of the most important shared tools for designers in performance practices. The concept of *ecodramaturgy* was coined by researcher Theresa J. May (Arons & May 2012 & May 2021). May (2021, 4) states, “Ecodramaturgy is theater praxis that centers ecological relations by foregrounding as permeable and fluid the socially-constructed boundaries between nature and culture, human and nonhuman, individual and community.” According to May (ibid.), ecodramaturgy includes both artistic work and critical work, and as a critical lens, it “... examines the role of theater in the

7 According to Mc Kinney (2009, 197) “site-specific performance evokes images and events that call on and reveal the spectator’s complex relationship to environments”.

8 According to McKinney and Palmer (2016, 1-20) *expanded scenography* has its origins in the reorganisation of theatrical scenography through the early 20th century and in post-dramatic and site-specific performance practices that have revealed new possibilities of scenography as a cultural form.

9 This topic will be discussed at Prague Quadrennial in Prague in June 2023 at PQ23 Talks, among other ecoscenographic approaches.

face of rising ecological crises, foregrounding the material ecologies represented on stage”.

Woynarski (2020) extends the concept more broadly to an analysis of performance and meaning-making strategies in relation to ecology. She writes about ecodramaturgies, reflecting (2020, 10) on “ ... how different dramaturgies are concerned with ecology, putting forward various ways of thinking about ecodramaturgies”. According to Woynarski (2020, 9), in ecodramaturgy, the focus expands to address all dramaturgy, “how ecological thinking is enacted, embodied and performed through ways of viewing, making and experiencing performances”. Woynarski (2020, 10) writes: “Ecodramaturgies are a way of understanding how theatre and performance practices make ecological meaning and interact with the material more-than-human world, attendant to the different experiences, complexities and injustices that entails.”¹⁰ Woynarski (2020, 222) presents, “Ecodramaturgies can open up potential spaces to share, confront and dissect anxieties and uncertainties about the complex socio-ecological conditions we live in.” I think Woynarski’s idea is in dialogue with the idea of art-based action research, and its idea of developing; art can create a space,¹¹ for sharing and encountering even difficult issues.

Intersectional ecological thinking is needed to understand how climate change effects are distributed along class, disability, gender, race, regional lines and sexuality. The approach should be anti-racist, decolonised, feminist inclusive, non-anthropocentric and queer-affirming (Woynarski 2020, 2015). Ecodramaturgies can open up

10 In the autumn 2014, the Theatre Academy of the University of the Arts Helsinki held a master class in Dramaturgy and Ecology, and there was a paper *Suggestions for an Ecological Dramaturgy* published at Tinfo News (TINFO 2015).

11 The concept *third space* sees space as a possibility and an unfolding event, a *lived space* (e.g. Soja 1996).

spaces for imagining other ways of living together and perform other ways to look at the future, to imagine what it might mean to not accept the story of inevitable extinction, but play with and perform potentialities and possibilities, one might say speculatives, of living better together (Woynarski 2020, 22). In an interesting way, ecogramaturgies challenge designers to consider how the ecological ethos inscribed in the performance texts and concepts is translated into performance compositions, design and staging and how it is reflected in the practice and aesthetics of, for example, scenography and lighting design.

6.3 On Aesthetics

Any art can be sustainable art. There is no reason to assume that art based on the values of sustainability would repeat itself aesthetically. The sustainability is aesthetically always linked to systems thinking and interconnectedness. It is worth challenging the perception that sustainability bears limitations or, particular, presumed, restricted aesthetics (Fancy et al. 2021, 203).

Aesthetically sustainable and timeless solutions are often ecologically sustainable, too. (Haapala 2020, 232). The potential of human adaptability and the permanence and aesthetics of everyday life can provide an opportunity to draw attention elsewhere than the ideology of continuous economic growth and lead us to enjoy and be content with the most ordinary everyday things, the things what we already have (Haapala 2020, 234).

Philosophical and applied studies in environmental and everyday aesthetics support the idea that awareness and knowledge cause changes in aesthetic values. The concept of *aesthetic sustainability* has recently been developed to show why certain artefacts, objects and landscapes become valued more highly over time. Instead of the traditional ways, this concept draws attention to the deeper

layers of aesthetic appreciation, brings together aesthetic, ethical and cognitive values. Aesthetic sustainability is a conceptual tool that provides insight into how human aesthetic preferences and choices function. The sphere of aesthetics is an important part of human capability to imagine more sustainable futures. (Lehtinen 2021, 255–256.)

7. Reflections on Experiments and Practical Observations

Our actual artistic and pedagogical work suffers repeatedly from the fact that we are multi-tasking, testing our cognitive ergonomics and carrying several large-scale, complex projects alongside us. The constant challenge is how to focus on presence experience resonance, how to embrace the adoption of resilience and to slow down.

An interesting question is how the students of performance design vision and articulate the future designer, agency and sustainability in performance design to be. I, myself (Kilpeläinen 2022 & 2023), have been doing preliminary research on the ideas of the first-year performance design students in relation to sustainability and ecology. In my survey, many respondents expressed their gratitude for having their thoughts collected on the topic of sustainability. According to the responses, for many students, sustainability means sufficiency, responsibility and awareness in material choices. They want to recycle, reuse, and return materials. There is also a desire to make art that is in tune with the environment. I also asked students about the future and future skills. The future seems uncertain and even terrifying, but there is a belief in the importance of the arts and access to work.

I have developed a workshop called *Waste Delicacies* (2021). It focuses on the circular economy and using waste as a material for performances. During the workshop, the students will explore the concept of waste, collect and recycle material or immaterial

elements from the local environment, and consider how it could be shared and made part of a collective contemporary performance. This way of working is based on freeganism: collecting, wandering and the circular economy. In this way of working, the artist does not seek a solution to the materials and content-material needs of the work by buying new, or buying by browsing the selection. The inspiration comes via the scene and the scenery and the found materials, by the random offerings the world presents. The waste explorer is compelled to wander, to refine the senses, to slow down, to pause, to be encouraged, to evaluate, to decide and to apply the findings to the intended use. And often, the collector-wanderer gets to rejoice in the discoveries. Someone's waste becomes new material for another, and important material again. The workshop aims, among other things, to expand the concepts of the stage and the material on stage and to strengthen the student's relationship with the environment.

As a part of my teaching, I am currently planning and testing out ways of working on sustainable development themes and activism in different courses with students. I think it is possible and even necessary to slow down in the middle of different courses to integrate eco-social content creatively into teaching. That's part of my activism as an educator.

Conclusions

The process of writing this article led me to the conclusion that knowledge moves on many levels. There is little research on sustainability of performance design in Finland but more internationally. Knowledge needs to be applied from different fields of research. The introduction and study of sustainability practices are progressing, especially with the help of pedagogues who are enthusiastic about the issues. Universities have also become active in developing environmental programmes and ethical guidelines.

As performance design involves materiality, spatiality, multimedia and the use of different media, the debate on sustainability often focuses on ecological and economic sustainability. It is clear that these issues are actual and essential. Fortunately, Finland has long focused on the recycling and careful use of materials and equipment. Our theatre field is not a money business, so we have learned to be precise from the outset. In education, too, responsibility for materials has been emphasised for decades. Of course, we are constantly practicing. In particular, we still have a lot to learn about calculating consumption and identifying the origin of materials and equipment.

My second conclusion relates to social and cultural sustainability. The socio-constructivist approach to learning and the power of community often emerge in the sustainability discourse. It supports solution-oriented education.

The adoption and practice of sustainability thinking requires transformative learning, and it can enable eco-social civilisation. Structural change must be experienced at the levels of thought, emotion and action. It is a shift in consciousness that will permanently change the way we teach, learn and be in the world. We need skills in systems thinking, pro-active foresight, new communication skills, ethical skills and a range of problem-solving skills. We need to keep dreaming and visioning.

We cannot actually teach our adult students, for example, the relationship with nature, but we can foster and support its formation via experiencing, embodiment and multisensoriality. We can emphasise that we are a part of nature, not separate from it. We can guide the students to find their own relation to the physically oriented work and activities, towards the knowledge and skills that the body provides, as well as the well-being of the mind. We can encourage our students to be interested in sustainability, a more ecological way of life and environmental issues, and thus guide them towards

environmental responsibility, planetary solidarity, slowing down and sufficiency, perspectives, which are in opposition to efficiency thinking and competing individualism. As university educators, we can keep asking ourselves this question: what kind of future do we want to live and work in and how can we influence it? How can we, in turn, support others, for example our students, to influence the future?

The method of questioning can be adopted and used as a guide to artist's everyday action and education: what kind of communities do I belong to and could belong to, what kind of power could my actions gain from them? What specific places and spaces for action and discussion, could art offer? How could we nurture and strengthen our relationship with nature, go more towards nature, other species and other agencies?

We are all learning this subject, and learning involves dialogue. So, let's share knowledge openly and listen to each other, including other species and agencies. Let's also stay open to incorporating alternative ways of experiencing into our work and building a better future together.

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At the Roots of Ecoscenographic Aesthetics

TOMI HUMALISTO

The role of aesthetics in the ecoscenographic debate seems to have gained more weight recently. The new emergence of the aesthetic perspective in the 2010s is interesting. Aesthetics, as a concept, has taken a back seat at the turn of the millennium, although it has been a more prominent part of the philosophical debate on art in both the academic and the artistic field in the past. I will begin my article by reflecting on this shift in the status of aesthetics and the reasons for it. I will go on to examine the relationship of the ecoscenographic debate to the rediscovery of the concept of aesthetics. I then discuss the manifestations of ecological sustainability thinking in the master's thesis works of two lighting design students at the Theatre Academy of the University of the Arts Helsinki, and I conclude by considering the characteristics and strategies of ecological aesthetics: can the audience perceive sustainability?

The crisis of the concept of aesthetics in the late twentieth century has emerged in studies such as philosophy (Turner 1988; Shelley 2022). As an art student of the same era, I recognised a problem, too. Aesthetics seemed to offer a practice of critical art criticism

that transcended subjective opinion¹². Yet the theoretical definitions inherited from modern-era¹³ aesthetics did not seem to identify well with the art forms and conceptions of art of the 1990s. For me, the problem was similar to what art theorist Arthur C. Danto describes as the inability of art philosophy to explain the art on display in art galleries in the 1960s (Danto 2013, 4:55). In the same way as with Danto earlier, aesthetic theory, in my view, remained distanced from the ever-changing forms and conceptions of contemporary art and performance in the late 1990s. The non-confluence of theory and practice I described above explains, at least to some extent, the change in the status of the concept of aesthetics.

Another factor that undermines the accuracy of the concept of aesthetics is its understanding in everyday speech as a synonym for the word “beautiful”. This is by no means a new phenomenon; for example, in the 1830s, the philosopher Georg Hegel refers to this use of the word “beauty” in everyday speech, when it refers to the beauty of both heaven and man in a broader sense than art (Hegel 2009, 396). The term “aestheticisation” refers to the emphasis on form and appearance, but it can also be the most judgmental euphemism in art criticism, meaning the distancing of appearance and form from content. Used as an adjective, the word aesthetic could identify qualities that are aware of the whole axis of beauty and ugliness, and as aesthetics scholar Ossi Naukkarinen (2018, 166–167) suggests, it

- 12 However, for the many Enlightenment philosophers, the subjective position was part of the emergence of aesthetic appreciation. The experience of beauty reveals both the subject who experiences it and the object of the experience. (Kotkavirta 2009, 225–228)
- 13 By this, I mean the impact of the revolutionary upheavals experienced in nineteenth-century European societies on a philosophy that was constructed around various ideological and mutually conflicting “ghosts” of communism, democracy, monarchies, equality, mass culture and aesthetic elitism (Reiners, Seppä & Vuorinen 2009, 407–408).

would be worth including the ordinary in the space between good and bad. Unfortunately, in everyday language, aesthetics often refers only to beautiful things or beauty that represents a certain ideal. This sharp dichotomy can be traced far back to the concepts of ancient philosophers. For the neo-Platonist philosopher Plotinus, for example, ugliness threatened the beauty of form and soul that underlies all unity; ugliness had to be washed away like mud from the skin or earth from gold ore (Plotinos 2009, 84–85). The worship of beauty has long had commercial interests. Advertising images of idealised beauty, based on the avoidance of the ugly and the ordinary, is economically lucrative. A good example of this lies in the “aesthetic treatments” offered by numerous clinics, where the surgeon’s knife is used to tackle anything not considered beautiful.

Since the 2010s, most of the earth’s inhabitants have faced two major crises, the Covid19 pandemic and the increasingly visible consequences of climate change: natural disasters, extinction waves and mental anguish. Europe has also been ravaged by the security and energy crises, the latter of which is also part of the broader picture of the ecological crisis. Although the world has been in a state of constant change, the experience of change seems greater and more holistic than it has been for some time. It is, therefore, not surprising that the current cultural climate emphasises a variety of discourses of change, critically examining the structures and values of society to achieve a better future. Already in the 1980s, the social theorist Felix Guattari, in his vision, predicted that the planet was undergoing a period of intense techno-scientific change, with the result that the fragile ecological balance was a threat to life on the planet. As a remedy for the incapable, inadequate and technocratic decision-making, he proposes a new kind of ecosophy to clarify the issues, a theory constructed from the perspectives of the three ecological registers: the environment, social relations and human

subjectivity. Through this theoretical, ethico-political and aesthetic outline¹⁴, Guattari seeks to abandon old forms of political, religious and associative commitment. Ecosophy also extends beyond the traditional ecology of biological species and the biosphere to consider incorporeal species and the mental ecology in conditions of crisis. (Guattari 2008, 19–20, 44–45) The question of our ability to change our mentality and social practices thus has a longer thread, but it has become one of the most pressing of our time, with aesthetics fundamentally linked to it.

A couple of decades later, one response to Guattari's questioning can be seen in the artistic practice and research of Tanja Beer, a researcher and ecological designer in the field of ecoscenography. In her work, Beer has also highlighted the aesthetic perspective, for example, how the interdisciplinary nature of aesthetics, methods and ideas between art and science enables an empathic understanding of ecosystemic processes (Beer 2021a, 236) or how the global shift in socio-ecological values and sustainability thinking over the last decade is generating new values, aesthetics and possibilities in the performing arts (Beer 2021b, 64). In Finland, the long-term artistic research of artist-researcher Tuija Kokkonen has contributed to highlighting the different relationships to nature, the environment or the non-human that can be formed through performance. The aesthetics of the works are inevitably very different from the theatrical tradition, because for Kokkonen, performance is primarily an

14 The three ecological registers derive from the ethical-aesthetic discipline. According to Guattari, it is important to question the suspicious relationship of scientificity to subjectivity, which for him is one of the keys for change. The ongoing process of re-individuation, heterogenesis, seeks to make individuals act in a more united way and, at the same time, become different as individuals. This would create new paradigms that are ethically and aesthetically inspired. In his sketch of change, Guattari refers to the ways in which artists create their works by imagining. (Guattari 2008, 24-25, 44-45)

ecological event and a practice of hospitality; it is not built on representations. In this case, weak agency¹⁵, durability and site-specific, site-sensitive are key tools. (Kokkonen 2017, 24–27)

I will now move on to reflect on the manifestations of ecoscenographic aesthetics. The concept of scenography has traditionally been understood as the spatial organisation of a performance on stage, employing various professional practices, stage design, lighting, sound and costume design. The next two examples relate to the area of lighting design. For me, the first clear effects of the ecocrisis on the students' artistic work and the visual form of the resulting performances were located in the theses of two Master's students in Lighting Design in 2015 and 2018. In both works, ecocritical thinking was part of the value system of the whole group of authors, and the scenography of the works can, therefore, be assessed as a wider manifestation of ecoscenography than lighting design.

Nature's Aesthetics and the Nature of Site-Specific Aesthetics

The artistic part of Milla Martikainen's thesis, *Metsäesitys: Lohko* ⁷⁶, took place in a forest area in northern Espoo in August 2015. The working group¹⁷ organised a workshop-like event in the forest, where the audience was transported by bus. The audience was informed about the conditions of the performance and given instructions on how to dress when they enrolled. During the bus transport, the team

15 By weak agency, Kokkonen means the use of attitudes and means to direct the attention of the people in the performance (spectator-viewers and authors) towards non-humans, and to perceive and support being and acting with non-humans (Kokkonen 2017, 26-27).

16 Forest performance: zone 7.

17 In addition to Milla Martikainen, the other authors were Katri Puranen and Tari Lindén, both Master's students in Sound Design, and H Ouramo, a Master's student in Live Art and Performance Studies.

provided additional instructions and once there, before leaving for the forest, they were given, among other things, walkie-talkies, a mirror, earplugs, plastic bags and survival kits containing nutrition. During the event, the participants carried out various tasks, collected berries and listened to the radiophone programme. A camp had been set up as a base in the area. The lunch break was combined with a talk on forest maintenance plans, and finally the participants gathered at the camp raised a toast before being transported home. The presentation took place in varying weather and natural light each day. Framed as a performance, the event was radically different from the aesthetics of indoor theatre stages, their spatial relationships and the possibilities of artificial light, acoustics and stage mechanics. At the same time, the relationship with the audience changed: instead of sitting in a darkened auditorium, the spectator navigated the forest of southern Finland as an active agent. The aesthetics of the work's scenography was shaped by the viewer's perception of the ordinariness of the event, but also by the specificity of the place, of arriving there and of staying there. The authors did not play characters but were the leaders of the event, who had the responsibility for their audience and their well-being. Although the audience could occasionally move around in the forest on their own for a certain period of time, the work nevertheless had a clear script and a spatio-temporal plan.

The question of lighting design in the context of the performance is a convention challenging one. While existing natural light can be thought of as a kind of "ready-made" lighting, and while it even allows for classical functions of lighting design (Palmer 1985, 5-7) in terms of the visibility of the performance, Martikainen laconically demonstrates the impotence of traditional means of stage lighting design in the world of a work like *Metsäesitys: Lohko 7*. Even at the end of the means of lighting design, *Metsäesitys: Lohko 7* is a performance

and a work of art, even if its “content” is not based on a dramatic situation, representation, central metaphor or manipulation of the audience’s emotions or visual vision. The performance has more in common with the concept of performance art and the conceptual artist Richard Long’s walking works than with the basic assumptions of theatre and dance. In particular, in its relationship to lighting design, the work is reminiscent of the aforementioned Tuija Kokkonen’s *A Performance with an Ocean View (and a Dog/for a Dog) – II Memo of Time* (2008). In it, the lighting designer Tomi Suovankoski sat on a hill overlooking the skyline and the traffic of the nearby airport, in front of a table with a lighting plot glued to it. The lighting designer’s authorship was surrendered to nature, and he was only needed to direct the viewers’ attention. (Kokkonen 2017, 156)



Figure 1. Milla Martikainen sets up the electrical wires for the solar panel, and Katri Puranen prepares the meals. The camp’s white tent is made of recyclable and biodegradable materials, and the used electrical appliances are charged by a solar panel. Photo: Antti Ahonen.

The traditional way of lighting design that manipulates and rhythms visibility is not possible in *Metsäesitys: Lohko 7*, or trying to do so would bring different meanings and connotations when glued on. As in Kokkonen's performances, there is no attempt to build meanings on representations. The ecoscenographic aesthetics of this forest performance relies on the potential of the outdoor space and place found, where seeing and experiencing nature forms a central "stage" for the forest politics enacted with the audience. The way of being could be characterised as everyday, dispassionate and non-elevated. Through the experience, the audience is forced to reflect on their own expectations of the performance, its form, its addressability, its affectivity or the statement of the work. Martikainen, in his written thesis, articulates more about the relationship to lighting design in a list of design principles to be eliminated and preserved. According to her, things to be eliminated include mass production and haste, techno-centric discourse, ignorance of the origins of technology, production conditions, uncritical techno-optimism and the idea of total control of light as the basis of lighting design or the superiority of one aesthetic over another. Martikainen would preserve or add the following:

More will come from the ever-increasing awareness and research on systems and systems.

Add to this the debate on the world-relationship of the medium.

More debate about the nature of the information produced by the medium. More sensitivity to power structures and awareness of the relationship to them.

More awareness of the elements involved in the system as actors; e.g. electricity, the sun, metals on circuit boards, plants. Adds the possibility of self-sufficiency, as a permaculture philosophy: i.e. the tendency

to recycle energy within the system - creating self-sufficient sustainable entities.

Add to this the awareness of the latest energy-producing technologies and the ability to exploit their performance potential: for example, light produced by kinetic energy, light produced by gravity, artificial photosynthesis, energy produced by bacteria, enzymes or digestion.

In addition, there will be an effort to collaborate with different scientific and technological actors from a substantive point of view.

More will come from empirical knowledge of the workload required for energy.

Add a commitment to making - the idea that every act or work done is placed in some context with what you want to do.

Add to that all the myriad and as yet unknown possibilities and the openness to discovering, discovering and exploring them.

(Martikainen 2015, 103–104, translation by the author)

If one considers *Metsäesitys: Lohko 7* as a proposal for ecoscenography, its aesthetics are defined by the adaptation of human activity within the nature environment. Participation in a performance in a forest blurs the traditional theatrical spatial experience and performing tradition. In this aesthetic, the human being is no longer the main dimension of the performance. This did not, in the case of *Metsäesitys: Lohko 7*, prevent the authors from using human technology and industrially processed materials for human use (bus transport, walkie-talkies, cooking facilities, tents, food packaging, clothing) The forest space around the spectators was not a representation of the forest, but a real forest. Yet the question of representation does not disappear completely. The Espoo forest is a real forest to the audience, but at the same time, it represents the Finnish forest in a wider sense. It is not the same kind of impressive

background landscape as the natural panorama spreading out behind the Greek Epidaurus or the outdoor stages of Finnish summer theatres. Nature as a backdrop has transformed more of a performance environment in the case of *Metsäesitys: Lohko 7*, shaped for the performance by regulating audience movement, viewing directions and activities. The spectator is expected to play an active role rather than having a fixed seating position. The relationship of the performance to nature has an interesting connection with the idea of a pleasant place in nature (*locus amoneus*), which in the 19th century was reflected in the aesthetic admiration of the “wildness” of picturesque landscapes. Through the mirror of the “Claude glasses”, the landscape was admired by landscape travellers, who formed a kind of representation of the natural landscape with their gaze. (Arlander 2012, 154–155, 157–158)



Figure 2. Spectators in the forest towards the end of the performance listening to the song. Photo: Antti Ahonen.

The Aesthetics of Disclosure and Nature on Stage

The artistic part of Olivia Pohjola's thesis in lighting design, *Kotiesitys – Kun oikeat soturit nousivat satulaan, oli jonkun jäätävä kukkia kastelemaan*¹⁸ took place in 2018, in a white box-type stage space, in contrast to the above-mentioned *Metsäesitys: Lohko 7*. Where the performance in the woods questioned in many ways the conventions and basic assumptions of performance, the *Kotiesitys* turns to question the possibility of the stage as an illusion and, on the other hand, as a revelation or opening. Pohjola examines the revealing in two ways: as an aesthetic of performance-art-making and as a working method that peels back the effects of power and roles (Pohjola 2019).

The beginning of the performance unfolds a static landscape, designed by scenographer Virpi Nieminen, into a visually abundant space. The ceiling above the performance area is dominated by a rectangle covered with a fabric that lets light through, forming a kind of suspended ceiling. The performers are surrounded by furniture and objects on the stage. Pohjola sits at a lighting console on the stage with her back to the audience, wearing a blond wig.

On the floor, in front of the stage, is a desk lamp, powered by the pedalling of an exercise bike. Sound designer Jukka Herva sings a repetitive song on the piano, the chorus of which emphasises a detachment from stage representation – “this is not our home”. The song clarifies the authors’ attitudes towards their materials: the fridge, the coffee machine, the carpets, the earthworms living in the

18 *Home performance – When the real warriors got on the saddle, someone had to stay and water the flowers.* Translation by the author. Using the name *Kotiesitys* later in this text.





compost box and the houseplants brought on stage during the performance. Although the performance is structured in scenes, with lighting qualities ranging from uniformly bright to nuanced shadows, the aesthetics of the work rest on a kind of “professional DIY”. The aesthetic of DIY is also embodied in the performers’ puppetry scene, in which they use the light of a reading lamp and traditional colour filters. The relationship with these materials is playfully generous, with unfiltered light constantly escaping past the lampshade. In the third scene, a warm sidelight illuminating a plant clump creates a nostalgic atmosphere, and the transformation of the carpet into a mountain is interesting to watch. As the costumed performer dances, his face is picked out by a narrow light beam, while a smoke machine blows smoke all over the stage. The fourth part inherited from the previous part a smooth diffuse smoke landscape, which further softened the light diffusing through the fabric of the ceiling element.

The most surprising part of the show is the lighting designer’s “electricity monologue”, in which Pohjola presents sustainable notions on her lighting design:

Well, we’re going to be using quite a lot of electricity for the lights in this thing during the show. About 50,000 kilowatt hours. And when I tried to find out how TEAK’s electricity is produced, I haven’t got an answer yet. So now I can’t say whether it comes from fossil fuels or from some more ecological source.

I chose to use LED-fresnels to light the ceiling so that the space wouldn’t heat up too much and to use less electricity. And the amount of electricity consumed by these LEDs is six times less than if I had chosen conventional light bulbs. The top row of the auditorium is visible above the ceiling, where you can see the conventional lamps and then the LEDs. And these giant spotlights on

the floor here will consume 4.9 kilowatt hours during this performance when I use them for 10 minutes. That's almost the same as heating an electric sauna for an hour.

It seems that these ways of reducing electricity consumption are still pretty clumsy. Or that you can use LED bulbs when it is suitable or possible. Or you can use a lot of darkness and candles, or you can produce electricity yourself with an electric bike, but it is still quite limited what you can produce with that. Or you can use solar panels, if you have enough money and time to build such a system. And I'm sure there are many other ways, but here they are.

Yes, and then I have planned such outages, during which the electric bike will be the only source of electricity. Well, bye!
(Pohjola 2019, 51, translation by the author)

The speech highlights in a concrete way a challenge to find information and understand the impact of artistic and productive choices on the ecocrisis. The typically complex and opaque supply chains for materials and equipment make it difficult to compare different options. It is also difficult to assess the prospects of an individual material choice in the post-production phase during busy production processes lasting a few months. The relationship to the ecological question as part of the performance is ultimately not harsh but lightly wondering in its charge. Towards the end, the performance takes on increasingly comic, even naïve forms, but the whole remains memorable as a kind of gentle setting of the relationship between animate and inanimate, in which the oppressive landscape of the apocalypse is not directly visible on the playground that forms on stage. Yet the audience becomes aware of this wider framework.



Figure 4. A scene from *Kotiesitys – Kun oikeat soturit nousivat satulaan, oli jonkun jäätävä kukkia kastelemaan* (2018). Photo: Sanni Siira.

On the Recognisability of the Ecoscenographic Aesthetics

In terms of the aesthetics, two previous performance examples differed greatly in their conceptions of performance, space and audience. *Metsäesitys: Lohko 7* operated at the mercy of the outdoor space in the forest, avoiding illusion and representation as means of performance. The light grey studio space for the *Kotiesitys* was a traditional small stage, with a performance format and production process that followed the typical pattern of educational productions at the Theatre Academy. It can be said that *Metsäesitys: Lohko 7* communicated its ecological content to the audience in every possible way. Everything around the performance became visible in a new manner, compared to performances on stages where the spectator forgets the “theatre machine” around the stage action. This

awareness of the viewing and construction of the performance links the aesthetic thinking of Martikainen's team in a surprising way to the director Bertolt Brecht's aims of keeping the audience aware of the means of the theatre. The huge difference, however, is the control of the narrative of the performance on a technically equipped theatre stage compared to the acceptance of nature's conditions as part of the performance. Nevertheless, control cannot be completely ruled out in the case of *Metsäesitys: Lohko 7*; the organisation of the event required different decisions and choices about how the audience was desired to move and experience during the performance. The means of control were adapted to this form of performance.

The more traditional production framework of *Kotiesitys* allowed the audience to watch that performance as any other performance. Nevertheless, the production of the performance applied eco-conscious thinking and tried to make more sustainable choices. This was not necessarily visible on the surface except in the form of material vignettes (plants, used furniture, worms) associated with ecological and neo-materialist imagery or discourse. A radical departure from this was the direct ecological speech of the lighting designer within the performance. Pohjola revealed the knowledge behind her lighting design, which was then passed on to the audience, as well as her actions as an example. The gesture raises the following questions: how much of an attitudinal impact does the artist wish to have on the audience, and what means does the performance have to achieve this? Pohjola's direct speech to the audience is clearly one way, together with the ecological awareness created by speech content.

On a more general level, I am left wondering how the ecology created by the various strategies in the diversity of the performances is visible in the performance and whether the audience should be aware of these choices or be able to detect the "ecological signs"

with their own eyes. This problem has a certain connection with Danto's observation about the fracture between pop and conceptual art and the recognisable uniqueness of the work of art. For Danto, this related to the Brillo Box by the artist Andy Warhol and the external similarity of the Brillo cereal box designed by the abstract expressionist painter James Harvey. His central question, "if you got two things, one of which is art and one of which is not, and they look exactly alike, what explains the difference?" (Danto 2013, 0:38) inspires me to think about the recognition of ecoscenography as an opportunity rather than a requirement. The actual sustainability of a production is not necessarily visible to the audience and then the aesthetic discourse deals with the performance in the usual way with a coordinate of beauty, ugliness and ordinariness. If the audience were informed about sustainable practices of the production, however, the information could influence the experience and lead the viewer to look for signs of a solution; but the aesthetics of the work would not be, strictly speaking, born out of the appearance of specifically ecologically sustainable solutions.

Strategies for an Ecoscenographic Aesthetics

The first thing we must accept is that the diversity of productions leads to different aesthetic strategies in contemporary performance design. We then need to understand the nature and impact of the artistic starting point and the production process in relation to ecological thinking and the resulting aesthetics. This kind of broad awareness is very visible in Tanja Beer's ecoscenographic thinking, which seeks to find an empowering ethos for art-making by emphasising the potential of ecological creativity rather than complaining about the diminishing means of expression (Beer 2021b). This kind of attempt to perceive potentials was already visible in Milla Martikainen's thesis, where, alongside the things that were leaving,

she articulated the things that would remain in the creation of performances and their lighting design (Martikainen 2015, 101–102).

I roughly outline two co-existing ecoscenographic aesthetic strategies, which are partly reflected in my earlier examples. The first draws from posthumanist philosophy and could be characterised as an *aesthetics of representation with nature*. Posthumanist performativity, as proposed by feminist philosopher Karen Barad, incorporates material, discursive, social, scientific and human and non-human factors, whose relationship can constitute intra-action (Barad 2019, 105–106, 114). To deconstruct the opposition between nature and culture, various hybrid and cyborg relations come under the scope of intra-action. This is reflected in the performances' search for contact with inanimate and animate materials. In many cases, the presence of nature, or its components, is intended to be read as the intentional ecological connotation of the authors. *Metsäesitys: Lohko 7* is a good example of this, as are the series of works by Tuija Kokkonen, which explore the performative relationship with the non-human. In the same context, the video installations of Finnish performance artist Annette Arlander's *Animal Years* (2002–2014), in which she performs with the landscape in extended periods, should also be mentioned.

The aesthetics of performance with nature also relate to stage or installation performances in which plants, animals, fungal or microbial growths are brought onto the stage, or in which attention is paid to the presence of inanimate materials on stage. It is worth noting that the nature, creatures or materials that appear in a performance are not automatically associated with ecology without the current cultural discourse of ecology. In summer theatre performances, for example, there is usually no conscious ecoscenographic relationship with the nature surrounding the outdoor stage. Although aesthetic choices are associated with ecological meanings, they are not a guarantee of ecological sustainability, just as not all synthetic materials

are automatically only non-ecological. However, at the level of the aesthetics of the work conveyed to the viewer by the artists, an aesthetic interpretation has emerged, in which these materials express a contradiction, a relationship or a desire for the interaction between nature and human. The materials constitute an ecological message: they are given a role to play in presenting ecological consciousness and recalling this discourse.

The second aesthetic strategy seeks to integrate the principles of ecological representation into an existing production convention. It could be called an *ecological aesthetic merged with aesthetic tradition*, because, like Warhol and Harvey's Brillo boxes, the viewer cannot really see the aesthetic difference between an ecological and a less ecological realisation without being given additional information. This allows the performance to address other contents than what the natural material used, for example, suggests. However, the example of *Kotiesitys* tries to consider and *do things differently*¹⁹ from the traditional theatre activity. For Olivia Pohjola, the central working method of "unveiling" helped the team to perceive the structures of the performance and the stage and to reflect on the relationship with illusion and the origin of knowledge. All of this tends to generate, alongside the directly articulated ecological message, an aesthetic of performance that emerges from invisible ecological thinking and choices, even if the performance does not deal with ecology as a subject. In the same way, it becomes possible as a distinct ecoscenographic aesthetic that grows out of the content of the work while it follows production convention. Ultimately, the real ecological impact is key, no matter how perceptible it may be.

19 I have used the term in lighting design as an intention that observes and recognises the principles and structures of convention and develops alternative proposals on that basis (Humalisto 2012, 16-19).

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The Return of the Thinking Hand?

JARI P. KAUPPINEN

Abstract

The imminent eco-catastrophe and its demand towards more sustainable ways of working and use of resources affects also designers and artists working with sound. Despite the seemingly immaterial nature of sound, sound design is by no means different from other design or artistic practices within the performing arts. It shares the same concerns and the need to examine its practices critically. How can more sustainable ways of working within the context of the performing arts be developed? Also, how can this ecological thinking beyond the walls of the performance space, to facilitate a deeper understanding of the powers and processes that guide our thinking and actions, be expanded? With the help of this mindset, we could try to rediscover, revive and re-vitalise some of the already invented, tried and tested, but forgotten techniques of creating sounds and sound design. The history of stagecraft, music, sound effects and affects is incredibly rich and varied. It might provide interesting new, but at the same time old and perhaps discarded or forgotten, points of departure for creating sounds for and within the contemporary performance.

I regard the different areas of performing arts as a potent platform to present, discuss and facilitate a change towards a better,

more encompassing and caring attitude towards the world we populate together, with a multitude of other beings and things.

Introduction

In this article, I will examine the environmental footprint of sound design, and the possibilities of reducing it in the context of the performing arts. I will try to look beyond the obvious immediate factors, such as the use of electricity or the cost of building the technological infrastructure needed for the creation of sonic worlds for contemporary theatre and dance pieces. For designers and artists using digital means, the utilisation of technological commodities and services for creative ends also means taking part in the cycles of commodity production, consumption and disposal within the dynamics of global capitalism. How can the positive contribution of the artistic outcomes against this backdrop be assessed or accounted for? How can we become more sensitive towards the expenditure of resources, labour and the sacrifices of a multitude of different materials, entities and actants embedded in the technologies involved in the creative act? What would I as a designer and an artist be ready to sacrifice in order to act in a more ethical, sustainable and respectful manner?

Sound design is, of course, only one practice among the multitude of artistic practices, so an attempt is also made to compare the environmental cost of sound design in the performing arts to other simultaneous activities in designing, constructing, rehearsing, performing and, finally, taking down a performance and discarding the materials used in the production.

My practice as a sound designer is tightly connected to sonic technologies, depending on the latest developments in them. The obvious questions each and every sound designer must ask him/her/themselves are these: What can I do to lessen the ecological footprint of my practice? What is my role in favouring and sustaining the

dubious practices that got us into this situation in the first place? What is my responsibility towards myself, the spectators and the conception of art's possibilities in imagining a better future? How could the means in my disposal be better utilised to foster a deeper understanding of the multitude of other beings and things populating our common world? These big questions quickly multiply into a series of sub-questions, and then into an even larger set of subquestions of subquestions and so on, towards infinity, it seems.

In an attempt to create a wider context for the discussion of the impact of sound design on the ecological footprint of the performing arts, I will be using texts, theories and ideas drawn from a large variety of artistic and academic fields and discourses. Sound studies, studies in music and musicology, ethnomusicology, performance philosophy, performance design, infrastructure studies, media studies, media archaeology, new materialisms and speculative design, to name the most essential, provide the theoretical terrain to this text and the thinking behind it. I regard those fields to be so close to the theory and practice of sound design that the application of their argumentation across discipline borders will be valid and fruitful. After this more theory-oriented section, I will turn towards practice: how and where to start? What could a more sustainable practice of sound design consist of? Here, I will utilise the insights of speculative design, re-appropriation, hardware hacking, circuit-bending and zombie media.

Points of Entry

The inquiry towards ecological thinking and ecological practices within sound design is still quite recent and rare. The work of Tanja Beer in coining and disseminating the concept of ecoscenography must be regarded as one of the most valuable contributions to this discussion. It has also served as an important inspiration to this text.

Different strategies to lessen the use and misuse of resources are most often seen as acts of abstaining; one must stop, reduce, give up or scale down one's activities and practice to achieve the often very ambitious and seemingly impossible goals. More efficient ways of working are most often introduced in qualitative contexts: getting so-and-so results in such-and-such percentage savings in the used energy, materials or other resources. This results, as Beer remarks, in continuing in a business-as-usual manner (Beer 2021, 65). The real need to fundamentally change our ways of working is obscured by the seeming, but in fact erroneous, possibility of carrying on in more or less the same manner as before. This is not enough. A more thorough change is needed.

As such, I regard the practice of reusing, recycling and up-cycling within performance design very valuable and important. This is not the path, however, that I am going to take in this text. I will focus more on the less obvious and less discussed aspects of design practices, on the ways that they can destabilise our understanding of the present situation and doing so, open our minds towards accommodating new and different, unthought of possibilities as the basis of renewed thinking and acting.

So, why not try to do something else: different, more interesting, speculative things? First, we have to become aware of the *possibility spaces* within which we are operating. As Timothy Morton states, they exert control over us, and we have to become aware of them to be able to do something that is not generic to a certain possibility space we inhabit (Morton 2018, xvii). He sees artistic practices as powerful instruments in making us see and better understand the world that we are necessarily a part of: "It's equivalent to acknowledging in a deep way the existence of beings that aren't you, with whom you coexist. Once you've done that, you can't un-acknowledge it. There's no going back." (Morton 2018, 79) The modification of the

prevalent possibility spaces we have created is crucial, that way we can enter a more speculative mindset:

...the artwork is a sort of gate through which you can glimpse the unconditioned futurity that is a possibility condition for predictable futures. Art is maybe one tiny corner in our highly (too highly) consciously designed – and way too utilitarian – social space where we allow things to do that to us. What would it look like if we allowed more and more things to have some kind of power over us? (Morton 2018, 78)

Creating concepts and suggestions is a very concrete way of devising speculative strategies for our future(s). Two possible scenarios open up: either we attempt to conform to the predictions already in place for our future, or we are more adventurous and attempt to imagine a wider set of possibilities. These scenarios then open up further towards both the internal characteristics of the practice: the aesthetics, conventions, genre characteristics and so on, and towards the external cultural or societal conditions, environments and infrastructures. Design scholars Anthony Dunne and Fiona Raby propose a radically speculative attitude, a turn towards a wider set of *plausible* futures:

Rather than giving up altogether, though, there are other possibilities for design: one is to use design as a means of speculating how things could be – speculative design. This form of design thrives on imagination and aims to open up new perspectives on what are sometimes called wicked problems, to create spaces for discussion and debate about alternative ways of being, and to inspire and encourage people's imaginations to flow freely. Design speculations can act as a catalyst for collectively redefining our relationship to reality. (Dunne & Raby 2013, 2)

Design speculations can also interrogate and put into question the whole concept of “the future”. Whose future are we talking

about? How has the idea of “the preferable future” been constructed? Whose preferences are at play here? By presenting alternative, more inclusive scenarios the idea of the range of possible futures might expand radically:

This space lies somewhere between reality and the impossible and to operate in it effectively, as a designer, requires new design roles, contexts, and methods. ... To find inspiration for speculating through design we need to look beyond design to the methodological playgrounds of cinema, literature, science, ethics, politics, and art; to explore, hybridize, borrow, and embrace the many tools available for crafting not only things but also ideas – fictional worlds, cautionary tales, what-if scenarios, thought experiments, counterfactuals, *reductio ad absurdum* experiments, prefigurative futures, and so on. (Dunne & Raby 2013, 3)

Turning back to performance design, these ideas of redefinition resonate with Tanja Beer’s and Dominique Hes’ conception of eco-scenography as “the integration of ecological thinking into all stages of scenographic production and aesthetics” (Beer & Hes 2017, 2). With this, they are pointing towards a much larger field of consideration than the strict interpretation of the term (as dealing with the nature of beauty and taste) might suggest. They are referring to “the bodily encounter (e.g., visual, audible, kinaesthetic, tactile, olfactory, somatic, gustatory, spatial, and durational) of perception, a concept ... concerned with the reciprocal connection of perceiver and object” (Beer & Hes 2017, 32).

What if we, with the help of these notions, tried to critically review and reinvent our practice? We cannot go back in time, in aesthetics or practice to some untainted, “pure” theatre world, as such simply does not exist.

How do we find a third way, a sound design of the otherwise, to create a new rendition of the established practice of theatre sound creation and open new insights towards the combined agency of the sound designer, the sonic materials, instruments and techniques applied within the framework of the performing arts? To begin with that, we need to take a look at the history of theatre sound and sound design.

An Extremely Brief History of Sound Design

For our purposes, I divide the history of sound design within the performing arts into three main eras or phases. This outline should not be taken literally, there is a lot of overlap even within our western tradition of theatre, not to mention within the extremely rich and varied spectrum of performative practices around the globe, which I am not, admittedly, qualified enough to discuss here.

The acoustic era of the artisan-performer

The soundscape of the stage of this period consists predominantly of actors' voices, music and sounds stated in the parentheses of the dramatic text. As there were no means to record or pre-fabricate sounds, the sounds required were realised real-time by backstage personnel, who utilised various techniques and contraptions especially developed and constructed for these purposes. The essential quality of a sound person was the ability to "play" these noise-machines in imaginative and expressive ways, in sync with the mood and rhythm of the scene. Manual and musical performative skills combined with excellent craftsmanship characterise a proficient sound person of this era. Ross Brown has, in his analysis of old British theatre handbooks, described this combination of skills as "complex, specialist embodied knowledge handed down through a long if obscure tradition, and we can see that the traditional 'effectsman' took pride in being a stage performer rather than a stage manager" (Brown 2009, 24).

The Era of Technical Design and Control

The rapid development of sound recording, manipulation and playback techniques and specialist equipment in the twentieth century facilitated their entry also into the expressive arsenal and practices of the performing arts. Their technical nature started to steer the discourse of sound and its possibilities and functions within theatre towards that of engineering, control and design. This new sonic practice necessitated a new kind of knowledge and practical skills “... that put technical basics of sound engineering before creative strategies or innovation” (Brown 2009, 40). This turn brought the practice of sound design much closer to the workflows of scenography and lighting design. Pre-planning, technical design documents, plots, the increasingly complex process of sound creation and manipulation in the recording studios and, finally, the technical realisation of the sound system and the adaptation of produced audio material to the exact requirement and needs of the piece and the director brought new prestige to sound designers and their nascent practice.

The Era of Networked Digital and Algorithmic Practice

Topical to this (present) era is the melding together of the different phases of the design process and a certain kind of nomadic placelessness. The conceptual design, the creation, editing and processing of the sonic materials and the programming of sound equipment are possible basically anywhere, provided one has access to the internet and a powerful enough laptop, equipped with extensive (and expensive) program suites that enable the designer to realise his/her/their most creative, crazy and imaginative ideas by the flick of a (virtual) switch or a move of a fader. Only the final adaptation of the material to the performance space, and to the piece and rehearsing with them, in conjunction with all the other elements of the piece, necessitate the simultaneous presence of the designers,

director and/or choreographer and performers in the performance space. Ever more spectacular productions realised in an increasingly strict productional and temporal frame in mainstream theatre have brought about a change towards a production environment that is increasingly more factory-like. This has led to faster and more standardised ways of working: the same ever-advancing technologies and techniques are available to all freelance artists and designers who can afford them. It is easy to see that this development puts designers in a difficult situation. In order to keep up and stay competitive, one has to take part in the increasingly fast cycles of creation, consumption and obsolescence. Dropping out of this cycle could be professional suicide. On the other hand, someone (Me? We?) should stop this cycle.

Similar historical development has occurred in the evolution of the theatre spaces within the history of the performing arts. On the one hand, the machinery of the theatre (or indeed its *habitus* as a machine) has provided the performing arts with a multitude of expressive possibilities and through them helped to develop the performative language of theatre. On the other hand, these advances in the scenic language have happened as exclusions of other possibilities, entities or processes. The total control of the experiential qualities presented within the black box theatre space could be regarded as the culmination of modern theatre aesthetics. Black box is the performative equivalent of a modern science laboratory, or an artist's studio. By excluding as many external variables and disturbances as possible, an experimental situation, or a research scenario, can be created.

The definitions of black box within actor-network-theory and science studies come surprisingly close to this. They are described, for example, as "... devices, practices, or organizations that are opaque to outsiders, often because their contents are regarded as 'technical'.

The goal of opening black boxes is to discover how they are kept opaque; how they structure their ‘contexts’; and how those contexts are inscribed within them” (MacKenzie 2005, 555). The time has perhaps come to question and unpack this. Have we gone too far with these exclusions, refinements and very selective facilitation of methods? Aren’t we excluding and shutting out the real world, with its multitude of seemingly unexpected and incoherent phenomena and processes in order to be able to recreate it from scratch within the black box?

The Present Situation: Black Box(es) of Performance Design

Let’s take a walk around a typical black box venue. What we see, sound equipment-wise, is some loudspeakers, a mixing console and associated audio equipment in some corner of the room, perhaps some microphones, instruments and monitor speakers onstage, laptops and tablet computers. New innovations in circuit design, digitalisation and miniaturisation of electronics have improved the efficiency of audio equipment dramatically; modern Class D audio amplifiers, for example, convert almost all of their energy expenditure to sound. The older, analogue Class A or Class B amplifiers might be up to 100 times less efficient (Gaalaas 2006). The digitalisation of mixing consoles and sound processing hardware has improved their power efficiency in the same manner: the power consumption of an older generation analogue mixing console and a set of outboard processing devices might easily be three to five times higher. The sound file playback and control system, typically running on a local computer or a laptop, has undergone similar development. If we compare the energy consumption of a state-of-the-art sound system to that of the lighting system, or the heating and air-conditioning systems serving the performance space, we soon realise that

the contribution of the sound system to the total energy consumption is negligible. It seems that, on the level of basic sound systems, there is not much to improve on. The local effects of different choices and actions are easily understood and controlled. By using a minimum of energy-efficient equipment, switching them off when not used and so on, it is within the grasp of every sound designer, technician and production team member. Could it be stated that we have done everything in our power to foster sustainability? Perhaps we should take a wider look to involve larger contexts and time frames. We must shift our point of view from the performance space to technological infrastructures, first to the level of the premises within which the theatre/organisation operates, and then to a global level.

Infrastructures to Focus

Let's start with physically (and also metaphorically) coming out of the black box. Usually, there is some kind of technical space or backstage adjacent to the performance space. It contains the sound processing and distribution devices, power amplifiers for the loudspeakers, patch-bays for interconnecting equipment and so on. There is also something else: progressively more information technology equipment, such as routers, servers, switches, converters, interfaces and wireless access points to name a few. These devices form *local*, organisation- or premises-level systems. In contrast to the equipment used within the performance space, these devices tend to be always on, as they are configured to create data and storage networks, which require for their operation that every element of the network is active and available all the time. These local systems act as interfaces towards larger systems: towards more routers, servers, switches, which gradually start to be beyond our reach, perhaps within other locations within the organisation, or located at the premises of service and storage providers or network operators.

This is where the results of individual actions start to be more difficult to trace. It becomes almost impossible, for example, to calculate the energy expenditure of cloud storage or media streaming from remote server locations.

The same thing happens when we expand our view temporally. The further into the past or future we attempt to see, the more uncertain we can be about the economic, environmental and social impacts of our decisions about acquiring, using and discarding the technological tools of performance making.

The utilisation of the latest technological commodities and services for creative ends means also taking part in the cycle of production, consumption, rapid obsolescence and disposal within the dynamics of global capitalism. How can we account for or assess the positive contribution of the artistic outcomes against this backdrop? How do we become more sensitive towards the expenditure of resources, and sacrifices and suffering that characterise the work of a multitude of different materials, people and other participants embedded in the technologies and practices involved in the creative act? What could I, as a designer and as an artist, be ready to sacrifice in order to work in a more respectful, ethical and sustainable manner?

A Third Way?

Indeed, how is one to find the way towards a more sustainable practice? The task seems impossible. As Joe Cantrell rightly notes, the responses when facing this task seem to be divided into two extremes “that either completely own up to the responsibility connected with technological objects and cease producing work, or point to the overwhelming enormity of the systems at play and effectively abdicate responsibility” (Cantrell 2017, 4). The difficulty in finding a comfortable and productive compromise seems immense.

As I have already stated, in the everyday practice of devising and realising a sound design for a performing arts production, there is not that much energy-efficiency-wise that we can improve upon. So, where do we start to search for new orientation?

On the one hand, the sacrifice resulting from hopping out from the continuing cycle of obtaining the newest, ever more capable hardware and applications, plug-ins and sounds designed to run on it seems unreasonable; while on the other hand, staying on the cutting-edge update cycle creates in one's mind a vague feeling of guilt that taints even the most spectacular sonic outputs that the newest technologies are capable of. Do I really need the combined computing power of 31 billion transistors provided to me day and night by my laptop and smartphone? The effortless and seemingly immaterial operations of the digital infrastructures, and their accessory technologies, at my disposal hide behind the fact that they are energy hungry, labor intensive and wasteful. Each and every networked and algorithmic action burns gas, coal or nuclear energy. It seems that these wicked problems I face cannot be solved through simple true/false or right/wrong answers. I must somehow be able find a way to escape the sharp dichotomies, to think beyond them and steer my thinking and actions towards a knowledge of a world that is not so logical and cognitively graspable that I have been led to believe. What if I tried to regard my environment not as a data-like structure, but as a multitude of parallel, heterogeneous processes, of which only a small fraction is even understandable for me. Lawrence Kramer takes aesthetic knowledge as his point of departure: "Knowledge of the world, as opposed to knowledge of data, arises only in understandings that can neither be true nor false, that is, in understandings the epistemic form of which is the form of the aesthetic" (Kramer 2016, xiii-xiv). This steers us towards more free forms of thinking that are not defined by either-or distinctions,

but rather by possibilities that Birgit Abels has described, paraphrasing Edward Soja, as “both/and also”, as something that is “always already relational, a practical, transforming engagement with our environment” (Abels 2021, 169).

With the help of this mindset, we could try to rediscover, revive and re-vitalise some of the already invented, tried and tested, but forgotten “primitive” techniques of creating sounds and sound design. If we regard a performance as something unique, unfolding in the here-and-now, why the need to stabilise it, make its essence algorithmic, infinitely repeatable: why try to approach the sentiment of an assembly line? This speculative attitude might provide interesting new, but at the same time old, points of departure for creating sounds for and within the contemporary performance. This exercise of letting go and de-centralising contemporary technologies is not an attempt to return to some more authentic, non-technical or original way of life or doing theatre. It could rather be seen as a step towards acknowledgement and respect towards the richness of the ecologies (materials, things, beings, objects, vibrations, emergences) inevitably present in the performative situation.

The Practice of Speculative Refrain

The term “speculative refrain” attempts to catch through its multiple meanings something that could describe what I call *the new old possibilities* that actualise when we engage in a practice of consciously abstaining from using certain technologies and tools. On the one hand, refraining has the meaning of holding back or restraining from the use of something; whereas, on the other hand, refrain has the meaning of a chorus or a much repeated saying or complaint. From those meanings, the double practice of giving up on or silencing something present, and refraining or resounding something previously ceased or forgotten at the present moment takes shape.

This practice of speculative refrain, or parting with technology, is not only about the evident fact that you have to make do with fewer, more restricted and primitive tools and techniques. It offers historical and aesthetic positions and points of view, derived from the affordances of the degree of abstaining in question. These could also be seen as media archaeological positions, offering a possibility to revive old, discarded technologies as zombie media, as queered and bent techniques and technologies that can open up fascinating views towards past futures that could have been possible. These kinds of reconfigured systems can provide us with enticing and glitchy sounds of malfunctioning or almost-functioning media, the actions of technologies and materials brought to their extremes. And the further we travel down these ladders of the progress of sonic technologies and techniques, the closer we come to the agency of the hands, the body and the voice, the ultimate media-technological tools. When I proceed from the algorithmic towards digital, from there towards the electronic and the analogue, and finally, from there towards the electric, the mechanical, the material and the bodily, I can see a clear pattern of a redistribution of agency, a rise of a bodily and experiential manner of interaction with the sound-generating and reproducing means.

What Will Change?

What happens if I let go of something, my laptop, for instance? I become conscious of the technologies that I, as a result of that decision, can no longer access. At the same time, a new, different possibility space opens up. This foregrounds techniques and practices that previously felt marginal, obsolete, outdated or insignificant. This reactivates a historical-aesthetic position, which can now be examined from the present position, present knowledge and present cultural climate. That position can then be short-circuited with

the present situation and be re-assembled, re-used, re-cycled, even up-cycled, making the boundaries between the past and the present porous and fleeting. All this paves the way towards a deeper connection with the tools and objects at my disposal, towards what Jane Bennet calls enchanted materialism. It “cherishes moments of delight resulting from the unexpected results of the agency of objects. In this view, the patterns produced by a malfunctioning piece of audio technology can be received in the same light as a composition of a human agent” (Cantrell 2017, 114).

The practice of speculative refrain is a reversal of the usual method of doing media-historical studies: instead of using a view from present to past, the techniques, practices and sonic ways of knowing from the past can be employed to critically examine the present situation. This is a necessarily critical practice. It can highlight our present condition in a deconstructive manner. For me, the most important change resulting from the application of letting go of certain technological apparatuses or assemblages is the inevitable redistribution of agency. It will not only be re-activating certain aesthetic or stylistic techniques and qualities, but also the means to achieve them.

Conclusion: Practical Actions and Exercises

Giving up is not an option. One has to start somewhere. A change in thinking, working habits, artistic outcomes, however small, is a beginning. We could start from the realisation of the fact that we tend to think and act through dichotomies: either this or that, right or wrong, correct or incorrect. But what about both/and also, a third way, or fourth, fifth, and so on? To find a path towards an eco-imaginative, ethical, speculative, sustainable and enchanted practice of sound design, we have to re-imagine and re-invent it.

A new rendition of some of the older practices of theatre sound creation within, say, the new materialist discourse could open new

insights towards the combined agency of the sound designer, the sonic materials, instruments and techniques applied. By approaching these agential networks from the contemporary point of view, knowing what we know at this very moment and applying the contemporary cultural, aesthetic and technological know-how, we could perhaps short-circuit the present with the past and create new networks of hybrid agencies.

We have to start – not from scratch – but simultaneously from many temporally disconnected places within the history - both real and imagined – of sound design and sound in the theatre, performance, as a performance and hybridise these various aesthetic, epistemic and temporal moments into a practice of sound design of the otherwise.

Here are some suggestions and ideas for further reading. They might also be helpful for sound designers as mantras or spells at the moments of confusion, desperation or joy:

Feel the vibrancy of all the materials and things around! (Bennett 2010)

Get enchanted! (Bennett 2001)

Appreciate your techniques and technologies! (Cantrell 2017)

Speculate in design! (Dunne & Raby 2013)

Feel the suffering, the slow violence, the devastation hidden in your technical objects! (Parikka 2016)

Be eco-creative! (Beer 2017)

Resurrect Zombie media! (Hertz & Parikka 2012)

Hack your technologies! (Collins 2006)

Bend your technologies! (Ghazala 2005)

Feed back anything to everything! (Collins 2006)

Go postcolonial! (Ismail-Wendt & Schoon 2022)

Go post-catastrophic! (Devine 2019)

Go performative! Operate! (Ernst 2017)

De-script! What's in the Box!? (Akrich 1992)

Deconstruct and Decompose! (Devine 2019)

Infrastruct! (Devine & Boudreault-Fournier 2021)

Struct! (Nancy et al. 2015)

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Part 2

More Sustainable Practices

The Global EcoDesign Charrette in Action

Exploring Ecoscenography
in Performance Design Education

TANJA BEER, TESSA RIXON & IAN GARRETT

The global ecological crisis has resulted in a reconsideration of theatre's pedagogical frameworks, as educators attempt to integrate environmental strategies that foster eco-creative potential. An essential part of this transition is the introduction of new educational models foregrounding "sustainable choices" into theatre design pedagogy. While other creative industries, such as architecture, product design and fashion, "have been including sustainability as part of their course curriculum for decades", theatre education continues to fall behind (Beer 2021, 187).

A key deliberation for performance design educators is how sustainable production can be embedded into tertiary training in ways that are not only informative, but also engaging and inspiring. Over the last decade, the concept of ecoscenography (ecological design for performance) has emerged as an integrated and flexible approach to sustainability in performance design, where notions of circularity, place-based and relational thinking are core (Beer 2021). Ecoscenography is a holistic approach to theatre production which seeks to dissolve perceived boundaries between artists, materials, audiences and the broader ecosystem, opening up greater

eco-creative responsibilities and considerations. Its place-based, open and relational strategy calls into question existing hierarchies and conventions to advocate for an interconnected and symbiotic way of making, while celebrating, opportunities for learning and collaboration. This makes ecoscenography a valuable approach for teaching sustainable design in theatre education.

This paper presents the outcomes of a trial application of the ecoscenographic framework into the education of tertiary theatre design students. From October 2021 and February 2022, students across three universities came together to explore how ecoscenography could be integrated into design education. The initiative was part of a Global Networked Learning project between York University (YorkU, Canada), Griffith University (GU, Australia) and Queensland University of Technology (QUT, Australia), which aimed to train performance designers across vast distances, with support from sustainability and performance design experts across the globe. Our learning framework was set up as part of The EcoDesign Charrette, a global initiative developed by Triga Creative in partnership with The Centre for Sustainable Practice in the Arts (CSPA) as part of the Climate Change Theatre Action Festival (CCTA). In the CCTA project, 50 professional playwrights across cultures and nations are commissioned to write five-minute plays about an aspect of the climate crisis. These plays became the impetus for developing design ideas through the Eco-Design Charrette.

Over the course of 12 weeks, participants developed initial concepts in response to one or more of the short climate change plays. With expertise in sustainability, technology and scenography, the unique team of facilitators and invited guests provided a number of provocations across environmental philosophy and practice. This included leading conversations, ideations and practical workshops to drive the cross pollination of speculative ideas on the future of

scenography in a climate-changed world. A parallel professional EcoDesign Charrette (organised by Triga Creative) also joined many of these meetings and provided the students with insights into how experienced designers were also tackling sustainability in their own ideations and practice. The results of the project were then exhibited in the galleries of Cspace King Edward as part of World Stage Design 2022 in Calgary, Canada.

A central focus of the learning project was to explore new modes of theatre making that consider an increased awareness of broader ecologies and global issues. Drawing from transitions theory, a key aim of ecoscenography is to develop effective change-making that is “radical” but not rushed (Grin, Rotmans & Schot 2010). Unlike typical theatre productions, where the performance season take precedent, ecoscenography is comprised of three stages —co-creation (preproduction), celebration (production) and circulation (post-production) —that are considered equally fundamental to the aesthetic consideration of the work. “Co-creation” involves a place-based eco-creative approach to scenography, “Celebration” accentuates the stage as a platform to showcase ecological themes and practices, and “Circulation” promotes the distribution of sustainable ideas and materials beyond the performance season. The iterative process of “‘co-creation—celebration—circulation’ helps expand ecological understanding, perception and action, which deepens with each iteration of practice” (Beer 2021, 104).

Using the ecoscenography framework, students were encouraged to take a place-based approach to reconsidering theatre’s dominant “creation to dispose” mentality through the three C’s, where temporary designs were explored through a longer and more interconnected timeframe and system. This article focuses mainly on the outcomes from Griffith University designers, while other

publications from the process present the outcomes from QUT and York (Rixon, Garret and Beer, 2022; Garret, Beer and Rixon, 2023). As students of Interior and Spatial Design, these emerging designers had a unique perspective on the ecoscenographic framework, unencumbered by pre-existing ideas of stage or theatre design. Their design responses were incredibly varied as a result, with many taking a site-specific approach to design outside of conventional theatre spaces. Most students developed works that would be categorised as expanded scenography, where “expanded”, narrative, performative and process-based strategies of scenography are re-explored to consider spatial politics and social agency (Brejzek 2010, 112) and become “an agent of interaction and communication” (Brejzek, Greisenegger and Wallen 2011, 14). While ecoscenography exists across the full spectrum of performance design, taking a site-specific approach supports the scenographer as a world-maker (Hann 2018) and “gives agency to the designer’s capacity to transform literal and hypothetical worlds, creating distinct atmospheres that affect the way in which we view and engage with our environments” (Beer 2021, 15). This makes it an attractive strategy for engaging with ecoscenography.

Gabi Harris’ response to *The Pageant* by Paula Cizmar was one of several projects that focused on the natural world as the performance platform. Harris created a multi-sensory walking experience in Springbrook National Park (Queensland, Australia), with the actors performing the play in segments along the path (figure 1). In the play, the characters are planning the programme for “the Pageant”, an annual event celebrating the commitment to making changes to protect the planet. Using environmentally friendly lighting, combined with natural materials, Harris’ design aimed to celebrate the beauty of Australia’s untouched landscape and the importance of looking after these wild spaces. As part of the

experience, the audience were provided with home-made lanterns from upcycled milk bottles to attract insects for the glow worm cave, which also assisted with lighting the performance (figure 2).



Figures 1 & 2. Design by Gabi Harris (Griffith University, Australia) for *The Pageant* (Paula Cizmar), which aimed to create a multi-sensory walking experience, lit by glow worms and homemade lanterns at dusk along a trail in Springbrook National Park, Gold Coast, Australia.



Figure 2.

Taking a nature-based approach was also evident in the teamwork of Kathleen Schultz, (GU), Kelly-Jane Nou (GU), Michelle Hair (QUT) and Connor Williamson (YorkU), who used the tourist

site of Paronella Park in North Queensland, Australia to inspire their design for *Dream Remember* by Hannah Cormick. Cormick's play focused on the ritual of saying goodbye to a world after it had been ravaged by the climate crisis. Mena Creek in Paronella Park became the site for the play, and the sensory experience aimed to celebrate the history of the park by surrounding the audiences in a natural environment that fosters restoration and sustainability (figure 3). The site-specific set design used materials from the site, such as repurposed timber, concrete and metal railings leftover from buildings, soy wax candles in containers that could be reused as flowerpots after the show as well as found items from the community, second hand shops and rubbish sites. At the conclusion of the show, many of the set elements could be returned for recycling, wood could be repurposed by Paronella Park and the candle flower pots could be given to the audience.



Figure 3. Students from across the three Universities (Michelle Hair, QUT; Kathleen Schultz, GU; Kelly-Jane Nou, GU; Connor Williamson, YorkU) used the tourist site of Paronella Park in North Queensland, Australia to inspire their design for *Dream Remember* by Hannah Cormick.

In contrast to transporting audiences into real nature spaces, urban environments also became the inspiration for many of the students. Samantha Foley set her design for *Mizhakwad (The Sky is Clear)*, a play about the destructive power of capitalism, in a local shopping centre car park. Foley created the barren “forest” landscape described in the play by sourcing abandoned cars from a local wreckers’ yard and created costumes from the waste of the retail outlets within the shopping centre (figure 4). The play’s hopeful ending was depicted through the transformation of the old cars into a permanent community garden of native trees, plants and vegetables after the performance, providing a much-needed green space in the shopping centre (figure 5). The vision of the garden included programming which encouraged waste recycling and composting from the retail stores.



Figures 4 & 5. Design by Samantha Foley (Griffith University, Australia) for *Mizhakwad (The Sky is Clear)* (Dylan Thomas Elwood), which aimed to convert a carpark into a performance space and community garden.



Figure 5.

In another approach, the urban space Kristen Box chose for *Ranger*, by Yvette Nolan, came from her recent experience of border closures during the pandemic. In *Ranger*, two characters, Niall and Brook, find themselves at a border crossing where residents are forced to leave unless they agree to help regenerate the local National Park. The play centres upon Brook and Niall's tense conversation before they part ways which demonstrates the divide between people who support environmental restoration and others who are not willing to make the change, actively pulling apart friendships and families. Box related this play to her own experiences of lockdowns and closures between the Australian state borders of New South Wales and Queensland, which tore many communities and families apart. The location of the play was set in a busy drive-through COVID-19 testing centre near the border of the two states, where

Box used street furniture (hired from construction companies), such as bollards, to mark the set and reclaimed packaging as makeshift PPE (figure 6). The performance was to be experienced through a radio frequency for the approaching cars and then repeated for each car before driving through for COVID-19 testing.

One design which did not take such a site-specific approach was by Claudia Marmissolle, who designed *Whistler*; by Giancarlo Abraham, a surrealist play that raises awareness about the miscommunication existing between people of different political and cultural backgrounds on the issue of climate change. The impetus for *Whistler* was to create “Theatre in a bag” – a costume and props design that could travel to multiple spaces across educational and community contexts. Marmissolle used hand-made eco-printed fabrics, discarded materials, such as shredded paper, mango skins, pre-loved clothing and fabrics, and recycled yerba mate tea to create her design (figures 7 & 8). For Marmissolle, the pop-up theatre design invited people to use local resources to set up and perform the play



Figure 6. The urban space that Kristen Box (Griffith University) chose for *Ranger*, by Yvette Nolan, came from her recent experience of border closures during the pandemic. In *Ranger*, two characters, Niall and Brook, find themselves at a border crossing where residents are forced to leave unless they agree to help regenerate the local National Park.

and encouraged participating communities to ask this question: “what do we already have that we can use?”, instead of the traditional “What do we need?”. In Marmissolle’s concept, the audience is invited to play the roles of the WHISTLING CHAIRS that whistle, the COOL WIND that carries an “eco-mantra”, or to approach the WOMAN to smell her mango necklace and earrings. The patterns of the design related to the geography of the Island, mimicking the movement and flow of the story. The design of recycled and biodegradable materials was constructed so that it could be redistributed to the community, including being used as a teaching resource for further making and learning.



Figures 7 & 8. Claudia Marmissolle’s (Griffith University) design for *Whistler*, by Giancarlo Abraham, which used the concept of “Theatre in a bag” to create a costume and props design that could travel to multiple spaces across educational and community contexts.

While the above works demonstrated a variety of approaches to ecoscenography, two dominant trends emerged from the student cohort. First, the ecoscenographic framework encouraged students to move beyond traditional theatre venues. This is not surprising, as many of the Spatial and Interior Design students did not have specific experience in performance design. Instead, these students were informed by their interior design courses, which prioritise *place* in design decisions. This, combined with the ecoscenographic framework's focus on co-creation and celebration, resulted in a more diverse approach to performance space than may be generated from traditional theatre design training. As performance designers are increasingly working across multiple spaces and contexts (many well beyond traditional venues), the possibilities for scenography as political, social, cultural and ecological revitalisation is growing (Irwin 2010; Lotker and Gough 2013). There is much to learn from the spatial and interior design disciplines that could inform this shift alongside ecological practice.

Second, in adopting the ecoscenographic Three C's, all designers began to maximise the potential of "found" materials and spaces. As compared to more traditional processes, which may centre on the generation of new objects or designs, the framework encouraged the designers to consider re- and up-cycling as alternatives to purchasing or constructing new, single-use design objects. This was a valuable shift in their learning, and demonstrated how an ecoscenographic lens to design encourages designers to consider the potential of existing materials, as well as carefully considering the lifecycle of materials upon the conclusion of a project.

Despite many of the projects existing in the more expanded realm of scenography, the aim of the EcoDesign Charrette was to fuel each participant with the knowledge and inspiration needed to design with an ecological consciousness across the full spectrum

of performance design. Through prioritising design seeding and idea exchange, the Charrette helped provide emerging designers with the knowledge and skills necessary to expand the agency and potential of scenography in a rapidly changing world. The unique perspectives of designers with non-theatrical backgrounds were both exciting and revealing. We are eager to continue exploring pedagogical approaches that galvanise the future of ecoscenography, both in and beyond traditional theatre spaces.

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Figure 1. The mineral pigment powder glass muller and rubbed blue colour. Photo: Titta Vilhunen.

Can I Paint With a Carrot?

Temporary Scene Painting Sustainability

LIISA IKONEN

I will discuss the first steps of our scenography programme towards more ecological working practices. As a case example, I use the course *Special Materials and Techniques, Ecological Alternatives* (November 2–19, 2021) for master's students, led by stage designer and set painter Titta Vilhunen. In the class, students made and developed environmentally friendly paints. The course was conducted within the master's programme of Design for the Performing Arts at the University of the Arts Helsinki, Theatre Academy. Its creation was driven by growing concern about the ethical sustainability and future of our material-wasting art form, scenography, in an era of global ecological crisis. The focus on making alternative stage paints and working with self-made paints was an attempt by a small degree programme to address a broad and expanding question from a concrete and limited perspective.

In my text, I will focus on the practical experiments and experiences of working with organic ingredients. At the same time, I reflect on the ecological turn of students' working practices and the relationship between ecological paints and time and durability. I followed the course from its establishment to the final exhibition and interviewed students and teachers, both during and after the course. My observations and thoughts are layered in the text-like paint on a surface painted several times. Talking about paint as a substance or material and talking about painting as an act intertwine and

are absorbed into each other. Their own layers emerge from both the history of paintings and staging as well as the novel thinking in contemporary scenography. While students' experiments reach into the future, different traditions shine constantly under all layers of the text. Thus, the question of sustainability expands into the question of remembering, preserving and nurturing, but in such a way that the future and the needs of this time rise alongside history. The biggest question is this: how and by what means can we justify the temporary nature of scenography in a world that seeks to move away from single-use culture?

A Year Earlier

A year earlier, we sat with Titta Vilhunen, a teacher of scenic materials, on a coffee break and discussed next year's curriculum. We would have liked to add an ecological perspective to teaching, but there seemed to be an immeasurable distance between scenography, ecological understanding and sustainable practices. In our degree programme, we had approached ecological scenography only in relation to processes for an industrial material production or through wider questions of workshop practices and theatre productions. The wide approach had made visible to students a vast and, in many ways, foreign world that had been difficult for them to conceive of as a whole. We considered how the broad subject could be narrowed down and brought closer to the individual students and their personal experience. The idea of cooking ecological paints seemed to fit at the core of our endeavour. The approach would be as concrete as possible, and it would limit the subject in practice to a paint can or cooking vessel. At the same time, it would return the question of ecology to raw materials and provide the student with an opportunity for a personal examination based on their senses. This way, production processes that are remote from the user could

be restored to a position closer to their real origins and based on each student's own choices. At its birth, the idea for the course was simple and clear. It would also allow for a creative rethinking of the basic ingredients of paint. The plan was based on existing knowledge about the manufacture of traditional paints, but it was also driven by an exploratory attitude that would provide a free playground for even the craziest experiments. We wrote an open description of the upcoming course and talked about it freely and informally as *a cooking school* and *paint cooking course*.

Geo-Ecological Basis

The alternative paints are based on a long and colourful history, from which both global and local shades stand out. The production of familiar Finnish traditional paints provided the course with a reliable knowledge base that emphasised handicrafts, from which it was possible to look both forwards and backwards. Part of the content also touched on the recent history of stage painting techniques and the paints and binders used in them. We already had a lot of competence regarding traditional backdrop and decorative painting techniques as well as material imitation techniques, such as wood imitation and marbling. The knowledge base outside our own profession was complemented by natural painting and conservation techniques, and recipes developed in the field of fine arts.¹

1 The most important sources were Max Doerner's *The Materials of the Artist and their Use in Painting* (1984) and conservator/artist Veikko Kiljunen's *Taidemaalarin materiaalioppi (The Material Studies of the Painter)*; 1981) and Panu Kailan's *Kesällä töitä teki maalari. Perinteinen ulkomaalaus tänään (In the summer, the painter worked. Traditional exterior painting today)*; 2012). In addition, our experiments were based on a thesis by Päivi Sini and Outi Tuomela at Turku University of Applied Sciences in 2012: *Kotimaalarin käsikirja (Home Painter's Handbook)*, which opens up a comprehensive view of organic raw materials and the self-sufficiency of paint manufacturing in the Finnish countryside until the 1960s.

However, the earliest examples of ecological stage paints can be found further afield. Jukka O. Miettinen, a historian and long-time teacher at the Theater Academy, dives into the history of theatre in his recent online material, first referring to cave paintings and pictorial performances that were produced tens of thousands of years ago, before the development of writing skills. What is interesting about cave paintings is that the painting and the base material formed an inseparable whole. Images taken by scratching and painting on the uneven walls of the cave complemented the shapes depicted in the wall's own three-dimensional topography (Miettinen 2021, chapter 2). The cave paintings are interesting from the perspectives of both temporal and ecological sustainability. What has made them last so long and what have their dyes been composed of? According to Antti Lahelma, lecturer in archaeology at the University of Helsinki, cave



Figure 2. Traditional paints made from earth dyes. Photo: Titta Vilhunen.

paintings in Central Europe mainly used different mineral colours that are geologically permanent, that is, they do not fade. The red mineral colour is the hematite we know, or iron oxide, which is also popularly known as red ochre. The yellowish colour is correspondingly yellow ochre, or clayey soil coloured by iron minerals. The brown colour is also obtained from iron-containing clay soil deposits, which are found in bogs, for example. Black can be manganese oxide or charcoal (Lahelma 2015). Thus, the colour palette of the cave paintings was quite limited, and its origin can be thought to be geo-ecological. Inorganic mineral dyes from the soil and various organic pigments of plant and animal origin can be considered the basis for theatrical painting, too. They have been one unifying factor between paintings from different eras, from ancient Greek and Roman theatre to the present day.²

The direct connection between mineral paints and the soil is also a fascinating basis for making your own paints today. Painting and the production of paints are both bodily events, but through the origin of colours, they also extend to the environmental relationship of the individual. The down-to-earth colour chart of Finnish traditional paints rests under our feet, and certain manufacturers of traditional paints know how to tell the exact regional location of their raw materials. Homemade-paint experts Sini and Tuomela state that this is also seen internationally in how, for example, shades

- 2 Visual artist Päivi Hintsanen's *Coloria* website explains how Greek people had extremely good knowledge of pigments, and they prepared multiple vegetable dyes by rubbing them into lime. Despite advanced skills, the colour palette of ancient Greece was generally scarce. In classical Greece, for example, from 600 to 400 BC, many well-known artists used a palette of only four colours: black, white, red and yellow. From Greece, the four-colour palette was also inherited from Rome (Hintsanen 2021). This kind of palette of four soil-based colours seems to extend through many stages, from early cave paintings to the present day.

of clay-mixed metal oxides are named after their mining sites, Siena and Verona (Sini and Tuomela 2012, 17).

The Egg Case

Titta Vilhunen and the set painter Anni Mansikka, who worked as an assistant teacher in the course, were the first to impart the old, traditional techniques to the students, where the raw materials and the paint production process were visible and manageable. The main content of the course was to make this process, which is hidden in conventional staging work, visible and understandable, and thus to open up the possibility of developing new and innovative ecological paints as well.

The ingredients of the paints are basically always the same: a pigment (colour and opacity), a binder (adhesive) and a solvent (thinner). The raw materials used for these basic ingredients, on the other hand, can vary widely, but there are numerous ecological alternatives to be found for all of them. Students started working by making translucent stains and grinding pigments in either a linseed oil mixture, dammar, turpentine or shellac. Shellac, which acts as a binder for self-milled pigments, was prepared by dissolving in alcohol-dried flakes from the secretion of the conch of *Kerria lacca* female insects (lac insects).³ With the stains they made, the students painted coloured surfaces on bases cut from plywood of different sizes and compared the results with those treated with similar

3 According to the webpage of Suomen Luonnonmaalit, shellac flake is an organic polymer and resin obtained from the brittle substance secreted by *Kerria lacca* female insects in the forests of southeast Asia and eastern India to protect their eggshells. In Finnish, the names *lakkakirva* and *lakkakilpikirva* have been used. Shellac is either yellowish or red in colour. Red shellac contains insect eggs or larvae, and yellowish shellac is collected after the insects have left (Suomen Luonnonmaalit).

industrially made stains. One of the key benefits of self-made stains was the ability to produce and control colour tones, but another was the impact of the manufacturing process, which extended to the painter's expression. The students also stated that poorly rubbed pigment produces an interesting imprint or impression. The ability to affect both paint and paintability encouraged them to make different mixes right from the first experiments. However, although the raw materials for traditional paints are organic, in many respects, organicity did not show up in our course as a purely positive quality.

The course dealt with and tested various natural binders, such as resin, natural oils and casein from milk and buttermilk, as well as various adhesives and pastes. The transition to the production of egg tempera became a real turning point for the class. Some students skipped class that day for ethical reasons and wanted to develop vegan alternatives to egg tempera. The students' interest in developing alternative vegan binders is an indication of how values and emotions are intertwined into work processes today. Awareness of the environmental impact of materials has, for many years, been reflected in the reluctance of staging students to base their artistic design work on industrially manufactured or newly purchased materials or environmentally harmful substances. Students are interested in the waste, surplus, and environmental impact of work, and art is not considered to justify unethical activities. Ethical and philosophical values are clearly shifting to aesthetics and are beginning to emerge as intangible solutions, and anti-consumption on stage as well is another reflection of contemporary values. Acceptable or unacceptable choices regarding materials and scenographic solutions, but also working methods, have become the subject of a wider debate on ecological sustainability and a good life. Form and content merge, just as in ancient Rome, where certain laws were written in certain colours (Hintsanen 2021).

A traditional egg tempera is an emulsion paint in which the oil is bound with water by means of an egg. Some recipes use only the yolk, while some use the whole egg, and by changing the amount of pigment, you can adjust the opacity or audibility of the paint surface (Kymin Palokärki). In the course, we learned that the yolk increases the oiliness of the emulsion, the amount of protein and, further, the gloss of the paint. In terms of staging, the egg tempera recipe is cost-effective, as one egg is enough for a 12 square meters wall. As a multipurpose paint, egg tempera has been used in exterior painting, interior design and art painting. There are other traditional alternatives to egg, such as casein powder, although it is not acceptable to a strict vegan either. Traditional plant-based starch binders, on the other hand, are potato and rice, as well as commercially available pulp-based paste powder. Sini and Tuominen write that self-sufficiency, which continued until the 1960s, was based on the fact that agriculture and livestock farming produced flour, milk, eggs and animal fats as raw materials for paints (Sini & Tuominen 2012, 4). Students developed their own vegan binders from, among other things, industrially made pea protein found on a commercial food shelf and soaking in the mucus produced from grinding flax seeds with water.

The Positive Temporariness

The plywood pieces used as test bases soon began to be covered with new types of translucent layers. According to the students, flaxseed mucus in particular brought a special intensity to the colour. With the new ingredients, we also started to consider new questions. How do we learn to anticipate the amount of paint needed for different, glossy and porous, scenic materials and different surface areas so that the hand-mixed shade doesn't run out? How much time does it take to work with large areas and different surface materials if

the process starts with the production of paints? When we noticed the spoilage of flaxseed mucus, the question of working hours was accompanied by the question of the shelf life of nontoxic, ecological paint. By raising issues related to scenographic work, we began to understand the vegan painting process or the vegan staging process and their challenges as a whole. Self-made alternatives, such as flaxseed paint, emphasised temporariness through poor shelf life. However, the temporary nature resulting from a short shelf life was *positive temporary* due to the assumed low environmental load of the raw materials, the simple manufacturing process and the compostable end product.

More broadly, the environmental impact of stage paints consists not only of concrete paint and solvent waste, but also of the paint production, transport and storage processes. Thus, the question of the ecological nature of paints goes beyond their post-treatment and waste problem. In the life cycle of the paint industry, the beginning is often more obscure than the end. Paint manufacturers are currently facing a new challenge. They are expected to produce products that are sustainable not only in terms of their usability but also in terms of their production methods. At present, it is still difficult to obtain accurate and comparable information on the environmental impact of manufacturing processes. The course was unable to and did not attempt to clarify these issues related to the manufacture of industrial paints, but it did bring the various stages of the manufacturing process into practice. We realised that each alternative raw material also has its own production chain, the environmental load of which should be considered separately. Among other things, the students who made red and yellow ochre and lime paints in the course stated that the name of the course is misleading. There are no ecological paints. There are only more or less ecological options.

From Watercolour Buttons to the Stage

One of the most fascinating course contents was the production of our own watercolours and experiments with self-cast colour buttons. Working on the small watercolour buttons made the classroom atmosphere focused and devoted, and the students seemed to fall into their own private silence. The pigments were first triturated in distilled battery water, and finally, gum arabic soaked in battery water was added to the mixture. The smaller the scale on which we produced the colours, the smaller the plywood bases of our painting experiments also became. Small pieces of postcard-sized plywood seemed to fall far short of the scale of large stages, but they surprisingly opened the connection between design and the end result. Producing your own colour buttons makes it possible to influence the colour palette of staging sketches and scale models. It further provides an opportunity to match the shades of sketches to the self-made stage paints. The ability to influence the colour tones themselves, the amounts of pigments and the intensity of the colours free the designers from the commercial colour range and open up space for their own artistic intuition.

Already when designing the course, it was obvious that the drive towards ecology would bring the work closer to organic raw materials and an eternal geological foundation. However, it was surprising that it also deepened the personality of the students' artistic expression so much. Aesthetic preferences, artistic identity, values and emotions all intertwined into the whole of the work. Many organic raw materials showed their expressive power and their own special character. By choosing the right raw materials or ingredients, the designer can influence, for example, the gloss, cracking, odour or



Figure 3. Watercolours made by students. Photo: Titta Vilhunen.

Figure 4. Kaisa Rajahalme's experiment by self-made lime paint. Photo: Ari Koskelainen.

even the antiseptic quality of the surface to be treated.⁴ The world seemed open to countless ecological, organic and vegan variations, but as we focused on binders, we had less time to explore alternative dyes and pigments. However, the small-scale tests allowed for multiple experiments. Researching the raw materials and properties of the paint, painting and monitoring the drying of the paint became one holistic process. Students began to consider not only

4 Set painter Anni Mansikka said that milk whey penetrates the wood as a binder, so that the paint hardens to last better than oil paint. It also does not crack. Honey adds shine to the surface treatment and increases antiseptic properties. In West Africa, the topcoat used for houses is lime from mussel shells. The manufacturer, Cales Pascual, states on its website that lime is a product of natural origin that has been used as a disinfectant since ancient times. Due to its high alkalinity, it prevents bacteria and microorganisms from adhering to both interior and exterior surfaces.



Figure 5: Part of the final exhibition. Photo: Liisa Ikonen.

the paint, but also the expressive and performance possibilities of the painting event. For example, the slow drying of lime paint could be allowed to take place on stage, making the colour change part of the performance.

In the Light of the Lighthouse

The experiments and development work took place in the space called *Lighthouse*, on the top floor of the new building on the Sörnäinen campus of the University of the Arts Helsinki, in a space built on the old grain silos that used to be part of the property. The small windows opened up a view of the sea and sky and different directions over Helsinki. It was the first time the space was used for teaching, and the new environment suited our work, which took

place in the spirit of a journey of discovery. The location of the space and the virgin atmosphere supported the creation of new ways of working, thinking beyond traditions and the prevailing situation. The historical connection to grain also seemed to give tacit approval to our work with other organic and plant-based substances. I could see all the same serene qualities realised in the results of the course and in the exhibition of painting experiments. The collection of plywood pieces was harmonious; its colours were natural, light, translucent and matte.

Scenography basically involves the idea of a short life cycle, as it is realised as part of a performance event that progresses in space and time. At the end of the performance, the task of scenography is usually over. Thus, temporality, short duration and limited life cycle are qualities that define the essence of scenography. When temporary and durable are placed side by side, they easily appear as two extremes. However, temporariness also began to show in our experiments as positive and lasting, and it opened up a lot of perspectives that required some reflection. The ecological paints we manufactured were themselves temporary, as the removal of industrial manufacturing processes or toxic ingredients reduced the life cycle of both the paints and the paintings. However, their temporary nature also makes them durable, as they are compostable when they decompose in the ground without harming the environment. Some ecological paint recipes, such as pine soap emulsion, can also make the use of paint temporary, as painted surfaces can be washed clean after use. Such intentional single uses could allow for more efficient recycling and ecologically sustainable use of building and construction materials. We are now striving for a completely different level of durability than our ancestors, who were cave painters. We are not striving for millennial preservation, but for recycling of materials in a way that takes environmental impacts into account.

For scenography, we look for ways of working that are sustainable in a very special way, in relation to the temporary nature of the works. Although the production of ecological paints is only a partial solution here, it is part of a larger whole. The new materialism debate on the independent and networking nature of material has also expanded our understanding of the time and place of stage materials. They are no longer thought to be just here and now, at a perceptible distance. Instead, they are understood as extensive processes of interactions and networking effects. There are many expanding circles around a single work in which it participates and beyond which the author cannot look. For instance, a single large format print that is nowadays easy to order and inexpensive can be a result of multiple processes and can have a high environmental load. It is much more than the physical package you receive from the company.

In this specific course, self-making and immediate sensory observations paradoxically helped to understand the extensive connections, the origin of raw materials and the return to the cycle of nature. Perceiving the relationships helped participants to understand that products that are short-lived, disposable or disappear over time may be more ecologically sustainable in some cases. The short course did not change the whole operating culture of our degree programme, not to mention the art field, but by giving some concrete and feasible options, it allows students to think, and also choose, differently in the future.

This article is dedicated to the memory of Titta, who died suddenly on 17 March 2023 in Lisbon, Portugal.

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Island Ecologies

Situated and Relational Approaches to Sustainability

SAARA HANNULA

This text is an inquiry into some of the questions, challenges and approaches that have emerged in the process of conducting site-responsive¹ artistic research in the context of historically, culturally and materially layered islands², many of which have been shaped by geopolitical and economic interests, as well as various institutional, extractivist³ or colonial practices in the past. How can one think with the pluriverse⁴ and acknowledge the complexities and multiplicities inherent to such environments without reducing and bypassing them in the process of making? How does one develop a reciprocal relationship with an island and its ecosystem, and what

- 1 The term “site-responsive” refers to artistic research practices and artworks that are developed in relation to a specific site and that are informed by, but not necessarily restricted to, the site in question.
- 2 Specifically, the islands of Suomenlinna, Vallisaari, Seili and Årjä.
- 3 Extractivism refers to the appropriation and exploitation of resources for the purposes of capitalist accumulation. According to Chagnon et al., it is a way of organising life that is based on “socio-ecologically destructive processes of subjugation, depletion, and non-reciprocal relations” and thus “opposed to the concept and practices of sustainability” (Chagnon et al. 2022).
- 4 The concept of the pluriverse stems from the Zapatistas, as well as Latin American scholars Walter D. Mignolo and Arturo Escobar. In short, it is “a world in which many worlds fit” (Ejército Zapatista de Liberación Nacional 1996; Kothari et al. 2019).

kind of practices and protocols might this entail? How do the processes, events and agencies, present in a particular place⁵, shape the artistic working process and the formation of a site-responsive artwork? What is the relationship between the materiality of the site and the technologies used in the artwork?

In the following pages, I will discuss these questions by describing the making of a site- and weather-responsive, multi-channel sound installation that was performed as a part of the Ärjä Art Festival on Ärjä Island in the Kainuu Region, in the summer of 2021. I designed and realised the installation in collaboration with media artist Auri Mäkelä, programmer Ossi Mäkinen, sound designer Hanna Rajakangas and writer and researcher Antti Salminen in 2020–2021.

Beginnings

In the context of site-responsive artistic processes, practices and performances, the notion of sustainability⁶ cannot be discussed without considering the histories, power relations and events that have shaped the so-called site in the past and that are currently affecting the environment where the process of making takes place.

5 In this text, I will alternate between different notions (such as site, place and environment) to refer to the location where the process of making and the artwork take place. Each of the terms comes with its own theoretical framework and set of references that I will not open here. However, it is important to note that the notion of place does not refer to a fixed or bounded environment: rather, a place is seen as a “spatio-temporal event” composed of a constellation of a specific, yet ever-changing, set of material processes and social relations, where the social is not limited to human beings. This definition is a variation of the notions of place proposed by Doreen Massey (Massey 1994, 7; Massey 2005, 130–141).

6 The notion of sustainability can be defined in many ways. Here, I am leaning on Naomi Klein’s definition that emphasises the importance of stewardship, reciprocity and regeneration (Klein 2014).

Site-responsive artistic practices call for situated⁷, relational and decolonial approaches to sustainability that are heterogenic rather than homogenic, pluriversal⁸ rather than universal and reciprocal rather than one-directional or transactional. What could be considered sustainable in one context might not be applicable in another.

The attempt to develop situated and relational approaches to sustainability in the context of the performing arts comes with many challenges, most of which are too vast and complex to be addressed in the framework of this text. In my own artistic research practice, the first questions that tend to come up have to do with accessibility, consent and the limits of knowledge: How do I know whether I have the right to work in a particular place and whether the worlds it consists of are accessible to me and available for interaction? How do I negotiate consent with beings and lands, whose language I do not speak? How do I acknowledge the fact that I do not know what matters “here” and that my reading of the context is necessarily limited by my own position, history and (lack of) knowledge?

The negotiation of consent is often a complex procedure, and yet, it is a prerequisite for relationality, reciprocity and connection.

7 The term “situated” refers to Donna Haraway’s notion of situated knowledges (Haraway 1988) that emphasises the importance of embodiment, positioning, partiality and accountability in processes of knowledge production. Second, it foregrounds the ways in which knowledges and practices are informed by and to a certain extent bound to a specific locality.

8 Walter Mignolo defines pluriversality as cosmopolitan localism that is based on the coexistence of multiple worlds and futures and the unlearning of modernity (Mignolo 2011, 223). According to Arturo Escobar, pluriversal design is an ethical praxis of world-making, i.e., an “ethical and political practice of alterity that involves a deep concern for social justice, the radical equality of all beings, and nonhierarchy” (Escobar 2017, xvi). Drawing on these definitions, a pluriversal approach to sustainability needs to be grounded in the acknowledgment of the multiplicity, equality and autonomy of possible worldviews and ways of living.

When the negotiation takes place between entities that do not necessarily speak the same language, one's capacity to listen, communicate and receive information in other registers becomes key. At the same time, it is an invitation to look for words and languages that might allow for a connection to emerge and to give one's time without expecting anything in return.⁹ In the case of a site-responsive artwork that interferes with a place and its ecosystem, the process of making requires constant listening, a capacity to recognise the response and a willingness to adjust, change course and withdraw if needed. Secondly, it involves acknowledging and taking accountability for the ways in which the work affects the site and participates in the world-making that is already taking place.

In my experience, every gesture leaves a trace, even if it cannot be perceived or measured: as such, a site-responsive artwork will inevitably interfere in the site's process of becoming and alter "the event of place" (Massey 2005, 138), however minimal the intervention may be. What kind of traces, then, am I willing to leave and be responsible for, and how do I include them in the process of thinking, being and making with the site in question, while acknowledging the fact that they are to a large extent beyond my knowledge and control? Could an artistic process serve as an act of care that participates in the

9 In her essay *On Belonging*, artist Terike Haapoja highlights the importance of consent, boundaries and surrender in interpersonal and interspecies interactions. She describes the latter as "an act of voluntary letting go of control, giving space, allowing the other to appear on their own terms without force or pressure" (Haapoja 2020, 23–26).

process of repairing relations and regenerating the land, with which it is inevitably entangled?¹⁰

Process

During the two decades that I have been working as an artist and researcher, the sustainability of artistic practices and projects has gradually come more to the fore, especially as the discussions around ecology, intersectionality and decolonisation have gained a steadier foothold in the field of the performing arts and in the arts in general. Over the years, I have been involved in several context-specific and collaborative artistic research projects, each of which has both challenged and contributed to my ways of thinking about sustainability, albeit in a different way.

The attempt to develop sustainable artistic practices and land-relations has translated into a variety of artistic approaches, such as the prioritisation of processual, open-ended and collaborative ways of working, the cultivation of embodied ways of relating and exchanging knowledge with land, and the foregrounding of the materiality, relationality and agency of a particular environment as a basis of performance-making. These approaches have been informed by feminist and new materialist theories and practices,

10 In recent years, a number of artistic projects and initiatives have set out to decolonise indigenous lands and land-relations, for example, by restoring lands that have been damaged or appropriated or by becoming involved in the policy- and decision-making processes that currently affect the lands in question. A recent example is *What form(s) Can an Atonement Take? (Miltä soppu näyttää?, 2018–2021)*. The transdisciplinary project, led by Skolt Sámi artist and activist Pauliina Feodoroff, combined traditional and scientific knowledge in order to protect and regenerate the lands and waters in the river basin of the Njåuddam River (Meistere 2020; Feodoroff 2022). It focused on repairing the traces that had previously been left on the land while making space for unprecedented forms of collaboration and opening pathways for the land to express its own becoming.

critical design and media studies, indigenous practices and protocols, as well as traditional ecological and land-based knowledge.¹¹

In the case of the artwork I am about to describe, the abovementioned approaches and frameworks guided the process of making from the beginning. The proposition was to cultivate a perennial relationship with the island, to develop non-dominant modes of working that would both honour and bring forth its pre-existing relations and kinships, and eventually produce a site-responsive performative installation based on these modalities.

The artistic research process began already in 2019, when I was invited to participate in the Ärjä Art Festival as an artist for the first time.¹² During the second day of the festival, I facilitated a morning practice that invited the visitors to explore the possibility of asking the island for permission for being there and see how this gesture might alter their way of relating with it.¹³ In the following two years,

- 11 In most cases, site-responsive artistic practices are based on visiting rather than living in relation to land and therefore cannot be compared to practices that have been developed over multiple generations and maintained sustainable ways of living with land through millennia. In my opinion, this does not exclude the possibility of thinking with these practices; however, it is important to acknowledge the problematics that come with the uninformed and selective use of indigenous practices. According to Feodoroff, one cannot “cherry-pick Indigenous cosmological practices in a philosophical, artistic or theoretical way: if we are to go there, we have to undo the damage as well that has been made to those practices, and mostly, the lands that are the source of all knowledge” (Feodoroff 2022, 174–176).
- 12 I was invited to participate in the festival because of the ecological themes I had previously worked with. I had never worked in the Kainuu region before and considered myself a visitor, which is why I spent a lot of time becoming acquainted with the context before the actual working process began.
- 13 In this case, the gesture of asking for permission was informed by indigenous and contemporary practices of asking for informed consent when entering a place or otherwise crossing the boundaries of another being. At the time, I was dialoguing actively with Sámi artist and activist Jenni Laiti, which contributed to my process of thinking and working in the context of Ärjä Island.

I continued visiting the island in various seasons and weather and made notes in the form of texts, drawings, photographs and sound recordings. During these visits, I gradually became more familiar with the ecology of the island as well as the energetic and material conditions that affected my way of relating with it on a bodily level. At the same time, I also studied the geological, geopolitical, economic and cultural developments that had taken place in the Kainuu region and shaped the island in the past millennia, centuries and decades in order to sense into the complex web of relations and the multiple contexts the island was entangled with.

In parallel with this durational research process, our working group was exploring the possibilities of solar-powered sound systems, site- and weather-responsive technologies and algorithms that later became an inseparable part of the concept and implementation of the piece. The multi-channel sound installation we ended up making combined these technologies with textual and sonic fragments written and recorded on site, thus producing a series of somewhat unpredictable technological, material and discursive entanglements. The premise was to work with the materialities and environmental events that were specific to the island and allow them to define the (de)composition¹⁴ of the work.

14 In her doctoral thesis, artist-researcher Tuija Kokkonen uses the notion of decomposition (*dekompositiointi*) to refer to the making and undoing of the composition of a performance event that happens through the spreading, decaying, and expansion of the limits of performance and the inclusion of nonhuman actors within them (Kokkonen 2017, 187).

Interlude

Before I go further, I would like to invite you to take a moment to sense into the energetic, material, and environmental conditions that currently affect your way of reading and relating to this text. For example, you may notice subtle shifts in the amount and quality of light, temperature, humidity or air flow in the space you are in. Secondly, I am inviting you to notice the materiality of the technologies and devices you are using while reading the text. As we go along, you may allow these various materialities to guide your process of reading.

Context

Ärjä Island is situated in Oulujärvi, one of the biggest freshwater lakes in Finland. The island became an island around 600 years ago, when the sand ridge that connected it to the mainland sank under water. It is known for its steep and shallow sandy shores that slowly erode into the lake as the waves and the shifts in the water level wash them away. Eventually, the whole island will disappear from view as it sinks under water.

As far as I know, the island has never been inhabited by humans. Historically, it has been used as a ritual site by the Sámi people and as a fishing and hunting area by the locals that lived around the lake. In the 1920s, the island was bought by Kajaani Oy, a local forestry company that later merged with UPM–Kymmene Oyj, one of the biggest forest industry and biofuel companies in Finland. During the past century, it has been used as a logging site, an industrial sand pit and a holiday resort for the employees of the abovementioned companies. In 2016, the clear cuts initiated by UPM were interrupted by Greenpeace and other activist groups, which eventually lead the Finnish state to buy the island from the company. Nowadays, Ärjä is a state-owned nature reserve that serves as a habitat for multiple

species of animals and plants, such as pine trees, alders and bog bilberries.¹⁵

The Ärjä Art Festival has been organised on the island almost every year since 2018. The main organiser is Vaara Collective, a Kajaani-based performing arts collective and independent theatre group that strives to create collegial, collaborative and sustainable structures, events and working environments in the field of performing arts¹⁶. The premise of the three-day festival is to create an ecologically sustainable art event that brings people together and gives them a possibility to process the ongoing planetary changes communally. Most of the visitors of the festival stay on the island from Friday to Sunday, which makes it possible for them to form at least a preliminary relationship with the island and with each other. Every aspect of the festival strives to take the environment and the ecological and material conditions of the island into account: the basic premise is to not leave any material traces on the island before, during or after the event, and to consider the sensitivity and specificity of the ecosystem, both in the planning and implementation of the artworks and the structures and practices of the festival.

The festival takes place outdoors without infrastructures that are common to the mainland, such as electricity, running water or sewage. The organisers and artists involved in the making of the festival travel to the island by boat, sleep in tents and eat and work in open air throughout the planning and building process, as well as the actual festival. In our case, these conditions and limitations guided

15 *History of Ärjänsaari* February 2023.

16 *Vaara* February 2023. Besides producing performances and events, the Vaara Collective also contributes actively to the field of environmental and art education by offering educational tools and organising workshops, projects and theatre camps for young people.

the artistic research process, the composition of the piece and the technical implementation of the installation to a great degree.

Installation

The installation was situated in the southern-most point of the island called Säippä. The area is characterised by small sandy hills that are constantly shaped by the wind that blows from the North-West. The lake water around the area moves in strong vortexes, which also sculpts the shoreline. The tiny birch trees and bog bilberries growing on the sand keep the hills in place.

The piece was based on a series of textual and sonic fragments, most of which were written and recorded on the island between 2019 and 2021. The fragments were divided into five different series, each of which differed in terms of its style and content. Some of them were poetic, whereas others were theoretical and philosophical: together, they touched upon the material-discursive (Barad 2003, 822) and naturecultural (Haraway 2003, 11) entanglements of the island and the geopolitical, economic and cultural histories that had altered its landscape in the past, while discussing questions of situatedness, locality and belonging on a more general level. It was important for us that the textual approach remain fragmentary, pluralistic, and polyphonic.

The audio fragments were run through a solar-powered sound system consisting of two solar panels, a battery, a central unit, five loudspeakers and five sensors. The sensors detected and measured ongoing environmental changes (such as light, temperature, humidity, wind and movement) in the immediate surroundings of the installation. The environmental data produced by the sensors was processed by a procedural algorithm that selected the audio fragments according to the input it received, thus defining the rhythm and order in which they were played and the random combinations

they would form with each other. The composition of the piece was thus contingent on the atmospheric and environmental conditions at play during the festival.

The loudspeakers were situated in various parts of Säippä, mostly on the sides of the small sandy hills. The location, position and direction of each loudspeaker were defined by the current environmental conditions and especially by the direction and speed of the wind, which was a very prominent factor on the island at the time. The human voices and pre-recorded nonhuman sounds emanating from the loudspeakers would intertwine with the real-time sonic events and environmental phenomena present during the festival, thus creating a unique experience for each visitor.

As a whole, the piece formed an environmental essay that consisted of the entanglements the textual and sonic fragments formed with the technologies, materialities and environmental events. The textual level of the piece was susceptible, and perhaps even subordinate, to the energetics, materiality and eventhood of the site, which enabled us to undo some of the dominant tendencies of narrative and descriptive writing. The fragmentary, algorithmic and contingent poetics of the essay produced a non-linear and non-narrative approach, which made it impossible for the visitor to hear or “read” the essay in a linear fashion from the beginning to the end. The “reading” of the essay would thus necessarily remain partial (Haraway 1988).



Figures 1-2. The site and central unit. Photos: Saara Hannula.





Figures 3–4. Sensors. Photos: Saara Hannula.





Figures 5–6. Loudspeakers. Photos: Saara Hannula.



Visitors

The installation went on throughout the entire duration of the three-day festival. The human visitors of the festival could visit the site at any time of day or night, either once or several times. The time they spent with the site and the installation was unlimited and, yet, never enough to get a hold of the environment as a whole. The installation invited them to give their time and bodies to the land and to begin listening to it.

The visitors could regulate their own pace of listening and moving within the installation. At the same time, their movement was affected by the rhythm and order in which the audio fragments were played, and the current environmental conditions, such as the movements of the sun and the clouds, the waves and the wind, as well as the subtle shifts in temperature. One could say that these environmental events were choreographing the movement of the visitors and participating in the creation of the overall (de)composition of the piece.

The durational aspect of the installation highlighted the fact that most of the fragments were not audible to human ears. The main part of the audience consisted of bodies other than human, such as the birds nesting at the tip of the sandbank, the fish swimming in the lake, and the bog bilberries and birch trees growing on the hills. These involuntary members of the audience did not have a choice in whether they wanted to hear the fragments or not but were rather forced to temporarily adjust to the changes in their everyday soundscape and natural habitat. As I and Auri were adjusting the volume of the sounds emanating from the loudspeakers, we tried to take the other species into account as well as we could, but there was no way of knowing how they would end up experiencing the piece and whether it would be a disturbance to them.

Due to the fragility of the sound system, its technical implementation, and its dependence on the environmental conditions, such

as the amount of sunlight available, the whole piece was highly contingent. It was theoretically possible that the sound system would stop working at any given moment and no fragments would be heard. For us, the possibility of systemic and technological collapse was an important part of the overall concept and our way of approaching the thematic of the piece on a material level.

Endnote

This text was an attempt to approach sustainability from the point of view of site-responsive artistic practices, to develop a situated notion of sustainability that is based on a durational process of relating with land and to describe some of the challenges, as well as the artistic and pragmatic choices that may emerge in the process. The foregrounding of situatedness, relationality and pluriversality does not exclude the possibility of establishing general guidelines and protocols for sustainable practices in the performing arts, but it does call for approaches that take the particularities of each context into account, make space for multiple understandings of what sustainability could mean and acknowledge the lived experiences and situated knowledges of those who have established a long-term relationship with the context at hand in the past.



Figures 7–8. Visitors experiencing the installation. Photos: Ia Samoil (figure 7) and Saara Hannula (figure 8).



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Designing Mareld

A Case Study

VESPA LAINE

As a lighting designer, it is essential to consider the role of light: what is most important in light? This conclusion led to the creation of a solo work in 2017 on photosynthesis. *The relationship between light, human and the environment* is a theme that has guided my artistic work for the last few years.

The art and science collective Fern Orchestra is a group, founded in 2017, that has explored photosynthesis, closed biosphere, taxonomic definition, plant senses and bioluminescence, while the works are light and sound art, installations, performances, contemporary dance and publications. Between 2017 and 2022, the collective has produced a total of 14 works, six of which are performances. In this article, I focus on the Fern Orchestra's performance *Mareld* (2020), a collaboration between the Turku City Theatre and the Regional Dance Centre of Western Finland, which was produced for the theatre's Sopukka stage, intended for freelancer artist in autumn 2020. The aim was to create an interdisciplinary performance that focuses on the photosynthetic organisms of the sea: algae and bacteria. These organisms, invisible to the eye, have also inspired the collective's previous works *Breath* (2019) and *Aqua vivae* (2019), with *Mareld* being the first performance work in the organism series.



Figure 1. *Alexandrium ostenfeldii* –dinoflagellate, *Breath*, Lux Helsinki, Lux In -light art exhibition 2019. Photo: Fern Orchestra / Samuel Salminen.

Everything but Photosynthesis Is in Vain

In previous Fern Orchestra's *Plant Series* works, the group's "colleagues" had been plants. Conny Sjöqvist, a microalgae researcher and marine biologist at Åbo Akademi University, was invited to join Fern Orchestra in spring 2018, and with him, the glow-in-the-dark dinoflagellate *Alexandrium ostenfeldii* (figure 1), also found in the Baltic Sea, joined the group. The Baltic Sea is one of the most polluted seas in the world and is commonly in the news for blue-green algae sightings every year.

The first artwork from the organism series was seen at the Lux In light art exhibition in January 2019, six months after the first email was sent to the marine biologist. The scientist's entry into the collective has been groundbreaking on many levels. There is up-to-date information available, including that which cannot be found online, and working at a university brings with it a broad infrastructure that a single artist lacks: a department of information, networks and other specialised researchers. It was not easy to get information about self-luminescent algae; the results of scientific research are not necessarily publicly available. All the science that is carried out with public funds is not accessible. This begs the question: if all scientific results were freely available, would our society be different? Would we make better decisions? This reinforced the decision to continue working on natural phenomena using light as a tool, ecologically. I refused to do any work that did not deal with the environment or ecology. This decision unlocked a new level of working, groping towards the unknown. Nature, its phenomena and their study continue the self-regenerating cycle of science, feeding new ideas that the artist can transform into artwork.

Evolution Today Is Us

The works that reflect on the climate crisis, the biodiversity loss or the state of the environment are often very dark. This is of course supported by the latest climate report: it looks bleak. If man puts himself at the centre of the anthropocentric picture, is he not also in the best position to turn the situation around? In human-centred thinking, is it not us humans who are the executive force, who can do what they want? If we consider our choices in terms of ecological sustainability, everyone can show how destructive our way of life is. The knowledge may cause shame and anxiety; for we have known for several decades which actions are accelerating climate change. But shame is a passive emotion that does not make us take to the barricades, even if we admit that there are many things that need to change urgently. Evolution leaves no room for “empty space”. If a species disappears, that space is taken over by another species. Even though carelessness about the environment has driven many species to extinction, another species will continue to exist. Ferns have lived on our planet since the time of the dinosaurs. The *humanitas*, the ideal of humanism in ancient times, made mistakes and learned from them. Whatever damage man has caused, he can also repair. Humans have already contributed to the acceleration of the loss of nature; now the focus should be on how to curb it. Evolution now is us. Man protects what they love, love what they know and know what they have learned. But how do you love a microscopic single-celled alga that you can't see with your own eyes? It is much easier to identify, learn, feel or love a cat or a dog because everyone knows what kind of animals they are. But how do you awaken the desire to protect a single-celled organism that you can't even see? This was the brief for the contemporary theatre performance *Mareld*. What does the audience expect when they come to see a show where the main performer cannot be seen? (Figure 2.)



Figure 2. Collecting algae at the observation point in Naantali 2020. Vespa Laine and Conny Sjöqvist. Photo: Timo Jakonen.

An Ancient Pixel under the Surface

When you arrive at a performance starring a single-celled microalgae, you don't really have any idea as to what kind of performance it will be. No one has much to compare it with, as few algae shows have been done; there are no others that I know of. We used the artist's tool: imagination. We approached a subsurface organism, 77 million years old (John, Fensome and Medlin 2003), by placing it on different levels of reality.

The human conception of time is limited; I think it's about 200 years at best. I can imagine what it has been like, and what it will be like, a hundred years backwards and forwards. When you're working with a species that is 77 million years old, it's hard to put yourself in an organism's concept of time. What has the species been through?

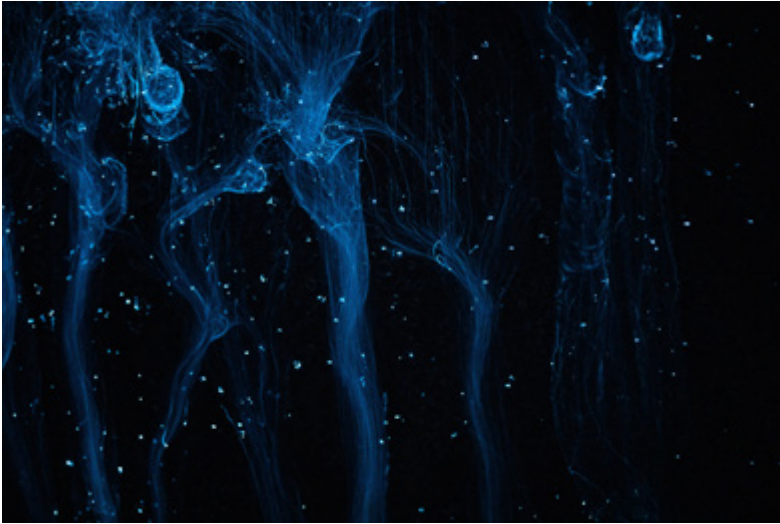


Figure 3. *Alexandrium ostenfeldii* –dinoflagellate. The image was used as the basis for a poster 2020. Photo: Fern Orchestra / Samuel Salminen.

In comparison, the *Homo* genus is thought to be between 1.5 and 2.5 million years old. The age of a single algae cell is difficult to grasp.

The dinoflagellate, like many other unicellular organisms, goes at times to a resting stage and sinks to the bottom. When conditions are favourable again, the cell resurfaces again and begins to live actively: avoiding being eaten, communicating and reproducing in various ways (Smetacek 2001, 745). When the warm waters of August and the darkness of the evenings are optimal, the light phenomenon known as bioluminescence, produced by the algae, can be seen in temperate waters of the world. (figure 3.) It has been shown that single-celled organisms can live for thousands of years (Sanyal, Larsson, van Wirdum, & Andrén, 2022, 67–82). It is, therefore, not impossible that a cell could be even older than this, as the diversity of the world's oceans is currently modelled at around 1% under laboratory conditions (Steward 2012).

I think of every performance as trying to influence the viewer's worldview in one way or another. The photosynthetic organisms of the oceans, algae and bacteria, produce almost half of the oxygen on Earth (Falcowski 1994, 235–258). Given this information, you would think that we would be campaigning in the marketplaces for the protection of the oceans. If a nearby forest is cut down or a rainforest is cleared for palm plantations, we can understand that an event has indeed taken place and that it is irreversible. With the oceans, the situation is different. Species loss and pollution occur gradually below the surface, and the ills of the oceans show themselves to us only in some tangible ways, as in the observations of blue-green algae. At the same time, the idea of endless evolution is comforting, even if humans are not part of it. Something else will take its place. The future will never be the same.

A Reality Shared with the Algae

We wanted to bring in a performer of another species so that the audience could see and encounter the glow-in-the-dark algae without just describing it. In order to see the light phenomenon, the algae require hours of photosynthesis and complete darkness about half an hour before the performance. Giving the algae light to mimic its normal diurnal rhythm creates artificial photosynthesis. The light-emitting process of this particular dinoflagellate is triggered when it is subjected to mechanical turbulence. In addition, the viewer's eyes have to adapt to the darkness after the audience light. In the performance, instead of water pool visions, a box with a bottle of algae, cultivated in Åbo Akademi University's laboratory, was placed under each spectator chair. The performance began with almost ten minutes of darkness, where the audience was immersed in a narrative of other possible realities and their vision was allowed to become accustomed to the darkness. Viewers carried out the



Figure 4. *Mareld*. Timo Tamminen and Ilona Salonen 2020. Photo: Fern Orchestra / Samuel Salminen.

instructions they had been given, shaking algae bottles in front of them and listening to what the algae sounded like. After the shaking, they could follow the performance with the algae by holding the bottle in their lap. It was noteworthy that we did not use *Alexandrium ostenfeldii* in the end because of its toxicity, but instead the alga *Pyrocystis lunula*, which is a non-toxic species of dinoflagellate and does not survive in Finnish conditions. We could not take the risk that someone in the audience would decide to take the bottle with them and the algae would end up in Finnish nature or worse, ingested. In the second performance season, after the night of the re-enactment, nine bottles of the performer-algae left the theatre with the audience. After complete darkness and the light produced by the algae, the only source of light in the performance was a video projector, which served as a scene illuminator and interactive light element. You could see the human performers' figures, but you could

not identify them (figure 4). It was a kind of dark design. A narrator was created for the performance, a kind of avatar who spoke Finnish, Swedish and English to the audience from a universal position. The spectator was challenged to imagine different worlds, which were interwoven with human concepts of time and reality through speculation: "Assume a situation where...". The quantum world provided a ready-made platform for otherness and a bypass lane for philosophical reflection on the nature of reality.

In 1957, the American quantum physicist Hugh Everett (1930–1982) proposed the many-worlds interpretation, in which the universe is thought to contain an infinite number of parallel worlds. Whenever a theory predicts multiple possible outcomes, all possibilities in the space function can be realised by allowing reality to branch into separate worlds in each interaction (Kallio-Tamminen 2006, 167). Bringing quantum physics into the practice of performance was a gateway to other realities, where I see many similarities to the separation between man and nature. The viewer was facilitated to accept randomness and through it the myriad possibilities by, among other things, a question in the performance: What is the probability that this particular number and these particular people, you, the audience, today, are here, in this particular space right now? On a percentage basis, the chance is so small that it is not very likely. Yet this probability is happening right now. (*Mareld* 2020)

However, when the fundamental theory of the world of modern physics, quantum mechanics, does not fit into the generally prevailing conception of reality, the possibility of the need to reform the whole conception of reality must be taken seriously. And in a quantum framework, the mind or consciousness can be understood as an active factor in the very world it seeks to describe and increasingly understand. (Kallio-Tamminen 2006, 204) The introduction of the audience to other realities was also done with a mobile auditorium

that rose and fell during the performance, together and separately with the stage. With this spatial element, we sought to further immerse the spectator from the accustomed, safe grandstand into a vertical event, which also encounters the dinoflagellate algae as it falls into a resting state.

Concrete Actions

Making an ecological performance was one of the starting points for *Mareld's* design. We decided not to turn on the dimmers in the theatre hall at all, as they consume a lot of electricity, even when the lamps are not used. Only the video projector used electricity, while the rest of the light was biological. For the costume design, we favoured domestic production, and the costumes were bought from a local clothing shop selling Finnish design. The costume service was ordered from the city theatre, where laundry is already done daily. The handout was printed on ecological paper, using the risograph technique, which uses ink made from soybeans as the ink. This printing technique is used relatively little in Finland, but the Finnish Comics Society's centre in Helsinki was able to provide this printing technique. The poster and the handout were designed so that one side of the poster was also the handout, folded in a certain way. This way, the viewer could still use the poster on his wall after the performance, after reading the handout. The audience were also crowdsourced: they could choose the price of the ticket they bought, regardless of their social status. The ticket categories were: spectator (€10), aware (€29), influencer (€39) and actor (€69). The ticket sales were used to buy a forest to save carbon through the nature conservation association Climate Forest (*Imastometsä* 17 February 2023) – a luxury that a grant-funded group has. After 26 performances, Fern Orchestra has donated almost 11 000 euros to the Climate Forest from *Mareld's* ticket sales and handout sales.

In addition, the Turku City Theatre ticket includes a public transport ticket in the city valid three hours before and two hours after the performance on the day of the performance. The number of performances has an impact on the carbon footprint of a performance: more repetitions reduce the footprint of its production. The life cycle of contemporary dance performances in Finland is often annoyingly short. *Mareld* has been performed 27 times in Finland and once internationally. The design of the performance focused on using the existing infrastructure in the theatre; how to make the most of the performance technology? Theatres covered by the state subsidy scheme for the arts also have a ready-made framework for marketing and ticketing, which can be a laborious process for a team of freelancers to create from scratch. I wonder whether these off-the-shelf channels could be used in the future, even if the performance does not take place inside the theatre? Just opening the doors of the City Theatre to freelance groups is an eco-act. All the environmental elements needed to put on a performance are already in place, and the resource is shared with the visiting group. The effort is not a big one for the City Theatre on a large scale, but for a small group of freelancers it is invaluable.

Discoveries

The various artworks in the algae series have exposed the algae to events in which it would otherwise have no part. During the installation *Breath*, we noticed that the algae “refreshed” again towards the end, and its light output increased, although it is generally thought that the electrical discharge released by a cell cannot recharge during mechanical stimulation. We learned something new about algal behaviour. I have wondered whether the alga communicates with its fellow species through its light phenomena; this too has since begun to be studied in a scientific context. While doing the

performance, I happened to pick up a bottle of algae and listened to what the contents of the bottle sounded like when it was shaken. The sound was a surprise: like listening to grains popping and hissing in the distance.

Markus Heino's sound design also used numerical data from water samples collected along the Finnish coast. Sonification can be used to detect anomalies in large amounts of data using sound. Sonification of numerical data instead of visualisation helps scientists to detect trends and changes in, for example, microalgae abundance and biomass. The sampling and analysis are managed by the Finnish Environment Institute, and the data is publicly available in the Hertta database. We will continue to use this database.

First, I visited the university's Department of Marine Biology to see how it works. I soon discovered that the ground for an artist in scientific circles is not necessarily fertile; on the contrary, a question of how much of a researcher's time I was taking up, was asked. This is probably due to a narrow-mindedness and a fear that popularising science is not seen as a wise career option, even if the research gets more publicity and visibility through artworks. Lux Helsinki, for example, attracts half a million visitors a year, and I do not believe that such an audience should be underestimated.

There is a dual attitude towards the popularisation of scientific knowledge: on the one hand, it is recognised that it is necessary, but on the other hand, a scientist's career and credibility can be at stake if one does more than publish scientific articles. It is considered that artistic work is separate from scientific contributions. This issue was discussed, for example, at the University of Jyväskylä's Science as Truth seminar in 2014, where colleagues' attitudes towards generic articles came up for discussion (Heikkilä 2014, 14). If you work as a scientist, can you spend your working time on art projects or popular science outputs? Personally, I think that the actual art



Figure 5. Conny is taking care of water samples containing *Alexandrium ostenfeldii* collected in Åland. A ferry trip from Degerby to Svinö 2018. Photo: Vespa Laine.

happens in between works, not necessarily at work during working hours. The artwork happens at work, but it is planned in advance, and the clashing art or science discussions take place before the rehearsals. As I see it, the work of a scientist and an artist is similar, and the process is creative. The Renaissance spirit and exposure to curiosity across disciplines opens new doors and perspectives on one's own work. From the artist's perspective, art can serve as a form of activism in a tangible way, when ticket sales can be used in whatever way the working group sees fit; few artists can personally afford to make large donations to charity.

At some point in the process, it became a practice to have an “artist's debate hour”, where I would ask the marine biologist privately from the artist's point of view and he would answer to the best of his knowledge. It's not so much about knowing things in advance, but about asking the right questions. Gradually, your own knowledge

of the subject will increase and new reflections will emerge. I am happy with the cooperation I have found, and we have not given up the “debate hour” yet. (Figure 5.)

Why Mareld Is a Staged Performance

As my background is in the performing arts, it was only natural that *Mareld* was to be a performance. This was also influenced by funding: it is easier for a performing arts professional to get funding for a performance than for a light art work that is considered a visual artwork. I was the convenor of *Mareld*, which included a sound designer, a graphic designer, two dancers, a marine biologist and myself. The performance had to be completely dark so that the light effect of the algae could be seen. Once the light effect is seen, what happens next? Who will come to see the algae in the theatre? Since the performing algae is microscopic and cannot be seen with the naked eye, we toyed with the idea of a big spectacle with something very small at the centre. The light phenomenon produced by the algae is the most beautiful light I have ever seen, and seeing it again and again does not diminish its magic. “I didn’t expect anything, but I wouldn’t have guessed this either,” was the feedback from the audience. Giving up on the idea of mirroring ourselves in our surroundings gave us the freedom, and on the other hand the difficulty, to try to move forward in the performance towards the landscape of the single-celled organism and beyond. The artist and professor of artistic research, Tuija Kokkonen, has used activity with other-species in her art making and research, naming it “weak agency”, where attention is directed away from the self to others and the environment, to an active self-weakening state that allows space and time for other-species (Kokkonen 2017, 168).

The Culture of Knowing

When asked what the algae think about being used as part of a performance and whether we have the consent of the algae for the performance, I consider how humans imagine they understand and define other organisms and their feelings or consciousness around them. The play of imagination takes centre stage, where we can use art to claim something to evoke emotion in the audience. Ultimately, no one will be able to determine what the algae feels or wants, for now it is just speculation and speculation on probabilities. One visitor in the exhibition Lux Helsinki was upset after seeing *Breath* by our use of living algae in the artwork. According to her, the light produced by the algae is a stress response of the organism and it was cruel to stress the algae for over a week in the exhibition. The stress protein is present in the cell and is scientifically verifiable, but I am not aware of any study that has linked it to the light produced by the algae. The argument is based on the human perspective, where the term stress is used in general. It is as true as saying that the light response is due to a cell being tickled or a need to be seen. However, the mystery of light has led us to research the subject, submit dozens of grant applications, work for several years with algae and write this article. Who enslaves whom?

Interspecies equality is not possible without striving for it, but who or what defines it? To achieve equality, empathy and love between species are needed, and they are achieved by raising awareness of the different species. To protect something, you must first know it. Working with other species required the working group to take on a different working role, taking into account the suitability of the species for the performance space and its needs and well-being. If the algae are not well cared for, it will either die or go dormant. Performance times had to be planned to allow the algae to rest sufficiently between performances. In the working group,

each person put his or her special skills into practice; one writes grant applications, one dances and one shines. Equality within the working group does not mean that everyone has to do the same and participate in everything, but trust that everyone will do their job (figure 6). The algae cannot write grant applications, but need help to do so, just as our environment needs help to recover. More sustainable performances and addressing environmental issues in art is one way for artists to contribute to the ongoing catastrophe on Earth.



Figure 6. Working group of *Mareld*. From the left: Samuel Salminen, Vespa Laine, Timo Tamminen, Markus Heino, Conny Sjöqvist and Ilona Salonen. Behind on a screen a picture of *Alexandrium ostenfeldii* 2020. Photo: Vespa Laine.

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How a Performance Dies

Shift of Artistic and Material Thinking when Costume Designing for Fictive Siberian Flying Squirrels

LIISA PESONEN

Performance and the performing arts are not, and do not need to be, immortal. After the performance period, the experience of the entity vaguely exists as clues in recordings, photographs, models and sketches.

In this paper, I present fragments of my own practice as a costume designer in an ongoing performance art project, *Metsäesitys: Papana & Norkko* (2019–), where two fictive Siberian flying squirrels have set their goal as high as seizing the ecological collapse. To analyse my practice, I use my own professional background in order to better reflect a shift of thinking, and I draw relations between my work and terms and concepts found in literature. In addition, to being able to do explorative costume design for my fictive clientele, the Siberian flying squirrels, I allocated time for reflecting, and learning and participated in a sustainable fashion course online arranged by the London College of Fashion and Kering Group.

With this paper, I wish to show that designers and artists can take an active role already before the necessary infrastructure for a circular economy is ready and can start learning and innovating new practices, from sourcing to using and finally wrapping, in order to prepare ourselves for future legislation. In the end, the main

costume materials are still textiles. The separate collection of textiles starts in the European Union in 2025 and member states need to make sure the collected “waste” is not incinerated or landfilled (European Environment Agency). It is necessary to note that some productions that are wrapped in the near future, closer to 2025, are already being performed or designed. The aim of this paper is to contribute to more ecological performance and performing arts practices, as a whole, during this time of ecological collapse and climate crisis.

By the death of a performance, I mean the moment when a production is no longer performed. While the artistic teams move forward to next projects, the material side has less hope of continuing its life span. Costumes and costume design practices are very much tied to sourcing material and using it in some way to support dramaturgy. The final stage of materials travelling through a production – the disposal – is not as clearly part of the artistic practice as the first two. The Finnish industry of performing arts produces a significant amount of waste when productions are wrapped (Säkkinen 2021, 3). At the same time, it is no longer safe to pretend there is a limitless ecosystem, and operating within the boundaries of our biosphere does demand for new ways of thinking (Daly 2007, 12). To address the above issue “...it is necessary to reconsider ‘conventional’ performance-making structures, and specifically address the criticality of the costume designer’s access to allocated resources – time, funding, and suitable infrastructure for the material research” (Pantouvaki, Fossheim & Suurla 2021, 213).

Circular Economy and Monstrous Hybrids

Circular economy, and more specifically the cradle-to-cradle model by Michael Braungart and William McDonough (2009), proposes strategies for more sustainable design with demanding goals for

material rotation, such as operating with only technical or biological nutrients in industrial or natural processes. However, existing garments are often made by mixing various materials, resulting in them being unsuitable for a biological cycle, as well as for recycling in a technical cycle, as the desired style or functionality lead the design process (Karell 2021, 22). These mixtures of materials can be called “Frankenstein products” or “Monstrous hybrids” (Braungart & McDonough 2009, 99). When considering accessible costume materials, their dyes, finishes etc., cradle-to-cradle seems impossible, while at the same time, it is a necessary concept to look into. Circular economy can be criticised over the fact that since waste is a resource, there is no need for avoiding production of waste (Valkonen et al. 2019, 42). However, as performing arts are not immortal, a stream of material waste will always exist. After multiple choices that have been done in sourcing, designing, manufacturing and using materials, the costumes are divided into those that are perhaps reused as stored, sold or donated forward, recycled as textile waste or disposed to be incinerated. A vast part of costume designers’ profession is managing a multitude of “monstrous hybrids” through productions. Therefore, managing them back to the “real” world after the death of the performance is a subject I have wished to explore from a design choice perspective.

Background

My professional background as a costume designer includes my fashion and costume education and also my versatile work history as, e.g., a designer, costumer, assistant, dresser and pattern cutter in film, theatre and dance productions. While studying fashion and costume, between the years 2005 and 2013, much against my own hopes and values, sustainability was a secondary value to basically everything else: aesthetics, visual appeal, message, functionality,

durability, comfort and price. This atmosphere existed even though many overwhelming problematic issues were already acknowledged, more research was done, and some sustainability concepts were already explored. In my fashion studies, “sustainable enough” was considered to be conscious material choices and the pursuit to design longevity. The designer’s responsibility over the lifespan of the produced items ended there. As a costume designer (in comparison to fashion designer), I do know where, how and probably for how long my designs are used in the duration of one project. Production and its management, the directors’ wishes, facilities and other infrastructure all set versatile requirements for costume design that are often a higher priority to sustainability. While centralising the human body as a key value in designing, unintentional negative impacts have been caused to the environment (Pantouvaki, Fossheim & Suurla 2021, 200). While studying costume, the “sustainability as secondary” -attitude has not been as paramount, but recognisable when finally entering both the stage and film industries. In my career, material resource-minded sustainability has been best met in low-budget productions, where renting, second-hand and dead stock have been the only options; but when time has been minimal, avoiding producing waste or new “monstrous hybrids” has been impossible. The grief around managing the unplanned material “death” of a project with haste after shooting or performance period has often been devastating. This grief has been pushing my own thinking towards considering the death already when starting a project and how to include it into my own artistic practice at every stage of working. Finally, I have been able to explore this with Papana & Norkko. While *Metsäesitys: Papana & Norkko* is a performance art project, I do believe my exploration also proposes sustainable thinking processes and even a means for costume design practice in a wider context.

Metsäesitys: Papana ja Norkko

When I first became acquainted with the squirrels Papana and Norkko in 2019, performed by artists Milla Martikainen and Katri Puranen, the atmosphere around sustainability issues had started to change into what scholar-practitioner Tanja Beer (2021, 149) describes as “*What was once a niche interest of a handful of designers worldwide is now becoming a burgeoning subject across academia and practice*”.

At the beginning of 2020, I started working as an “official stylist for Siberian flying squirrels” in the performance project *Metsäesitys: Papana & Norkko*. Papana and Norkko are two fictive flying squirrels, who seek ways of interspecies-collaboration in order to save the planet from ecological collapse (Papana ja Norkko). They show up where humans are considering questions regarding the future, and they try to infuse political imagination and a playful viewpoint shift into the ongoing discussion. Their means are adaptable and include, e.g., social media influencing, sending gifts to politicians and hosting election panel discussions for members of Parliament, working as contemporary artists and simply visiting forest-industry-related seminars.

I also adopted a character for myself as part of the project. The “official stylist for Siberian flying squirrels” is partially a fictive character, or perhaps more sort of a layer of eco-minded values boiled in enoughism. Having a humorous title felt like having more space for playfulness and imagination in both designing and in meetings with the squirrels Papana and Norkko.

In order to work in the project, I started to play with several strategies, some of which were partially against my previous professionalism. These are a few: 1. I allowed an impractically long time frame for sourcing materials (which meant gaps between active working and letting the squirrels know they can't have it all

immediately). 2. I arranged the priority list to have sustainability as high or above aesthetics, visual appeal, message, functionality, durability, comfort and price. 3. Instead of relying heavily on my previous know-how and fast decision-making, I started to take 15-minute thinking breaks in my work to reconsider and reflect on my possible design choices and ideas, and if not finding it possible to solve the issues raised, I determined whether to give it more time or to remove the idea altogether and pursue materialising other thoughts. 4. I included the death of the performance to be one of the responsibilities as well as an artistic starting point, allowing source and disposal to participate in the storytelling and content.

The costume design process started with looking into the specific needs of Papan and Norkko when operating with other species, especially humans. Real Siberian flying squirrels (we do realise we can't really represent their thoughts) can be seen as sort of bureaucrats of the animal-kind, as they are able to move building projects and highways. Few people have seen them, but they spark discourse between politicians, forest industry stakeholders and ordinary human citizens. In a way, they are like celebrities or influencers, as when they are spotted doing basically anything (e.g., accessing people's apartments, true controversial entrances (Manninen, 2019) they inflict headlines. Papan and Norkko operate indoors and outdoors, in both forests and in urban locations and throughout the year. Mingling with humans means they need to dress accordingly, especially when meeting politicians and other public figures. It is clear that they need a credible and playful style and versatile wardrobe, which is in line with their aim to seize ecological collapse.

The most important question from the beginning has been what would be ok for them to leave behind, if anything? I had previously operated with a mind-set that the work of a designer ends in a final



Figures 1-2. Press photos of Papan and Norkko. Figure 1. With deconstructed pinstripe suits; shirts from flea market and insignia. Figure 2. With soft paper wrap raincoats. Photos: Ari Korkala.

ready-made result, and the responsibility of the designer ends there. But if the responsibility does not end, can I design a dramaturgy for how the material side will “die”? This thought led the focus from the beginning on limited resources, planetary boundaries, existing accessible waste or material side streams and the end of our use for the sourced materials. Materials have agency in meaning-making (Pantouvaki, Fossheim & Suurla 2021, 204), and therefore I looked for material streams connected to forest or the forest industry. I was interested in exploring operation, both as a waste facility and as a designer designing for material circulation. Initially, in January 2020, my aim was to do research around waste facilities and their requirements for recycling in Finland and also to look into the potential material side streams of the Finnish forest industry and the innovations that are already utilising those streams. The first lockdown in Finland, in March 2020, changed the plans and locked us into our homes. Resilience became a more important question, and limited resources became the main topic, as accessing materials became far more difficult. In a circular economy, a mundane trash bin is a means of collecting similar materials from a household together in order to have a volume of singular quality (Valkonen 2019, 69). Additionally, to dumpster diving at home, my own work studio, with material scraps and treasures from previous projects, became a sort of “squirrels’ winter stock”.

Due to the versatility of the costumes needed, several different strategies, approaches and aims were needed in costume designing for the squirrels: some separate garments are simply bought from flea markets and reused as such; some garments are deconstructed from recycled clothes that had patina or were broken; the shoes by Rens are made of coffee grains; the modification of their pink socks was a try-out about collaborating with microbes living under a mugo pine (the microbes were not really interested in collaboration,



Figures 3–8. Squirrels are participating in the exhibition opening at Tarvaspää with other guests on Zoom. Figures 3–4. Planting the meadow coats with a glide. Figures 5–6. On 24 June 2021, sand was added. Figure 7–8. On 6 August 2021, the coats have almost disappeared already. Photos 3–6: Ari Korkala. Photos 7–8: Liisa Pesonen.



Figures 9–12. Figure 9. Sand was added after the opening party and the first sprouts were spotted on 25 May 2021. Figure 10. Growth was slow due to the dry and hot summer on 24 June 2021. Figure 11. Individual flowers in bloom spotted. Figure 12. Evidence of unexpected museum visitors enjoying (eating) the exhibit. Photos: Liisa Pesonen.

suggesting I could use a pit in soil as my personal sock drawer); fanny packs were made of surplus materials, recycled zippers and disposed safety belts; the squirrels insignia jewellery collection required looking for eco-minded resin for enclosing the poo and using surplus materials. Finally, some items were also designed with keeping the actual death of the performance as a clear part of the costumes' own dramaturgy: the soft-paper-wrap-raincoats and the meadow coats.

The Soft-Paper-Wrap-Raincoats

Already before the lockdown I had looked into the waste streams that flow through my own household, and had decided to collect plastic packages of toilet and kitchen paper (one type of material side stream of the Finnish forest industry) in order to create extravagant raincoats for Papana and Norkko. Circular economy seems like a hard-to-access utopia, and this idea was about exploring whether this utopia already exists in some way: can I access a material, use it and dispose of it in a way that does not heavily inflict its quality? I renewed the call to the housing cooperative where I live myself to increase the flow. After six months of collecting, while not actively otherwise working with the project, the bags were flat ironed together to end up with material that could be cut and sewn. The black bold text prints were cut out of black plastic bags to avoid adding paint. Finally, to be able to throw them into a plastic waste collection bin when they are no longer needed, only the recycled zippers need to be cut off. The noisy rustling quality of the coats was accepted as part of the aesthetics of the performance. Possible but rare enough tears while performing were accepted, as the resulting abstract plastic film is not highly durable. The coats can be easily mended with an iron, and the mending material (the toilet paper plastic packages) is easy to find, proposing that durability can, in some cases, be secondary to material circulation.

The Meadow Coats

From the beginning, we had a shared desire that some costumes could do good, in a similar fashion to Tanja Beers' Living Stage: "The Living Stage was a response to my desire to adopt regenerative strategies that engender 'thrive-ability', where the aim is not only mitigating waste and environmental impact, but also seeking to create positive environmental and social outcomes" (Beer 2021, 234). We were also interested in a concept that an outfit could have a more meaningful afterlife in comparison to its use as a costume. This was finally achieved when Papan and Norkko were curated to participate in the contemporary arts exhibition series *Aikakoneita and Utopioita*, by artist home museums Tarvaspää, Visavuori and Ainola in 2021. The squirrels needed proper, respectful outfits for attending an exhibition opening; and as humans dress for special occasions in special hand-made fashionable clothes and only use them once, this observation inspired us to have a performance around how these outfits could be disposed of.

Following the cradle-to-cradle principles the outfits for the party in Tarvaspää were hand-sewn using white leftover cotton yarn and biodegradable Turf-quick fabric (Swedish meadow planting innovation) with flower seeds and fertilizers as the main material. The aim was that the coats would slowly disappear in the garden while the flowers would delight museum visitors, e.g., humans and pollinators during the following summer. The design was as much about designing the style to be worn as designing the shape when laid down on the ground. Additionally, hand-sewing did not consume fossil fuels (I am not able to control the source of electricity at my work studio), and the cutting waste was also planted later.

The opening party was arranged in May 2021 on Zoom, since the pandemic situation worsened. The squirrels performed on Zoom at the garden of Tarvaspää as part of the opening party. After the party,



Figures 13–16. Examples of Papana's and Norkko's insignia. Figure 13. Poo Equals Squirrels Are Here. Figure 14. Together Towards Future. Figure 15. Unexpected Consequences. Figure 16. Bloom. Photos: Liisa Pesonen.

the coats never grew as beautifully as in the image of the Turfquick package: the summer was extra hot and dry, and even though museum visitors also participated in watering the small meadows, the process benefited the mossy grass that barely existed in May. I visited the meadows several times during the summer and found some individual small flowers growing here and there and found that the project was popular among brown hares. There was poop on the coats and I was also able to spot eaten steles. In this sense, the meaningful afterlife did work out with a wider audience than expected: human museum visitors were able to at least observe the biodegrading process of the coats, the grass got greener with watering, and cottontails had a more versatile diet. Perhaps even some pollinators were able to visit the very few and rare flowers before they were eaten.

Pin-Stripe Suits

Similarly to collecting design materials from natural environments, collecting waste or surplus for design material can also be aligned with the rotation of a year. For example, spring cleaning is a visible phenomenon at waste recycling facilities (Valkonen et al. 2019, 74). At the beginning of the pandemic, I tested operating as a waste facility and informed my neighbours that if they start cleaning their closets, (as many did in the beginning of the pandemic) I would be happy to go through them in order to collect material for my own design work. I was interested in deconstructing and visible mending and, therefore, eager to receive textile items that could be really considered waste as being broken or patinated. Unfortunately, the discarded textiles were still in rather good condition. Broken and patinated garments were, in the end, mainly sourced from the squirrel's winter stock: my own work studio. These ready-made "monstrous hybrids" were then deconstructed, and I can only hope I have been able to, in a way, prolong their lifespan, and they might be usable also

after the squirrels have passed away (A Siberian flying squirrel's life is approximately 4–8 years long). The original suits had small holes that have been fixed with visible mending techniques, using thick white cotton yarn. In this way, I wish to offer a pre-designed method or a “living will” to their future owner on how to prolong their lives.

Insignia

Humans have set different economic values to materials. Many high-priced materials are used in jewellery, which led us to consider the gold of Siberian flying squirrels: the poo (which signals to humans where they live and has, therefore, a force to move highways and other projects in order to protect the environment). A call to followers was made on social media by Papano & Norkko to collect this precious material, which can only be recognised and, therefore, found in late winter-early spring. With the received poo, I created a small jewellery collection for the squirrels, using partially bio-based resin (raw material) and surplus yarns, ribbons and safety pins from my own stock. These items, made of mixed materials, do not carry a design on how their materials could return to circulation. Glue was avoided so they can be partially dismantled even though such effort seems unlikely. A hope remains that they will be small family heirlooms that can roll with other pieces of cherished jewellery in a box for future generations. When everything else from this project hopefully “disappears”, maybe these items can still exist in the years to come.

Conclusions

While working with the Siberian flying squirrels Papano and Norkko, I have started to re-learn the costume design practice I was educated into, in both art schools and in professional life.

I began to have the death of a performance at the core of my design thinking, as the fictive flying squirrels will also eventually die.

What would be ok for them to leave behind – if anything? Can their material legacy do good and perhaps even have a more meaningful afterlife? Death as a starting point affected my varying used design strategies: aesthetics, meaning-making as well as resourcing and combining materials. The presented costume solutions have their imperfections due to the complexity of our material world. However, this practice and research-based costume design process has been more about a personal artistic paradigm shift.

Sustainable solutions require institutions, artistic teams and performers to devote themselves to mutual values and aims. Without taking the responsibility away from institutions and production houses, working as official stylist for the Siberian flying squirrels shows that independent artists can have an active role in combining learning with artistic projects in order to develop more sustainable and less human- and economy-centred practices. The issues around sustainability are complex, and working on a smaller-scale project for a long duration of time offered me a necessary space for testing new ideas and a more sustainable mindset. Having a humorous title also allowed me to playfully break away from my own professional history.

Time is fundamental in learning and transitioning practice. As Kathryn Kelly et al. (2021, 176) states: “Know that you will spend time being sustainable, which will require you to work slowly and relationally”. This was also well observed when working with Papan and Norkko. The 15-minute thinking breaks were surprisingly efficient and fruitful in order to make better-informed choices in sourcing, manufacturing and designing “dyeing”. Time is also needed for sourcing: while some materials might be found even free like toilet-paper-wraps, collecting and production of costumes might be slower in comparison to producing from ready-made textiles or simply buying a ready-made coat. In order to increase time within

the project, I had several months of hardly working with the project other than material collection. Longer timespan from concept to performing is also required in case the materials need to be sourced during a specific time of the year (e.g., Siberian flying squirrel poo). If sustainability is elevated as a primary value of a project, acceptance and mercy are needed on how perfect the materials or manufacturing methods can be from the viewpoint of the performer and the performance. However unconventional, materials can offer a layer of meaning when a concept is guiding material sourcing. From a production point of view, time-consuming unconventional material sourcing also requires storage space and initiating the work of the artistic teams early. Even though there is a need to find and test aesthetical and ethical new solutions, sticking with the material realm found from a flea market is a valid method.

Focusing on the death of the project has been a rewarding process around the complexity of the material lifespan. *Metsäesitys: Papana & Norkko* did set versatile costume needs requiring different sustainability approaches from either operating with “monstrous hybrids” to solving issues from the perspective of circular economy. In the presented project, the material dramaturgy from sourcing to the end has been in my hands and, therefore, I have been able to carry the knowledge of how these items “die” with myself. In order to further develop my practice, inspiration can be drawn from working with household waste: designers could learn from designing for throwaway culture. When something is designed to be disposable, its design and manufacturing process carries information about how it should continue as waste (Valkonen et al. 2019, 59). As a practical example anyone who comes across the raincoats can see how they are recycled. Similarly, a design can carry the way it can be mended, like the squirrels’ suits. These explorations suggest that, e.g., technical staff in an institution could recognise how to avoid

waste incinerators without having the designer physically participating in the wrap. Designing the end could be added to become part of the costume designer's profession, which would mean allocating more work hours for the artistic team in order to keep the end as part of the design process when mixing materials and choosing production methods and, finally, time for creating a "planned death" to be followed.

Finally, at least now, mortal productions like *Metsäesitys: Papana and Norkko* will still continue to produce novel "monstrous hybrids" along with some items testing the limits of concepts like cradle-to-cradle. For some costumes, a more beautiful and meaningful afterlife, than the fleeting performance, can also be designed, like in the case of the meadow coats showing how death can directly add to the content and dramaturgy. To conclude, as there are already many aspects other than artistic that affect costume design, the "death" could and should be included into the design process as one of them.

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A Conversation on Sustainable Practices between Two Designers

MERI EKOLA & MILLA MARTIKAINEN

We are Meri Ekola and Milla Martikainen, two designers working in the field of scenography and lighting design. We have both worked in the field of performance as freelancers in different artistic collaborations. Meri is wondering if she ever made a successful sustainable design, even by accident, while being so immersed in the questions of the inner logic of her work. Milla thinks she is a bad designer driven by the feeling of ecological crisis towards an extended practice.

This text covers different topics that we found relevant in the question of sustainable design for stage. We want to discuss knowledge that is rooted in the materiality of our practices and actual examples from our work.

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Meri: Let's start by defining what we mean with sustainability in our artistic processes.

Milla: I have had difficulties in relating with that concept. "Sustainability" as a word originates from the concept "sustainable development", and it refers to a framework where economical,

social and ecological justice is being taken into consideration in decision-making. It has been criticised for being too vague and not sufficiently challenging the status quo that has created the “unsustainable” situation. (Cheever 2015.) I have approached the concept with the idea that every field needs to assign a definition that is most useful for their own practice

Personally, I think about sustainability in the context of performance as a mindset that aims for a thriving, enjoyable future in an intersectional manner, taking into consideration all the different actors in the ecosystem of performance-making. It could shake the very foundations of what we think is possible, desirable or interesting.

For me, the impact of the performance is an important question when thinking about sustainability. Material impacts are important tools, but there is only a limited effect that the scale of the performance industry can have. One popular and undeniably useful material impact tool, the carbon footprint, has also been criticised for dodging the attention from the responsibility of big fossil industries to the consumer end. (Kaufman 2022.)

Meri: Some very helpful practical guides, like Buro Happold’s *The Theatre Green Book*, successfully tackle the measurable aspects like energy consumption and material sourcing. It tries to show how, in every aspect of making a performance, it is possible to take a greener approach and adopt it as a new working method. (Buro Happold 2021.)

However, I feel it’s hard to get full support as a designer from this kind of practical guide towards a sustainable change. Even though it offers a great tool to reflect the decisions made in a creative process, the artistic work is often complex and does not go along a defined path so that it would be possible to apply standards and calculations to it in a simple manner.

Milla: As a designer, I think the idea of some kind of cultural impact is a useful conceptual tool. With this I mean, for example, art as a laboratory for new practices and ideas, and all the practices that stem from that idea.

Meri: Material impact should always be taken into account, but some lower-impact ecological decisions can be made at that level if they seem to really benefit the cultural impact. To evaluate this cultural impact is, of course, another story, since it's much less obvious to measure, as it requires qualitative methods, but academic research advocates its existence and importance.

I was inspired by an article by Hans Dieleman, where he argues how artists and designers are the change agents in sustainable change, since they are able to touch upon emotions, intuitions and visions. He describes the project of sustainable shift as the “art of being different”, as it requires us to explore new ways of living and engage in different practices, seeing reality in different ways. He also gives the most interest to art for the process of search and inquiry instead of the results: the exploring, shaping, testing and challenging thoughts and definitions of reality. (Dieleman 2008.)

It is the art's ability to question and to rethink that can introduce new strategies and propose new practices for our being in the world. Impacts seen at this level might justify more consumption at the material level. The artistic decisions might lead to actions with a much wider reach than just the performance.

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Milla: Thinking about impact has been one of the drivers that make me expand how I perceive the stage and my artistic practice. It is not a new idea, on an abstract level, that art can have an impact,

but I find it important to deepen the question, to actually work on it. How exactly does this process of introducing new practices from the arts to the rest of society happen? How could strategies leak and get scaled to our society from the experimental space of the stage?

I have been part of different groups that try to work with the structures of art and society or nudge realities by bringing the tools of art into other contexts. One of the examples of the genre of work born from these try-outs is the *Metsäesitys* working group, founded in 2015. (*Metsäesitys*, 2015-2023.)

Performances in the *Metsäesitys*-project are site- and situation-specific, and they are based on interaction, improvisation and have workshop-like qualities. This has required us to develop skills and design aesthetics for facilitation. Instead of predefining the media



Figure 1. Siberian Flying Squirrel characters of the *Metsäesitys*-project, Papana & Norkko, having a round table discussion about the topic “Cultivating Seeds for A Pulsating Interspecies Future” with future researcher Mikko Dufva, neuroscientist Katri Saarikivi and a pine sapling from Vantaa on Untitled - festival 2020 (Demos Helsinki) Photo: Petri Ruikka.



Figure 2. *Yhteis(ty)ö* performance in 2016, Zodiac stage, Helsinki. Photo: Elina Brotherus.

in use, I'll ground my work on the specific needs of the project: depending on the case, it may be cooking, graphic design or making performance scores. I'm constantly learning new things, like performing and facilitating, and I'm recruiting people for tasks we don't have the resources to do ourselves.

Meri: Transmitting sustainable values and attitudes requires new or different strategies for design. More information and meta layers, besides the visual one, is required to transmit the complete narrative, the history of the material and its origin, for instance. For the audience, it is important to be able to connect with eco-sensitive thinking, because this gives access to the density of meanings the performance holds. Communication and marketing material have

an increasingly important role in this, as they are building the performance experience as a whole.

Milla: One example of a performance where I was thinking about the question of transmitting sustainable choices in scenography was *Yhteis(ty)ö* (Yhteis(ty)ö, 2016). I tried to design the space and light in a “canine-sensitive” way, because one of the participants in the working group was a dog named Luka. We let Luka affect all aspects of the performance, from the creation of material and structure to spatial and sound design.

Meri: Do you think that working on Luka’s terms led to more ecological decisions in the scenography?

Milla: Taking into consideration the needs and suggestions of other-than-human performers and studying human-canine collaboration and co-evolution did redirect our working process into new routes.

We tried to avoid representation and think of the aesthetics more through the concrete material effects things had on other things and beings.

I made the lighting design using actual daylight together with fluorescent tubes mimicking daylight’s light qualities, following the concept of sensorial affect; to design for our animal physiology and senses, not only as a visual image.

I also had a circular design idea to leave these “biolight” tubes in the working lights on the roof of the stage to bring a more enjoyable atmosphere to the space for people coming after us. It didn’t succeed in the end. But it has stayed on my mind, because it was an attempt to find a sustainable choice by considering the choices one can make that can have an impact on a larger scale than the life cycle of only one performance.

Meri: This example shows that the nature of ecologically aware actions can be very simple at the material level, but the shift is in the design process.

On the other hand, to demonstrate how challenging it is to anticipate the transmission process of certain ideas in the design, I want to give another example of the use of working lights. The performance space for *Disappearing – a passion* (Disappearing 2021) was introduced to our working group with only the working lights turned on. We put a lot of importance on the feel of the first encounter with the performance space and on the qualities the space has in its “normal” plain state, like the lighting conditions. To share this with the audience, we ended up using the working lights in the actual performance as well.



Figure 3. *Disappearing – a passion* in 2021, Cultural Center Stoa, Helsinki. Photo: Meri Ekola.

Already from these two examples, we see the reasons behind the choice of a single light element are many: they can be directly related to the qualities of light, like the colour temperature or diffusion, but also to the representative qualities of the element seen and called as *working lights*. I could also imagine their use as a deconstructive gesture in relation to something visually dramatic in the vein of post-dramatic theatre.

I feel the discourse of the stage is at the moment so diverse that it requires proper framing to decode similar choices. I'm very curious how the aesthetics of the stage respond to the world that is increasingly more ecologically aware, and how this change rewrites our process of interpreting an artistic gesture.

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Milla: One thing that might be happening is that things thought to be outside the stage become included in the aesthetics. The materiality of things and beings, and the processes producing them, become part of the interpretation. The stage becomes like a web of relations that could spin anywhere. How far and to where can the performance then leak?

Meri: At least the piece always leaks to its own structures, and I think this gives so many more possible opportunities to engage in sustainable practices as a designer and an artist.

I would add a third aspect besides the material and cultural aspects: I call it the socio-structural aspect. With that, I mean everything that is related to the creation process and which is framing the actual work.

They include choices made regarding the working conditions and human resources; the practicalities of the “behind the scenes”

work. Even though they are not directly connected to the audience's experience, I think they are still very meaningful aspects, because they concern the people who are creating the work.

For instance, operating in non-hierarchical and conversational structures can be considered sustainable, as they consider and include each person in an equal manner from their own perspective, and by doing so increase social well-being, both in the short and the long term.

Milla: If I think about social sustainability, which I would also frame as sustainable work-life, the important thing is to be aware and transparent about what kind of power is used, how and why. Different types of hierarchies work for different things in performance-making. Power & hierarchies always exist, but there is a difference in coercive power, i.e., “power-over”, and more constructive types of power like the “power within” that is based on your skills or knowledge about the subject at hand (Starhawk, 2009).

Meri: An example of practices to foster socio-structural sustainability is how we organise work in the performance group Oblivia. I have been working with the group for more than ten years now, with almost the same number of individual productions. The work is based on a collective process during which the content of the piece is crafted entirely. The space for creativity is given and taken organically according to the interests of everyone, which is being examined and formulated during the whole process.

The company's management are willing to engage in a long-term working relationship with the employees, even though most of the group members are hired as project based. This has created a feeling of stability and continuity so often non-existent in the arts field. Contributing to the well-being of the employees as a continuous

process has been part of the contract. Oblivia organises strategy days and group mentoring during which the focus is in developing the group's working practices in a sociocratic manner. This means operating in a governance system with decentralised structures (Rau 2022).

I think that our attempt at sharing and managing responsibilities together and improving internal communication has leaked strongly to the artistic work, and helped to create an atmosphere of freedom and trust. The open management structure keeps people equally onboard and allows participation, carrying the creative process. I feel I can have a larger influence through the company's strategy than what I would consider a project lighting designer has.

I think it's necessary to find a way to transmit the transformative power an organisation can hold internally in order to create impact on the cultural level towards a sustainable change. In Oblivia, we are doing this via our blog, where the different aspects of the creative work become visible through the contributions of all the members. (Oblivia 2022).

Milla: Your example brings into the discussion the role of the institutions and organisations where our work as designers happens. I work right now as a freelance designer on independent productions and in different changing organisations without a fixed position where I could, in the long-term, have an influence on one certain institution's strategies. This changing position makes me often very powerless in making sustainable choices in those contexts if the institution doesn't have established workflows for sustainability, or the people working in that institution share different priorities on what choices are based on in the working process.

Meri: The communication work that you need to do in order to facilitate smooth collaboration between people with different priorities is sometimes incredibly energy consuming.

One way to ease this could be rethinking the role of a technical rider, especially in situations when an existing work is adapted in a new space with different equipment. It could answer not only the question of *what*, but also explaining *how*, and in some cases even *why*, certain choices are made. Besides listing the equipment needed, I have felt that an explanation of specific choices and working methods would be helpful to facilitate the collaboration.

I learned this lesson while working on an adaptation of a performance *How to host something as a cloud* (How to host something as a cloud 2022) for a festival context in Denmark. We wrote an explanatory technical description of the performance, as the minimal elements it consists of are very defined. All seemed to be in order according to the local technical manager, but they never delivered the exact lamp type I had asked for. I needed some very basic construction lights, but with good intentions they sourced us fancier and more conventional equipment in theatre use. The message as to why this exact lamp type is so important didn't get through. Instead of consuming 2000W I ended up using lighting equipment with total power consumption of 20 000W.

Milla: It would be interesting to ask what things played a part for the misunderstanding to happen? There are different kinds of conventions and norms related to technical choices that can be seen to radiate quality, also to the artistic work, but they are not always voiced out loud. Are there some presuppositions that friction against sustainability as a value?

Meri: Many adopted working practices in lighting design prioritise cleanliness and perfection as the basis for technical implementation; the mindset that each design is unique, starting from the lighting rig with purposely taped cable runs and freshly cut gels, preferably having a novelty Lee Filters number, which needs a special order.

I get caught in this kind of thinking sometimes and I hate it. As if the concept would not be strong enough if the equipment is adapted between venues without a big (ego) fight. I feel guilty for being lazy if existing rig positions are used, or I feel the preparation is poorly done if I try to combine different pre-existing gels to achieve a certain colour. They're like some kind of echoes from the period when a designer needed to make a number out of themselves and the importance of their work, to gain the respect and the right to exist.

This striving towards singularity and specificity promotes consumption and non-sustainable practices that require a lot of unlearning from the designer's side as well as from the technical staff, and maybe even adopting a different aesthetic agenda from the start.

Milla: What would this agenda embrace and why?

Meri: I see it would be like turning the thinking upside down; to create the design with existing and available resources. And to slightly provoke the visual perfectionists inside ourselves, it could also mean accepting the jiggery fades of poor-quality LEDs that win in their energy efficiency.

I would call this shift towards more sustainable practices "from ego to eco", because it forces, at least me, to reposition myself against some consumerist practices that have given me professional confidence. I feel like I still have so much to learn, because sustainability is a much more complex issue than just saving material resources and being energy efficient. I feel that acting sustainably in

structures that are not aware of the urgency of sustainable change is demanding. The question is often about courage and my own energy, and sometimes it's just out of my resources. I'd say adopting sustainable practices is a process where one needs to learn to prove oneself and their own choices again.

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Milla: I think creating sustainable aesthetics is committing to a process of change: uncertainty, failures and meandering routes to unknown destinations.

I have tried to embrace unpleasant feelings, like embarrassment, as a tool to change practices. I sometimes state, as a provocation to foster discussion, that I am a “bad” designer. With this, I mean that I fail to answer to some pressures I feel in that field. I might create some aesthetics that may be perceived as trashy or be interpreted as not caring or knowing enough about the tool. I'm mostly pretty aware of my choices, but this awareness might not be transmitted. I might prefer using the ready rigs in the theatre, making choices that are less labour intensive to rig or more ecological in material consumption, even if it would require me to compromise on some initial visual concepts.

Meri: We have to remember that even though we are designers operating in the visual field, the desired impact of our art means creating affective relationships between elements and ideas brought into focus, not only making them look visually effective.





Milla: Could sustainability in design be about all the connections the piece creates in the world in the process of creating, performing and burying it?

With this, I mean for example that I am happy to use materials and objects from other people's designs or give my work forward in whatever format it is useful to someone else. I am interested in the idea of collective creation, which includes, of course, crediting everyone who has taken part in creating the current composition of the design. For me, it's enjoyable to design starting from the materials that are available instead of first deciding the concept and then sourcing the materials that fit the idea exactly. Often, it is a dialogue between some vague concept I might have and the materials available, where both affect each other.

This reminds me of the "from ego to eco", the approach you mentioned earlier! Sustainable design shifts the focus of the design process from something that is born from the mind of the genius individual to thinking of design as a time-, context- and space-sensitive collectively created composition! I consider a design successful if the people and other creatures taking part in the working process, including myself, are being treated sustainably. All the stakeholders of the design should be taken into consideration.

A case I would like to introduce here is a performance series with the title *Acts of Care* (Acts of Care, 2017-2020). In this project, "care" means also trying to rehearse what happens when we try to make post-fossil art.

The design was formed around what we could find: as the major example, the actual performance space, a bubble tent held up with a ventilator getting its energy from solar panels. The tent wasn't made for this performance; we borrowed it, and this was its third or fourth art project. We were looking for a performance space that would be closed and calm but mobile, because we wished to be able to perform

in a pop-up style in different public spaces. When we found the tent, it was a perfect match for our needs and started to direct how we constructed the dramaturgy and composition of the piece.

Even though the design was formed from a collection of borrowed, and in such a way “unoriginal” elements, I feel the composition, together with the performance’s choreographic and textual material, was unique and interesting. We were thinking a lot about how to direct our resources wisely. The main point wasn’t the fine bubble tent itself but the activities inside of it. Also important for the whole concept was the method of how we produced renewable energy to fuel the ventilator keeping the tent up.

Meri: In this example, sustainability was a guiding principle of the production process, leading also to some artistic choices. It framed your thinking and gave a backbone to the decisions also restricting you. I think limiting one’s possibilities is a widely used strategy in creative work. Sustainability can be considered this way as well. The concept gives the circumstances and what is left to the artist is being creative inside this defined frame.

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Meri: After reflecting how we as artists can contribute to sustainable change, I would like to turn the question the other way around and ask this: what does sustainability have to give to us?

It can be seen as a restriction, limiting our creative freedom or a resource-consuming challenge that we just have to deal with. I’d like to suggest a more curious attitude, as I think the notion of sustainability offers a lot of freedom. There is so much to explore artistically and it’s such a landscape of contradictions, blurry borders and shifted meanings, challenging to grasp fully and therefore very inspiring!

Milla: I agree with you that it is not a limiting thing but a source for creativity, discovering new practices and exploring different kinds of aesthetics. One question I wish to continue this exploration with is that of the aesthetics we create around sustainability and ecological crisis.

There are many stereotypical images, like polar bears or hands holding the globe, that are widely used when talking about the environmental crisis. In my opinion, these well-known images do not work anymore in creating the impact and emotions they are expected to, since they are so frequently used that they have turned into just images, surprising no one, and they also do not successfully depict the actual material reality and complexity of the crisis.

One interesting question to focus instead on is the aesthetics of the desired future: what would the world where we want to live look, sound, feel and taste like?

I have been involved in one project where one of the main aims in scenography and visual design was to re-think the aesthetics of the environmental crisis and create some aesthetics of a protopian future. Protopian is a term I prefer using instead of utopian: it means a state of future that is better than today but still not perfect, yet a desirable future instead of a dystopia (Kelly, 2022). The piece was a digital visual essay for Ilmastokirkko collective's multimedial project, *Corpus Crisis* (Corpus Crisis, 2021).

Designing aesthetics for future protopias was a very hard task - and I say protopias and aesthetics in plural, because it is not a question for a singular view. Many people of different personal backgrounds and positions worked on the task. I approached it by thinking about what kind of world views the images I create might deliver.

I also wanted to be careful when using visual and material language that I perceive as stereotypically sustainable - like plants, wood, organic materials, visibly recycled things and green colour

- and work more through surprising combinations. This is a very simple tactic I use in my designs often: trying to avoid choices that seem obvious and to look for contrasts to try to surprise the audience.

I might provocatively state that, in some cases, some aesthetics might be considered “greenwashing” - making something look sustainable inside a visual language or code without actually addressing the processes and impacts of the work.

Meri: For me, stereotypic visual language of any kind is always interesting because I see it in some way as very rich material, loaded with often very controversial and conflictive references, and I think the use can be justified, depending on how these stereotypes are used as a part of the narration. The obvious aesthetics are one of the things that make sustainability, as a thematic, artistically interesting for me. How is the visual code used to create an impact on a cultural level? How does the work refer to these choices and what are these elements used for?

I think the performing arts have the special ability not to be static. Everything that is put on stage can change meaning over and over; it can be one thing now and in a second, it can be something else. I think the stage is somehow the perfect venue for ventures on the multi-faceted concept of sustainability.

If I go back to aesthetics for a protopian future you mentioned, I interpret the contrast of superimposed elements, like natural and synthetic, portrays the flashing ambiguity of the realities we are living in. The stage needs to tell the story of ecological thinking that has many layers, interdependencies and cause-effect relationships. It also suggests that it is important that there would be no one single aesthetic that presents one single identity or set of values; the aim is rather to foster collaboration and pluralism.

Milla: For me, the plurality of the aesthetics and the idea of blurring the expected “sustainable” or “ecological” aesthetics also has the agenda to make sustainability more welcoming and appealing to people who might not by default embrace the concept of sustainability in the first place!

What would be the most interesting questions regarding sustainability that you would like to carry with you after this discussion?

Meri: Right now, I’m mostly intrigued in considering sustainability as the guiding principle of working, how it will influence our prevailing working methods and the structural change that the environmental crisis is forcing us to go through.

I’m interested in how we need to give up on some practices but, at the same time, discover new ones instead. Like the wet dream of a lighting designer of rehearsing weeks in the performance space with the full technical resources will need to change to some other ways to rehearse and think through the materiality of light. Will it happen completely digitally in virtual reality in some years? And what kind of performances are we then, in any case, building for the audience to experience and how?

Milla: I think that is a starting point for a new conversation!

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Figure 1. A scene from *Alkutuotanto* (2012). Teatteri 2.0 and Kotka City Theatre.
Photo: Anna Rouhu.

Greener Lighting?

ANNA ROUHU

As a lighting designer, and Head of Lighting, Sound and AV team in technical services at the Theatre Academy of the University of the Arts Helsinki, I face, almost daily, questions of sustainable choices in many different facets of my work. This is a rather common situation to those of us who do consider ecological viewpoints in our daily lives - both our personal life and at work. What are those sustainable choices in the end? And are we ready to make artistic compromises for the sake of being more ecological? Will the Earth be saved if we use only, for example, LED lighting to create our visions?

To find answers to these questions, I researched light sources and did a comparison of them through life cycle analysis. To what extent are toxic materials, such as chemicals or rare metals, used to manufacture LEDs or halogens? How could we recycle them more efficiently? How often do we face this situation, where presenting ecological values in a concrete way in lighting design is difficult because of technical resources? In the end, lighting design is a discipline of art based on excessive use of electricity and high-tech equipment.

One more viewpoint of this complex question of greener lighting design is to make the right decisions when selecting where we should invest, now and in the future, when buying new lighting equipment. University of the Arts Helsinki has named developing and promoting ecological sustainability as one of its core strategies

for the period of 2021–2030. This strongly guides our investment plans but also gives support in those cases where economic reasons would overrun sustainability. As a conclusion, I'm trying to pull these three sustainability viewpoints in lighting design together, but more in a suggestive way than a finalised theory.

Light Sources and Life Cycle Analysis

The term “life cycle analysis” is used in various contexts quite often nowadays. What does it mean? On the webpage [sciencedirect.com](https://www.sciencedirect.com) (2022), life cycle analysis is defined as the following: “Life cycle analysis (LCA) is a method used to evaluate the environmental impact of a product through its life cycle encompassing extraction and processing of the raw materials, manufacturing, distribution, use, recycling, and final disposal.”

It can also evaluate potential impacts of services, and it collects inputs and outputs for a system. Impacts can also be energy, water or cost - not just environmental. Formal LCA methodology was established in the 1990s and numerous LCAs have been conducted and published since then and for many reasons. (Tähkämö & Dillon 2017, 936)

Lighting is one of the largest electrical end uses - accounting for 17%-20% of global electricity consumption and about 2.4% of the annual energetic resources of humanity (Bergesen et al. 2015, 263; Zissis 2017, 921–923). Comparing light sources through different kinds of life cycle analyses brings forth the result that even though production of the LEDs requires more environmentally hazardous chemicals and rare metals than other light sources, they are in the end a more sustainable choice because of low use of electricity. The biggest impact on the environment happens during the use of light sources, not during the manufacturing. But this is based on the assumption that LEDs are manufactured so that those harmful

metals and chemicals are disposed of properly. (Bergesen et al. 2015, 265) “In comparison with the current impacts of incandescent lamps LED luminaires in 2050 show 95% lower impacts in 12 of 14 categories and 90% lower metal depletion and terrestrial ecotoxicity (Bergesen et al. 2015, 269).”

In future, the carbon footprint of LEDs will become significantly lower because electricity will also be “greener”, or at least the environmental impact differs, depending on which kind of energy source is used (Tähhämö & Dillon 2017, 954). On top of energy consumption (90% of the environmental impact) and the materials used to produce lighting sources and equipment, the transportation, and of course disposal, also affect the environmental impact (Zissis 2017, 926; Tähhämö & Dillon 2017, 936). The most challenging component for recycling in LED lamps is the LEDs, but they are also the most valuable. LEDs are a complex mixture of different materials and recovering high-valued materials is one of the biggest challenges at the moment. (Cenci et al. 2022, 1875–1877)

And on the top of everything there is rebound effect which affects two ways:

1. As LEDs become cheaper and more common there is even more abundant use of lighting so, in the end energy consumption doesn't lessen that much.
2. It's also possible as the lighting becomes cheaper money is budgeted to other less ecological investments and in the end the overall impact on the environment is the same or even worse. (Bergesen et al. 2017)

As an answer to the question of LEDs saving the world – yes, if manufactured and recycled in the proper way. Yes, if the use of LEDs doesn't create the abovementioned rebound effects and is

just used as a replacement of halogens and other light sources, not something to create even greater “light shows”. As George Zissis states, “The possible ways to reduce lighting energy consumption include: minimum possible power density, use of light sources with high luminous efficacy, use of lighting control systems, and utilization of daylight” (Zissis 2017, 923).

Complexity of Artistic Choices

Ten years ago, I was doing a theatre production called *Alkutuotanto* (2012), freely translated to English as *Primary production*. It was a co-production between the independent theatre group Teatteri 2.0 and the Kotka City Theatre. In Finland, most of the theatre venues are “dark” during summer months, and most of the so-called summer theatres perform outdoors. The idea was to use one of those “dark” venues to do summer theatre indoors and the performance was based on the multi-layered text, where the main themes were our relationships with nature and climate change. The set was constructed mainly from recycled materials and at that time, rather uncommonly, there was a plan on how to recycle set materials after the performances were over. There were a lot of other considerations of ecological issues and solutions during the production period too, but the one thing there weren’t any ecological solutions available for was lighting. Although LEDs were becoming more common and were already considered as a more ecologically sustainable option, I had no other choice than to use old halogen lighting fixtures the venue had.

Alkutuotanto was the first production that made me really think of this complex question of how to be an ecological lighting designer. How much do we have to compromise in our artistic visions to become more sustainable? Energy consumption creates the biggest impact towards the environment, and creating our designs normally requires a certain amount of equipment and electricity.

Is the only way to create more sustainable lighting designs through cutting the amount of equipment used? Are we ready to experiment less with lighting during rehearsals in order to cut down on energy consumption and rehearse more with so-called work lights, which are usually more energy efficient than stage lighting? What if the artistic idea requires the qualities of halogen as a light source in order to be accomplished?

Is it again time to appreciate darkness after decades of increasing brightness? Junichiro Tanizaki's book *Praise for Shadows* (1933/2012), which is, as the name suggests, aesthetic writing about how the contemporary world of the 1930s had lost its appreciation of darkness. How everything is lit brightly from toilets to the theatre stage, and with this brightness we are losing all the mystique darkness would bring. So now, almost a hundred years later, should we follow Tanizaki's thoughts and praise shadows in our quest to become more ecological lighting designers? Maybe creating our art with less brightness, and especially equipment, could be one approach towards sustainability on stage.

Ecological Values Guiding Investment Plans?

Finland has set a goal of being carbon neutral, or even carbon negative, by 2035 (Hiilineutraali Suomi 2025, 2022) and Helsinki City and University of the Arts Helsinki alongside it by 2030, so we are in a hurry to make the right moves right now. How much do these goals affect our investment plans at the Theatre Academy's technical services? For example, should the price of equipment guide our choices, instead of quality and where they are made? From a sustainable thinking point of view, it isn't the same if the lighting fixture is made in Germany or made in China.

When looking for new haze machines for technical services in spring 2021, I realised how hard it is to find information about where

the products are actually made (not usually the same country as where the company is from) and how sustainability has been taken into consideration during manufacturing? Web pages don't usually contain this kind of information, and I have also come across a brochure that was pure greenwash, without any actual information about how sustainability has been taken into account during manufacturing. Contacting companies wasn't often fruitful, but in this case, we got the response, and actually a rather surprising one, because it seems it's not yet very common that the manufacturing process is a central focus of buying new equipment. In this case, the company also had an interest in the environmental issues and has created solutions to them, such as figuring out how to cut down on the use of plastic in haze liquid containers.

Conclusion

While writing the first version of this article during spring 2022, the war in Ukraine had been going on for a few months. It made everyone in Europe very aware of how much we depend on Russian gas and oil. Maybe this horrible war will also have some positive impacts too and the use of green energy in Europe will increase. The Covid 19 pandemic has already shown how much we rely on China when it comes to consumer goods, and when it comes to lighting, this reliability increases, as most of the LEDs are made in China. So, although we try in Theatre Academy's technical services to prioritise European-made lighting fixtures, there isn't a way to avoid the fact that almost all the LEDs used in them are made in China. There have been discussions of starting the LED manufacturing in Europe, but this will be in the far future it seems. So, in the end, what do we have left of sustainable choices?

First of all, the recycling of LEDs should be immediately set up and in a more efficient way. Maybe this would hasten the start of

manufacturing (recycled) LEDs in Europe. There is a difference between the recycling economy and circular economy. In the recycling economy, some parts of the product are recycled and the rest are thrown to waste; but in the circular economy, everything is reused in some way. We should also increase circular economies' principles in lighting and especially in recycling LEDs. Other options would be to use less electricity, by either cutting down the amount of lighting fixtures used or cutting down the hours that the equipment is used. We should take care of the equipment so they last longer and try our best to repair them before buying new equipment and find new ways to recycle materials after they are beyond repair.

Those of us who are in charge of purchasing new equipment should do it thoughtfully, finding time to research and test, to find quality products that are manufactured in a sustainable way. There are many values to compare when buying equipment: for example, price, quality of light but also durability and maintenance. Sustainability comes from combining these values; there's no reason to buy ecologically made lighting equipment if the quality of light isn't preferable. It will be a waste of money, materials and storage space to do so if in the end nobody will use it. In the end, it's about finding the right balance, as in artistic choices, too. How can I do less without losing my vision?

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“A Once-in-a-Generation Opportunity”

Adopting The Theatre Green Book

ROBERTA MOCK

In June 2020, an open letter was sent to the British Culture Secretary by Julie’s Bicycle,¹ calling for a “just and green cultural recovery” from Covid-19 that is compatible with the government’s net-zero emission targets. “We have a once-in-a-generation opportunity,” it reads, to tackle “the climate and ecological crisis with urgency. We cannot let this opportunity pass us by.” Less than a year later, this quote appeared as the epigraph to *The Theatre Green Book*, an initiative which represents the UK theatre industry’s aspirations and collective commitment in response to the climate emergency. *The Theatre Green Book* presents a statement of shared and negotiated values, draws together best practice in sustainable theatre-making at the time of its publication, and sets out tiered standards (Baseline, Intermediate and Advanced) for reducing theatre’s environmental impacts. It has been described as “a chance to reset how we work as a sector” and a “one-stop shop the whole industry can use” (Clark and Snow 2021, 12).

Although this chapter focuses on its first volume, which is about sustainable production (or the making of shows), *The Theatre Green*

1 Julie’s Bicycle is a high-profile British charity that supports environmental sustainability in the creative industries.

Book was designed and conceived as three, inter-related, open-access volumes, all of which are separately available to freely download.² Developed and researched in 2020-21, *The Theatre Green Book* was largely produced while theatres were shut and practitioners were on hiatus, with time for reflection that tends to be unavailable during pressurised production schedules. This led the industry paper, *The Stage*, to comment in an editorial that “[I]f there is one unquestionably positive thing to have come out of the pandemic, it might just be the creation of the Theatre Green Book” (11 November 2021).

The Theatre Green Book’s name was inspired by the ABTT’s “Yellow Book” (as *Technical Standards for Places of Entertainment* is more commonly known), which offers health and safety guidelines to venues and technicians. Like the Yellow Book, it is intended to provide a unified standard. As Paddy Dillon, the *Green Book’s* Co-ordinator, said at the Theatres Trust “Making Theatre Sustainable” Conference (4 November 2021):

This isn’t about individual practice or passion. It’s about change to interconnected systems... The last thing the sector needed was a thousand sustainability guides... What we needed was one set of guidance everyone could follow. Not an idealistic dream for the

2 The second volume of *The Theatre Green Book* focuses on Sustainable Buildings. It is based on four key hierarchical principles for theatre buildings: BE LEAN (for example, by improving walls and roofs, so as to lose less energy); BE CLEAN (by improving services systems to use less energy); BE GREEN (by drawing energy from renewable sources); and finally, support biodiversity and reduce waste (Buro Happold and Renew Theatre 2021b). Volume 3, on Sustainable Operations, recommends that theatres must re-think both front of house and back of house operations; manage and maintain the building efficiently; manage waste sustainably; enable sustainable travel by staff, audiences and visitors; and set standards for third parties, such as contractors, in order to influence Scope 3 carbon emissions.

future, but guidance you could start using today. Guidance that may change, but could at least get this stone turning. Guidance that didn't place an extra burden on busy people.

While a stakeholder consortium funded the input of sustainability engineers, Buro Happold, as well as elements of its design and publication, the creation of the *Green Book* involved hundreds of unpaid participants in focus groups, interviews and surveys. In short, it has been – and continues to be – shaped, informed and facilitated by an unprecedented coalition of UK theatre-makers, including freelancers, venues, companies and producers.

This chapter discusses how three companies used the first volume of *The Theatre Green Book* to begin embedding decarbonisation and circular economy principles in their live production work as they emerged from “lockdown” restrictions. The Royal National Theatre (London), Tinderbox Theatre Company (Belfast, Northern Ireland) and Theatre Alibi (Exeter, Devon) were all early adopters, pledging to make shows to Green Book Baseline standard within the year following its publication. This meant that, during the making process, they committed to only using sustainably sourced materials and that 50% of each category (set, props, costumes) will have had a previous life; after the show, 65% of all materials would be recycled or reused.³ The choice of companies here is intended to mirror *The Theatre Green Book's* attempt to embrace the wide range of scales and multiple locations of theatrical production in the UK.

3 Advanced level productions, by comparison, are expected to ensure that *all* materials have already been used before, or else are accredited carbon zero; after the production ends, 100% of materials must be reused or recycled.

Sustainable Productions

Sustainable Productions

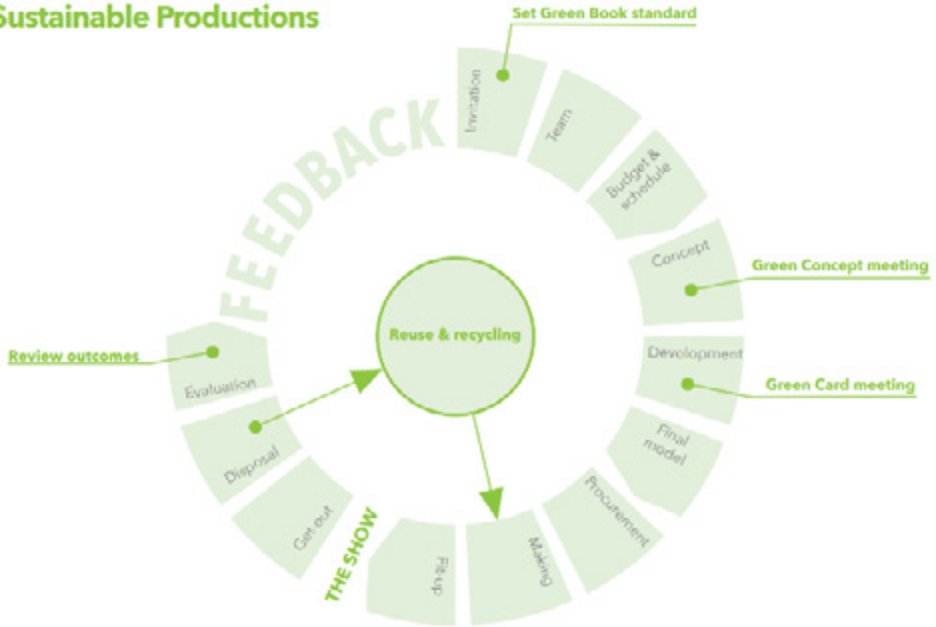


Figure 1. Sustainable Productions model, from *The Theatre Green Book. Part 1: Sustainable Productions* (2021) © Buro Happold and Renew Theatre.

The *Sustainable Productions* volume of *The Theatre Green Book* offers detailed recommendations and guidelines to meet its three standard levels. It begins with a set of principles and creative challenges that revolve (quite literally) around a cyclical model of sustainable theatre-making that echoes circular economy principles (see figure 1). Key sustainability milestones, responsibilities and processes are associated and align with this model’s various elements throughout the rest of the document. The *Green Book* is clear that its purpose

“is not to suggest creative solutions, but to define the parameters within which theatre must work” (Buro Happold and Renew Theatre 2021a, 15). In doing so, it outlines both why it is important, as well as how, to establish a clear sustainability target at the outset of a production process; to set up the team, budget and schedule to support sustainable working; and to collaborate to achieve a sustainable outcome: “In the collaborative chain that makes a show, no one person can ‘own’ sustainability. Everyone’s practice is affected; everyone is dependent on others, from producers to set-builders, to work in new ways. Responding to the climate emergency is a collective responsibility” (2021a, 16).

The need for shared languages and expectations is especially important in a predominantly freelance ecology in which individual practitioners move frequently between companies and theatres. *Sustainable Productions* presents specific tools and techniques for individual members of the production team. For designers, for instance, it is recommended that they create sets and scenery that can be easily disassembled and reused (for example, by using demountable joints), and they are encouraged to use CAD modelling, which is zero-waste, instead of the foamboard, glues and paints used to create model boxes. For those working with costumes, wigs and make-up, it notes that synthetic dyes and products containing parabens and triclosan are particularly harmful. Sewing, ties, pins and clips should be used for fastenings instead of tapes, pastes and glues for costumes and wigs. The *Green Book* recommends that all cosmetic products should be accredited with an EU Ecolabel, Ecocert, COSMOS or similar, and sourced in 100% recyclable, compostable or reusable packaging. Laundry should be washed below 30°C with products that meet AISE or EU Ecolabel requirements, and tumble drying avoided. The final section of *Sustainable Productions* is a compilation of “Toolkits” that effectively act as appendices

to the previous pages. These are organised under four headings: “Producing”, “Designing and Making”, “Technical” and “Site Specific and Touring”. They include, for instance, a “Typical Green Production Agreement” and a role descriptor for “Sustainability Champions” within each production.

In *The Theatre Green Book*’s pyramid-shaped “Materials Hierarchy”, the ultimate goal is to design out the need for excess materials, and to acquire whatever is needed from a reused or recycled source (locally, if possible, to reduce transport). The middle section of the hierarchy features new materials which are, at least, sourced sustainably. At the bottom of the pyramid, to be avoided, are raw materials which involve carbon. The *Green Book* suggests quickly phasing out those materials that are particularly damaging, through scarcity, manufacture, or chemical harm, including polystyrene, PVC, unrecycled steel, glitter, synthetic textiles and tropical hardwoods. There’s a similar hierarchical process for thinking about what to do with materials and objects after a production closes, expressed from best (reusing it in the theatre or local community) down to the worst (sending to landfill). *The Theatre Green Book* therefore recommends creating Materials Inventories for each production, which document both the previous lives and intended afterlives of the materials it has used, recorded by weight if possible. These inventories are intended to generate data that organisations can employ to identify problem areas, prioritise “easy wins”, establish their starting points and then track improvements over time.

The National Theatre

The Royal National Theatre (NT) is based on London’s South Bank. Its Environmental Policy explicitly states its commitment “to leading by improving our practice, shaping public conversation through storytelling, and galvanizing industry action to combat the climate

crisis” (National Theatre 2021a). In its 2017-18 Annual Review, the National describes itself as “technically one of the largest factories in central London, with hundreds of skilled craftspeople, practitioners and artists working together to produce world-class theatre”. In 2018-19, it created 23 productions for its stages, and there were ten NT productions in London’s West End and New York. Then, on 16 March 2020, like all other UK theatres, the National closed its doors and cancelled performances in response to the rapid spread of Covid-19. It quickly pivoted to online streaming, concentrating on educational work, and filming and distributing productions, some of which were performed to socially-distanced theatre audiences between periods of national “lockdown.” Due to loss of revenue through ticket sales, nearly a third of NT staff were made redundant and production budgets were halved (NT Annual Review 2020-21).

By the summer of 2021, the National had resumed a full-capacity programme and its first production in the Olivier, its largest theatre space, was *Paradise* by Kae Tempest. This new version of Sophocles’ *Philoctetes* was performed in the round by an all-woman cast. As described by the critic, Ava Wong Davies, its post-apocalyptic set, designed by Rae Smith, “swoops down from the grey-washed stone of the dress circle to a sandy revolve and then reaches up once more to Philoctetes’ blood-stained cave” (2021). *Paradise*’s director, Ian Rickson, said that, because the play’s chorus of women “have an ethos to do with looking after the planet”, the production process had to “liv[e] by the spirit of that ethos” (National Theatre 2021b). Its promotional materials prominently referred to the National’s commitment to make *Paradise*, like all its future productions, to *Theatre Green Book* Baseline standard. Prospective audiences were told that the majority of the floor cloth, representing elemental earth, had already been used in four different productions; and that the rubbish, old oil cans, single use plastics and broken masts and sails,



Figure 2. *Paradise* (Royal National Theatre, 2021) by Kae Tempest, directed by Ian Rickson, and designed by Rae Smith. Photo: Helen Murray.

which littered the stage, had been scavenged and beachcombed. As its Production and Technical Director, Paul Handley, told me (only half joking), in the past this detritus, symbolising encroaching Western materialism, might very well have been bought or else fabricated in the NT workshops (2022). Although the NT then had little stock flottage or scenic elements, the set of *Paradise* made significant use of Steeldeck, which is reusable, modular and can be configured to various heights and sizes (see figure 2).

Fascinatingly, despite having committed to *The Theatre Green Book*, when *Paradise* was made, the NT had only started to build the tools for documenting and evaluating performance against its criteria and they were still far from complete. What *was* available, however, was its own nascent Carbon Calculator, created over a two-year period by Amanda Jago, who was an NT Scenic Construction Project Co-ordinator. Only Green Book Advanced

standard productions are expected to use carbon calculators; this is because more data is still needed to establish carbon budgets for shows, and few theatre-makers are trained in their use (Buro Happold and Renew Theatre 2021a, 18). The NT’s Carbon Calculator, produced by Jago from scratch, was an extraordinarily complex undertaking. Although it relies heavily on the 2019 ICE (Inventory of Carbon & Energy) database of materials, it has been described to me as “so specific to the NT that it probably isn’t that helpful for others”.

To use the carbon calculator, the NT Carpentry, Metal, Scenic Art, Props and Costume departments feed data into individual spreadsheets. Each department tab has a list of stock items, and each member of staff on the workshop floor notes how much of each material they use each week for each project or production. From this, they input total quantities, which generates a CO₂ figure for each stock item. For example, if 8 sheets of 18mm MDF are used on a project, this represents a total of 304kg of carbon. If an item or material isn’t from stock, it is recorded in a separate list of “additional items”, which is completed in the same way. The calculator also shows the amount of carbon used to produce the item as well as transporting it to the National. Adding the data for every item produces a grand total of carbon used by that department for that show. An overview page for the production then summarises the carbon total for all of the departments added together. This is expressed as average flight hours per passenger, “which is more tangible and understandable” (John 2021).

Based on its carbon calculation and the significant amount of re-use and reclamation on the set, the National believes that *Paradise* almost certainly met the Green Book Baseline standard. For Handley, it was even more important that, having made a public commitment, “for the first time an artistic team properly embraced the ambition (helped by content of the play)” to work sustainably.

Shortly thereafter, the NT Construction Workshops adapted their costing sheet to create a Materials Tracker with a “traffic light system” that recorded different categories of material by weight, as recommended by the *Green Book*. While they already had a process to identify which materials had “no previous life” (because this information was being collected for the carbon calculator), they began collecting information for the reused items for the first time. The NT have learnt that, while it is possible to predict some of the items they will keep and reuse (such as Steeldeck and scaffolding legs), they can only accurately complete the “future life” section of what is essentially a “materials inventory” after the “get out”, when it is possible to breakdown what materials have been salvaged and stored.

Once they began to explicitly consider the future life of materials, the Construction Workshops started to change their approach to building scenery – for instance, using fewer staples so they can keep ply ribs as planks, stapling vacform onto flats instead of gluing so they can be reused, and using fewer nails on serge so it can be removed and repurposed. They now also avoid plastic and polycarbonate as much as possible and have started using bamboo sheeting to replace plastic. At their “Making Theatre Green” Conference (6 June 2022), the NT reflected on how their production practices had changed over the previous year. For Props, this included the fact that nothing now goes to landfill, and that they collaborate on reuse and recycling initiatives with a range of external organisations. The Lighting department no longer use any gels, having replaced their lanterns with LED fixtures. In Wigs, Hair and Make-up, they are reusing and repurposing wigs, trialling products such as compostable tapes and replacing plastic and nylon with natural stuffings for padding headshapes. Kate John, the Head of NT’s Production Workshops, has made it clear that “We don’t have all the answers and we shouldn’t be afraid of getting it wrong or not hitting

the targets or standards at these early stages. The most important thing to remember is that we’re talking about it, and are trying to figure it all out, and that in itself is a positive step forward” (2021).

Tinderbox Theatre Company

Founded in 1988, Tinderbox champions new writing and the power of play, and is one of Northern Ireland’s most established independent theatre companies. The company decided to trial *The Theatre Green Book* for its production of *Sylvan* (October and November 2021) because “in line with our values, we felt that our work should also explore environmental working practices as well as artistic themes” (Tinderbox Theatre 2021, 1). A new commission by the playwright Jonathan M. Daley, *Sylvan* was set in a world without timber where photosynthesis has been replaced with oxygen-generating machines. Made as part of its Off the Grid season of site-responsive theatre with a focus on the climate change, *Sylvan*’s run coincided with COP26. This was the company’s first live show following the pandemic shutdown and was described in publicity materials as “a nightmarish immersive experience bringing together live performance, horror and sound design” in woodland locations. The company published a full evaluation report of their experience working with the *Green Book*, including Materials Inventories, and summaries of their challenges, solutions and findings (Tinderbox Theatre 2021).

Tinderbox’s producer, Meg Magill, has described the publication of the *Green Book* as “the first time that we’ve ever had tangible guidelines in Northern Ireland” to enable them to “start to gather and measure and put data to our working” (Arts Council of Northern Ireland 2022). For *Sylvan*, the company achieved their Baseline standard target, with 53% of materials having had a previous life and 97% of materials either recycled or intended for reuse afterwards. The production corresponded with the first year that



Figure 3. Ruby Campbell in *Sylvan* (Tinderbox Theatre Company, 2021) by Jonathan M. Daley, directed by Patrick J. O'Reilly. Photo: Carrie Davenport.

Tinderbox hired their own store, and so they began work with a limited stock of set, costumes and technical resources. Moreover, because *Sylvan* was an outdoor touring production, some materials (such as cardboard) were not suitable, and it took place in at least one location that was not connected to power sources, making it necessary to borrow a generator that ran on fossil fuel. However, in a show where doing laundry was a recurring motif (see figure 3), the use of clothing blurred costumes, set dressing and props together. This was easily sourced second hand via charity shops and Play Resource membership,⁴ and the clothes and textiles were

4 Play Resource is a charity that collects non-toxic waste materials from industry, which it redistributes to organisations working with children, young people and community groups in Northern Ireland.

all recycled or returned to circulation when the production finished.

One of the company’s major challenges was the “combination of Brexit and our geographic location”, which “means that Northern Irish companies are quite limited in terms of suppliers” of sustainable materials (Tinderbox Theatre 2021, 7). Future actions identified through making *Sylvan* with the *Theatre Green Book* include the development of a “sustainability info sheet” for teams and venues who are in a sharing relationship with them, detailing local suppliers of sustainably sourced materials; increasing production budgets, where possible, in order to hire personnel with sustainable sourcing in their role descriptors; and investing in Climate Literacy Training for the entire company (Tinderbox Theatre 2021, 5).

Overall, Tinderbox’s Artistic Director noted that adhering to *The Theatre Green Book* was “liberating” and “fuel for the artistic process”, because it:

opened up a space for creatives and performers to discuss the effects of climate change and develop a strong sense of personal/ shared values, responsibilities and awareness on Environmental themes as an Ensemble... Artistically, the work actually became much more ambitious and richer in style and form along with a sense of accomplishment for such a valued cause. (Tinderbox Theatre 2021, 11)

A year later, Tinderbox confirmed that they have continued to use the *Green Book*: “It remains key to our work and decision making while in production... It is something we really believe in” (Tinderbox Theatre 2022). When they are able to comfortably achieve the Baseline standard for four productions, the company intends to aim for the Intermediate standard for all new shows.

Theatre Alibi

Theatre Alibi's *River Land* (July 2022), designed by Ioana Curelea, was performed in the 1920s church, Emmanuel Hall, that has been the company's base since its founding exactly forty years ago. Alibi describe themselves as "contemporary storytellers" who make theatre that "moves freely between the intimate and the epic", for audiences of all ages, mainly in the South West of England. *River Land* began in 2019 when they began working with the local community in St Thomas (an area of Exeter), where Emmanuel Hall is located, to gather their stories. This project was extended, adapted and took several forms (including an audio walk) due to the pandemic, before eventually culminating in a full-scale production as part of the 10-day long St Thomas Festival of Stories, which Alibi organised. *River Land*, written by Daniel Jameson, tells the intergenerational story of Walter, who carries with him vivid memories of devastating floods that took place in St Thomas in 1960, and Ellie, who worries about global floods to come. The show was designed as a sensory theatre experience, with live music and projection, performed traverse style with audience members facing each other.

As for *Paradise* and *Sylvan*, the choice to begin using *The Theatre Green Book* consciously reflected both Alibi's values and the subject matter of this particular production.⁵ Like the National and Tinderbox, they shared this with audiences via publicity

5 Theatre Alibi's *River Land* was one of three case studies of productions trialling the *Theatre Green Book* for the "Transitioning to Sustainable Production Across the UK Theatre Sector" project (funded by the Creative Industries Policy and Evidence Centre and Arts Council England, 2022), for which the author was Principal Investigator. Quotations, information and data related to this production derive from numerous methodological interactions, including questionnaires, interviews, presentations, events, fieldwork observation, email correspondence and discussion between members of Theatre Alibi, the author and the project's research assistant, Siobhan Bauer.

materials, on their website, in media interviews and in discussion. Importantly, *River Land* was not explicitly *about* climate crisis. Its director, Nikki Sved, is clear that they “wanted to allow people to properly connect to the subject in a fresh way. I never wanted to be preachy and I’m always very dubious about how well theatre and the arts actually do tell those stories and whether it is better to be hearing directly from scientists”. For Alibi, *River Land* was essentially about place and community, and while neither can be disaggregated from environmental concerns (nor each other), they are also quite distinct.

River Land far exceeded Green Book Baseline standards. By weight, nearly 100% of its sets and scenery, props and furniture and technical equipment had a previous life. Its Production Manager, Rachael Duthie, noted that this is largely because they were able to focus more on sourcing a “vibe” than finding a specific look or item. Also, due to the aesthetic of the production, the fact that it wasn’t touring, and the flexibility of a venue that the company managed, furniture and scenic elements didn’t need to be exact sizes or shapes. In the case of costumes, which were measured by quantity of items rather than weight, 73% were purchased “second hand” or had a previous life; only underwear and relatively few items that could not be sourced in the correct sizes (such as shoes) were bought new. All of the latter were returned to stock, and some have already been used in Alibi’s next show. Sourcing most of the set and costumes through social media, resale websites and even house clearances, did produce some challenges, not least the additional time this process takes (that is, “a staff member walking around town all day on a last-minute charity shop haul rather than spending 3 minutes buying online”) and the difficulty to account formally for cash flow with the finance department. It also meant that actors didn’t always have identical versions of the same costume: “a character might have



Figure 4. *River Land* (Theatre Alibi, 2022) by Daniel Jamieson, directed by Nikki Sved, and designed by Ioana Curelea. Photo: Steve Tanner.

2 pairs of green dungarees, but they would be different shades of green and slightly different styles”.

According to its Materials Inventory, almost all of the materials used in *River Land* are likely to be reused or recycled. Most went into the company’s stock. All technical equipment, some furniture, and plastic plants had been hired and were returned. The living plants bought for the show were sold to the audience following the final performance and sheets of live carpet moss were donated to a local collective that makes art in response to climate emergency. Despite the incredibly full set (see figure 4), *River Land*’s “get out” produced only two bin bags full of rubbish. The only plastic that was not rehomed was PVC tape; however, the company used far less than for past productions by replacing it with Velcro ties and paper-based tapes wherever possible.

Theatre Alibi say that *The Theatre Green Book* “absolutely” helped them to make *River Land* a more sustainable production. They

attribute this to clear, easy-to-follow guidelines that take into account the practicalities of theatre-making and enable quantifiable data collection. The company also believes that the cultural impact of embedding sustainability from the Research and Development stage, with effective communication across the entire creative and production team from the outset, made a real difference. Almost all members of the company, including some Board members, attended Carbon Literacy Training (a *Green Book* recommendation for companies aiming for Intermediate standard) which, while useful, was a significant time commitment, especially for freelance practitioners. Based on the experience of *River Land*, Rachael Duthie has three main pieces of advice for production teams that want to reduce their environmental impacts: consider and plan for reuse at the conception of the project; ensure that sustainability is the responsibility of and owned by all members of the team; and, finally, prioritise the making of and funding for time above everything else in order to reach your targets.

Conclusion

For the National, Tinderbox and Alibi, *The Theatre Green Book* offered an unprecedented, if not “once-in-a-lifetime”, opportunity to recalibrate their practices as they reconnected with their established audience bases and attempted to reach new ones. Emerging from the height of the Covid-19 pandemic, they all expressed the need to live their values by aligning the making of theatre with its themes, content and social purpose. Publicly committing to *The Theatre Green Book* not only acted as proxy for this expression, but also pointed to tangible actions and outcomes. It ensured that they would be accountable, as much to themselves as organisations as to their audiences, funders and to those who work for and with them. They put themselves on the line, not least making themselves vulnerable to accusations of “green washing”.

On the surface, these three organisations have little in common in terms of size and infrastructure. However, according to the *Green Book*, while small-scale shows may involve fewer people and less resource, the principles of sustainability remain “to create more with less; to collaborate more closely; to focus on people not objects; to replace the consumption of resource with creativity” (Buro Happold and Renew Theatre 2021a, 15). Moreover, all three share a specific advantage that enables them to work more sustainably and meet Green Book standards – that is, they control and operate their own stores (although Tinderbox’s is relatively new, and the National almost certainly has insufficient storage for the size of its operation). Meg Magill has acknowledged:

We’re not all on an equal playing field when it comes to this journey. Being sustainable requires money, time, the ability to store and accumulate resources, so some companies will just naturally find this a bit more difficult than other companies. (Arts Council of Northern Ireland 2022)

At the National’s “Making Theatre Green” conference, celebrating and reflecting on a year of working with the *Theatre Green Book*, its Director, Rufus Norris, pledged that the organisation will be net carbon zero by 2030, as per the government’s target, and announced that additional payment would be made to designers and directors to meet the challenges of sustainability (for example, to fund the additional time required to do so). In line with this, the National intends that meeting the Green Book Baseline standard will become a contractual obligation, rather than an aspiration, from 2024 (Handley 2022). The impact of Covid-19, however, lingers; UK audiences for live theatre are still only at 71% of pre-pandemic levels (Masso 2022). Meanwhile, while ticket revenue is depressed, the

costs of materials and energy are rocketing due to a combination of Brexit and geopolitical instability. Even when the increased costs of production materials are mitigated through the application of circular economy principles, the labour costs that enable these savings seem to stretch further out of reach for many theatre organisations.⁶ Paradoxically, productions like *Paradise, Sylvan* and *River Land* demonstrate why *The Theatre Green Book* might be considered to be both an utopian luxury and an urgent necessity in this volatile landscape.

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6 Indeed, in November 2022, the National Theatre lost 5% of its funding, and Theatre Alibi lost 100% of its funding as National Portfolio Organisations of Arts Council England. In the Introduction to its report on *Sylvan*, Tinderbox notes that Theatre and Dance Northern Ireland (TDNI) had already lost 38% of its project funding in 2018, significantly impacting on their ability to support environmental change within the sector (Tinderbox Theatre, 2021, 2).

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Biographies

Tanja Beer (D.A.) is an ecoscenographer, community artist, educator and researcher who is passionate about co-creating social gathering spaces that accentuate the interconnectedness of the more-than-human world. Originally trained as a performance designer and theatre maker, Tanja's work increasingly crosses many disciplines, often collaborating with landscape architects, urban ecologists, horticulturists and placemakers to inspire communication and action on environmental issues. Tanja is the author of *Ecoscenography: An Introduction to Ecological Design for Performance* (Palgrave MacMillan, 2021) and is Senior Lecturer in Design at Griffith University, Australia.

Meri Ekola (she/her) is a lighting designer (MA) and artist, who works as a freelancer in the field of performing arts. She collaborates with different artists project-based, mostly in non-hierarchical manner. She is also a long-time member of the performance art collective Oblivia. Her interest also touches on questions inherent in artistic practices involving light, as one outcome a text "Fixed in advance or learned through process – what is the nature of contemporary performance lighting design?" (2017) as part of the publication series of the Theatre Academy, Helsinki. In addition, Ekola creates her own light works, which often engage in a dialogue with the surrounding space. She currently lives in Belgium.

Ian Garrett is designer, producer, educator and researcher in the field of sustainability in arts and culture. He is an Associate Professor of Ecological Design for Performance at York University,

director of the Centre for Sustainable Practice in the Arts and Producer for Toasterlab, a mixed reality performance collective.

Saara Hannula is a Helsinki-based artist, researcher and lecturer (MA) with a background in architecture, environmental art and the performing arts. Her artistic practice consists of context-specific artistic research processes that focus on questions of ecology, materiality and belonging, and that are shared in the form of site-responsive installations, events, performances and publications. Saara has been a doctoral candidate at the Theatre Academy of the University of the Arts Helsinki since 2017 and is currently working as a lecturer in Lecturer in Ecological Sustainability at the University of the Arts Helsinki.

Tomi Humalisto (D.A.) is Professor in Lighting Design at the Theatre Academy of the University of the Arts Helsinki. He has vast experience in performance design and production responsibilities for various art projects. His current research interests include, in addition to the aesthetics and dramaturgy of lighting design, the artistic and pedagogical possibilities of digital media and digitalisation and issues of ecological sustainability in performance design.

Kaisa Illukka (b. 1978) is a visual and performance artist, set designer and art educator (MA) from Helsinki. Since 2002, she has also taught in basic art education, in environmental organisations, at Aalto University and at the Theatre Academy of the University of the Arts Helsinki. In her work, Illukka is particularly oriented towards ecological art thinking, which she has also taught in basic art education, environmental organisations, Aalto University and Theatre Academy. Currently, Illukka is working with performative phenomena of political ecology and nature relationship.

Liisa Ikonen is a scenographer (D.A.) and the Professor of Design for the Performing Arts at Theatre Academy of the University of the Arts Helsinki. Ikonen's 30-year professional background is in both experimental and institutional fields of theatre and performing arts. Her research has focused on alternative scenographic work methods and applied forms of scenography.

Raisa Kilpeläinen (b. 1979) holds an MA in lighting design (Theatre Academy Helsinki), scenography (University of Art and Design Helsinki) and theatre research studies (Tampere University). She is also a doctoral candidate at the University of Lapland. Kilpeläinen works as a Lecturer in Performance Design at the Theatre Academy of the University of the Arts Helsinki. As an artist and designer, Kilpeläinen creates scenography, lighting design, light art, cross-disciplinary pieces and participates in various collaborative projects, including the art collective KOKIMO (2010–), of which she is a founding member. Along with these, Kilpeläinen is also a writer, editor and curator. As an artist, Kilpeläinen has a specific focus on dramaturgy, light, multimedia, space, place, stage, site-sensitivity, realities, perceptions and sustainability. Her work has been exhibited and performed in Finland and internationally. As a researcher, Kilpeläinen explores changes in performance designers' work, art and possible futures and sustainability in performance design.

Jari P. Kauppinen is a sound designer and Professor Emeritus of sound design at the Theatre Academy of University of the Arts Helsinki. Throughout his career in Sound Design and Sound Art, he has had a special interest towards the complex interplay of sounds and spaces. He is also interested in examining and experimenting with different strategies of letting different voices be actuated and mediated with various sonic technologies in performative contexts.

Vespa Laine (b. 1977) is a lighting designer (MA) from Finland and the founder of Fern Orchestra. She lives in the archipelago of Turku and works with plants and microorganisms. She graduated from Theatre Academy Helsinki in 2010. She has worked extensively in the fields of theatre, contemporary dance and circus. Since then, bio- and green art, as well as content- and concept-based productions, have become the focus of interest. She is interested in interdisciplinary and slow processes. She addresses the relationship between environment and light in her works and uses laws of quantum physics as an artist practice.

Milla Martikainen (b. 1987, she/they) is a freelancer performance-maker living in Finland. She has MA degrees in scenography from Aalto University and in lighting design from the Theatre Academy of the University of the Arts Helsinki. In her work, she is interested in looking for artistic strategies to understand how to take part in creating our world - both from inside and in-between different kinds of structures. She enjoys exploration, co-creation and collaboration with people, creatures and processes. This work has been taking part in venues from the Finnish National Theatre to ANTI-live-art-festival, and from spatial design for events to making performances on Twitter as a flying squirrel. She has written an essay in Finnish titled "Starting points for looking for ecosocially sustainable aesthetics in performance" (Liikekieli.com-web journal 1/2020). Her web-portfolio with more stories can be found from www.millamartikainen.com

Roberta Mock is Professor of Performance and Executive Dean of the School of Performing and Digital Arts at Royal Holloway, University of London. She is the Immediate Past Chair of the UK's leading theatre and performance research organisation, TaPRA, and

has written extensively for both scholarly and non-academic audiences. In addition to numerous journal articles and book chapters, she is the author or editor of six books, the most recent of which are *Joshua Sofaer: Performance/Objects/Participation* (co-edited with Mary Paterson for the Intellect Live series, 2020) and the *Methuen Drama Handbook of Gender and Theatre* (co-edited with Sean Metzger, forthcoming). She has experience of professional theatre-making as Artistic Director of the touring company, Lusty Juventus Physical Theatre, for ten years. Roberta is currently the Principal Investigator for project, “Transitioning to Sustainable Production Across the UK Theatre Sector”, funded by the Creative Industries Policy & Evidence Centre and Arts Council England.

Liisa Pesonen (b. 1985) is a Finnish Helsinki-based costume designer. Pesonen graduated with a Master of Arts in fashion from Aalto University in 2013, where she also frequently teaches. Pesonen has presented co-authored papers at international conferences, and her artistic work has also been exhibited at the Critical Costume conference and exhibition in Helsinki in 2015 and in Guildford in 2018. Pesonen’s costume design work for stage includes, e.g., Shakespeare’s *Julius Caesar* (2020) by Director Carl Alm and *Short Episode in the Universal History of Mushroom Civilization* (2023) by director Essi Rossi. Pesonen has designed costumes for contemporary dance choreographed by Alpo Aaltokoski and for dance theatre choreographed by Jenni Kivelä. Between 2015 and 2019, Pesonen was a costume and wearable electronics designer in a dance project, *Sounding Motion*, led by choreographer Hanna Pajala-Assefa, that resulted in several dance performances. Pesonen has also worked at the field of cinema since 2007, and she has, e.g., designed costumes for short films directed by Aino Suni and Reetta Aalto.

Tessa Rixon is a practitioner-researcher in intermedial performance, digital scenography & Australian performance design. As Lecturer in Scenography at Queensland University of Technology, Tessa's work promotes new modes of integrating established and emergent technologies into live performance; exploring the potentiality of authenticity within digital scenography; and showcasing Australian performance design practice and histories. Her latest research explores the impact of the pandemic on digital pedagogies within the creative arts, and the role of technology within ecoscenography.

Anna Rouhu studied lighting design at the Theatre Academy of Finland, completing her master's degree in May 2009, and she received her pedagogical qualifications in 2018. After graduation, she has worked as a freelance lighting designer, both in Finland and internationally. Her works consist of all forms of performing arts from live art to opera. Recently, she has also worked as a theatre pedagogue and, since 2020, at the University of the Arts Helsinki Theatre Academy's technical services as a lighting designer and Head of Lighting, Sound and AV team. Having a strong conviction of the importance of lifelong learning, she started to study for her second master's degree in cultural management in August 2022.

This volume aims to highlight ecologically more sustainable practices and thinking that have emerged from various projects in performance design and pedagogical work in the field. The examples reveal ideas and thoughts that will hopefully enable artistic inspiration on our planet in the future. We hope that *Sustainable Choices – Potentials and Practices in Performance Design* will be of great interest to students, pedagogues, scholars, researchers and practitioners. We hope that the articles in the book reflect the diverse potential of the arts to continue with sustainability issues and overcome the environmental crisis. We encourage all readers to take sustainability, ecological thinking and environmental awareness as an enlightening and essential circumstance, not a problem.

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