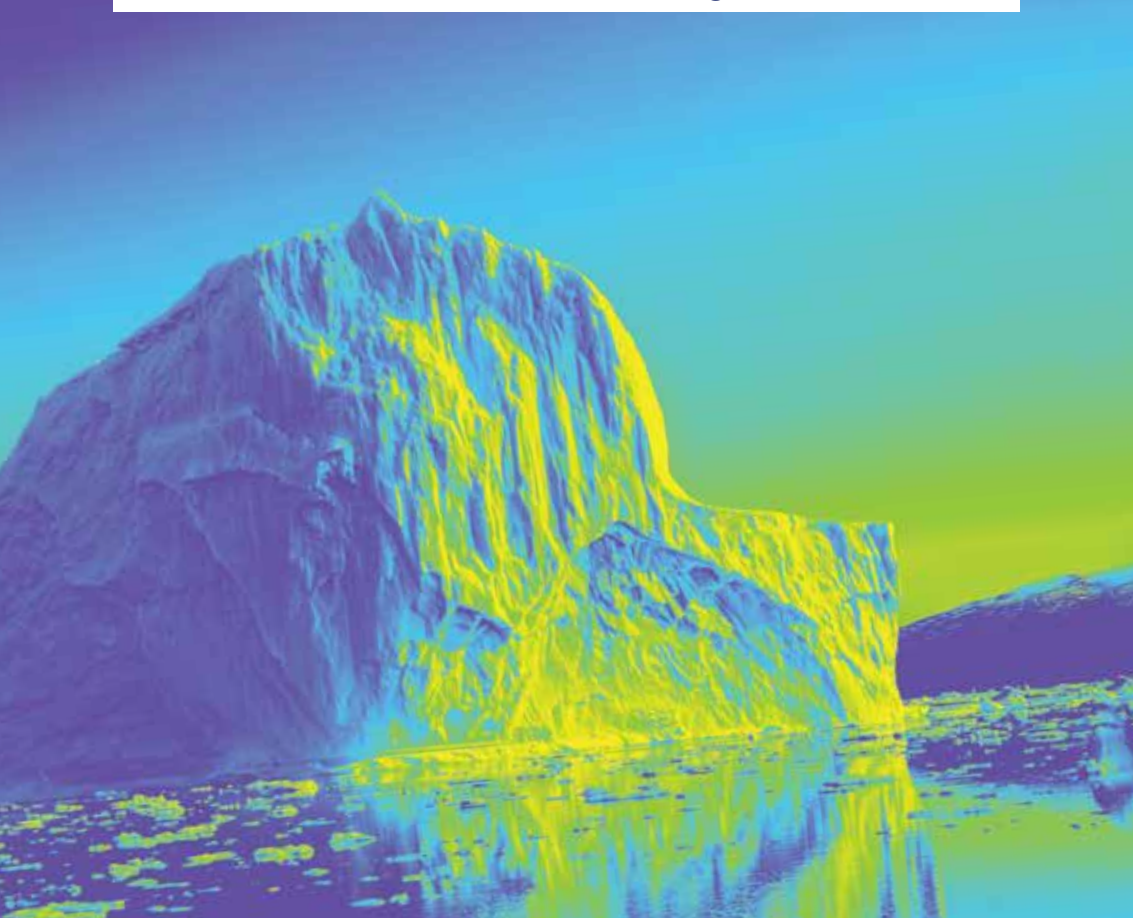


DESIGN FOR ADAPTATION

Cumulus Conference Proceedings Detroit 2022



Cumulus Conference
Proceedings Series
10/2023 Detroit

Design for Adaptation Cumulus Conference Proceedings Detroit 2022

Editor

Amy Lazet, College for Creative Studies

Layout and Graphic Design

College for Creative Studies

Concept for Cumulus Conference

Proceedings Series was developed in 2018 by Jani Pulkka.

Cumulus Conference

Design for Adaptation hosted by College for Creative Studies,
Detroit, Michigan, USA on November 2-4, 2022.

www.cumulusdetroit2022.org

Published by Cumulus

Cumulus: The Global Association of Art and Design Education and Research.

www.cumulusassociation.org

Copyright ©2023

College for Creative Studies, Cumulus Association.

All content remains the property of authors, editors and institutes.

ISBN 979-8-218-07901-7 (PDF)

Cumulus Conference Proceedings

Series, N°9, ISSN 2490-046X

Cumulus Conference Proceedings Series

Publications in Cumulus Conference Proceedings Series

01/17	Kolding, REDO
02/17	Bengaluru, Letters to the Future
03/18	Paris, To get there: designing together
04/18	Wuxi, Diffused Transition & Design Opportunities
05/19	Rovaniemi, Around the Campfire – Resilience and Intelligence
06/19	Bogotá, The Design After
07/21	Rome, Design Culture(s) Volume #1, Volume #2
08/23	Guayaquil, Arts imagining communities to come
09/23	Detroit, Design for Adaptation
10/23	Antwerp, Connectivity and Creativity in Times of Conflict



DESIGN FOR ADAPTATION

CUMULUS DETROIT

Cumulus Conference
Proceedings Series

Cumulus: The Global Association
of Art and Design Education and Research

Detroit 2022

CONTENTS

8	Conference Chair Welcome
10	Cumulus President’s Message
11	College for Creative Studies Association of Independent Colleges of Art and Design
12	CCS Student Exhibition “Conscious Adaption”
13	Keynote Speakers
15	Track Chairs
16	International Reviewer Board
18	Foreword of the Cumulus Detroit 2022 Proceedings

CLIMATE APARTHEID

21	Are Trees the Key to Promoting the Adaptation of Environmentally Sustainable Attitudes and Behavior?
42	Design, Storytelling and Our Environment: Critical Insights from an Empirical Study with Storytellers
54	Digital Learning Experiences for Creating Solutions for Adaptation
67	Elderly Users’ Satisfaction from Shanghai Unified E-Governance on Mobile Terminals: The Effect of the Design Interface
79	Guidelines for ICT to Promote Inclusion, Equity and Social Justice in the Brazilian Healthcare Ecosystem
93	Sustainable Smart Product Design Decision-Making and Evaluation System

106	Training a New Generation of Biodesigners for a Better Society
120	Using STEAM to Power Equality and Democracy in Vaccination Decision Making in the Face of Climate Apartheid

CLIMATE CITIZEN

138	A Cookbook for Planetary Health: Situated and Distributed Learning to Address Non-Trivial Issues Through Design for Collective Action
151	A Novel Approach to Estimate Dietary Carbon Footprint Using Appearance-Based Analysis of Meals
165	A Shift to Life-Centered Systems Thinking: Teaching Modules to Design Regenerative Futures
185	Adaptive Design Education Strategies for Equitable Access

196	Adaptive Resumes in Disrupted Futures	372	Do Democracies Afford? Design as Experiential Change
214	Climatic Adaptability in the Form of Pile Dwellings in the Palaces of the Western Han Dynasty	385	“Down to Earth”: From Anthropocentric to De-Anthropocentric Design Paradigm
227	Co-Creating Visual Dialogs for Crises and Emergencies: Climate Scenarios as Opportunities	400	If It’s Broken, Don’t Just Fix It: Exploring Repair as Design Through a Two-Week Design Charrette
242	Collaborating to Build Resilient Communities: Creating a Model for Sustainable Community Spatial Renewal	412	Improving Community-Based Adaptation to Climate Change Through Participatory Gamification Design
252	Collective Interest Matrix: Can Design Be Sustainable Within Capitalism?	438	In a New Context, We Are All Apprentices: How Dialogue Between the Three States of Craft Education Is a Catalyst for Adaptation
264	Defining Ecological Citizenship: Case-Studies, Projects & Perspectives Analysed Through a Design-Led Lens, Positioning “Preferable Future(s)”	450	Life-Centered Design and Intersectionality: Citizen Science and Data Visualization as Entry Points
289	Design Activism: Are We Doing Enough?	468	Material Kin: Fashioning a Cellulose-Based Foam Floatation Device in Climate Breakdown
298	Design Fiction and the Eco-Social Imaginary	482	Preparing to Repair: Using Co-Design and Speculative Design Methods to Explore the Future of IoT Right-to-Repair with Citizens and Communities
315	Designing Accountable: Comprehensible and Explanatory Digital Systems	502	Proposal for a Worldbuilding Curriculum
332	Designing for a Livable Climate: Adaptation and the Window of Opportunity	521	Radical Interdependence on a Neighborhood Scale: Raising Awareness Among Children About Human and More-than-Human Entanglements
352	Designing from the Core: Facilitating Core Thinking for Sustainable Development in Design Education		

538	Redefinition of Fashion: Interpretation and Sustainable Reconstruction of Fashion Design in the Metaverse	677	<i>(Poster)</i> Alley Activation, Urban Acupuncture and Climate Resilience in Detroit
554	Shifting Perspectives: A Speculative Ontographic Approach	680	<i>(Poster)</i> Design's Colonial Myths: Re-Envisioning the Designer's Role in Adaptation
565	Symmetric Futures: Posthuman Design and Its Shortcomings	682	<i>(Poster)</i> Rising
576	Teaching for More-Than-Human Perspectives in Technology Design – Towards a Pedagogical Framework	CLIMATE ECOSYSTEM	
590	The <i>Prometheus Terminal</i> : Worlding Games for the Adoption of Sustainable Datafication and Cybersecurity practices	685	A Comparative Study of Sustainable Design Education Modes in the Chinese Context
607	Tools for Adaptation in Design Education: Research Actions in the Convergences Between Responsible Innovation and Knowledge Design Processes	700	Relational Design for Sustainability in U.S. Suburbs
622	Towards Sustainable Internet of Things: Object Design Strategies for End-of-Life	715	Barriers and Capabilities for Embedding a Strategic Design for Sustainability Approach in Organisation
640	Two Institutions, Three Trees, Twelve Makers: Curriculum Co-Design for Sustainability, Climate Justice and African American Material Culture	734	Design for Circular Business Models: A Conceptual Framework
657	βoihiṣṣa-ata: A Material Proposal for the Technological Democratization of Microbial Fuel Cells in the Colombian Context	749	Design for Conservation (D4C): A Toolkit that Enables Sustainable, Collaborative and Distributed Innovation
675	<i>(Poster)</i> A Neighborhood-Centered Design Methodology	765	Design for Symbiocene. Hybrid Materials and Symbiotic Objects – In-Between the Grown and Made
		779	Designing Systemic Change for Urban Ecosystems: A Framework for Assessing Social Innovation
		796	Exploring a New Model of Green Retailing: Commercial Brands Partner with Multi-Stakeholders to Build a Sustainable Retail Ecosystem

- 805 Mapping Knowledge, Skills and Capabilities of Stakeholders in Open Design-Led Distributed Production Settings
- 821 Modeling Global Action for Sustainable Development with Educational Participation
- 836 Rising Waters: Designstorming Adaptive Designs for Coastal Communities in 2030, 2050 and 2100
- 850 Ruderal Material Project
- 860 *(Poster)* Encouraging Adaptation of Reusable Packaging for FMCG Products through E-Commerce Delivery
- 862 *(Poster)* Fostering Circular Materials within the Design Practice: Materials and Product Library System

RADICAL INTERDEPENDENCE ON A NEIGHBORHOOD SCALE: RAISING AWARENESS AMONG CHILDREN ABOUT HUMAN AND MORE-THAN-HUMAN ENTANGLEMENTS

Francesco Vergani¹, Virginia Tassinari², Valentina Ferreri³

¹ *Politecnico di Milano*
francesco.vergani@polimi.it

² *LUCA School of Arts*
virginia.tassinari@polimi.it

³ *Politecnico di Milano*
valentina.ferreri@polimi.it

Abstract

The massive environmental and social emergency we are experiencing in recent years is deeply rooted in an anthropocentric and Western vision of the world which does not consider the other agents that compose our planet. This multi-level crisis sheds an even brighter light on the relationship between human and more-than-human agents and is particularly evident in those urban contexts in which human processes – clashing with more-than-human ecosystems – try to reduce the latter to energetic, health, and aesthetic factors. While anthropologists and philosophers are searching for new paradigms, designers must explore these theoretical thoughts and translate them into action. Designing ways of adapting in this ever-changing world is a forced choice we can no longer postpone.

In this framework, there is an emerging need to investigate the urban context and its features to imagine new practices and solutions to go beyond the Anthropocene. Neighborhood communities are peculiar ecosystems inhabited by different actors (both human and more-than-human) with whom we must co-design from a bottom-up perspective. This is the case with Nolo, a neighborhood in the city of Milan characterized by a proactive community that has been fostered by the Polimi DESIS Lab – the research lab the authors belong to – to imagine social cohesion and innovative interventions triggered by tailor-made participatory design (PD) activities. PD here plays an important role in activating, sustaining, and orienting practices and processes of change, with the aim of disarticulating polarizations and co-designing shared solutions for social and environmental issues.

In this research, currently ongoing, specific attention is paid to addressing various points of view from the marginalized communities in the neighborhood such as immigrants, the elderly, citizens with physical and cognitive impairments, and children, but also agents from the more-than-human realm like plants, insects, and others. In this framework, the paper provides both the theoretical background that supports the project and a broad

description of one of the activities developed to include children's point of view. By referring to the concept of *citizen scientists*, the authors designed an interactive and transmedia storytelling activity to involve children from the neighborhood in an awareness-raising workshop to highlight the current social and environmental emergencies, generate a process of empowerment/community infrastructuring, and foster "radical interdependence" (Escobar, 2018) by caring for the human/more-than-human entanglements.

Author Keywords

Participatory design; inclusiveness; care; awareness; more-than-human; post-Anthropocene.

Introduction

Over the past decades, the social and environmental emergency we are currently experiencing has been fundamental in triggering new ways of thinking about the bond between the human and the more-than-human (here intended as "living entities" such as plants and animals), reframing the dichotomy between what is thought of as "artificial" and "natural." In the field of anthropology, but also philosophy and political theory, the need to think of human and more-than-human entities as an *assemblage* – that is, a fluid and open-ended relationship between vibrant materials (humans and non-humans) of all sorts (Bennett, 2010; DeLanda, 2016; Deleuze & Guattari, 1988; Latour, 2007; Steele et al., 2019; Tsing, 2015; Tsing et al., 2017) – is increasingly marked. The French philosopher and anthropologist Bruno Latour (2018) proposes this combination of different agents by identifying the *terrestrial* as a new political actor, aware of contemporary challenges and able to recognize himself or herself as a being on a large living entity (Gaia)! The terrestrial is an attractive force that contrasts modern humans who are too mentally closed towards a dichotomy between global (or the world as a disastrous project of modernization supported by globalization) and the more primordial idea of local (identified as soil and connected to bottom-up practices developed by new local communities). The terrestrial can be seen as an interdependent collective – based on mutual help and care (de la Bellacasa, 2017; Tronto, 1993) – in which communities of people are committed to maintaining and repairing the planet and all its entanglements with other forms of living (and non-living) beings. After all, the ability of communities of people to safeguard the resources of the planet has been widely explored by the American economist Elinor Ostrom (1990) with the theory of the commons.

Ostrom (1990) identified citizens as essential to managing the most fragile, shared, and unregulated common goods such as natural resources (forests, fishing, atmosphere, air, water). Empirical studies on the commons demonstrate that, despite various social problems, communities of people can effectively manage and support natural resources through collective actions and practices, thus identifying other forms of organization besides the market, governments, and private associations (Marttila et al., 2014; Wall, 2005). Even if the theory of the commons is useful to describe the commitment of citizens to managing other forms of living (and non-living) beings composing the ecosystem, here the word "resources" has to be intended as "more-than-human agents," that is, something not to be extracted and widely used but preserved and included in the community. This ability of communities to manage the commons is also useful to foster the citizen science model: the "general public engagement in scientific research activities where citizens actively contribute to science either with their intellectual effort, or surrounding knowledge, or their tools and resources"² (European Commission, 2013). Citizen science activities –

mainly developed in the natural sciences field – include the monitoring of fauna and flora, the collection of different types of data, and collaboration in the various phases of research projects. The objectives of citizen science are not only to support academic research, but also to increase the interest and knowledge of the population on the scientific topics of the research in which they participate.

Designing for the Post-Anthropocene

In this framework, design – both as a discipline and as practice – can be effective in fostering the resilience of communities and triggering new ways of acting to intertwine the needs of human and more-than-human agents, with the aim of mutual benefit, to obtain shared and more pervasive solutions (Bastian et al., 2016; Pitt, 2018; Roudavski, 2020). In fact, departing from anthropocentric, human-centered design can be a way to investigate a more complex system with the aim of bringing to light what may be the common interests between the different agents (Forlano, 2017; Plumwood, 2002; Rice, 2018). The role of design is essential to reach the interdependence (Bennett, 2010; Carson, 2002; Coulton & Lindley, 2019; Escobar, 2018; Fry, 2009) of the different agents who – according to the objectives of the research project presented here – are called to spread “the need to reconnect with each other and with the nonhuman world” in neighborhood communities (Escobar, 2018, p. 151).

The field of design is also dealing with sensitivities coming from other disciplinary fields – such as philosophy and anthropology – towards its re-evaluation as a virtue not only associated with the human being. Driven by an ethical reassessment of human actions in the Anthropocene,³ especially related to Western behaviors, academics and practitioners are questioning those issues that occur daily in society through decolonizing practices (Descola, 2013; Escobar, 2018; Haraway, 2016; Heise, 2008; Ingold, 2011, 2015). Also linked to those issues are themes such as Indigenous knowledge (Descola & Pálsson, 1996) and matristic cultures (Maturana & Verden-Zöller, 2008), which open up to different ontologies and let emerge the need to see, live, and design the world from different points of view. From this perspective, the human being emerges as one of many design agents – not the only one – as he or she is constantly designed back from the surrounding world (Willis, 2006). This “double movement” (Escobar, 2018) of design calls designers to a re-evaluation of their own role and practice, opening up the ability to design to other agents as well. This theoretical framework led the authors to think about the theme of “radical interdependence” (Escobar, 2018) in urban contexts as seen from the point of view of neighborhood communities, where “communities” means “assemblages” of both human and more-than-human agents. The project presented in the paper is framed within an ongoing experimentation of Polimi DESIS Lab within the city of Milan and developed in the urban living lab Off Campus Nolo,⁴ hosted in the local municipal market of Viale Monza, 54.

Neighborhoods as “Assemblages”

Neighborhoods are complex systems of agents – both human and more-than-human – that interact daily within specific spaces and infrastructures. Their heterogeneity – and the related social and environmental complexities – makes it difficult to find solutions for the well-being of the community. Indeed, neighborhood “voices” – intended as ideas and points – are rich and different and include those points of views that are normally unheard, such as those belonging to fragile communities that tend to be excluded or

marginalized (foreigners, elderly, children, people with physical or mental disabilities), but even those belonging to more-than-human agents such as plants and animals. Putting these different “voices” into dialog is a way to create a shared neighborhood culture, not only to counter social polarizations but also to imagine possible future actions that take common interests into consideration. This means laying the foundation for a more inclusive and ecosystemic bottom-up approach, aimed at making the neighborhood more sustainable, innovative, and resilient.

Nolo Neighborhood and Off Campus Nolo

The experimentation presented in this paper was conducted in the context of Nolo, a semi-peripheral neighborhood of the city of Milan which represents a peculiar case of urban fabric in transformation, supported by a vibrant and proactive neighborhood community. The area in which Nolo is located has historically been the site of various migratory flows – both national and international – creating a rich context in terms of a variety of cultures, traditions, and behaviors. Today, newcomers with different cultural backgrounds represent over 34% of the local population (made up of about 25,000 inhabitants), compared to an average figure of 19% throughout the city of Milan. However, over the years, this diversity has not always been considered a positive aspect and has often been related to episodes of degradation (social and spatial) – as well as other phenomena known to the news – that contributed to the perception of the neighborhood as dangerous and poor. These phenomena have not discouraged the inhabitants of Nolo from trying to imagine solutions for the sake of their neighborhood, helping to strengthen its social cohesion through spontaneous aggregations of different sorts. In the context of Nolo, a group of inhabitants – here defined as a creative community (Meroni, 2007) – have already fostered over the years a process of urban and social transformation that includes not only the opening of new citizen-centered services, but also the spontaneous aggregation of the inhabitants around different initiatives, activated both online and offline. These initiatives have taken up both formal and informal forms of association such as the “Nolo Social District,” a “social street”⁵ managed by the inhabitants themselves through a Facebook group with more than 12,000 members, helping the socialization process between neighbors. This process of “beautification” (Fassi & Vergani, 2022) was intercepted by the Polimi DESIS Lab of the Politecnico di Milano – the research lab the authors belong to – which initially started teaching and research activities onsite and subsequently managed to open a living lab in the historical covered market of the neighborhood. Off Campus Nolo not only hosts research projects and community-making practices, but also events and meetings organized by the neighborhood’s citizens as well as volunteer activities.

The “Situated Vocabulary”

One of the research projects launched with the opening of Off Campus Nolo (and still ongoing) is the Nolo “Situated Vocabulary,” a neighborhood vocabulary that since its first steps helped the community of Nolo to map the area’s spatial and social features by embracing its wide network of “situated stakeholders” (citizens, shopkeepers, and neighborhood associations as well as local administrators and the Municipality) (Fassi & Vergani, 2022). The vocabulary is managed by the off-campusers (mostly professors, researchers, PhD candidates, and interns of the Polimi DESIS Lab who become curators, content creators, and volunteers when working at Off Campus Nolo) (Fassi & Vergani, 2022) who are currently exploring ways to generate conversations around key concepts chosen by its inhabitants. The founding idea of the project is that the vocabulary starts as a physical

prompt and then becomes an agonistic space – a platform – in which to dis-articulate and re-articulate points of view, illuminating unexpected similarities and revealing possible divergences to develop a cultural discourse on the neighborhood developed by the same neighborhood. Specific attention is paid to the vocabulary's potential to include (ontologically) different voices, bringing them in dialog to envision common matters of concern and new courses of transformative actions.

The "Situated Vocabulary" also promotes a more ecosystemic design dimension by listening to and integrating the voices of scientists representing agents from the natural world, such as plants, animals, and other organisms that populate the neighborhood. This collection of "voices" takes place during co-design activities, workshops, and interviews triggered both in the physical space of Off Campus Nolo and on online platforms and social media. The "voices" of the inhabitants, as well as those of writers, linguists, artists, designers, local activists, scientists, and others, are collected in the vocabulary and then spread in the community of Nolo in the form of a podcast – "In Poche Parole" (literally, "in few words") – developed in collaboration with Radio Nolo, the neighborhood radio created and supported voluntarily by local citizens, based in the Off Campus Nolo space. The vocabulary is made of nine keywords (*public space, degradation, common good, sense of belonging, memory, change, fun, commitment, Nolo, and heritage*) chosen by a group of members of the "Nolo Social District" Facebook group as hot topics experienced daily by the inhabitants. Every couple of months, a keyword chosen by the citizens is addressed as a red thread to provoke new thinking about what could happen in the neighborhood related to that specific topic. During this period, Off Campus Nolo hosts co-design sessions in its (physical and digital) space with passers-by and specific focus groups and showcases the diverse ideas emerging from these encounters. In this way, the market becomes a physical "agorà" (Huybrechts et al., 2018) in which reflections on the words can be shared, conversations can take place, and new courses of action can be envisioned.

Objectives

The work presented here is specifically connected to an activity enacted for *sense of belonging* that included the points of view of a group of children from the neighborhood. By referring to the concept of *citizen science*, the authors designed an interactive and trans-media storytelling activity to involve children from the neighborhood in an awareness-raising workshop to highlight the current social and environmental emergencies, generate a process of empowerment/community infrastructuring, and foster "radical interdependence" by caring for the human/more-than-human entanglements. Starting from the insights collected through the "Situated Vocabulary" research project during previous activities based on the words *public space* and *degradation*, the main objectives of the workshop with children were to:

- Foster the engagement of the neighborhood from a different point of view;
- Empathize with more-than-human agents and understand the concepts of multispecies cohabitation and radical interdependence;
- Encourage the children living in Nolo to be active citizens aware of the importance of human beings' footprints and behaviors towards the ecosystem and its inhabitants; and
- Test participatory design in creating new forms of democracy, inclusion, and activism even in young participants such as the children involved.

Methodology

The tailor-made research activity was supported by a hybrid methodology adopting methods and tools from transmedia storytelling using a participatory design approach. The activity – specifically designed for the phrase *sense of belonging* from the Nolo “Situated Vocabulary” research framework – benefited from the work previously done with co-design sessions, individual and group interviews with situated stakeholders (Fassi & Vergani, 2022) (citizens, shopkeepers, neighborhood associations, informal groups, and others), and workshops conducted both online and in the spaces of Off Campus Nolo. From the data collected, the research group gathered insights to work on to envision – with the help of the community of Nolo – future scenarios to be implemented in the neighborhood. Paying particular attention to addressing the various points of view of the marginalized community of the neighborhood, for *sense of belonging* the research group decided to focus on children as the most suitable and open to including more-than-human agents (in this case mostly plants and insects) in a participatory design approach (Akama et al., 2020). With the aim of understanding extremely important themes, the group decided to opt for an activity – supported by a specifically designed narrative world and storytelling – that would help children to participate and enjoy the experience.

The Transmedia Design Framework: Gaia’s Club

To build the storytelling behind the experience of the activity with children, the research team used the transmedia design framework following the transmedia building model developed by Ciancia (2016). As stated by Jenkins (2003), “Transmedia Storytelling represents a process where integral elements of a fiction get dispersed systematically across multiple delivery channels to the purpose of creating a unified and coordinated entertainment experience [where] each medium makes its own unique contribution to the unfolding of the story.” In the activity presented, transmedia storytelling consisted of a particular challenge named “Gaia’s Club” where Gaia – envisioned as Mother Earth (the same one addressed by Latour) or a mysterious entity protecting the balance of all the ecosystems in the world – seems to have asked for the help of the children living in Nolo to solve important tasks for the well-being of the planet. As stated by Pinardi & De Angelis (2008), telling a story means “to open a window on a world” (p. 7) and it is a process that requires the presence of a structure following seven generative elements defining the storyworld (Altan, 1999; Pinardi & De Angelis, 2008):

- EPOS: Historical memory, the common memory of past events, the celebration of one’s origins;
- ETHOS: The shared values, the rules of coexistence that regulate relationships, civil, and religious life;
- LOGOS: The common language;
- GENOS: The relationships of kinship and lineage;
- TOPOS: The territory;
- TELOS: Community aims, the goals for the collective good; and
- CHRONOS: The time.

Following the identification of the main storyworld and its themes, the seven generative elements were imagined as follows:

- **EPOS:** The history of the Nolo neighborhood – its transformation over time, from a countryside area to an industrialized urban neighborhood thanks to a regeneration process;
- **ETHOS:** Nolo as a neighborhood with a strong identity, full of the values of inclusion, multiculturalism, and care;
- **LOGOS:** The language of Nolo as a mixture of Italian, the Milanese dialect and other Italian accents as well as Arabic, Chinese, Spanish, English, and other languages from all over the world;
- **GENOS:** Besides blood family relationships, the neighborhood is characterized by the presence of a strong sense of belonging, community, and identity, even though the community is divided into various sub-communities and groups who sometimes may find it hard to mix with others;
- **TOPOS:** The location in which the storylines take place is the whole neighborhood of Nolo or the upper world, which includes aspects relating to society, nation, state, continent, nature, and planet (Pinardi, & De Angelis, 2006) and Parco Trotter, a park that is also a diffused school, situated inside the neighborhood. Parco Trotter represents the underworld; that is, the space including professional, artistic, scientific, religious, political, and affective environments (Pinardi & De Angelis, 2006);
- **TELOS:** The aim of the residents of the neighborhood is to improve the spaces and the sociability of the neighborhood. However, the presence of a large number of people makes it difficult to combine the will of the various social groups that inhabit the neighborhood and avoid fragmentation; and
- **CHRONOS:** The storytelling takes place nowadays. The time in the neighborhood is hectic; a lot of things happen at the same time and the process of change is quick.

After the identification of the storyworld, the main characters and the storylines supporting the transmedia project were developed as follows:

PRIMARY CHARACTERS:

- *Gaia:* A mysterious figure who has the duty to protect the balance of all ecosystems in the world;
- *The explorers:* Curious and adventurous children living in Nolo who answer Gaia's call to action and decide to take the lead and explore the Parco Trotter to solve the tasks given;
- *The more-than-human agents:* Empathic and passionate children playing the role of plants, animals, and insects living in the ecosystem of Parco Trotter.

SECONDARY CHARACTERS:

- *Gaia's helpers:* Adults selected by Gaia to be her helpers and messengers to communicate with the children (the research team and other volunteers).

STORYTELLING:

The storytelling consisted of Gaia worrying about humans behaving badly towards other agents on the planet since humans consider themselves at the top of the ecosystem. It was then that she decided to involve the children in finding new solutions for the well-being of the planet as adults did not seem to be willing to listen to and collaborate with her. So, she decided to enroll some children and found a club – Gaia’s Club – to give them tasks to be completed and personifying some human and more-than-human agents of the Nolo ecosystem.

The Activity

As reported in Figure 1, Gaia’s Club is made of four main activities that took place in October 2021 at Parco Trotter (Milan). The four main activities were anticipated by a pre-activity: a preparatory assignment to be completed at home in which the participants could enter the storyworld and learn about the background story through a toolkit sent via e-mail and followed by an after-life step. The whole activity was structured to follow a conceptual path that aims to raise children’s awareness about “radical interdependence” and more-than-human agents by using a playful and interactive method to foster teamwork and cooperation. All activities were supported and supervised by adults (Gaia’s helpers), and each moment between the different steps of the activity was designed to have smooth changes between topics and different narrative sections. The activities involved 15 children from 5 to 9 years old with different backgrounds, all living in the neighborhood. As previously described, they were divided into two groups: the explorers and the more-than-human agents inhabiting the park (such as the frog, the oak, the daisy flower, the mole, the owl, the bee).

GOALS AND TOPICS OF THE ACTIVITIES



Figure 1. Scheme of the goals and topics of the activity pack

1. **Pre-activity:** In the preparatory phase, children were introduced to the experience thanks to a toolkit received via email consisting of a podcast (in which Gaia’s helpers introduced the participants to the background story) and a letter signed by Gaia with the call to action. In the call to action, the children were encouraged to take part in the challenge to help Gaia build a stronger bond between human and more-than-human agents. The message included the time and location for the meeting to discover the activities and the other members of the Club.

2. **Welcoming:** During the in-person welcome, the children received another toolkit to start the activity and dress as explorers or more-than-human agents. The welcome toolkit (Figure 2) included a small compass, a paper bag to collect natural features found in the park, notebooks and pens, an interactive map of the park with exercises to be filled in, pins depicting elements of nature or exploration, ID/membership card for Gaia's Club, and low-tech costumes to help the children assume their new characters's shoes and feel like part of the group.
3. **Exploration:** The first task given by Gaia was the exploration of the park (Figure 3). The exploration was meant to collect natural objects to be used in the subsequent activities and to discover the park as an ecosystem inhabited not only by humans but also by more-than-human agents. This phase was intended to transmit the knowledge described in the introduction to the children in an easy and funny way, discovering the entanglements between plants, animals, and other agents.
4. **Mapping and mirroring:** In the second task, children were asked to mark on a map the places seen during the exploration and the corresponding findings about the more-than-human species observed (Figure 4). Then the children were involved in a drama game – a mirroring exercise (copying in sync the actions of those in front) – to create a “chain” and learn about the “radical interdependence” between the different agents. The “chain” made the children sit on top of each other to create a physical demonstration of how an ecosystem works.



Figure 2. Welcome kit.



Figure 3. Exploration of the park.



Figure 4. Interactive mapping.



Figure 5. Children building the bugs' hotels with natural findings and waste materials.

5. **Bugs' Hotel:** In the final task assigned by Gaia, the focus was to join forces for the construction of something useful for the more-than-human realm: a bug hotel (Figure 5). Children were equipped with some waste materials (wood and cotton) and used the natural objects collected during the exploration phase to build boxes where bugs and insects could live and prosper.
6. After the end of the activity, the toolkit was made easily downloadable to be used by the community of Nolo and to reach other children in the neighborhood. The aim is that Gaia's Club could become an open tool for the community to spread the main topics highlighted in the introduction and trigger both adults and children in thinking about the issues addressed.

Results

The activities had a positive impact both on the families and the children who participated and were successful in collaborating while playing in a positive and proactive way. Both introverted and extroverted children responded positively to the proposed stimuli and activities, although this was not a sure outcome, especially because the activities required quite a long period of focus and commitment. The storytelling seemed to work and was an important element to both entertain and motivate children in following the activities with curiosity and empathy, identifying easily with the proposed characters and storylines; in fact, they never questioned the existence of Gaia or the storyworld in general during the activities. This was particularly useful to understand that children – already aware of environmental issues – have a greater sensitivity in imagining themselves as active citizens interested in designing solutions for cohabitation with more-than-human agents. In particular, activity 4 (mapping and mirroring), although initially not fully understood, was

useful to explain the concept of “radical interdependence” and the correlations between all the different agents. The idea of embodying and playing more-than-human agents as fundamental building blocks for the construction of the chain (the ecosystem) has created a playful but effective moment of cooperation that helped the children understand the need to act for coexistence. This idea of continuous support and help has been effectively implemented in activity 5 (bug hotel) where children – driven by a genuine willingness to help – worked hard to provide insects with a place to hide and live.

All the theoretical concepts explored (environmental issues, multispecies cohabitation, radical interdependence, being active citizens, and inclusion) were easily absorbed by the participants thanks to the transmedia design framework that mixed practical activities with storytelling. However, while it can be argued that building a narrative world can be useful for creating engagement and facilitating the management and implementation of participatory activities, some limitations may occur. For example, a limitation could be encountered in the case of online activities that have been applied in the context since, normally, transmedia design framework refers to digital media products to be enjoyed independently. As for the case presented here, a difficulty encountered was that of not having a complex background made of different media resources (such as short films, blogs, or social networks on which to spread the narrative) that could have helped the immersion of the children in the topics explored even more. This is mainly due, on the one hand, to the type of target chosen (which does not benefit from this type of media independently) and the will to create activities to be carried out offline collectively and in a public space, and on the other hand to making the experience accessible, inclusive, and not too complex.

As future improvements, potential changes may be to:

- Devote more time and specific attention to how to build a bugs' hotel with specific advice from some experts: in fact, even if the adults tried to explain how to build it to be really useful for insects, the children were very enthusiastic and creative, and they tended to build it following their personal touch;
- Give more time to the “mapping and mirroring” exercise (activity 4) after the exploration (activity 3) and provide more props;
- Divide the activities over several days to create a sense of continuity regarding the challenges children have to face in helping the (wider) neighborhood community; and
- Add a final exercise to let the children imagine (and design) some future scenarios for the neighborhood urban space according to all the new knowledge acquired.

Conclusions

The Gaia's Club workshop seems to have succeeded in combining the practice of trans-media storytelling with participatory design from a social innovation perspective. Thanks to the support of a strong narrative built around participatory activities, the involvement of participants before, during, and after the activities was very satisfying. The activities during the workshop were successful in involving children in a light and fun way, while conveying at the same time some basic knowledge on the main topics around which the

storytelling was built. Simultaneously, the different challenges raised awareness of the issues addressed (radical interdependence between agents, the call for environmental and social emergency, the need to care for others, etc.) and fostered positive feedback from parents and relatives in attendance.

As for the Situated Vocabulary, the experiment proved to be useful for collecting unheard voices, such as those of children. Gaia's Club represented a milestone for Off Campus Nolo in developing a participatory, inclusive, and ecosystem-based neighborhood culture – this time from the point of view of children, intended also as a bridge to bring such concepts into the world of adults. As for the toolkit used during the workshop, all the props and storytelling for the co-design sessions were given to the Nolo community with the hope of being expanded and disseminated by the community of citizens itself, becoming a pilot project to validate other processes of social innovation and urban regeneration. In this framework, participatory design (PD) emerged as an optimal approach for the co-design of social elements in the public sphere. The PD approach succeeded in triggering inclusive projects and dialogs by entering a complex public social dimension made up of a plurality of actors (Manzini, 2015). In any case, it can be said that the combination of the two main approaches adopted here, PD and transmedia storytelling, can open interesting perspectives and scenarios to make participation and awareness more accessible and inclusive than that currently offered by the two approaches adopted separately, especially with such a young target. Regarding a broader perspective of the impact on the neighborhood scale, the results in the Nolo community are not immediately observable as the project does not aim to produce immediate tangible effects but rather a cultural change. This means that Off Campus Nolo will constantly monitor the impact of the project and, if needed, design new activities to be executed with the community and its agents.

References

Altan C. T. (1999). *Gli italiani in Europa. Profilo storico comparato delle identità nazionali Europee*. il Mulino, Bologna.

Akama, Y., Light, A., & Kamihira, T. (2020, June). Expanding participation to design with more-than-human concerns. *PDC '20: Proceedings of the 16th Participatory Design Conference 2020 - Participation(s) Otherwise* (Vol. 1, pp. 1-11). <https://doi.org/10.1145/3385010.3385016>

Bastian, M., Jones, O., Moore, N., & Roe, E. (2016). *Participatory research in more-than-human worlds*. Taylor & Francis.

Bennett, J. (2010). *Vibrant matter: A political ecology of things*. Duke University Press.

Braidotti, R., & Hlavajova, M. (2018). *Posthuman glossary*. Bloomsbury Publishing.

Carson, R. (2002). *Silent spring*. Houghton Mifflin Harcourt.

Ciancia, M. (2016). *Transmedia design framework. Un approccio design-oriented alla transmedia practice*. FrancoAngeli.

- Coulton, P., & Lindley, J. G. (2019). More-than-human centred design: Considering other things. *The Design Journal*, 22(4), 463-481.
- de la Bellacasa, M. P. (2017). *Matters of care: Speculative ethics in more than human worlds* (41). University of Minnesota Press.
- DeLanda, M. (2016). *Assemblage theory*. Edinburgh University Press.
- Deleuze, G., & Guattari, F. (1988). *A thousand plateaus: Capitalism and schizophrenia*. Bloomsbury Publishing.
- Descola, P. (2013). *The ecology of others*. Prickly Paradigm Press.
- Descola, P., & Pálsson, G. (1996). *Nature and society: Anthropological perspectives*. Taylor & Francis.
- Edwards, C. (1993). *The hundred languages of children: The Reggio Emilia approach to early childhood education*. ERIC.
- Ellis, E. C., & Ellis, E. C. (2018). *Anthropocene: A very short introduction* (558). Oxford University Press.
- Escobar, A. (2018). *Designs for the pluriverse: Radical interdependence, autonomy, and the making of worlds*. Duke University Press.
- Fassi, D., & Vergani F. (2022). *Designing proximity with situated stakeholders*. In D. Lockton, S. Lenzi, P. Hekkert, A. Oak, J. Sádaba, & P. Lloyd (Eds.), *DRS2022: Bilbao, 25 June - 3 July, Bilbao, Spain*. <https://doi.org/10.21606/drs.2022.695>
- Forlano, L. (2017). Posthumanism and design. *She Ji: The Journal of Design, Economics, and Innovation*, 3(1), 16-29.
- Fry, T. (2009). *Design futuring: Sustainability, ethics and new practice* (pp. 71-77). University of New South Wales Press.
- Haraway, D. J. (2016). *Staying with the trouble: Making kin in the Chthulucene*. Duke University Press.
- Heise, U. K. (2008). *Sense of place and sense of planet: The environmental imagination of the global*. Oxford University Press.
- Ingold, T. (2011). *Being alive: Essays on movement, knowledge and description*. Routledge.
- Ingold, T. (2015). *The life of lines*. Routledge.
- Jenkins, H. (2006). *Cultura convergente*. Apogeo.

Latour, B. (2007). *Reassembling the social: An introduction to actor-network-theory*. Oxford University Press.

Latour, B. (2018). *Down to earth: Politics in the new climatic regime*. John Wiley & Sons.

Lovelock, J. E., & Margulis, L. (1974). Atmospheric homeostasis by and for the biosphere: The Gaia hypothesis. *Tellus*, 26(1-2), 2-10.

Manzini, E. (2015). *Design, when everybody designs: An introduction to design for social innovation*. MIT Press.

Marttila, S., Botero, A., & Saad-Sulonen, J. (2014, October). Towards commons design in participatory design. *PDC '14: Proceedings of the 13th Participatory Design Conference: Short Papers, Industry Cases, Workshop Descriptions, Doctoral Consortium papers, and Keynote abstracts* (Volume 2, pp. 9-12). Association for Computing Machinery. <https://doi.org/10.1145/2662155.2662187>

Maturana, H. R., & Verden-Zöller, G. (2008). *The origin of humanness in the biology of love*. Imprint Academic.

Meroni, A. (2007). *Creative communities. People inventing sustainable ways of living*. Poli.Design.

Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge University Press.

Pinardi, D., & De Angelis, P. (2008). *Il mondo narrativo*. Lindau.

Pitt, H. (2018). Questioning care cultivated through connecting with more-than-human communities. *Social & Cultural Geography*, 19(2), 253-274. <https://doi.org/10.1080/14649365.2016.1275753>

Plumwood, V. (2002). *Environmental culture: The ecological crisis of reason*. Psychology Press.

Rice, L. (2018). Nonhumans in participatory design. *CoDesign*, 14(3), 238-257.

Roudavski, S. (2020). Multispecies cohabitation and future design. In S. Boess, M. Cheung, & R. Cain (Eds.), *Synergy - DRS International Conference 2020, 11-14 August, Held online*. <https://doi.org/10.21606/drs.2020.402>

Steele, W., Wiesel, I., & Maller, C. (2019). More-than-human cities: Where the wild things are. *Geoforum*, 106, 411-415.

Tronto, J. C. (1993). *Moral boundaries: A political argument for an ethic of care*. Psychology Press.

Tsing, A. L. (2015). *The mushroom at the end of the world: On the possibility of life in capitalist ruins*. Princeton University Press.

Tsing, A. L., Bubandt, N., Gan, E., & Swanson, H. A. (2017). *Arts of living on a damaged planet: Ghosts and monsters of the anthropocene*. University of Minnesota Press.

Wall, D. (2005). *Babylon and beyond: The economics of anti-capitalist, anti-globalist and radical green movements*. Pluto Press.

Willis, A.-M. (2006). Ontological designing. *Design Philosophy Papers*, 4(2), 69-92.

¹ *Gaia as the Mother Earth goddess*. Gaia theory proposes that living organisms interact with their inorganic surroundings on Earth to form a synergistic and self-regulating complex system that helps to maintain and perpetuate the conditions for life on the planet (Lovelock & Margulis, 1974).

² European Commission (2013). *Green Paper on Citizen Science*.

³ The Anthropocene is a proposed geological epoch dating from the commencement of significant human impact on Earth's geology and ecosystems, including but not limited to anthropogenic climate change (Braidotti & Hlavajova, 2018; Edwards, 1993; Ellis & Ellis, 2018).

⁴ Off Campus Nolo is an initiative promoted by Polisocial with the aim of strengthening the presence of Politecnico di Milano inside the city of Milan, following the principle of a university that is more responsible, open, and aware of social challenges and closer to the community. OFF CAMPUS, Il Cantiere per le Periferie. Retrieved March 22, 2022 from <http://www.polisocial.polimi.it/it/off-campus/>

⁵ "Social streets" are a typically Italian phenomenon that derives from the deeply rooted cultural tradition of living neighborhood public areas as social places that foster neighborhood relations.