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**Relating Systems Thinking and Design
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Design, Systemic Change and Navigating Sustainable Impacts: Thematic analysis of a symposium on design for systemic change

Spyros Bofylatos, Carla Amaral, Elise Hodson, and Robert Phillips

Design is experiencing a fundamental transformation, moving from a philosophy of disruption towards a period characterised by sustainability and accountability. Systemic change requires a commitment to the longer-term, moving beyond quick fixes and rapid innovation to consider the broader contexts of design work, design interventions and their potential impacts on sustaining existing systems or developing alternatives.

We posit that for sustainable transitions and wider systemic changes to be accomplished by design, a new approach is necessary. Engaging with emerging and diverse matters of concern, such as more-than-human design, design futures and speculation, design for policy and design activism informed by the decolonial lens, we propose ways that practice-based design education can be informed. In our view, for systemic change to emerge, we need to shift from an industrial, mass production-inspired model of education to a pluriversal one that fosters the emergence of systemic changers.

This paper examines different roles and issues facing design for systemic change as discussed at a public event hosted by the Design Products MA programme at the Royal College of Art. Leading thinkers based in the UK, Finland, France, and Brazil shared perspectives on design for environmental and social sustainability based on their expertise in sustainable transitions, systemic contradictions, ecological restoration, and multi-species design.

Through thematic analysis of the presentations and discussion that followed, we identify four key questions in the context of systemic change: how can designers

situate themselves and work with others? What are the most critical considerations? At what scale is design most effective? What does design work for systemic change look like? We map relevant debates, theories and exemplars presented by the speakers, supported by additional references used in teaching and research in the Design Products programme.

From our position as design educators and researchers, we reflect on what systemic change could mean for Design Products and the design field more broadly. The paper provides an overview of current discussions and issues in design for systemic change, offering insights to help designers visualise and navigate this journey towards viable futures.

KEYWORDS: transition design, systemic design intervention, system(s), sustainable intersections

RSD TOPIC(S): Learning & Education, Socioecological Design

Introduction

This paper reports on four different expert views on what design for systemic change means and questions how they might inform the educational approach of the 'Design Products' MA programme at the Royal College of Art. These discussions happened in the scope of a half-day symposium. The event aimed to explore how designers can utilise sustainable leverage points to achieve systemic change. The four presentations were subject to a thematic analysis that demarcated a meaningful design space that addresses global issues around sociocultural transitions towards sustainability.

This paper is structured in four sections. The first presents an overview of design and systems thinking. This is followed by a discussion of the method and key codes identified in the presentations. The third part of this article discusses the four themes identified, and in the fourth, these results are discussed, and new questions are raised.

Literature review

Framing design as a lens

Design is a loaded term with many definitions, cultural contexts, and connotations around the world. Traditionally the term design was defined to boost the economy through manufacture, innovation, and growth (Design Council, 2011). Automotive manufacturer Henry Ford saw it as a “particular configuration of the technical and social division of labour involved in making long runs of standardised goods” (Jessop, 2005). Design and its practice have changed due to the uptake of businesses leveraging ‘design thinking.’ This has produced many contentious views, some of re-skilling, some of devaluing, both with contextual perspectives (Jessop, 2005). From an economic sense, the design economy [has] “contributed £97.4bn in GVA to the UK economy, 4.9% of total UK GVA. The design economy is a vital service export for the UK, worth £55.9bn GVA in 2019 (Liedtka, 2023). Over the last decade, design (as a practice) has transformed with service, digitisation, new technologies, new typologies, and revolutionary materials, transforming its access through digital manufacture and open-access tools. Design has always been interlinked with the material it uses, i.e., the production process. As a discipline, design requires expertise, knowledge, and the skills to comprehend the nuances and gaps between systems and empathise with people who come to own or use those items. With the contemporary divergence of disciplines, design practices are turning to systematic changes and intervention points for new (more sustainable) opportunities.

What are Design Products?

We view products as leverage points that can be products, services and/or systems, not just the final execution but also the process and territory it instigates (Meadows, 1999). These approaches catalyse and offer new forms of design. Within this context, authors see design as a more pluralistic approach as Design Products explores new terrain for design, aiming to evolve new disciplines, research approaches and practices. Design Products (at the Royal College of Art was given its name based on the idea that the design is more important than the product. The programme name itself is intended to question design as a discipline, pushing it into new spaces. For the Design Products MA

programme and as researchers, we proactively design for industries but are more interested in informing the industries of design and their subsequent future trajectories. We question how we can help shape them, redefine them, and instigate best practices within sustainable means, publicly outlined.

We are not bound by manufacture and can resort to new forms of IP, systemic change, digital technologies, design for repair, catalysing new behaviours, progressive interactions, and constantly questioning our responses to climate change. Rather than being characterised by typologies, we see design as a means to provoke future research, contextualise and re-define the industries of design, rather than just the artefacts produced by it. We question “What is a product?” and the assumption of adding products to uncover critical questioning to inform cutting-edge creative practices for designing better futures. The programme ‘ethos’ focuses on a range of ideas for exploring these new areas for design practice, including design subtraction, multi-species design, circularity, questions for action, products delimited, design doing, design justice, decolonising design and designing within systems. (Design Products, 2023, 2023).

This is not a self-important provocation but an important framing for the research objective. We proactively welcome discussion, discourse, counter-arguments, new perspectives, and fresh opinions on this topic. This is how we contextualise this paper, and it represents an important part of our authors’ culture. Within sustainable practice(s), we are looking not just for efficiencies but also how we can leverage and mitigate against unsustainable challenges rather than inherit their consequences. A contextual example of this is a *knotty object*, coined by The MIT Media Lab:

Knotty objects are objects for which conception, design, manufacturing, use, and misuse are non-linear, non-discrete. They entangle practices, processes, and policies. When successful, they transform material practice, manufacturing culture, and social constructs. We consider the brick, the bitcoin, the steak, and the phone to be archetypal knotty objects (MIT Media Lab, 2018).

Through this lens, we are talking about systemic design and the elements that inform each other for interoperability for sustainable practice. In summary, the authors see a

product as a considered (and appropriate) output that can be deployed to fulfil a multitude of systemic and sustainable practices.

Systemic change

Contemporary design has been dealing with complex socioecological living systems that face wicked problems such as the climate crisis, loss of biodiversity, food insecurity, and social justice, to name but a few. Wicked problems lack clarity and certainty in both their aims and solutions (Rittel & Webber, 1973). In the realm of design, the understanding and application of systems thinking have revolutionised the approach to tackling complex problems (Sevaldson, 2022). Systems thinking provides a holistic perspective, emphasising the interconnectedness and interdependencies within complex systems.

Soft systems methodology (SSM) is a process-oriented approach that enables designers to understand and solve problems within human activity systems (Checkland, 1998). SSM recognises that complex systems involve multiple perspectives, values, and stakeholders. It emphasises the importance of accommodating diverse viewpoints and addressing the inherent complexity and ambiguity present in social systems. Systems thinking transcends disciplinary boundaries by focusing on the dynamic interrelationships of different elements shaping complex sustainability issues (Ryan 2014). It takes a systemic view of sustainability issues (Abson et al., 2017) instead of a fragmented one.

Systemic design (Jones 2014) is a design approach that extends systems thinking to address broader socio-ecological challenges responding to calls for integrated, system-oriented approaches to navigating social-ecological complexity (Fischer et al., 2015). It recognises that complex systems are not isolated entities but embedded within larger contexts. Systemic design emphasises the need for designers to consider the interrelationships between human, natural, and technological systems. Systemic design adopts an interdisciplinary approach, integrating diverse knowledge domains and involving stakeholders throughout the design process. It encourages designers to explore the boundaries of a problem, identify leverage points, and create interventions that have long-term transformative effects. The methodology emphasises co-creation, collaborative inquiry, and prototyping as ways to engage stakeholders and generate innovative solutions. Approaching complexity in design through systems thinking

manifests through systemic design, a discipline that primarily draws on methodological and organisational aspects of systems thinking (Sweeting & Sutherland, 2023).

Method

The event

In December of 2022, the Design Products (DP) programme at The Royal College of Art, hosted a half-day symposium with the 'Design & Systemic Change' theme. We invited leading thinkers to share their perspectives on design and systemic change. The event's goal was to bring together different voices and diverse perspectives on the theme to encourage our students to consider new directions and practices for design, be conscious of the impact of their design work and think of how design can contribute to developing alternative systems.

This event was structured in two sessions, each with two 20 minute presentations, followed by 30 minutes of discussion chaired by students and academics from the Design Products programme.

The first session featured presentations from Idil Gaziulusoy (Speaker 1) *and* Rob Hopkins (Speaker 2). Gaziulusoy is a Professor of Sustainable Design at the School of Arts, Design and Architecture of Aalto University. She is a sustainability scientist and a design researcher, developing a teaching and research portfolio on design-led innovations for sustainability transitions. Hopkins is the co-founder of Transition Network and Transition Town Totnes. He is the author of *The Transition Handbook* (Hopkins & Heinberg, 2008) and, most recently, *From What Is to What If: unleashing the power of imagination to create the future we want* (2019). Hopkins is an Ashoka Fellow, a PhD from The University of Plymouth, and a Director of Totnes Community Development Society.

Frederick Van Amstel (Speaker 3.) and John Thackara (Speaker 4.) presented in the second session Van Amstel is an Assistant Professor of Service Design and Experience Design at The Federal University of Technology–Paraná (UTFPR), Brazil. He is the founder of the Laboratory of Design against Oppression (LADO), a local hub of the Design & Oppression Network. His research is focused on designing with contradictions,

including the contradiction of oppression. Thackara is an author, curator and professor developing the design agenda for ecological restoration, urban-rural reconnection, and multi-species design. He is a Visiting Professor at Tongji University in Shanghai and Politecnico di Milano and is a Senior Fellow at The Royal College of Art. He is a 2022 Design For Planet Fellow, Design Council, UK and the Social Food Forum curator.

In both sessions, student volunteers played an active role by introducing speakers and chairing panel discussions alongside tutors from the Design Products programme. A change in format due to transport strikes allowed us to run the event online, open to external audiences. People joined from 26 countries.

Analysis process

Thematic analysis is a method of analysing qualitative data based on psychology (Braun and Clarke 2006) and adapted to many kinds of research. It is usually applied to a set of texts, such as interview transcripts. We employed a reflexive approach to thematic analysis (Braun, Clarke, Hayfield & Terry, 2018) to closely examine the transcripts from the symposium presentations to identify common themes—topics, ideas, and patterns of meaning that came up repeatedly. The identified themes were conceived through an analytic process involving data familiarisation, coding of relevant and repeated elements, interpretation and reflection to group codes and construct themes, and reviewing themes to ensure they accurately represent the data.

We grouped the codes into three categories: exemplary projects, advice to students, and literature references. From these, we identified four questions based on commonalities, differences of opinion, and emerging areas. These questions are discussed in more detail below. Furthermore, we generated a map (Figure 1) of the codes, debates, theories and exemplary projects presented by the speakers, supported by additional references used in teaching and research in the Design Products programme. The clustering of the codes unveiled four major lenses that shape design discourse and practice, namely design futures, Nature-based designs, design of policy and participatory design within communities of practice. We posit that the core of systemic change lies at the intersection of these themes.

made clear when we consider participatory design and the inclusion of people with lived experience in the creative process, and Speaker 1 views this type of interdisciplinary work as “require[ing] stepping out from the pure identity of a designer, and really developing expertise in areas of transfer or contexts of transformation. Without understanding what needs to be changed, what is holding us back, what are the power structures, just by facilitating group processes, we are not going to play a role in change processes.” It is essential that the positionality of the design practitioner is clear in relation to the other participants in the process. Keeping in mind that the participants come with an established set of values and motivations is important in managing group dynamics, but it is also necessary to ensure that the final output is inclusive of all the participants’ values.

Telling the stakeholders the truth was raised as an essential prerequisite of engaging in systemic change projects, especially as they relate to sustainable transitions. When it comes to the climate crisis, Speaker 2 stated that “the first thing is tell the truth, you start with tell the truth. There's no point anymore trying to pretend to clients or to each other or to anyone in any context that this isn't an enormous emergency. It's really important that people understand where we're at.” This point was echoed by Speaker 4, who widened the positionality of designers to include more-than-human entanglements, saying, “All the bacteria in my body are somehow entangled and interconnected.” This entanglement with the other challenges the idea of truthfulness as the oneness of truth collapses. Pluriversal ontologies (Escobar, 2018) encourage us to accept a multiplicity of truths and alternative viewpoints in order to holistically understand the context within which we design.

Theme 2: The role of oppression and decolonising design in systemic change

Speaker 3 framed the matter of oppression as a central, critical consideration to achieve systemic change, offering the idea that “to understand oppression, we require another kind of a graphic that shows the social relation, the two different kinds of groups that are related to this historical situation. Usually, the oppressed social groups are less than human, women, Indigenous, Black, immigrants, disabled users, and many other kinds of social groups that are created by the oppressors to manage the oppressed and to justify

why they need the oppressors." The interplay between oppressors and oppressed is very much a result of a system that reinforces and supports such relationships. This phenomenon does not exist merely in social systems; it has far-reaching environmental effects as well. Somehow, it is those who have gained the least from the extraction of value from natural systems that will face the biggest challenges caused by the climate crises of the future. Indigenous people who are being displaced from their ancestral lands, whose traditional sources of power are ridiculed as superstitions, are facing the majority of the effects of the collapse of the climate. It is this type of analytical, fragmented thinking that has shaped modern systems of oppression and has caused this type of rational irrationality. Addressing these systemic issues goes beyond design practice, as stated by Speaker 3, "You cannot fight oppression only as a designer, you need to side with the oppressed to fight oppression. You need to side with the users and also the other kinds of oppressed." Building social alliances that address such problems is a challenge that decolonial thinking tries to advance.

The decolonising design project has the capacity to embrace values such as solidarity, care, justice, and reciprocity and integrate them into design practice. Such a practice has the capacity to exist within multiple spatial and temporal scales ranging from the microbial to the global. Leaving an expertise-based model of knowledge to act more as facilitators or negotiators is a different facet of the shift in values associated with designing for systemic change. According to Speaker 4, "Designers find ways to pay respect to those people and the knowledge that they have and find ways to get them to be proud and acknowledge that they have knowledge and ways of doing things that we can learn from." The aforementioned shift implies that universities need to change on an institutional level to foster the emergence of such practitioners. In the past, knowledge-based institutions such as universities or museums have played a part in the proliferation of oppression. However, according to the speakers, through the participation and building of alliances within this arena, we have the capacity to repurpose the apparatus of oppression to create spaces that foster systemic change. Or, in the words of Speaker 3, "They don't usually say we need to burn universities, because it's the colonial legacy, they would say, we want to be part of the university, so we want to teach. So, invite social movements to teach lectures, invite social movements

to study in university and produce something that will try to use that structure against its colonial legacy.”

Theme 3: Systemic change on different scales

With the overwhelming scale of the climate crisis and systemic issues like oppression, it can be challenging to pinpoint a specific issue, strategy or point of entry where designers can make a difference. On the one hand, calls for systemic change and the radical restructuring of socio-technical systems suggest a scale of transformation that is beyond the scope of a designer’s work. On the other hand, there is no shortage of design projects testing new models at a local scale, which may or may not contribute to more widespread change. The speakers agree that multiple, diverse, and concurrent approaches to sustainable transitions are needed, but their emphases vary. There is a sense of dynamism across their perspectives, with different scales and actors interacting and coming in and out of focus.

Speaker 1 sees sustainable transitions as a process of change driven by both bottom-up and top-down initiatives, with the potential for design to intervene at all levels and in all types of projects, from products and services to systems, infrastructure, and policy. Theories of change, in particular Meadows’ deep leverage points, are helpful for designers to understand systems change and where their work can have an impact (2008). Speaker 1 reminds us that transitions can occur when the “regime” or “mainstream” receives enough pressure from the bottom. One of design’s roles is, therefore, to help create, identify, support, and scale up “niche innovations” (the many initiatives already taking place outside of the mainstream), even when it is unknown which of those initiatives will play a role in systemic change.

Speaker 2 links scales of change to the diversity of stakeholders that must be involved, from local to regional, national, and international governments, business, academic, and religious institutions. However, they underline the role of individuals and local communities to drive transitions. Rather than waiting for permission or funding, people can be inspired to make changes with the resources available. These projects are often more successful, motivated by local energy and knowledge rather than directives from above, and they have the potential for influence on a much larger scale.

The Transition Town movement is an example: what started in Totnes, UK, in 2006 is now a global movement with 1,140 towns participating in 72 countries (Rossiter, S, 2021). Speaker 3 and Speaker 4 take a similar view, advocating for incremental change and the power of the individual. In Speaker 3's experience dealing with oppression through design projects with students and communities, being critical of existing systems and taking small steps to address them can be enough to inspire hope in others. These actions may accumulate to the point of inciting larger-scale protests and change.

The role of place is necessarily part of the discussion of scale. One of the Transition Movement's reference points for change is the concept of contraction and convergence, a balance that needs to be achieved between the Global North and Global South in order to achieve sustainability on a planetary scale. This involves thinking about relationships between places and reckoning with the distribution of wealth, carbon footprint, responsibility, and experiences of climate change. While global systems change can seem abstract and unobtainable, a focus on place helps to make this transformation more real. The speakers advocate for designers to take action within their immediate spheres. As Speaker 4 puts it, "the to-do list is there before us, wherever we are standing." Studying the details of a specific location can uncover powerful connections between people and place. Designers can help others to see the connections between their local geography, climate, culture, and larger bioregions and inspire them to take action. Speaker 4 advises design students to start with places and people that are meaningful to them and to remember that "every place on the planet, every single one has the potential to become more alive than it is now."

The speakers caution against assuming that a solution in one place will work in others. Speaker 4 points to the coexistence of local and global, and particular and universal. Locations are unique, and there is no guarantee that designers will discover a "magical formula" that can be applied successfully elsewhere. Examples are nevertheless powerful in inspiring others—as Speaker 2 states, and there are lessons to be taken from places where systems change has been demonstrated (e.g., initiatives to grow food locally).

Theme 4: Designers contributions to systemic change

What does design work look like when the goal is systemic change? How can designers play to their strengths to contribute in meaningful ways? A great deal of the discussion centred around designers' ability to imagine, visualise, and prototype aspects of alternative futures while connecting different stakeholders to each other and to new ideas and information.

Storytelling has become an expected skill in design practice, but there are certain qualities to keep in mind when creating narratives for sustainable transitions. Speakers 1, 2 and 3 agree that the severity of climate change calls for visions of the future that are bold and radical. Speaker 2 says, "If the solutions and the strategies you come up with don't seem at least a bit ridiculous, they're probably not ambitious enough." For Speaker 1, it is "preposterous," not "plausible" futures that will help us to break out of the current paralysis; furthermore, challenging assumptions and questioning why we think a certain future is impossible allows us to "unpack and get unstuck." From Speaker 2's perspective, designers and other creatives can do something far different from any scientific report by helping people to see and feel the future in a way that alleviates the fear of the unknown, even "cultivating that kind of deep, deep, deep longing for a low carbon future" and highlights that there is a necessary optimism in this work—focusing on the worst-case scenarios tends to shut down other possibilities and "the future that we could still create."

Developing these narratives requires an awareness of positionality. Speaker 1 reminds us that "visions of futures are performative in the present." They must be understood in the context in which they are created and presented, as a reaction to the past, to current conditions and in relation to the designer's own bias. A diversity of possible futures must also be recognised. Speaker 3 invites us to look to the past, to visions of the future that were unrealised or "denied," to understand how people in different times and places have imagined alternatives and what prevented them from being realised. They underline the need to listen to those who have experienced and fought oppression and to support their stories of the future.

Discussion

The goal we set for the symposium and for this discussion was to develop a vision of what systemic change means within Design Products at the Royal College of Art. In this paper, we have presented the common themes that four leading experts from outside the college raised. They provide an initial mapping of what the role of design can be in the context of systemic change. We posit that the meaningful space for understanding and practising systemic change in the context of design is signposted around these emergent themes. The obvious limitation of this is grounded in the fact that four perspectives are not enough to engage with the entirety of systemic change discourses but, in our view, offer a starting point to further develop what systemic change in the context of our institution means. The overwhelming scale and complexity of the *hyperobjects* (Morton 2013) that surround us create a sense of inevitable doom, a grotesque theatre where hope has no room to exist. Hyperobjects emphasise the vastness and distributed nature of these entities, whereas knotty objects emphasise their layered and enigmatic qualities. In essence, hyperobjects can be seen as a type of knotty object, representing a specific category of complex and interconnected entities in our world. We recognise the need to equip our students with the skills and knowledge to design against and within systemic racism, climate change, surveillance capitalism, or any of the other major interconnected problems of our time. This need nudges us to adopt a pluriversal educational approach that accepts this multiplicity of truths and solutions. Lesley-Ann Noel put forward a wealth of curricula (2020) that aim to challenge the idea that design education and practice are irrevocably tied to Western capitalist societies and values systems. The practice-based approach that runs through our programme enables us to apply these ideas on the student level instead of the institutional level. How can students build a curriculum and associated practices that adopt relevant values systems, matters of concern and skills? How can the staff enable and facilitate such a pedagogy? One strategy, in our context, has been the integration of research through design in the practice-based educational model that we deliver.

Design and research traditionally have been regarded as separate endeavours, with “the former residing in industrial practice and craft, the latter in academic experiments and reflection” (Research through Design, 2022). Design practice is often seen as working with materials rather than solely with ‘academic’ theory. However, experience of

material(s) and technical knowledge are a form of theory and practice. These disciplines co-exist and inform each other. Practices of “design and research activities can be surprisingly similar—both aim to create something new,” building on what was known before (ibid.). In Research through Design (RtD), “researchers generate new knowledge by understanding the current state and then suggesting an improved future state in the form of a design” (Zimmerman & Forlizzi, 2014). The traction created by the RtD conference demonstrates the expertise, knowledge and catalysing of codependent disciplines.

Research also has common attributes: understanding outputs, making/applying knowledge and contextual insight(s). It is the authors’ view that research should be considered a material in its own right that needs the skill to apply it, deploy it, and analyse it. It needs to inform other communities, be impactful and catalyse change. The value can often be overlooked, but it happens at a higher strategic level that often takes time to emerge. When was the last time you critiqued a design output for the same standards as the peer review of a research project or publication? We believe these expertise are intertwined as a material. *The Oxford University Press Dictionary* (2020) defines material as both 1) the matter from which a thing is or can be made and 2) information or ideas for use in creating a book or other work. In other words, both design and research can be seen as the same entity. Each provides and enriches the other, nurturing their value and potential. Within this context (education), the discipline is interrelated and pedagogically inform each other. We envision the graduates of our programme in a variety of positions ranging from practitioners producing in the intersection of art, craft, and design, industrial designers or design researchers, and we feel this approach enables this plurality.

If we are to position universities as pillars of systemic change, we need to reconsider both our research agendas as well as our educational approaches. We conclude this discussion by sharing some key questions that emerged from the discussions and the analysis of the presentations. We feel these questions can act as the starting point to inform our educational approach in the future.

- How does the idea of preposterous futures align with our argument that design is moving away from disruption?
- How can we abolish oppression while existing within different systems of oppression?
- How can we design across different temporal and spatial scales, engaging with human and non-human collaborators?
- How can we engage with underrepresented communities with care, and is reciprocity avoiding the paradropping of colonial, prefigured design thinking?
- How can we engage with multi-stakeholder interdisciplinary design to address complex problems such as sustainability, and what is the role of Design in such processes?

Conclusions

In this paper, we set out to frame what design for systemic change can mean in the context of the educational model of the educational model of the Design Products Programme at the Royal College of Art. The invited speakers provided a rich dialogue with multiple starting points, perspectives and matters of concern. Through the analysis of their presentations, we identified four themes that frame a meaningful design space where systemic change can be practised. One key takeaway from this process is the need for space in educational settings for a multiplicity of design practitioners to emerge instead of replicating a preconfigured graduate. This process needs to change the design market to look at intervention points and creatives who can leverage them instead of providing solution-oriented thinking.

Systemic change can be overwhelming, and we need to discuss where to start, what is the role of design and how we can prepare the participants in our educational activities to deal with such wicked problems. Generational differences mean different approaches to sustainability, impacts or how this translates to teaching in a design school. The flexibility that a pluriversal approach to education offers seems necessary to improve the chances of creating a just and sustainable society.

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