

## Soft Systems Special Issue Editorial

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This special issue probes the practice of textiles and material-led researchers from both methodological and applied definitions of 'soft systems'. In organisational management, 'soft systems methodology' (SSM) has been used for over thirty years in the analysis of complex situations where diverse viewpoints are held across a diverse group of stakeholders and the 'problem' is undefined (Checkland 2000). SSM recognises flux as the only state of being and cautions against the solidification of elements of that flux as 'situations, problems or issues'. Rather it suggests that social reality is continuously, socially constructed and that individuals can hold and express differing perceptions of that ever-changing social reality at any one time. The focus on ambivalent individuality and subjectivity within a flux or 'liquid' paradigm of modernity (Bauman 2000) invites questions surrounding the role of materials in lived experience that are key to theories of New Materialism and Posthumanism. Concurrent explorations and integrations of technological, scientific, design and craft processes within textile and material-led systems avoid ontological permanence and move away from any preconceived understandings of textiles, fabric or cloth to examples of radical 'textilic' practice (Igoe 2021). Diverse and interdisciplinary practices that are characterised by non-linear dynamics and 'simplicity' (Kluger 2008) expose our relationally networked and liquid state and transcend the boundaries of material outcomes.

The Soft Systems Research Group, led by Anne Toomey, in the Department of Textiles at the Royal College of Art, London has been symbiotically developing and pioneering textile and material design research and curricula in this area since 2017. The group's activities are led by the following key foci;

- Explorations into the way that our soft material world resonates with the human condition to find new opportunities and solutions involving human interfaces, user acceptance and experience
- Concerns with affective and sensory material values within a technological landscape
- Developing innovative processes, surfaces, structures and soft systems to form products that reimagine our relationships with materials and recognise their simplicity
- Connect and recognise material-led perspectives drawn from studios, labs, industry, the domestic and the gallery.

The impetus for this special issue was to expand this understanding of soft systems further and to connect inter-disciplinary methodological approaches that correspond with those outlined above. The editorial team for this issue brings a range of perspectives that support the premise of the issue.

Guest editor Anne Toomey has a significant track record of interdisciplinary applied materials research, particularly for the healthcare sector. Having co-founded a design research lab that combined the laboratory with the studio in the delivery of a D-STEM approach (Toomey & Kapsali 2014), her research notably respects and integrates a range of material-led perspectives within the design and engineering process.

Sara Robertson's recent collaborative research takes the structural qualities of lacemaking augmented with programmability and smart technology to create responsive textiles. 'Lit Lace' performs familiarity for us as material crafted objects yet elicit the uncanny in their responsivity (Robertson, Taylor & Bletcher 2019)

Amy Winters' work addresses the role and presence of 'softness' and expressivity in robotics and wearable technology. Her research draws together and questions the sensory interface of the body and technology through material interaction (Winters 2020).

Elif Ozden-Yenigun's approach to material science research is one that uniquely values and unites craft-led and science-led approaches to working with nanomaterials and advanced composites. She leads an Arts and Humanities Research Council (UK Research & Innovation) funded project '*Crafting Technology for Textiles*' in collaboration with Istanbul Modern which is delivering a number of public facing workshops that invite thinking through making and production (see references).

Elaine Igoe is a design theorist concerned with how textiles and materials are understood as designed objects in our world. Her 2021 book '*Textile Design Theory in the Making*' seeks to articulate the textile design process and extend notions of textile thinking into radical textilic practice that, by its nature, transcends disciplinary or artifactual boundaries recognising the pervasive omnipresence of textile practice in lived experience.

This special issue primarily asks; How can we identify soft systems methodologies in textiles and material-led interdisciplinary research and what are its impacts? We present here a diverse range of contributions that address this. The papers selected are the work of practitioners and scholars exploring complex systems involving encounters between humans and non-humans, blurred boundaries between the material and immaterial; the subjective and objective. These are accessed and articulated through making in creative and critical methodologies and practices.

In ***Vibrant Wearables: Material Encounters with the Body as a Soft System***, Tsaknaki, Helms, Søndergaard and Felice present three projects that explore somaesthetic encounters with materials. Working with material vibrancy and in reference to Jane Bennett's *Vibrant Matter* (2010), their work conceptually troubles the boundaries between bodies and materials, setting up a human/non-human corporeal soft system. The authors explain how their embodied research practice both recognised and assumed connections between the body, and materials; those which it creates, such as blood or milk, as well as those it encounters. In transcending binarisms of soft or hard materials and recognising material vibrancy, the authors' concept of soft systems responds to the qualities of *leakiness*, *ongoingness* and *mutuality*.

In a fascinating transdisciplinary study, Sabrina Recoules-Quang discusses notions of textasis and systems in relation to textile theory through her practice in puppetry. In ***Tension and Materiality in a Textile system, a puppetry perspective***, Recoules-Quang explains the ambivalent system at play between bodies, agential materials and their environment (including other bodies and materials) within puppetry. She corresponds the systematic puppetry perspective to the systems relating to postdigital textiles. Here she describes oscillating and 'opalescent' systems of 'intellectual devices' at play using uncanniness as material and narrative as method.

Laura Salisbury's research is developing knitted wearable therapeutics for the rehabilitation of people who have experienced stroke. In ***Evaluating degrees of softness and wearability for the needs of brain injury survivors*** she describes how softness is a

central concern in this design process, requiring the subjective experience of the users to be recognised in a textile based design system. Salisbury used mixed methods to gather qualitative information from users alongside quantitative data and scaling of softness.

Amy Chen, Jeanne Tan, and Philip Henry centre their research around theories of affordance in their paper ***Affordance as a critical perspective: the role of textile production tools in e-textile design***. Chen, Tan and Henry identify the complex relations at play in the creation of e-textiles. Four affordances of textile tools are evaluated in relation to each other; design complexity, manual intervention, automation and tactile feedback. When recognised and utilised in a soft system led approach, further e-textile innovation can develop.

In ***How hands-on experimentation in mechanical textile recycling influence existing waste management systems*** Daniel Wehrli and Brigitt Egloff utilise both Checkland's SSM and Bruno Latour's Actor Network Theory in their evaluation of a 2018 project 'Texcycle' to analyse problematic situations surrounding local textile waste streams and the potential for economic and social impact through recycling schemes. Wehrli and Egloff propose a material-led approach to sorting that would develop new categories for waste materials that represents and supports the complex scenarios of reuse and recycling.

Through ***Materialising data feminism—how textile designers are using materials to explore data Experience*** Marion Lean moves the conversation of soft systems beyond the artifactual to the perception, analysis and experience of data. Exploring the principles of data feminism presented in Catherine Ignacio and Lauren F Klein's *Data Feminism* (2020) Lean brings focus and engagement to designers who are using materials to question the status quo of engagement with our digital world. She presents seven examples of practitioners' work that bring materiality to data and critically explore thinking on the current state of our data practices.

Encompassing posthuman materiality in puppetry and wearable technology; technical approaches to designing therapeutic textiles, e-textiles and textile recycling services; and data materialisation as part of a feminist understanding of systems: this special issue broadens the scope for applications of systems thinking within the field of textiles and material design.

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