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Design Anthropology
skills development

Designing interdisciplinary research for provocation, pedagogy and policymaking

Design Anthropology skills development
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In 2020 the Royal College of Art (RCA) / Future Fashion Factory (FFF) research group received AHRC funding for training in Ethnographic and Design Anthropology methods. Principal Investigator Susan Postlethwaite, Research Fellow Dawn Ellams and Research Associate Kat Thiel, are defining a new approach for practice based fashion research, putting designers at the centre of industry facing investigation, interrogating parallel fields of design research, including Design Thinking, Textile Thinking, Transition Design and definitions of Fashion Theory. The aim for the skills development training is in supporting the design and use of pre and post-FFF micro-project qualitative and quantitative data collection methods. The micro-projects are intended to provide solutions to manufacturing industry problems through Industry 4.0 and 5.0 economic theory lenses. Using a Design Anthropology approach will allow the group to examine the affect and effect of design research on both ECRs and stakeholders, iterate through qualitative data gathering, whilst questioning and understanding the value of designing research projects for impact. The goal is the development of transdisciplinary narratives for policy change, focused on the future of fashion manufacturing, particularly in a UK setting. At the time of publishing, two FFF micro-projects were completed: *Twelve Oaks Systems*, which has identified the technical and creative opportunities for 3D weave manufacturing for fashion, and GameStyle/ Lockwood Publishing which has developed an IP Framework and recommendations for the required value chain for fashion designers to engage with Gaming. These projects provide initial opportunities for the application of Design Anthropology methods and tools. Feedback from academics involved in the delivery of the training will help the FFF/ RCA research team develop our approach for future micro-projects as they are concluded. The skills development programme was designed and developed in 3 phases. Phase 1 - a series of lectures delivered by academics with expertise in Anthropology, Transition Design, ethnographies and systems thinking; Phase 2 - a series of 3 workshops to further understand the development and application of other funded project methodologies and Phase 3 - dissemination, consisting of an online publication, a podcast and a digital symposium hosted by FFF and RCA as part of the annual showcase in 2022. For this publication the findings are disseminated through an Executive Summary and 3 essays that focus on policymaking, framework design and pedagogy.

Foreword

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Part 1

Executive summary

The Skills Development for Researchers award from AHRC has enabled us to propose and plan appropriate methods to gather information about impact from Future Fashion Factory micro projects. We would aim to develop a healthy impact culture, co producing action-oriented research, generating meaning together and facilitating multiple impact subcultures.[1] Here we collide impact for firms, where there is 'a reflexive interplay between different kinds of knowledge' and our desire to 'tackle societal challenges with relevant stakeholders and publics'[2], and impact metrics used by the Research Excellence Framework (REF). We understand how the templates we have designed, the set of frameworks and methods, case study templates and checklists, and the schedule for implementation might become useful tools to support designers in information gathering for the REF and for future impact training.

1. Reed, M. S. and Fazey, J. (2021). Impact Culture: Transforming How Universities Tackle Twenty First Century Challenges https://doi.org/10.3389/frsus.2021.662296

2. Ibid.

Further Development

We are in receipt of additional funding from The Policy and Evidence Centre, Creative Clusters to develop stakeholder mapping for micro and SME designer manufacturers in the UK.

We have submitted a Network + application with colleagues from the University of Birmingham which will enable us to develop a stakeholder management plan and a roadmap for agile micro factory production in the UK developed through the socio economic lens of Industry 4.0+. This funding would also help support policy schools and immersive sandpits for designers to understand robotics/ co-bot potentials for on demand manufacturing.

Further funding was received from RKEI Strategic Priorities Fund/ Research England with co-funding from KTN/ Manufacturing Made Smarter to workshop and write a policy white paper to highlight the need for government to engage with the UK fashion/ manufacturing industry (Forthcoming to coincide with COP26).

We have also addressed ideas for new pedagogies that implement research methods training for fashion students at an earlier stage in their education. We propose a re-engagement with industry practices as necessary for an understanding of the new economic realities of designers' roles, both social and environmental. These approaches are being trialled within teaching at the RCA Fashion through the Systems Platform.

Postlethwaite, the PI on the Skills Development for Researchers project, is also supporting the BA Textiles team at the University of Leeds, as external examiner, with the revalidation of their course, in a merger with BA Fashion. The proposed new course will provide a complete training in industrial methods married to a training in design and practice design research methods for undergraduate students.

Essay 1

Design Anthropology for Fashion: Designing collaborative research methods to investigate fashion Industry challenges
— Susan Postlethwaite

Introduction

Design anthropology has unique value in a fashion context. The marriage of collaborative practice, nurturing of knowledge across interdisciplinary and intersectoral divides, and the development of collaborative research methods suggests a very good fit for design researchers' needs. Design anthropologists correspond and collaborate with people as co-creators of desirable futures and as facilitators of knowledge. RCA Future Fashion Factory researchers will claim three positions when supporting, enabling and designing the funded micro projects which are a major part of the research into industry needs. These positions are as researcher, facilitator, and co-creators in the design process for better futures. Leveraging our 'disciplinary roles' as fashion and textiles designers we will develop proposals and propositions for industry based problems. Our involvement in the field of fashion manufacturing, married to design ethnography methods and theoretical concepts from anthropology, will enable an exploration of current industry practice, the effect and affect of research methods on researchers and industry, and thus enable an understanding of the potential for modernisation and change. We conceptualise ours as an emic research practice, involving an insider understanding with a pre-existing knowledge of the language and culture of fashion design and manufacture. However, we propose fashion designers need to be more involved in the process of co-developing, applying and implementing new industrial and digital technologies in collaboration with engineers, manufacturers and other technology experts for the high-value fashion sector. We aim to support current and recent graduates into positions of researcher/practitioners, developing skills as practice based researchers. Through FFF we are developing an understanding of the skillset and educational profile needed to support these new roles and how these can be further developed in postgraduate education.

1. Design anthropology

Design anthropology seeks to link social and material practices of designing to the affects and effects that design processes and practices have on people who engage with different kinds of design outputs.

PROF WENDY GUNN

Wendy Gunn, Adjunct Professor Monash University, Australia, a leader in the field of design anthropology, is interested in how what has been learnt through research can more effectively be carried back into companies. She describes design anthropology as collaborative practice, something that is unusual and sometimes contested in anthropology, where researchers have traditionally worked alone. However, as Gunn states 'practitioners of design anthropology are not only concerned with transforming the practices of others but also transforming their own research practices'.[1] Maria Bezaitis and Rick E. Robinson suggest ongoing power struggles within academia for legitimacy of practice.[2] They recognise the design research intersection as a very appealing place for people trained in unrelated fields. Gunn proposes that the future of design anthropological research is interdisciplinary and intersectoral with a focus on nurturing knowledge, creativity and skills, and responsible innovation for a sturdier economic, sustainable, social and healthy society. Recognising the importance of the involvement of public and private sectors, engagement with universities and local and international networks, she describes the field as being 'characterized by conceptual reconfigurations, disciplinary dialogues, interdisciplinary research, multidisciplinary teams, and transdisciplinary practices involving collaborative methodologies and mixed methods'.[3] Future Fashion Factory (FFF) delivery is made up of 6 rounds of funding for industry partners to apply for support from Universities to investigate solutions to industry facing problems. These micro projects are funded across 3 tiers, proof of concept, proof of market, and industry challenge funding. As such, design anthropology provides a very useful lens for Royal College of Art (RCA)Fashion/Future Fashion Factory

1. Gunn, W. (2020). Design Anthropology in Europe. In *Oxford Research Encyclopedia of Anthropology* Oxford University Press.

2. Bezaitis, M. and Robinson, R. E. (2011). *Valuable to Values* in Design Anthropology. Object Cultures in the C21st. Austria: Springer-Verlag/Wien.

3. Gunn, W. (2020). Design Anthropology in Europe.

researchers when developing their post micro project investigations; enabling us to develop post project research methods to study the affect and effect of these projects on both industry and researchers. Otto and Smith suggest that there appears to be a genuine affinity between design and ethnography as processes of enquiry and discovery, including the iterative way processes and products are conceived of and the reflexive involvement of researchers and designers. Intervention, acting on the world, collaboration, critique, anticipating the future and styles of knowing are central to both disciplines.[4] This includes how design anthropologists/researchers are able to correspond and collaborate with people as co-creators of desirable futures and be the facilitators of knowledge and meaningful practices that transform the present. Design anthropology involves working in multidisciplinary teams, with members alternating between being researcher, facilitator, and co-creators in the design process. RCA FFF researchers occupy all three positions when supporting, enabling and designing micro projects, and interrogating the outputs. We propose that we might work in a space where we leverage our 'disciplinary roles' as designers to 'engage in the co-creation of new solutions'.[5] Continuous involvement in the field of fashion and textiles manufacturing with a 'reframing of field and design practices' throughout the process[6] provides us with a space, as Gunn intends, to use anthropological methodologies and theoretical concepts to support 'future-making' practices. This is the intention of the Future Fashion Factory (FFF) AHRC funded project, where the disruptive influence of design on current industry practice is being examined to understand the potential for change. **Dr Jo Aiken** suggests that we can ask people what they think of our ideas of how to innovate, but cautions against using hypothesis testing or prototyping to validate our own opinions. **Dr Teresa Domenech** strongly suggests we examine our own blindness and biases, two key tenets in anthropological research. Therefore, we intend not only to explore and understand the problem of bringing our expertise to project development, in a field where we bring substantial knowledge, but also a conscious recognition and examination of our views and biases within the research space. **Aiken** suggests ours as an emic perspective, involving an insider understanding with a pre-existing knowledge of the language and culture of fashion design and manufacturing.

4. Otto, T. and Smith, R. C. (2013). Design Anthropology: A Distinct Style of Knowing. In Design Anthropology. Theory and Practice. Eds Gunn, W. Otto, T. Smith, R.C. London: Bloomsbury.

5. Banerjee B. (2020). Innovating Large Scale Transformations. In: *Design for Policy*. Edited by Christian Bason. Oxfordshire: Gower Publishing.

6. Kjærsgaard, Mette Gislev, and Ton Otto. (2012). "Anthropological Fieldwork and Designing Potentials." In *Design and Anthropology*, edited by Wendy Gunn and Jared Donovan, 177–191. London: Routledge.

2. Design anthropology — the future

Through the FFF research project, the RCA is working with industry partners across two themes - Theme 1. Digitally connected and sustainable processes and Theme 2. Digital communication and data analytics, assessing from a designer's perspective how these new technologies should be configured and implemented as they are developed. It was proposed the integration of Theme 1 and Theme 2 technologies would have a disruptive influence on the way that business in fashion design is currently done. As Gunn suggests, design anthropology can 'contribute to the design and critique of emerging technologies'.[7] This is where we position ourselves in relation to FFF projects in wanting to critique and hold to account technological advances, or the lack of them, but also to enable designers to be involved in the development of new tools and systems and be able to fully engage with industrial processes.[8] Our approach is in developing ways in which designers can be more involved in the process of applying, co-developing and implementing new industrial digital technologies in collaboration with engineers, manufacturers and other technology experts for the high value fashion sector. Design anthropology seeks to instigate change, we aim to understand through funded micro projects how this might be enabled. Developing aspects of industrial policy will then be a key focus of our research group, and aligns to ideas of futuring explored by **Douglas Atkinson** in the delivery of his Contemporary Ethnographies and their Controversies lecture (30.11.20) where he explained ideas of anticipatory ethnography and futuring. **Aiken** also mentioned futuring as an approach to interviewing to generate insight. **Kendall Robbins** endorsed ideas of future mapping in Theory of Change scenarios as useful to our research.

7. Gunn, W. (2020). Design Anthropology in Europe.

8. Postlethwaite, S. (2020). *Investigating Creative Processes and Pedagogy in the UK: Fashion Thinking*. Fashion Practice Journal. London: Taylor and Francis.

3. Design anthropology — collaborative ethnography

Denis Weil, Dean at IIT Chicago, Institute of Design, sees design as a value driving discipline.[9] He champions the social impact of design, for social and public innovation and proposes designers should give up an idea of authorship to be integrators and facilitators. He suggests that impact equates to the delivery of hopes for the future, and proposes designing in teams, delivering, for impact of intent, a range of impacts. In recognising this, we will critically interrogate our own practice taking as a potential model renowned American anthropologist Professor Anna Lowenhaupt Tsing's approach in *The Mushroom at the End of the World* as discussed with **Dr Marta Gasparin**.[10] Here Tsing sets out a collaborative ethnography model with multiple researchers working independently, pooling knowledge, with a common thread of interest and sharing. Questions and approaches are designed through-out the process as appropriate, where the methodology is about shared insights, tools, practices, discussed and adapted pre, post, during the wider investigation. However, we are also conscious that Alison J Clarke while proposing ethnography can provide a jumping-off point for investigating the future, asks *"How can design anthropology avoid descending into an aggregated field of participatory methodologies loosely premised on a critical notion of 'the social' that assumes some inherent and automatic agenda of innovation, just through the mere inclusion of a participatory methodology"?*[11] Design anthropology encourages critical reflection and reflexivity by team members[12] and thus we need to continually interrogate our practice as the project develops. This has been reinforced by the training where a number of academics have encouraged us, as a team, to continually reflect together, an idea of reflection in action as espoused by Schon.[13] As a community of researchers, we understand the concept of communities of practice.[14] **Gasparin** reinforced ideas of legitimate peripheral participation with the integration of theory and practice within a framework of the social world, including the world of learning. **Robbins** reminds us of Borton's self-reflection

9. Scratching the Surface (2021). Podcast episode 173 - Denis Weil. https://scratchingthesurface.fm/173-denis-weil

10. Lowenhaupt Tsing, A. (2020). The Mushroom at the End of the World: On the Possibility of Life in Capitalist Ruins. New Jersey, USA: Princeton University Press.

11. Clarke. A. J. (2016). *The New Design Ethnographers 1968-1974. Towards a Critical Historiography of Design Anthropology*. In Design Anthropological Futures, edited by Racheal Charlotte Smith, Kasper Tang Vangkilde, Ton Otto, Joachim Halse and Thomas Binder. London: Bloomsbury Academic.

12. Gunn, W. (2020). Design Anthropology in Europe.

13. Schon, D. A. (1987). Education the Reflective Practitioner. San Francisco: Jossey- Bass.

14. Lave, J. and Wenger, E. (1991). *Situated Learning: Legitimate Peripheral Participation*. Cambridge, UK: Cambridge University Press.

framework as used in healthcare settings, Gibbs' reflective cycle[15] and Kolb's experiential learning cycle[16] as frames for reflexivity in research. We will develop strategies for how we might engage with each other as a research group using ideas of Team Ethnography as proposed by **Gasparin**, interviewing each other as leaders of the various micro projects and the wider FFF project, thus strengthening our understanding as a team. Acting as a group, working together **Aiken** proposes these layers of interviews will build validity into the research, an ethnography of ethnography. Time is an important aspect of design anthropological study that will inform our work. We will use multiple different time frames. Practices of sustainable future-making go beyond future trends and projections (**Atkinson**), making sense of what is emerging in the field is the job of the researchers (**Gasparin**). Practitioners of design anthropology therefore attempt to build partial connections between the past, present, and future to enable participants involved in collaborative research to *reflect-on-the-future*, while respecting multiple temporalities belonging to different peoples involved within a research process.[17] In making the case for qualitative data to inform policy making Clare Craig, Provost of Queens College Oxford discusses the temporal aspect of qualitative rather than quantitative data gathering, stressing the relevance of narrative over time, its timeliness, assumptions and the ability in communicating uncertainty. Collecting from multiple sources, with multiple models, that can be used to develop a consensus view, she suggests recognising temporal flows in evidence gathering.

15. Gibbs G. (1988). Learning by Doing: A guide to teaching and learning methods. Further Education Unit. Oxford Polytechnic: Oxford.

16. Kolb, D. A. (1984). *Experiential Learning*. Experience as the Source of Learning and Development. New Jersey: Prentice-Hall Inc.

17. Wilson, J. P. (2008). "Reflecting-on-the-Future: A Chronological Consideration of Reflective Practice." In: *Reflective Practice: International and Multidisciplinary Perspectives 9* (2): 177–184.

4. Design anthropology — practitioner/researcher

The RCA/FFF research team is interested in mutual learning, that is, learning and working in partnership, in complementary relationships with other academics, industry partners and stakeholders. Design anthropology is concerned with learning and pedagogy and would appear to support ideas of the practitioner/researcher as developed by Dr Laurene Vaughan. As Vaughan proposes, as researchers we are claiming the position of 'advanced knowledge workers, able to 'perform as knowing subjects, able to address and engage in complex and diverse problems' in an open system that is 'networked, responsive and expanding'.[19]

The designer-practitioner-researcher is a professional, 'able to understand and articulate the value or challenges of technical acts, and to place these in broader socio-cultural, technical and economic contexts'.[20] We also understand the conception of a community of practice as 'a critical community of inquiry' as recognised by Richard Blythe and Marcelo Stamm.[21] They suggest it is a 'basic premise of practice-based design research that each practitioner has to develop and test a distinctive individual range of ways to conduct the research'.[22] They claim that it is not through repetition, imitation or formulaic patterns but rather ongoing 'adaption, mutation and recasting' that can support practice-based methods. Thomas Markusen suggests that in design research it is common to 'distinguish between guiding philosophies, conceptual frameworks and ideas borrowed from other disciplines 'which are then used and applied to design. Design anthropology is inherently interdisciplinary and requires rigour, engaging within multiple worlds through careful, very precise attention to practices of inquiry. **Atkinson** recognises this position, as does **Domenech** who proposes the authoring of research by designers, informed by practice. We have already employed ideas of communities of practice when developing and drawing together the academics for this programme, and

19. Vaughan, L.(2019). *Designer/Practitioner/ Researcher*. In. *Practice-Based Design Research*. Edited by Laurene Vaughan, 9-17. London: Bloomsbury Visual Arts.

20. Ibid.

21. Blythe, R. and Stamm, M. (2019). *Doctoral Training for Practitioners: ADAPTr (Architecture, Design, and Art, Practice Research) A European Commission Marie Curie Initial Training Network*. In *Practice-Based Design Research*. Edited by Laurene Vaughan, 9-17. London: Bloomsbury Visual Arts.

22. Ibid.

we will be supporting current and graduate students to develop careers as research/designers, many pre-PhD whilst employed as Research Associates on the FFF micro projects as well as enabling colleagues to be project leads.

5. Design anthropology — Engaging with government for Impact

A research impact is a record or otherwise auditable occasion of influence from academic research on another actor or organisation,... it is not the same thing as a change in outputs or activities as a result of that influence, still less a change in social outcomes.

LSE POLICY GROUP 2011

Gasparin has proposed we consider what our impact aspiration might be for the project. Since starting the FFF research I have been appointed to Research Excellence Framework (REF) 2021 panel 32 Art and Design as a panel member. The importance of impact as recognised in the Research Excellence Framework has come, in many instances, to be read as demonstrating impact through government, as policy change. According to the Westminster Higher Education Forum Evidence-based policymaking - next steps for academic and industry research in policy development, 4th December 2020, the REF is driving standards in research. Chris Webber of the Open Innovation Team and Louis Coiffait, senior policy advisor OIT, have claimed REF impact case studies as making the most impact on UK Government, and they recognise an increase in industry members on academic boards. Lobbying/knowledge brokering and fitting outcomes of research to government agendas is understood to be a competitive space and there is a need to understand parliament, civil servants and political pressures. Parliament and government work in ways that are often opaque to academics and understanding protocols, procedures and systems is of huge value in accessing the right

people through the right channels (**Dr Josh Siepel**). The language of academia is not necessarily the language of policy or government so understanding how to clearly communicate is something the research group needs to learn. We have understood the necessity of developing relationships with multiple parliamentary researchers and teams, and hope to engage with the Open Innovation Team within the Cabinet Office and UPEN. As suggested in the Institute for Government Report the challenge for parliamentary researchers is finding expertise to support policy change but also being ready to engage with those researchers in an agile and focused way. [25]

Academic work can influence business or government elites through direct contact between decision makers and researchers through remote digital influencing by publications, blogs, podcasts and other channels.[26] But it is often the case that some intermediaries can deploy university knowledge without ever assigning credit, thus the necessity to cultivate stakeholder networks, civil servants, gatekeepers and the value of intermediaries (**Siepel**). The problems of proving impact are well documented by Dunleavy and Tinkler. They propose intermediaries as useful to access government/ parliament and we have already begun to engage with professional bodies, NGOs and other stakeholders. We are aware we need to develop our social media presence but also develop relationships with media close to the Fashion Industry (**Domenech**).

The legitimation of narrative as a tool not only to strengthen, but also recast the importance of humanities research, has been a long-held aim for art and design disciplines trying to engage with impact agendas (Dunleavy and Tinkler 2021). As a member of the REF 2021 sub panel 32 Art and Design, I will be in a unique position to understand how impact is measured, the case for the exercise, and consider care, diligence and fairness claimed for the process of peer review, where Dunleavy and Tinkler are amongst critics who see the REF's claim to evaluating impact as almost impossible to prove. The Stern report called for REF panels to take more account of whole department external impact and environment statements rather than individual research outputs.[27]

25. Institute for Government Report (2019). https://www.instituteforgovernment.org.uk/publications/whitehall-monitor-2019

26. Dunleavy, P. and Tinkler, J. (2021). *Maximising the Impacts of Academic Research*. London: Red Globe Press.

27. Stern Report (2016). https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/541338/ind-16-9-ref-stern-review.pdf

Particularly important as parliament, extraordinarily, do not have access to academic journals (**Siepel**). Policy papers need to be short, clear, straightforward and easy to read because the policy world moves very quickly, and researchers need to get policy papers into the world quickly too. Policy priorities change rapidly, communication is key as is media engagement and finding the right people to speak to (**Siepel**). I have had additional training in how to access government as part of my Policy Fellowship with the Royal Academy of Engineering and TCC Training - Institute for Government's Engaging with Policymakers.

Design anthropology concerns itself with different scales of intervention from products and services to policy. However, Gunn proposes that in collaborative research projects with the public and private sectors design anthropologists are often dealing with 'emergent situations', engaging with peoples and places where a problem is not predetermined. Design anthropology is thus a move away from a problem-oriented approach.[28] Our research will focus on the context where solutions have been proposed that have then been abandoned or not followed up on once recognised and accepted by government, therefore as inquiry first, rather than a problem.[29] Gunn suggests that future collaborations between universities and the public and private sectors will create sustainable growth, while at the same time raising awareness of the long-term benefits of such collaborations in the private and public sectors. She states that firms have much to gain from collaborations where they can provide training, skills and develop networks for small and medium enterprises, promoting socially and environmentally sustainable business for active citizenship and sustainability.[30] This is a key area of investigation for FFF and an idea reinforced by Domenech when she discusses an economy which is both restorative and regenerative by design, and proposes that through her research she believes it is possible to decouple economic growth and wellbeing from consumption of finite resources (**Domenech**). In a policy context, Junginger recognises that design as problem solving is useful suggesting reframing policymaking as designing. She says this would aid policy makers in 'envisioning desirable futures and enable them to develop strategies to realise these visions'.[31]

28. Gunn, W. (2020). Design Anthropology in Europe.

29. Junginger, S. (2020). *Towards Policymaking as Designing: Policymaking Beyond Problem-solving and Decision-making.* In Design for Policy Edited by Christian Bason. Oxfordshire: Gower Publishing.

30. Gunn, W. (2020). Design Anthropology in Europe.

31. Junginger, S. (2020). *Towards Policymaking as Designing: Policymaking Beyond Problem-solving and Decision-making.*

How can we get commitment from stakeholders to engage in a change process and what is a realistic range of behaviour change? **Domenech** proposes that in addressing ideas of policy change, value and impact we need to ask - of value to whom? What values are held in common across disciplines? What impact might we want to see, how might we follow up, measure, and what indicators for impact might we use? As proposed by Banerjee, in design anthropology, policymaking as designing begins with an inquiry rather than a problem, through transdisciplinary and trans agency co-creation where members leverage their disciplinary insights but transcend their disciplinary roles to engage in co-creation of new solutions, processes and epistemologies.[32] He suggests the co-creation of details of concepts, turning them into tangible interventions, roadmaps and pilots. Communicating the story, the vision, the plan and the roadmap to the additional stakeholders who need to engage within the frames of their own motivations. This is an idea supported by **Robbins** when she proposes we adopt Theory of Change methods suggesting we can work backwards from evaluation of the existing, through managing complexity, developing a compass to a complex map and a shared understanding between stakeholders' communities and participants. In explaining our work to others (and each other) planning for interventions and thus developing a strategy. Using these methods, we can plan, collect evidence, generate assumptions and biases, define our intended impact, articulate long-term outcomes (futuring) and map our intermediate outcomes - backwards. However, the research group have also understood that we do not have to collect all our own data for evidence-based policymaking (**Siepel**/**Domenech**) and have been introduced to a number of databases and trustworthy sources from which to draw statistical evidence to support the writing of white papers (see appendix).

It is clear we need to be aware of the risks of designing people out of the process and in the concluding summary. In their chapter Technological Disruptions, GVCs, and Industrial Policy, David Bailey and Lisa De Propris suggest it will be building on existing industry and enabling them to modernise through access to new technologies that will then enable

32. Banerjee B. (2020). Innovating Large Scale Transformations.

the embedding of new micro businesses and SME's.[33] As we are developing a large and expanding stakeholders database, **Robbins** has suggested we need a stakeholder management plan. (See recommendations A Possible RCA stakeholder management group). We recognise the need to build consensus of scope and understand which stakeholders need to be there, learning from the research challenges in order to get everyone involved in the development of a road map. Then we can roll out success at a wider scale i.e. we understand the need for scaled intervention first. There is therefore a clear requirement for a strategy document beyond our report and recommendations. The second part of this document lists research frameworks and templates derived from [Dr Dawn Ellams](#) essay Framework design for impactful design-led industry R&D activities within Future Fashion Factory. We need to identify deliverables, and what they are, as a fluid process that is constantly updated. We have understood that it is often the media that shapes policy. Evidence isn't everything - public opinion, new events, politics all shape government attention (**Siepel**). We will therefore engage more with social media and other platforms to leverage attention for our ongoing and emerging findings. We have also understood the need to develop relationships, engaging with government at different levels. From local to national, as well as critical friends and campaigners, civil servants, policy makers and other stakeholders (**Domenech / Siepel**). **Domenech** also suggests we need to be aware of disruptors and gatekeepers throughout the research process recognising who they are and the agendas they are bringing to the research space.

33. Bailey, D. and De Propris, L. (2020). Technological Disruptions, GVCs, and Industrial Policy. In: *The Oxford Handbook of Industrial Policy* edited by Arkebe Oqubay, Chistopher Cramer, Ha-Joon Chang, Richard Kozul-Wright. Oxford: Oxford University Press.

6. Design anthropology — economic theory

The undergoing logic from a policy perspective is economic (**Siepel**). Government wants to deal in high value activities. Thus, we have understood the importance of engaging with economists to make, not a singular business case, but one from multiple perspectives. **Domenech** proposes an economy that is restorative and regenerative by design and suggests a reorientation to ecologies, away from clusters, to incorporate other perspectives, matters of concern and values.[34] **Robbins** proposed ideas of degrowth, a term used for both a political, economic, and social movement as well as a set of theories that critiques the paradigm of economic growth. Dr Patsy Perry, Dean of Fashion at Manchester Met, explains the social and ecological harm caused by the pursuit of infinite growth and Western "development" imperatives in the fashion industry stating, 'increasing garment lifetimes (through repair and re-use) is one of the most effective means of reducing their environmental footprint and slowing down consumption of new clothing. Circular fashion means less production of new garments, but what about the impact on the millions of people, mostly women in lesser developed countries, who make our clothing?'[35] Thus underlining the Wicked Problem inherent in 'the trade-off between meeting environmental goals and supporting some of the world's most vulnerable workers has never been more apparent as what we saw during the COVID-19 pandemic when stores and factories shuttered and garment workers lost out on their meagre wages as big brands refused to pay suppliers for orders that had already been produced.'[36] Bailey and De Propris recognise signs that the global economy is deglobalizing, and propose a leveraging of an industrial legacy with 'frontier technologies' might be taking place.[37] They suggest that in order for this to happen 'an active industrial policy is required'. There are implications, they say, for 'a transformative industrial policy' to connect embedded industries to new technologies, repopulate embedded industry with new firms and start-ups, use regulation and procurement to create new markets and allow for exploration of new radical markets.

34. (Latour cited by Domenech)

35. Perry, P. (2021) Manchester Metropolitan University https://www.mmu.ac.uk/artshumanities/news/story/?id=13143

36. Rittel and Webber as cited by Robbins: Rittel, H. and Webber, M.M. (1973). Dilemmas in a General Theory of Planning. In: Policy Sciences, Vol. 4, No. 2, pp. 155-169. Amsterdam.

37. Bailey, D. and De Propris, L. (2020). Technological Disruptions, GVCs, and Industrial Policy.

They see the potential for the design and manufacture of new, radical products, adoption of new business models, experimentation of new product-service innovation, the exploration of new customer-centred innovations. Bailey and De Propris also suggest that co-location between innovation and production is likely to emerge where there might be a scaling down of production. Firms may adopt new business models they propose, to co-innovate with consumers. They state that this new paradigm requires economic actors - nations, firms and workers- to move from low value to relatively high value activities in global production networks, and encourage governments to embrace value chain oriented policies that strategically target specific industries where growth is favoured.[38]

The Alliance Project Report examined the potential for repatriating textiles (and fashion) manufacturing to the UK to understand the opportunities for growth in the UK's textiles (and fashion) sector(s), and the barriers that would prevent the sector(s) realising their true growth potential.[39] The report identified a range of recommendations which the government accepted in full. It parallels much of what Bailey and De Propris advocate for, suggesting there is market failure in the UK due to decades of offshoring, and recommends reshoring in high value product development. **Domenech** sees workforce precarity informing lack of investment in tools, the weakness of the short-term economic situation, time poverty and non-standard processes as barriers to innovation in small scale manufacturing.[40] Dr Patrizia Casadei and **Professor Simona Iammarino** see the new restriction of free movement of people as impacting the fashion manufacturing sector in particular.[41] They recognise concerns 'reinforced by a negative perception of domestic manufacturing, which most retailers and designers define as expensive and characterized by a lack of firms endowed with adequate technical skills, specialist expertise, machineries, and capable of producing in small batches.'[42] All report an ageing workforce as problematic and Alliance suggested it as an urgent failure of UK Government 'with a lack of skills provision and the image of the industry – which is prohibitive to new recruits'.[43] Alliance recommended Government support and trade body sponsorship is necessary to overcome funding gaps and to accelerate the connectivity and growth.

38. Ibid.

39. The Alliance Project Report. (2014). https://s3-eu-west-1.amazonaws.com/ukft/wp-content/uploads/2018/05/13115441/Repatriation-of-UK-textile-manufacture-The-Alliance-Project-Report.pdf

40. Croxford, B. et al (2020). *Foundries of the Future. A guide for 21st Century Cities of Making*.

41. Casadei, P. and Iammarino, S. (2021). Trade policy shocks in the UK textile and apparel value chain: Firm perceptions of Brexit uncertainty. Journal of International Business Policy.

42. Ibid.

43. The Alliance Project Report. (2014).

The project strongly recommended that the private sector continue to lead solutions for growth, but that this could only be enabled with Government's continued support. Integration between technical textiles, fashion manufacture and other sectors such as medical, civil engineering, industrial materials, automotive and aerospace would support ambitions to grow the UK's advanced manufacturing capability Alliance says. The proposal recognised that industry, working with government, universities, and other public/private support agencies should deliver a physical space for industry that will drive innovation and excellence. This would enable and foster networking and collaboration between industry and globally recruited 'world-class' talent from the disciplines of Design, Fashion, Manufacturing and Engineering.[44] Both the economists and Alliance recognise that place-based approaches will enable regions to thrive and this has been recognised in the current UK governments Levelling Up strategy.[45] Much of this positioning is also recognised by **Domenech** through her research in the Cities of Making project, where she proposes there is a necessity for a fluidity of information transfer, moving information across the barrier from design to contractor to designer, where through research there can be a co creation of problems definition and solutions. She also proposes authoring by designers, informed by practice.[46] **Casadei** and Iammarino see policy support as crucial to help the sector which they propose might face increased domestic demand and a drastic reduction in links to international supply chains.

44. Ibid.

45. New levelling up and community investments (2021). https://www.gov.uk/government/publications/levelling-up-fund-prospectus

46. Croxford, B. et al (2020). *Foundries of the Future. A guide for 21st Century Cities of Making*.

'The development of new skills and capabilities, the adoption of more innovative machineries and equipment, the upgrading of product quality and standards, and a deeper integration in some production phases of the value chain – such as sampling and prototyping – would help the sector to face the big challenges ahead in European and global markets, and to boost the confidence of domestic retailers and designers.'[47]

They recognise that in trying to build a change in the economic landscape where the state acts as 'a facilitator' enabling upgrading of firms (see also Mazzucato 2018, Bailey and De Propris 2020, Rayworth 2018, Kelton 2020) and in building a more 'societal' viewpoint on international trade they propose that survey research can be a particularly useful tool.

47. Casadei, P. and Iammarino, S. (2021). Trade policy shocks in the UK textile and apparel value chain: Firm perceptions of Brexit uncertainty.

Conclusion

Using the Alliance Report as a catalyst for our research inquiry, the FFF/RCA Research Group will use a mixed methods approach to develop the micro projects, and plan further outputs for key deliverables of the Future Fashion Factory project. Understanding our position as researchers alternating between being researcher, facilitator, and co-creators in the design process we will leverage our roles as designers to engage in the co-creation of new 'future-making' practices, investigating the disruptive influence of design for current industry practice. Wanting to critique and hold to account technological advances, our approach will involve developing ways in which designers can be more active in the process of applying, co-developing and implementing new industrial technologies. Design anthropology seeks to instigate change, and developing aspects of industrial policy is a focus of our research group. We will co-develop a collaborative model with multiple researchers working independently, pooling knowledge, with common interests and sharing best practice as core to our work. Thus recognising a communities of practice approach as we support current and graduate students to develop careers as researcher/designers. The core team will also develop strategies for how we might engage with each other as a group, investigating ideas of team ethnography, interviewing each other as part of our reflexive practice building.

As we recognised in our original funding application the challenges and potential risks involved in this project, post the training, will be the further development and application of our approach, in parallel with short, live projects where industry partners are wary of our methods. Concepts of trust when working with interdisciplinary and transdisciplinary teams has been brought to the fore in the training, alongside the necessity for transparency (**Siepel**) acknowledging contestation and contradiction (**Aiken**) and using trusted sources when not collecting our own data (**Siepel**). Ideas of ethical practice need to remain at the heart of our process (**Aiken**). We suggest devel-

oping strong, transparent relationships with industry and academic partners at the start of micro projects to ameliorate this problem. Building capability and capacity in parallel, we will be clear about our developing expertise. By sharing the necessity for an iterative approach, and for rigour in the dissemination of research outputs, *we aspire* (**Aiken**) to measuring potential impacts in academic, policy and industry contexts or at least understand if this is possible. As Gunn points out 'Despite the advantages of collaborative research, participants (including researchers) often have a fixed idea of what collaboration is, how it should happen, when it should occur, and what the outcomes should be'.[48] She suggests distrust of external peer judgement and management conditions influencing choices of research dissemination play a part. Certainly, we have become aware of how lack of trust can be manifested in certain interactions with industry; the narratives of firms' economic success are problematic when the premise of the micro projects is 'solving industry problems'. We are also aware of hierarchies within the academic context of our project and the problems of presenting, and representing, the value of fashion designer-led input, whether from early career researchers or as micro or small businesses, alongside scientific and manufacturing industry research. Gunn suggests design anthropology can inform research conducted across the university and private sector and be attuned to what remains 'unnoticed—and/or emerging research issues—perhaps unarticulated but present.'[49]

We are fully aware of the problems of *analysis paralysis* where openness and flexibility are required to co-create and propose solutions with all the actors involved, setting the boundaries to the problem and being careful not to produce too much data that it becomes impossible to act on. We understand that there will not necessarily be a single business case and will need to fully engage with stakeholders continuing to identify them and build our network. Also understanding the necessity to clearly communicate across multiple different channels - with industry, business, academia and government, in their languages. Both **Siepel** and Westminster Higher Education Forum emphasise communicating conclusions clearly and proposing solutions within existing systems. They suggest using multiple sources and multiple models to develop a consensus view whilst un-

48. Gunn, W. (2020). Design Anthropology in Europe.

49. Ibid.

derstanding flows in evidence gathering. We understand the necessity to interrogate our own assumptions and how we as researchers are interpreting results. It will be important to understand our biases and the necessity to propose a realistic range of behaviour changes for industry.

Essay 2
Design methodologies and theoretical positioning for fashion pedagogy enhancing future-making practices — Kat Thiel

"If you want to teach people a new way of thinking, don't bother trying to teach them. Instead, give them a tool, the use of which will lead to new ways of thinking."

BUCKMINSTER FULLER

Fuller's quote made me question my hard stance on design product and has rekindled a love for the object as change maker. With tools comes creation, be that in a cognitive, digital or physical context. Fuller's radical and perhaps damning view on teaching here is the starting point for a reflection on the state and role of pedagogy in fashion. How can our use of new tools, methods and theories guide us to diverse and generative practices? I will look at barriers to new pedagogies and inspect some of the methods and frameworks shared by our programme speakers.

The term pedagogy, while referring to the theory of how knowledge is imparted, is also ascribed to the teaching of children whereas andragogy is distinctly describes adult education as pointed out by **Joel Gethin Lewis**. Fashion education happens in many contexts and not solely in Higher Education and is informed by many models and experiences. Taking this prompt to heart, I will hereby begin referring to the following as transitions in education rather than assigning them explicitly to a specific age group.

Comfort zones

Fashion is an inherently material, industry adjacent practice, which has not changed significantly since its inception as an academic field.[1] Its education is still deeply influenced by practices and beliefs that no longer serve the industry and the practitioners within it. Yet the foundations of most teaching practice have not changed to align with new opportunities and demands. In this section I interrogate some of those beliefs and evaluate their impact. Before we can implement the use of new tools and methods we need to inspect some long-held beliefs and how they have come to be barriers to change.

Sustainability

Fashion has been remarkably untouched by many popular design theories (see Appendix 3) despite its ongoing reckoning with its global environmental and social impact. Although vast, the theory produced from sustainable enquiries in the field of fashion frequently leaves students and designers with a sense of dread.[2][3] Faced with an endless stream of overwhelming information that points to the detriment the industry has caused and continues to cause, students find it hard to reconcile their interest in fashion with the practice of making it - a phenomenon I refer to as studio depression. Acknowledging this emotional response and reflecting on frustrations can help us articulate responses to a problem space, this is true for students and teachers alike as we have evidenced in previous workshops at conferences in Borås (Breaking the Script - Fashion Critiques and Conversations Thoughts in Progress, Outskirts 2017)[4] and online at the Fashion Multilogue (The educator - gatekeeper or enabler, Outskirts 2020)[5] that focussed particularly on frustrations and institutional barriers to innovation and progress as well as many iterations of *Discourse - a tool for debate*, developed by Chelsea Franklin and tested by Postlethwaite, Thiel and Franklin at ISDAR 2019

and with numerous student groups at RCA.[6] Tonkinwise has, on more than one occasion, pointed to the fact that guilt has played a substantial role in the drive to reroute design's activities from a material category into a service activity,[7] a tendency feasible in many design schools in the western world. This is mirrored in the studio where fashion students who are naturally attuned to what is happening around them are given little help in understanding the complex interconnectedness of systems and how fashion falls within those. It is no surprise then that they struggle to understand how they can affect change when presented with the same tools and practice models that have led to those problems in the first place. So what are those tools that we need to put in front of students to inspire new thinking? To fully comprehend making practices and their effect on the world, the tools we deploy should be cognitive as well as physical. This includes literacies in market logics, ecological thinking and design methods as well as competencies in new technologies and alternative industrial processes to apprehend all aspects of a making practice. Our engagement as researchers for design-led interventions as part of Future Fashion Factory makes this direction explicit but needs to be expanded on so that findings can be directly folded back into the curriculum.

1. Postlethwaite, S. (2020). *Investigating Creative Processes and Pedagogy in the UK: Fashion Thinking. Fashion Practice Journal.* London: Taylor and Francis.

2. Design Council. (2021). Beyond Net Zero: a systemic design approach. Report.

3. Postlethwaite, S., Thiel, K. and Lean, M. (2020). *Discourse: Debating the future of fashion design.* Fashion Colloquium. Disruption & Innovation pathway, ARCH College of Design & Business, Jaipur.

4. ten Bhomer, M., Hoette, R., Pollmann, A., Postlethwaite, S. and Thiel, K. (2017). Breaking the script. In: Thornquist, Clemens and Bigolin, Ricarda, (eds.) Everything and everybody as material: beyond fashion design methods. Borås, Sweden: The School of Fashion and Textiles, RMIT University and The Swedish School of Textiles, University of Borås. pp. 226-231.

5. ten Bhomer, M., Hoette, R., Pollmann, A. and Thiel, K. (2020) The educator: gatekeeper or enabler. In: Digital Multilogue on Fashion Education; 25 Sep 2020, Held online. (Unpublished)

6. Postlethwaite, S., Thiel, K. and Franklin, C. (2019). Workshop. *Discourse: Debating the future of fashion design. RCA/ISDAR*

7. Tonkinwise, C. (2017). Cameron Tonkinwise discusses Transition Design. YouTube. Online.

Hierarchy and scale

While not directly moving fully into a service discipline, HE in fashion has adopted a model of teaching which is more and more removed from industrial, large scale production. McRobbie traces this back to fashion's active renunciation of its industrial roots in favour of building a reputation among other creative fields, particularly fine art, from the 60s.[8] Today this trend continues through the dissociation from the environmental impact of mass production which has conversely led to further cementation of one of the discipline's most distinct features: hierarchy. The withdrawal from industrial engagement at education level suggests a problematic elitist approach as it conveys unrealistic expectations about career prospects and signals that we can only affect change on a small scale. This may be true to some extent - as expressed in movements such as localism described by **Kendall Robbins** - but the active aversion to the problem spaces of mass-market production and over-consumption completely rules out or discourages design-led intervention in this field. Arguably then, the agency and reach conveyed to university-educated fashion designers extends to bespoke and luxury markets but generally ignores mass market and volume production entirely. Offering better design only at upmarket prices makes design innovation attainable for a small, affluent proportion of society but will not address the mass market and rampant consumption fuelled in other parts of the industry. Unless we start challenging the notion of scale, growth and hierarchy - wherein micro is desirable and macro inherently bad - we also limit our agency to affect change on a large scale.

Fashion designers are taught to make for idealised, bespoke audiences. Sustainability is no exception in so far as that, what is ethical today is no doubt for the few and not the many.[9] Despite large numbers of design students exploring identity politics, gender, race, size and other forms of personhood, if we fail to address the hierarchies in the studio we will continue to further cement fashion's obsession with power structures.

8. McRobbie, A. (1998). British Fashion Design: Rag Trade Or Image Industry?. Routledge.

9. Benson, S. (2021). If Gen Z killed fast fashion, why is fast fashion still booming?. [online] Dazed.

Challenging the icon status of designers is one element of this complex internal structure. Proprietary structures are counter intuitive to shared values and productive discourse. The blanket assumption that students still desire to become siloed geniuses fundamentally disregards the prominent re-orientation of Gen Zs attitude towards work and authorship as well as burgeoning changes within the industry towards distributed, networked and flexible economic structures built on collaboration and pooled resources that can help micros and SMEs survive in this competitive market reality.

It is important to highlight that depending on their personal comfort zones and capacities, educators too, and not just programme structures, can act as gatekeeper or enabler of change. Barriers to knowledge, tooling and technologies (institutional and individual) inhibit the agency of educators to, in collaboration with their students, expand the fashion field by introducing new models and tools.[10] Justifying HE is increasingly difficult in a climate of significant budget cuts and in which students find stimulating input online, where culturally relevant courses, talks and discourses are advertised to them on major social media platforms. This has further increased during the pandemic and is helped by easy to share, taggable content. This infosphere of public, and often free, education is where discipline relevant information and active exchange proliferate, offering easy access to a community of like-minded people, professionals and industry experts that traditional institutions increasingly fail to provide.

The divide between a stagnant curriculum and a deeply felt need for change is what Fry calls a "discipline in error",[11] describing how codified behaviour, as well as institutionalised directions, are fundamentally at odds with the belief system of future generations. This cognitive dissonance rings true for fashion and is held by several factors. One of those has again to do with hierarchy. Crilly describes design fixation as the phenomenon marked by mono-methodological approaches to the curriculum which result in limitations to advancements of the discipline.[12] It can also be observed in a designer's narrow understanding of the interdependent parts of the field they are researching. Here design fixation is brought about by

10. ten Bhömer, M., Hoette, R., Pollman, A., Thiel, K. [Co-creators]. (2020) The educator: gatekeeper or enabler. In: Digital Multilogue on Fashion Education. Workshop. Held online.

11. Fry, T. (2009). Design futuring: sustainability, ethics and new practice. Oxford: BergUniversity of Borås. pp. 226-231.

12. Crilly, N. (2019). Methodological diversity and theoretical integration: Research in design fixation as an example of fixation in research design? Design Studies, 65, 78–106.

a preoccupation with proven methods and contexts they feel familiar with and comfortable to act within, without considering the complexity of a situation.[13] Design Fixation then is closely linked to a comfort zone that can be observed in both academia and professional practice. While a certain amount of fixation is useful to form expertise, it can lead to ardent attachment to one method or theory, where the interrogated phenomenon is inadvertently distorted to suit the method.[14]

Fashion Theory — an approach

Design theory is rarely fashion specific and speaks more broadly of a field concerned with products and services. Available fashion theory has in large parts relied on methods developed by the social sciences and humanities, advocating for a predominantly human-centred approach to researching fashion. Popular methods include use case studies, (auto) ethnographic research, practice-based and practice-led approaches, surveys and interviews. In a fashion context, Thornquist argues for a new approach for understanding fashion as a 'volatile emotional condition' expanding on person-object relations, user experiences and the emotional qualities of garments.[15] However, this deeply anthropological approach is not exactly new to fashion and relates to the ongoing quest for attesting value to a practice that is simultaneously entwined with mass production and consumption.

Given the lack of an omniferous fashion theory that questions the shortcomings of the prevailing hegemonic education model, we acknowledge that it is time for academics and researchers to step up and work on a fashion specific epistemology and develop programs that are flexible and responsive to the socio-technological changes around us and that support alternative and critical practice. Modus, an aggrega-

tor site for expanded fashion practice by Hoette and Stevenson is one resource of what such practices might look like.[16] Going further, this type of fashion education would also be informed by an understanding of complex economic logics, nascent platforms for cultural distribution, new mixed reality and AI mechanics and designer-led systems, while grounding them in sound research and applied methods. Fashion has come a long way since Sombart calling it capitalism's favourite child[17] and McRobbies observations on fashion's struggle to shake off its ties to mass culture.[18] Culture today is more complex and nuanced and so are fashion's logics. For a practice so critically at the heart of transcending aesthetics, value production, cultural proliferation, mass manufacture and global distribution channels, it should be easy to funnel our understanding of the zeitgeist and its new demands into a relevant curriculum, one which is sympathetic to fashion's many contradictions. Currently oscillating between guilt-based, consumer-focused theory and a continuation of traditional collection-making practices, we need to ask ourselves why fashion is not seeking to renew itself according to our new social and industrial environments. Arguably then, have we engaged with the wrong kind of theory, one that, as Janice Miller put it, supports students in becoming critical consumers but leaves them disheartened as to where their making practice can take them in this much-changed economic reality?[19]

What methods and access to tools do we apply/provide to instil a sense of agency in the new designer-researcher-practitioner as introduced by Vaughan?[20] Easterling citing Ryle remarks on the difference between "knowing that and knowing how", describing the difficult step from knowing of a problem or situation and moving forward to developing the hard and soft skills needed to flexibly respond to changed circumstances.[21] The key here is to develop actionable models that help students gain real competencies in the use of new tools and processes. This would involve first-hand experience in industry settings such as placements, R&D collaborations or access to vanguard machinery which is very expensive and typically not something academic settings provide. Fashion studio setups at universities routinely get industry settings wrong by emulating them on a very small scale without providing the dynamics

13. Ibid.

14. Ibid.

15. Thornquist, C. (2018). The Fashion Condition: Rethinking Fashion from Its Everyday Practices. *Fashion Practice*, 10(3), pp.289-310.

16. Hoette, R. and Stevenson, C. (2019). *Modus*. Onomatopee Office and project-space.

17. Sombart, W. (1928) Der moderne Kapitalismus. Historisch-systematische Darstellung des gesamteuropäischen Wirtschaftslebens von seinen Anfängen bis zur Gegenwart. Munich: dtv

18. McRobbie, A. (1998). British Fashion Design: Rag Trade Or Image Industry?. Routledge.

19. Miller, J. (2019). The Gap Between: The Theory Practice Divide and Fashion. *Modus*. Onomatopee Office and project-space

20. Vaughan, L. (2019). *Designer/Practitioner/ Researcher*. In. *Practice-Based Design Research*. Edited by Laurene Vaughan, 9-17. London: Bloomsbury Visual Arts.

21. Easterling, K. (2021). *Medium design*. [S.l.]: Verso.

of a business – this concerns workflow and skills but crucially also innovations in machinery and how those are impacting the operations of a business. A trip undertaken to Frankfurt's Tex-process trade fair was a stark reminder of how industry moves forward with absolutely no design-led intervention. Common to all exhibitors was a universal orientation towards greater efficiency and productivity which equalled quality - meaning that the machine produced the exact same outcome in less time. In her essay *Design Anthropology for Fashion: Designing collaborative research methods to investigate fashion Industry challenges* **Postlethwaite** citing Gunn stresses the many bene-fits collaborations between universities and public and private sector can hold – from promoting socially and environmentally sound businesses and networks to sustainable growth tactics, training and skills transfers. All resonate with key action points laid out by the 2014 Alliance report to renew the fashion and textiles industry in the UK by addressing the skills gap and lack of design engagement within the industry amongst other sec-tor recommendations.[22]

Practice-based and practice-led methods will help support work that responds to the demands of a much-changed in-dustrial landscape and creative industry - one which now em-braces virtual environments and physical computing, bio-en-gineered, circular systems as well as additive, networked and place-based manufacturing - while at the same time making critical designer-led contributions to how those systems op-erate. This type of learning and application of knowledge af-fords new fashion education models to move beyond mere aesthetics and towards applied research that helps students to clearly articulate and define the scope of their work. Devel-oping new fashion theory through design methods depends on a balance between applied and basic research. In 'Making Design Theory' Redström alerts to the fact that if we are fixat-ed on one theory or apply various methods with no incentive to challenge them, we might run the risk of not developing any new theory.[23] What's more, most existing design theories are generally deterministic and solutions oriented and often fail to acknowledge the consistently fluctuating nature of both lo-cal and global conditions as well as parallel narratives.

22. The Alliance Project Report. (2014). https://s3-eu-west-1.amazonaws.com/ukft/wp-content/up-loads/2018/05/13115441/Repatriation-of-UK-tex-tile-manufacture-The-Alli-ance-Project-Report.pdf

23. Redstrom, J. (2017) Making Design Theory. MIT Press.

Because of the multifarious ways it operates in, we can then assume that fashion is well suited to test new products, pro-cesses, services and distribution channels through practice. This is where methods play a crucial role, their flexibility leads to propositional work that furthers discourse and future-mak-ing practices - applied in the right way they offer an alternative to the rigid and established nature of theories which are more likely to produce similar output. Redström suggests that we treat programs as provisional and avoid actions that would stabilise them too much.[24] Adaptive, evolving educational models endorse methods that are able to question the core of a programme. To support new practice then it is imperative to inspect the foundations, theories and comfort zones that constitute a discipline to see how we can move on.

24. [Ibid.]

Moving forward

As a future-making discipline usually focused on a cycle of two-year predictions[25] fashion is known to quickly and significantly direct and filter aesthetics and help them enter the mainstream. Fashion education on the other hand is surprisingly slow to adapt and integrate changes coming from within the industry, economic theory and social practices into its curriculum.

Making futures - and the plural here is imperative - is an active struggle designers are naturally attuned to. It involves testing and failing in an iterative loop through time-intensive transdisciplinary thinking and making. By continuing with the well-versed model of expecting marketable solo collections, current fashion education models deny the very idea of designing for possible futures and tie fashion further to a supply-demand model that is so closely linked to the neoliberal economics and capitalist logics we collectively strive to question.[26] So instead of understanding fashion as actively pursuing the singular new or even 'the future' perhaps we

25. Rissanen, T. (2017). Possibility in Fashion Design Education – A Manifesto. Utopian Studies, Vol. 28, No. 3, SPECIAL ISSUE: UTOPIA AND FASHION, pp. 528-546. Penn State University Press.

26. Wark, M. (2019). Capital Is Dead: Is This Something Worse?. Verso Books.

can start looking at it as a practice that embraces a multitude of thorough routes of enquiry - be they based in technology, materials and circularity, systems, tools or aesthetics and philosophy. In 'Towards a Political Sensorial Design Education', de Vet makes the case for understanding "design as a tool to deal with reality".[27] But unless we start understanding those realities to be coexisting rather than successive, we will be stuck in hegemonic and likely colonialising models. An orientation towards an idea of medium design as outlined by Easterling could offer some respite.[28] Taking away the pressure of right answers and solutions, we could start investigating the intermediary spaces in design that are usually overlooked while we cling to educational models that feed old market logics. This thinking is also supported by Rissanen and his proposal for fashion education as a site for "tentative, temporary, pluralized or truncated" micro-utopias as introduced by Wood [29].

Design's potential for creating different futures can further be explored through the concept of Socio-technical Imaginaries as presented by **Douglas Atkinson**. The investigation of these imaginaries starts with an analysis of our collectively held and performed visions of desirable futures afforded by new technologies and scientific advances.[30] These narratives are often amplified by the media, governmental strategies and other collective mechanisms that influence our common beliefs around certain technologies and futures. Taking this as a starting point to assess complex systems and the roles particular tools and technologies are bound to play, Socio-technological Imaginaries as a diagnostic method can bridge the gap between *knowing that and knowing how* and help shape what foundations we build our courses on. A diagnostic approach would entail the *knowing that* which is then followed by critical experimentation that tests the edges of the possible, working within and outside of existing institutional and industrial structures and seeking out or in fact making the tools that support new practice. This type of fashion education would make the most of decades worth of sustainable self-reflection, and channel it into informed and well researched futures-making practices rather than a deterministic solutions-based approach. **Atkinson** further

27. de Vet, A. (n.d.). Towards a Political Sensorial Design Education.

28. Easterling, K. (2021). *Medium design*.

29. Rissanen, T. (2017). Possibility in Fashion Design Education – A Manifesto.

30. Jasanoff, S. and Kim, S.-H. (2015). Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power. University of Chicago Press. Chicago.

discussed the validity and controversies of future studies through emergent anthropological and ethnographic methods that are currently being developed at the fringes of the discipline such as Anticipatory Ethnography and Thing Ethnography. Exploring these methods more extensively in a fashion context is an exciting prospect that could lead to real insight based on their future-making potency, and one way a transition to technology aided design-led research can be approached.

By not just *knowing that* but by *knowing how* is how actionable transformation can be put into practice. This affords a restructuring of the curriculum to include an understanding of and collaboration with all facets of the industry and manufacturing sector. The diagnostic approach (knowing that) helps us make use of existing design theories, new economic models and valuable industry insight. It helps us analyse the structures that uphold the system we know to be at odds with our changed beliefs and attitudes around growth and fashion as business. It envisions change on a sliding scale, the more we learn about systems the better we become at supporting change with the flexibility to reroute and adjust if necessary. The *knowing how* comes through the pursuit of grounded vocational as well as transferable skills. This begs the question then where exactly should the studio be based if we embrace anthropological, situated methods as proposed by **Postlethwaite** - where does key learning actually happen? With looming funding cuts in the arts education sector in the UK and many new and specialist machines not available to universities, it is only plausible to engage all facets of the industry as a fundamental part of the education a fashion designer receives. Learning and researching in situ, like ethnographers do, offers students a primary, visceral and less conceptualised experience of the realities they are about to enter professionally. This includes offering and seeking out pluralistic, global perspectives and transdisciplinary, post-individualistic set-ups that are explored outside the academy.

Impact, evidence, reflection

Throughout the programme, we were introduced to a large variety of methods and methodologies. Most useful in a fashion context were the frameworks and concepts that pointed towards opportunities for restructured curriculums rather than direct methods for applied research. Independent cultural manager Kendall Robbins explained how she found Theories of Change to be one of the most resonating models of the last years which helped her structure many projects while at the British Council. Starting with a thorough stakeholder mapping, it creates a clear roadmap and timeline for change, while making distinctions between expected input, output, outcome and most importantly desired impact. Designing a strategy for impact right into the start of a project is one of the crucial steps to achieve successful knowledge exchange.[31] Used for curriculum restructuring, this model can easily help achieve transformative action. Dr Josh Siepel, Senior Lecturer in the Science Policy Research Unit at the University of Sussex Business School, described his crucial work on mapping the creative clusters in the UK and the development of policy tools for innovation and skills in the creative industries. He stressed how research for impact relies foremostly on clearly communicated evidence and solid quantitative data that can be put in front of policy makers as fast as possible and as best as possible. Integrating impact as one of the targets for research would mean the parameters usually applied to academic research, especially its contribution to knowledge, would need to find careful balancing. Currently the long evidencing process of academic research cannot match the quick turnaround where work at speed and with precision is afforded of the researcher, especially when the target is policy related. However, defining a clear impact strategy could benefit longer academic research projects in maximising their momentum and wider reach by setting goals and working towards outcomes that reach out rather than in. Focusing on impact from the onset will make it easier to evidence results and benefits for stakeholders outside the academy.

31. Reed, M. S. (2018). The Research Impact Handbook. Fast Track Impact.

Robbins also cautioned how generally biased the practice of evidencing is. This is particularly problematic when impact needs to be evidenced on more than just anecdotal accounts which is rarely collected. To counter lackadaisical reporting, Zabolotney urges designers to adopt a practice for integrating impact, evidencing and reflection into what she calls "political economical accounting" through social (how do we know we have affected/changed interactions), cultural (how do we measure cultural shifts) and empirical (real cost of making including ecological damage and reparation) assessments. [32]

In an academic setting, frameworks for excellence in research, teaching and knowledge exchange are imposed to evidence impact which will in turn secure further government funding. The importance of reflective and reflexive practices, as first introduced in a design context by Schön,[33] was repeatedly highlighted by many of the speakers - including Dr Marta Gasparin, Kendall Robbins, Dr Jo Aiken and Douglas Atkinson - as crucial methods to help us understand and move beyond our own biases during a research project, ethnographic study or as an assessment tool in reflecting back at learning. However, there is a danger in reflection developing into a highly prescribed, self-monitoring action that turns into an administrative burden, particularly when tied to the REF/TEF and KEF. It is a long-held belief by many that ferocious auditing is negatively affecting individuals[34] as it increases competition, meta-investigations and workload but also feeds a need for constant assurance, leading to significant risk redistribution and an overall conservative, restrictive verification routine that hampers creativity and innovation.[35]

The UK government has recently agreed to ease some of these burdens by shifting from an annual to a periodic TEF exercise, taking place every 4 to 5 years as recommended. While this relaxed timeframe eases the duty of accounting, the new rota is a robust enough timespan to test new curricula and evaluate them thoroughly. Tonkinwise points to the fact that academics should try to not only critically reflect on and innovate within the current system but to understand and use reflective practice as an excellent model to flex and/or bend away from the existing system.[36]

32. Zabolotney, B. (2017). Locating New Knowledge in an Unacknowledged Discourse. In: *Practice-based Design Research*. Edited by Laurene Vaughan. London: Bloomsbury Visual Arts.

33. Schon, D. A. (1987). Education the Reflective Practitioner. San Francisco: Jossey- Bass.

34. Fisher, M. (2009). Capitalist Realism. Zero Books. London.

35. Power, M. (1999). The Audit Society: Rituals of Verification. Oxford University Press.

36. Tonkinwise, C. (2017). Post-Normal Design Research: The Role of Practice-based Research in the Era of Neoliberal Risk. In: *Practice-based Design Research*. Edited by Laurene Vaughan. London: Bloomsbury Visual Arts.

This also extends to assessments. Driven by the pandemic we have seen alternatives to assessment criteria being trialled within universities. There is a strong incentive to revise and "move away from formulaic, recollection-driven exam responses towards more authentic assessable outputs".[37] Based on research done by Independent Consultant in Learning, Teaching and Assessment Sally Brown, this model supports in-depth responses to multi-faceted scenarios presented to the students. While still based on driving verbs to use within assessments to guide students' efforts, this approach veers away from recounting the steps taken to arrive at a certain point and instead affords the students to model responses and recommendations based on their learning. This can be really interesting in a creative setting's oral exam as it could be readily adapted to include reflections on impact and methods used rather than defending and recounting how a collection evolved.

[37] Brown, S. and Sambell, K. (2020). Writing better assignments in the post-Covid19 era: approaches to good task design. Report.

Diagnostic and tools-based fashion education

With a transformation to a diagnostic and tools-based fashion education we can help future designers navigate this landscape. Guiding them to strategies of change that are helping them avoid alienation from practice should be our priority. Positive examples of this transformation exist. At the RCA, fashion has been opening up to other fields disseminated as platforms that offer students a deep dive into areas previously separated from studio practice - digital technologies offer new entry points and aesthetic possibilities, bio design transforms how we think about the material components and life cycles of our garments and finally future systems questions the very basis of our making culture and situates fashion as a future-making industrial practice. All three have the possibility of informing

a raft of new practices - still in their infancy, they will require more fundamental restructuring and support to fully flourish.

With a move to more localised and place-based manufacturing, investments in microfactories and incubator spaces are increasing. During my time at Fashion Space Gallery at the London College of Fashion, the gallery team entered into a collaboration with the Learning and Technology team to develop 2 new spaces. One was Arcade East, an adaptive project/gallery space and the other a digital incubator space called the Digital Learning Lab (DLL). One of our main objectives for the DLL was its democratic set up within the university - open to all, it functioned as a resource, workshop and interdisciplinary lab promoting a confluence between traditional and digital practice for design, making and ideation in a fashion context. The DLL serves as a node between programmes and self-initiated learning. Supported by a team of creative technologists, the community of students and staff were introduced to a constantly updated variety of new tooling, chief among them physical computing, e-textiles, creative coding, AR/MR and VR as well as 3D print and scanning technologies, sitting alongside and in close proximity to traditional tools. Its success quickly showed as demand for the use of the space outgrew its capacity and satellite DLL spaces were initiated on different campus sites in the following years. This is an example of how machines, tooling and expert tech support can be implemented in school settings. By placing initiatives and industry collaborations in the space, we expanded the discourse to futures, sustainability, dance, performance and digital anthropology. Participants of the various offerings of the DLL have consistently reported that their engagement with new ideas, tooling, other disciplines and industry has fundamentally informed and shaped their practice to be more attuned with the needs of today.

Conclusion

Since we have started work on Future Fashion Factory, it has been obvious how novel this type of research is to designers trained in fashion. Facilitating micro projects from a design perspective was observed to be challenging for a number of reasons. One is the lack of former training in research methods and tactics and the other is that most FFF proposals tend to favour a focus on the technical aspects of the production cycle, with fewer opportunities to develop design-led industry projects. Seen from the point of education, this reaffirms the perceived lack of previous research training in recent graduates as well as ECRs and other associated staff. The outmoded idea of vocational training in universities shields designers from real industry engagement. Training is still too removed from the actual demands for highly skilled designers that are fit to make a contribution in this new economy – which encompasses expert knowledge in digital and physical making as well as an in-depth understanding of the social and environmental requirements of this landscape. The 2014 Alliance report goes into much depth on the palpable skills gap in the UK textile and clothing industry,[38] a sentiment recently further solidified in Dr Patrizia Casadei and **Professor Simona Immarino**'s research on trade policy shocks and Brexit uncertainty in which they detail the repercussions on UK businesses due to an intensified outflow of skilled workers.[39] Research undertaken by the RCA FFF group in the domain of pedagogy shows that students do not feel equipped to discuss topics such as sustainable strategies, emerging technologies and value driven design interventions.[40] The Skills Development Training also showed how conventional humanities and social sciences methods are not always applicable or directly transferrable to a fashion design context. While design research methods exist, we feel the lack of fashion specific methods that can aid students, researchers and designer/practitioner/researchers to make meaningful contributions by using their expert knowledge of the discipline. This training programme has been a tremendous help in making a start to formalise what those methods and

38. The Alliance Project Report. (2014).

39. Casadei, P. and Iammarino, S. (2021). Trade policy shocks in the UK textile and apparel value chain: Firm perceptions of Brexit uncertainty. Journal of International Business Policy.

40. Postlethwaite, S., Thiel, K. and Lean, M. (2020). *Discourse: Debating the future of fashion design.*

set-ups can look like, how researchers can work in teams and have input at various stages of projects. Longer-term ambitions to situate designers more prominently in sites of manufacture are needed and would ensure an amelioration of the skills gaps that we encounter today and contribute to better product development and an exchange of values and skills between designers and manufacturers. Funding stripped university set-ups do not currently provide the access to tools that are needed to innovate. If we truly strive for a sustainable industry, then we have to demystify sites of manufacture and acknowledge that we have to move beyond theoretical awareness culture at university level. Being aware of the problem, the *knowing that*, is simply not enough to change the way we make and move fashion forward. A move to more industry integrated R&D is necessary to equip designers with real life insight while universities provide the base for reflection, evaluation and critical engagement. This situated learning, with and alongside all parts of the industry, reconsiders what and where the studio is. It also puts into question how work is then assessed and submitted. Oral exams for remote in-situ students are much more suited to reflect on impact and their engagement as designers/researchers rather than handing in a creative portfolio to be judged for quality. Harnessing the knowledge gained through industry placements will enable a better equipped designer to innovate and creatively respond to this changing economy, in a sustainable and meaningful way. Frequent internal reassessment of the validity of course modules on the other hand will lead to a highly skilled workforce that is trained to adequately demonstrate originality, significance and rigour.

Essay 3

Framework design for impactful design-led industry R&D activities within Future Fashion Factory — Dr Dawn Ellams

Introduction

As the UK's fashion design and textile manufacturing industry progresses toward Industry 4.0+, moving beyond robotics and automation towards an understanding of the social and people involved, their livelihoods, wellbeing and meaningful work,[1] Design Skills - as the fusion of creativity with technical ability will be essential for an industry and economy seeking to maximise the opportunities of technological advancements.[2] Multidisciplinary designers trained in learning environments across industry and academia in a combination of art, design, science and technology competencies linked to the STEAM+D[3] agenda and their engagement in Research & Development (R&D) activities will be key to industry progression. In her essay *Design methodologies and theoretical positioning for fashion pedagogy enhancing future-making practices* Kat Thiel explains how a move to more industry integrated R&D is necessary to equip designers with real life insight while universities need to provide the base for reflection, evaluation and critical engagement.

As the sector progresses toward Industry 4.0+ *Future Fashion Factory* aims to facilitate innovation in the UK's fashion design and textile manufacturing industry through industry-led collaborative R&D. The core aims of Future Fashion Factory align with recommendations made to, and accepted by, the government in the 2015 report *Repatriation of UK Textiles Manufacture*. The report summarises extensive research carried out into the sector by New Economy's Alliance Project which examined the potential for repatriating textiles (and fashion) manufacturing to the UK to understand the opportunities for growth in the UK's textiles (and fashion) sector(s), and the barriers that would prevent the sector(s) realising their true growth potential. The research culminated in a range of recommendations focussing on four key areas: Skills, Investment, Innovation, and Reconnecting Supply and Demand.[4] Future Fashion Factory explores themes

1. De Propis, L. and Bailey, D. (2020). Disruptive Industry 4.0+: Key Concepts. In: *Industry 4.0 and Regional Transformations*. De Propis, L. and Bailey, D. ed. Routledge.

2. Design Council (2018). Designing a Future Economy - Developing Skills for Productivity and Innovation. Available at: https://www.designcouncil.org.uk/what-we-do/research/designing-future-economy

3. Ibid.

4. Alliance Project Team (2015). Repatriation of UK Textiles Manufacture: The Greater Manchester Combined Authority. Available at: https://s3-eu-west-1.amazonaws.com/ukft/wp-content/uploads/2018/05/13115441/Repatriation-of-UK-textile-manufacture-The-Alliance-Project-Report.pdf

within these recommendations through industry focussed collaborative innovation projects supported through a R&D Challenge Fund. Five funding rounds are scheduled over the course of the five-year Future Fashion Factory project with three levels of funding from 10K to 100K available for; Proof of Market (PoM), Proof of Concept (PoC) and Innovation Challenge projects (ICP).

The R&D Challenge Fund is designed to enable industrial partners to lead and define collaborative projects. Future Fashion Factory's aim for these R&D projects "is to allow resources to be focussed on fixing 'real problems' in ways that can be practically implemented within a foreseeable timeframe to maximise commercial impact."[5] To be eligible for funding, industry applicants must be located within the Yorkshire and Humber region (the creative cluster region of focus), or collaborating with an industry partner who is, and work with one of the partnering universities; University of Leeds, University of Huddersfield or Royal College of Art (RCA).

5. Future Fashion Factory (2021). Innovation. Available at: https://futurefashionfactory.org/innovation/

Using Skills Development for Researchers to build a Mixed Methods Approach

The immersive format of the Skills Development Sessions, delivered by experts in their related disciplinary fields, who used research experiences to exemplify advanced methodologies enabled us to engage with and question presented methods. Reflecting on how we, as Design Researchers, can adopt and adapt ethnographic research methods to develop a framework and methods to support our questioning of design-led innovation within fashion design and manufacture.

A Mixed Methods Research approach (MMR) is developing to explore the positioning of the design process and designers within the Future Fashion Factory R&D projects that are largely focussing on co-developing and implementing new textile and industrial technologies in collaboration with supply chain manufacturers and other technology experts. MMR is a method used within social science[6] and Art and Design[7] research to provide frameworks for gathering data and investigating phenomena that allows the combining of both quantitative and qualitative research approaches in a practical way - fitting with our need to combine the diverse range of methods we are engaged with through the Skills Development for Researchers programme. The developed framework will provide methodologies to allow researchers to reflect on our own biases, position designers within design-led R&D and use appropriate methods, with research legitimacy, to capture and communicate data. Data captured within the designed framework will provide us with insight for:

— Design-led R&D - how can we embed the design research process and designers into FFF collaborative R&D projects?
— Collaborative & Future Roles - who are the key actors and what skills gaps are emerging for manufacturers, designers and academics?
— Innovation focus - what are the technical & creatively driven innovations being developed?
— Impact of FFF R&D projects - what are the process, practical and systematic learnings?

6. Timans, R., Wouters, P., & Heilbron J. (2019). Mixed methods research: what it is and what it could be. In: Theory and Society, Volume (48), pp. 193–216.

7. Hickman, R. (2008). Research in Art & Design Education Issues and Exemplars. Intellect Books: Bristol.

A traditional approach to R&D

In aiming to address real problems, practically and within a foreseeable timeframe,[8] projects funded through the Future Fashion Factory Challenge Fund have so far demonstrated a bias in support for R&D projects that present science and technology challenges using traditional R&D processes. This traditional, risk averse, approach to funded R&D projects is not exclusive to Future Fashion Factory but is practiced across the creative industries, driven by governments definition of R&D. Dr Josh Siepel explained that historically, the Frascati Manual R&D definition aligned with positivist epistemologies, not recognising the arts, humanities and social sciences, is used to define R&D for research and tax purposes. The current definition describes R&D as taking place when overall knowledge or capability in a field of science or technology is increased.[9] Consequently, R&D in the creative industries reliant on the arts, humanities and social sciences does not qualify for R&D support.

As government recognised, the essential role of R&D is in driving innovations that "are the essence of economic growth"[10] and aimed to increase its R&D investment through measures like the new Industrial Strategy Challenge Fund, new Innovate UK programmes (from which Future Fashion Factory ultimately received funding) and R&D tax relief schemes. The 2017 policy briefing *Defining R&D for the Creative Industries* strongly recommended that R&D definitions used should not neglect the very areas where the UK has international strengths, like the creative industries.[11] This recommendation within the policy briefing was based on research that explored the limitations of official R&D definitions provided by participants of the *Digital R&D Fund for the Arts*, a three-year programme run by Arts Council England, the Arts and Humanities Research Council (AHRC) and Nesta. The briefing concluded that the development of a holistic definition for R&D was required that recognises the contributions R&D makes not just to the economy but to culture and society. It should take into account the delivery models for R&D across knowledge domains to include individ-

8. Future Fashion Factory (2021). Innovation.

9. Department for Business, Innovation & Skills. Guidelines on the Meaning of Research and Development for Tax Purposes. Issued 5 March 2004, updated 6 December 2010. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/71260/bis-10-1393-rd-tax-purposes.pdf

10. HM Government (2017). Building our Industrial Strategy Green Paper. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/611705/building-our-industrial-strategy-green-paper.pdf

11. Bakhshi, H. and Lomas, L. (2017). Policy Briefing: Defining R&D for the Creative Industries. Available at: https://ahrc.ukri.org/documents/project-reports-and-reviews/policy-briefing-digital-r-d/

uals, SMEs, collaborations and networks and not just focus on large companies with R&D labs.[12] Within the Industry-led R&D projects the RCA research aims to challenge the way in which industry and technical collaborators engage with designers and the creative process through R&D activities. The Skills Development for Researchers has supported the development of a methodological framework from which projects can be used to explore the potential for, and barriers to, design-led innovation as an approach to R&D within collaborative industry activities for fashion.

12. Ibid.

Design-led Innovation as an approach to R&D

The first *Design in Innovation Strategy*,[13] focusing on design in innovation as a methodology that can be applied to the creation of better products (physical and digital), services, processes and business models for the UK "through the use of professionally trained designers, multi-skilled teams, and effective and collaborative design processes"[14] was published in 2015 by Innovate UK. This strategy recognises the value in design that balances human, social, environmental, technical and commercial factors and the abilities of designers to work in different mediums, employing a variety of tools and processes during development and delivery stages. The focus is on raising awareness and understanding of creative design processes, The latest Design in Innovation Strategy 2020-2024 [15] partners with the Design Council, Royal Society of Arts (RSA), the Knowledge Transfer Network (KTN) and the Design Museum, to bring together design and technology communities. Innovate UK claims that alongside this advocacy, and new network for design in innovation, is significant investment with design, becoming better embedded across Innovate UK funding as an allowable cost (rather than incorporated within the definition

13. Design in Innovation Strategy 2015-2019 (2015). Innovate UK. Available at: https://assets.publishing.service.gov.uk/government/system/uploads/attachment_data/file/474557/Design_in_Innovation_Strategy_2015-2019_WEB.pdf

14. Ibid.

15. Design in Innovation Strategy 2020-2024 (2020). Innovate UK. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/910246/InnovateUK_DesignStrategy_Web-Enabled.pdf

for R&D) within Smart and Industrial Strategy Challenge Fund competitions and other programmes. New design support mechanisms such as mentoring initiatives and mandatory human centred design studies as a gateway to subsequent R&D funding opportunities are also being trialed. [16]

The UK's design economy is made up of 1.7 million designers and contributes £85 billion Gross Value Added (GVA),[17] ranking sixth in the world for design exports.[18] These statistics include design-led organisations within the UK, highlighted as being world leading and iconic creative brands by the Design Council: Unilever, Dyson, British Airways, Jaguar Land Rover, Barclays, Diageo and the BBC. The activities of these brands provide a narrative of design-led innovation being driven by product and industrial design within aerospace, automotive, and service sectors. This is also consistent with case studies, provided to exemplify the success of the *Design in Innovation Strategy*.[19] Innovate UK recognises that design is used too little and too late, if at all, in certain areas of the economy, "this is particularly true among SMEs, in many cases design is considered 'nice to have' rather than a necessity and, as such, is often restricted to late-stage styling activity. Even fewer organisations use design at a strategic level or embrace leadership by design."

Innovation within UK Fashion Design & manufacture

Innovation(s) within the fashion sector are arguably adopted from developments using traditional R&D processes within other sectors. For example, new materials, finishing processes or machinery for production. This is in line with the current focus for innovation from The British Fashion Council (BFC) who in partnership with the Arts and Humanities Research Council (AHRC) is supporting research over twelve months as part of

the Institute of Positive Fashion to focus on green innovation. [20] Caroline Rush, CEO of the British Fashion Council explained the industry's current focus for innovation is on material, supply chain and waste innovations.[21] Fashion manufacture innovations do not appear to have advanced since the 2009 report; *High-end fashion manufacturing in the UK*[22] noted a lack of innovation & investment in UK fashion manufacturing. The report was commissioned by the Department of Culture, Media and Sport (DCMS) to undertake a feasibility study to explore fully the market need for a new high-end production hub. This was in direct response to the need highlighted in the DCMS report *Creative Britain - New Talents For The New Economy*, published in 2008.[23]

We need to research the need, and at what scale to innovate and modernise UK fashion Design and Manufacture. What are the frameworks and methodologies required to enable micro and SME fashion design and manufacturers to drive the radical disruption required - does design-led innovation provide opportunities for research insights to support the business case to the government to invest in the advancement of the UKs fashion and manufacturing sectors?

Frameworks for design-led innovation

Various frameworks and models have been created with the objective to capture the common characteristics and development stages of an effective design process: enabling designers, and or non-designers, to tackle complex problems by developing or adapting new design methods and tools to explore an issue more widely or deeply and then take focused action and develop solutions. The Design Council's *Framework for Innovation* (2019), evolved from the Double-Diamond process

16. Ibid.

17. The Design Economy 2018 (2018). Design Council. Available at: https://www.design-council.org.uk/resources/report/design-econo-my-2018

18. Design Council (2019). Why design is integral to the future of UK exports. Available at: https://www.designcouncil.org.uk/news-opinion/why-design-integral-future-uk-exports

19. Design in Innovation Strategy 2020-2024 (2020). Innovate UK.

20. UKRI (2021). AHRC and British Fashion Council back green innovation in fashion. Available at: https://www.ukri.org/news/ahrc-and-british-fashion-council-back-green-innovation-in-fashion/

21. London Conversations (2020). The CEO of British Fashion Council on fashion innovation in London. Available at: https://www.youtube.com/watch?v=nXn2vtCnII0

22. High-end fashion manufacturing in the UK - product, process and vision: Recommendations for a Designer and Fashion Manufacturer Alliance and a Designer Innovation and Sampling Centre (2009). Available at: https://ualresearchonline.arts.ac.uk/id/eprint/4658/

23. DCSM (2008). Creative Britain - New Talents for the New Economy. Available at: https://static.a-n.co.uk/wp-content/uploads/2016/12/Creative-Britain-new-talents-for-the-new-economy.pdf

(2004)[24], is the model largely referenced to demonstrate how a typical, though not definitive, design process might work to support innovation within organisations. The latest design framework launched by the Design Council in April 2021 Beyond *Net Zero: A Systemic Approach*[25] aims to support designers working on complex challenges that involve people across different disciplines and sectors to achieve Net Zero in sustainable living. The framework builds upon the Double Diamond Model and Framework For Innovation to place people and planet at the heart of design.

Toolkits within Frameworks

Frameworks and models for design-led innovation are generally accompanied by a set of methods referred to as a toolkit or methods banks. Oblique Strategies, a card-based method for promoting creativity developed in 1975, as discussed by **Joel Gethin Lewis**, was the first of many card-based tools and the only stand alone one. Each card offers a challenging constraint intended to help artists break creative blocks by encouraging lateral thinking. The use of the tool is independent in that no accompanying model or framework to explain its purpose or represent the process exists - conceptualising the deliberate simplicity that drove the creation of this tool and the environment it should be used within.

The toolkit format - a framework or model accompanied by a set of methods, has developed by simplifying complex ethnographic methods such as case studies, observations and interviews for 'light touch' ethnographic methods for design research. The intention of these toolkits, often used within the Design Thinking field is to enable the use of ethnographic research methods to facilitate the use of creative thinking within complex systems to support user centred research

24. Design Council (2019). What is the framework for innovation? Design Council's evolved Double Diamond. Available at: www.designcouncil.org. uk/news-opinion/what-framework-innovation-design-councils-evolved-double-diamond

25. Design Council (2021). Beyond Net Zero: A Systemic Approach. Available at: https://www. designcouncil.org.uk/ sites/default/files/asset/ document/Beyond%20 Net%20Zero%20-%20 A%20Systemic%20De-sign%20Approach.pdf

approaches. The fundamentals of Design Thinking are based on the unique way designers look at problems and generate solutions. Design Thinking as a process has tensions between the traditional craft and professional design fields, concerned with giving form to things (practical making), and the abstract work of designers who create desired states of affairs (systems design).[26]

Arguing that through following the non-linear, iterative design process: *inspiration*, *ideation*, and *implementation*, this method can convert problems into opportunities. A commonly used example of a Design Thinking Toolkit is the IDEO Method Cards[27] developed by IDEO to support designers and non-designers through engagement in the non-linear, iterative design process to convert problems into opportunities. The tool is made up of fifty-one cards with each card describing one method through a brief summary on how and when to use it. IDEO explains "It's not a "how to" guide—it's a design tool meant to explore new approaches and help you develop your own." [28] The LUMA-institute is another global design company who have developed a similar toolkit based around human-centred design that aims to equip people to be more innovative in their work.

Our Research Requirements

Within current toolkits emphasis is placed on Design Thinking as a human-centered approach. This puts the responsibility for capturing, understanding and interpreting the feelings of end-users on the designers and or non-designers using the toolkit. Meaning they are taking on the roles of interpreter and translator of research insights. Methods used within toolkits are based on ethnographic research techniques and focussed on understanding user perspectives but for post data gathering little focus is placed on analyses of findings or incorpora-

26. Kimbell, L. (2011). Rethinking Design Thinking: Part I. Design and Culture, 3:3, 285-306.

27. IDEO (2003). Method Cards. Available at: https:// www.ideo.com/post/ method-cards

28. IDEO (2021). Method Cards. Available at: https:// www.ideo.com/post/ method-cards

tion of the reflexivity of social science practices. Employed in this format, Design Thinking "fails to include wider theories of the social and misses opportunities to illuminate the context into which the designer is intervening."[29]

This is a key point in terms of the challenges we as Design Researchers are facing using ethnographic methods in terms of field delivery and analysis of the data captured. Though tools already exist to carry out ethnographically inspired design research methods, these current tools do not support or include training for researchers in understanding the social science research context and environment they are conducting the research within, or the unbiased recording of research, and analysis of data to draw out insights. The Skills Development for Researchers sessions demonstrated that social scientists undertake training for field research, including the questioning of their own biases in terms of theoretical, political, or social bias that if not identified at the outset of a study they may project onto the research. This approach to training and understanding for research environments needs to be incorporated within our developed methods for design researchers.

Though design framework methods exist that can provide an initial scaffold to our research approach, for example the Design Council's *Framework for Innovation*, current toolkits are not designed for use within complex research collaboration by Design Researchers. They are strategies for problem solving and do not claim to be robust research methods for data capture & formulation of insights. Though not suited for complex research, the premise from which these toolkit methodologies originated - to facilitate ethnographic methods within the Design process - draws parallels to the need we have in regard to the methods required such as interviews and observations to capture data from field research across the R&D projects. However, these methods within toolkits often do not provide clear frameworks, instructions, address researcher bias & ethical considerations or vitally provide methods for analyses.

There is a clear need for us to develop our own informed methods for field research to explore design-led innovation

from the perspective, skill and knowledge of fashion design within multidisciplinary and cross-sector collaborations.

Our developed methods and design of our research framework needs to link beyond discipline specific innovations to enable us to understand and capture the wider context of social and economic system innovations. To take into account models and strategies that can support innovation within fashion design and manufacturing, such as the framework for Doughnut Economics that is based on economies that are regenerative and distributive by design.[30] We need to be aware of economic positioning oriented toward the restructuring of the sector and the implications these have for fashion design and manufacture micro and SMEs. In a post Brexit landscape the sector's immediate inclusion in the UK Industrial Strategy is seen as vital; its current exclusion supports "the general perception of a lack of concrete action by the government to support the viability of the UK Fashion and Textile industry."[31]

The last decade has seen a global trend in reshoring activities, through the relocation of parts of production activities back to countries businesses are based within.[32] To enable this within the UK, interventions are needed to help the industry undertake a process of functional, product, and process upgrading[33] to enable more agile supply chains and address concerns for environmental and ethical standards. The most recent research into the configuration of the UK fashion and textiles sector, in terms of supply chain networks, products, production systems, and actors involved,[34] conducted through a large-scale survey of UK businesses operating upstream and downstream of the value chain found that "development of new skills and capabilities, the adoption of more innovative machineries and equipment, the upgrading of product quality and standards, and a deeper integration in some production phases of the value chain – such as sampling and prototyping – would help the sector to face the big challenges ahead in European and global markets, and to boost the confidence of domestic retailers and designers."[35]

29. Kimbell, L. (2011). Rethinking Design Thinking.

30. Raworth, K. (2018). Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist. Random House: London.

31. Casadei, P., & Iammarino, S. (2021). Trade policy shocks in the UK textile and apparel value chain: Firm perceptions of Brexit uncertainty. Journal for International Business Policy 4, 262–285.

32. Fratocchi, L., & Di Stefano, C. (2019). Manufacturing reshoring in the fashion industry: A literature review. World Review of Intermodal Transportation Research, 8(4), 338–365.

33. Pietrobelli, C., & Staritz, C. (2018). Upgrading, interactive learning, and innovation systems in value chain interventions. European Journal of Development Research, 30(3), 557–574.

34. Casadei, P., & Iammarino, S. (2021). Trade policy shocks in the UK textile and apparel value chain.

35. Ibid.

Developing a framework and set of design research methods to support Early Career Researchers

The challenge we face in developing a framework and methods to capture data from the R&D projects is to create a set of field researcher methods that are 'usable' by Design Researchers. Multiple Design Researchers will be working across the Future Fashion Factory R&D projects to collect data, and their knowledge of both design and ethnographic methodologies will vary. We also need to ensure the data sets collected have been based on a consistent research design so that they can be used to support the communication of research insights identified within R&D projects through developed case studies.

Dr Jo Aiken introduced The Modern Ethnographic Toolkit, which like Design Thinking toolkits incorporates methods of observations, interviewing, surveying and archival research that "enables researchers to decide on the right tool, to use to ask the right questions, to be able to define problems." If we categorise Design Thinking methods as 'light touch' then we can position this toolkit on the opposite end of the spectrum as 'heavy touch', meaning this is not an off the shelf methods toolkit that Design Researchers could deploy for ethnographic research. As a method, Aiken believes ethnography can be, and should be, used by those outside of the anthropological discipline, explaining it is the process in which ethnography is undertaken that provides the research with validation. Her process is 'rigorous' through being anchored in an "empirical scientific approach which is right for her research." Approaches to ethnography become "problematic if you as a researcher are unable to use the data to come to generalisations / insights."

Within the session, Aiken also demonstrated how ethnographic methods can be broken down into stages to be taught by providing practical instructions for one of the methods associated within The Modern Ethnographic Toolkit: How to carry out in-depth ethnographic interviews in terms of

preparing, selecting participants, conducting interviews and collecting data. The aim was to enable us as Design Researchers to be equipped with the knowledge required following the Skills Development for Researchers sessions to design and carry out in-depth ethnographic interviews. Aiken explained that within cultural and design anthropology the in-depth interview is one of the primary data collection methods, so ensuring interviews are designed and delivered to provide data with the "required view-points captured" as key to the validity of resulting insights. In breaking down the method to us, Aiken demonstrated how we could go about creating 'usable' methods for design researchers linked to ethnographic research methods.

Ethnographic methods developed for use within a cross dis-cipline collaborative research project presented by Dr Teresa Domenech to address industrial symbiosis and sustainable manufacturing draws similarities to Future Fashion Facto-ry collaborative R&D projects, in that they could both be de-scribed as employing a transdisciplinary approach. This being, "research conducted by investigators from different disciplines working jointly to create new conceptual, theoretical, method-ological, and translational innovations that integrate and move beyond discipline-specific approaches to address a common problem". [36] A key output of the research presented by Dome-nech was the development of a toolkit to facilitate the complex collaborations required to address 'common problems'. "The systemic tool developed breaks down complexity into easily understood blocks of knowledge to facilitate constructive and solutions-oriented discussions amongst people with very dif-ferent expertise and knowledge without either devaluing the richness of a topic or getting lost in detail."[37] Domenech ex-plained practical tools are required to facilitate methodologies for complex industry and academia collaborations before the core research questions (common problems) can be explored.

We need to be mindful of this within the Future Fashion Facto-ry R&D projects, especially due to the short time frame for re-search to be undertaken (between three and twelve months). The purpose of the research is to understand the designers role in developing innovations for the fashion design and manufac-turing sector. Though collaborative relationships will ultimate-

36. Guimarães, M, H., Pohl, C., Bina, O., & Varanda, M. (2019). Who is doing inter- and transdisciplinary research, and why? An empirical study of motivations, attitudes, skills, and behaviours. Futures, Volume (112).

37. Cities of Making (2021). Patterns. Available at: https://citiesofmaking. com/patterns/

ly be key to this, we do not have time to develop methods to facilitate collaborations within these short R&D projects. Our focus within this research in terms of collaborative roles will be on capturing data to inform insights into the different types of collaborators and their engagement with both designers and the design process.

Within current frameworks and methods the Design Researcher is often seen as providing scaffolds through processes, tools and methods to facilitate or observe collaborations,[38] rather than as an investigator and collaborator for innovation. We need to record and reflect on the roles of all collaborators, as well as understanding our role as design researchers at different phases of the research and across the different R&D projects we are involved with. In doing this, we will be able to compare collaborations across the R&D projects to understand the impact of different collaborators on project outputs and begin to develop a hypothesis for the key collaborative roles required for design-led innovation within fashion design and manufacture. It will be interesting to also compare our identified key roles with other key roles identified in the existing frameworks for design-led innovation.[39] *The Collaborative Roles Template* to support the collection of key information on collaborators & document researcher actions is provided in **Part 2 of this publication**.

The Framework (iteration 1)

This first iteration of the research framework (**presented in Part 2**) takes into account the parallel streams of inquiry within our Future Fashion Factory research, these being: (a) development of the framework & methods, (b) research within R&D projects and (c) research with micro and SME fashion designers and manufacturers engaging with Future Fashion

38. Bustamante Duarte, A. M., Ataei, M., Degbelo, A., Brendel, N., & Kray, C. (2019). Safe spaces in participatory design with young forced migrants. CoDesign, 1–23.

39. Design Council (2021). Beyond Net Zero: A Systemic Design Approach.

Factory. The framework and methods will be developed over two research iterations. Iteration one will use the initial framework and methods developed from the Skills Development Sessions within R&D projects funded through Future Fashion Factory's fourth funding call. These will then be reflected on and refined for iteration two. The framework and methods developed for iteration two will then be used within research activities for R&D projects funded through Future Fashion Factory's fifth and final funding call. Following completion of all R&D projects, the framework and methods will be reviewed for a final time to inform the development of a generic framework, methods and accompanying tools to support early career researchers in fashion design collaborating with industry for innovation.

Methods: within R&D projects (iteration 1)

Usable methods for researchers will be developed to capture research undertaken within the Future Fashion Factory R&D projects. In developing a set of research methods, to include interviews, focus groups, observation and shadowing, informed by ethnographic methodologies, we are able to include a diverse range of traditional methods with emerging ethnographic approaches referencing those presented by **Douglas Atkinson**, for example the use of video or image as a means to take field notes. **Atkinson** presented approaches to ethnography rooted in, and driven by, design, that challenge conventional ideas of ethnography[40] to offer a new perspective which Design Researchers can use to engage with ethnographic methods. **Atkinson** explained Sensory Ethnography as challenging the dominant ideas of ethnography being about looking and listening through observing and interviewing.

40. Pink, S. (2009). Doing Sensory Ethnography. CA: SAGE Publications Ltd.

Sensory Ethnography provides a new approach to research that, in the right circumstances, can provide a new perspective for data capture that may be suited to Design Researchers in the field during R&D projects. The requirements for validity are less defined due to the distinctiveness of the researcher to use video recording as field notes to report accurately what happened, and replace traditional transcriptions, and the idea of representing something in writing straight away. The use of video as a method for field notes enables the rest of the research team to watch, and assess, after the event. We would need to question the validity of the human behaviour captured if subjects are aware they are being recorded.

Methods: with stakeholder groups (iteration 1)

In parallel to the research being undertaken with R&D projects we can use the Future Fashion Factory network to develop our research activities with micro and SME fashion design and manufacturers to understand, from a small data set, the current UK landscape for fashion design and manufacture in a post COVID, post Brexit climate.

During this research stage (which will run in parallel to the R&D activities) we will use Future Fashion Factory consortia members to identify stakeholder groups for: designers, manufacturers, industry member groups and academics. Identified groups will be invited to participate in research activities including: workshops, focus groups, interviews and surveys to allow us to gain research insight into:
— Background & Skills
— Access to business / creative / technical support
— Access to & processes for funding
— Access to machinery / tooling used

— R&D activities
— Innovation developments
— Industry memberships
— Requirements for government support

Designing for Legitimacy

Design for rigor was discussed within all Skills Development for Researchers' sessions. Put simply, we need to clearly define what and how we will conduct research at the outset of any inquiry. The data we collect from our research methods needs to be collated into a format that will allow us to identify and communicate clearly the methods we used to collect research data and generate insights. **Aiken**'s sessions acknowledged the complexities of analysing data and presenting research findings, explaining "summarising key literature, background research and getting to grips with sector / discipline specific terminology" should all be collated along with the research methodologies used and data analyses to represent the full study. This standardised approach to collating and linking research activities within the context of a research study is not generally a common approach within Design Research. It is something we have included in our research framework within the planning stages of focus stage B. During the researchers training we will provide the case study template and further reading material relating to the R&D project they are working on.

Case Study as a method discussed by <u>Dr Marta Gasparin</u> to "investigate a contemporary phenomenon in depth and with its real-world context, especially when the boundaries between phenomenon and context may not be clearly evident" provides us with a format we can link to the start of our data collection activities through field research methods to observe the reality

30. Raworth, K. (2018). Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist. Random House: London.

31. Casadei, P., & Iammarino, S. (2021). Trade policy shocks in the UK textile and apparel value chain: Firm perceptions of Brexit uncertainty. Journal for International Business Policy 4, 262–285.

32. Fratocchi, L., & Di Stefano, C. (2019). Manufacturing reshoring in the fashion industry: A literature review. World Review of Intermodal Transportation Research, 8(4), 338–365.

33. Pietrobelli, C., & Staritz, C. (2018). Upgrading, interactive learning, and innovation systems in value chain interventions. European Journal of Development Research, 30(3), 557–574.

34. Casadei, P., & Iammarino, S. (2021). Trade policy shocks in the UK textile and apparel value chain.

35. Ibid.

of something that is 'out there' in real life.[41] Case study design uses "heavy protocols based in social science" as a requirement to provide 'legitimacy' to qualitative based research findings, which **Gasparin** explains is so that findings can be used to support business engagement and policy dialogue. Advising that case studies must be constructed with a 'defined protocol', meaning that all field work carried out, methods for recording data and analyses by researchers should be specified at the outset. **Gasparin** broke down the key components which we can use within our case study design to support the development of 'defined protocols' as:

— The Research question
— The Proposition – overall objective general description of the research
— The Case Boundaries – individual, group, organisations, communities, partnerships
— The Logic - linking data to proposition
— The Criteria for analyses – interpreting the findings

The traditional approach presented for undertaking case studies based within social science research appears complex in terms of the academic theories the overall frameworks should be based on. Also, in the knowledge level of the researchers who are designing and undertaking the study. The Future Fashion Factory R&D projects have limited resources and time frames but we need to design frameworks that are legitimate. **Gasparin** provided a four-step checklist in the building of case study protocols that she suggested we use as an initial ,more practical and less theorised, base for case study development within the Future Fashion Factory research. Appendix 1 provides the *Four-step checklist for development of Case Study Protocols* developed from the framework provided by **Gasparin** as an overview of how this approach will be used to develop legitimacy within the research. A case study template has also been developed to provide and collate the data required for post project case study reports collating data in terms of funding, duration, collaborators, research roles, key literature, methods used, project outputs, innovations produced and the impacts these have had for collaborators for each R&D project. *The case study template* can be found for reference in **Part 2** of this publication.

41. Yin, R. (2018). Case Study Research and Applications: Design and Methods. CA: SAGE Publications Ltd.

Within case study reports, we need to understand the types of R&D being undertaken within projects, and the types of innovation resulting from them. The *Proposed R&D definition for all knowledge domains* provided by Lomas and Bakhshi in the 2017 policy briefing[42] expands on the Frascati definition to include new knowledge of economic, cultural or social value. This can be used within our research to provide a benchmark in terms of categorising research activities and outputs within the Future Fashion Factories R&D projects, enabling us to develop a scale of activity for R&D from creative to traditional. Organising R&D activities occurring within Future Fashion Factory R&D projects will allow us to identify activities currently recognised by the government as R&D, and those not but recognised as R&D by the Lomas and Bakhshi definition. This will support the development of initial hypotheses from a relatively small data set. *The R&D Scale: From traditional to Design-led* template is provided in **Part 2**.

Before beginning any of our research, it is important that we acknowledge our biases. Although reflection and reflexivity is important when the research is envisaged,[43] researchers also need to reflect on instances that occurred before the research is envisaged, so that we better understand and are aware of our own motivations and intentions[44] and how they may impact approach, interaction, and interpretation of research and the way we understand and interact with participants. *A template for mapping bias* has been developed and can be found in **Part 2**. It is envisaged that this template will be developed and expanded by the individual researchers completing it.

42. Bakhshi, H. & Lomas, L. (2017). Policy Briefing: Defining R&D for the Creative Industries. Available at: https://ahrc.ukri.org/documents/project-reports-and-reviews/policy-briefing-digital-r-d/

43. Finlay, L. (2002). "Outing" The Researcher: The Provenance, Process and Practice of Reflexivity. Qualitative Health Research, 12, 531–545.

44. Jacobson, D. & Mustafa, N. (2019). Social Identity Map: A Reflexivity Tool for Practicing Explicit Positionality in Critical Qualitative Research. International Journal of Qualitative Methods, 18, 1-12.

Part 2

Research Framework
Iteration 1

The initial proposed framework will be used to support the further development of a selection of methods, tools and researcher training workshops. These will be used within the the Future Fashion Factory project over the next 12 months and developed within an iterative process to understand the potential of design, and designers, to disrupt the 'norm' through design-led collaborations with industry.

Collaborative research activities undertaken, and methods developed, during the Skills Development for Researchers Training in Design Anthropology, in parallel with Future Fashion Factory call four and funded R&D projects, will be mapped onto the three sections of the proposed framework: (a) development of the framework & methods, (b) research within R&D projects and (c) research with micro and SME fashion designers and manufacturers engaging with Future Fashion Factory. This documentation method will be used to reflect on expanded activities, roles and tools required and capture additional research activities and stages undertaken - not currently envisaged or mapped within the three identified areas of the framework template. This will enable us to evaluate and develop the framework for a second iteration during Future Fashion Factory call five funded R&D projects. The same documentation and reflection process will be undertaken before the framework, methods and tools used during this research are captured in a finalised iteration at the end of the Future Fashion Factory project.

Tools to support initial Research within proposed Framework
To support research within the three stages of the framework, initial tools to ensure key research data is captured in a standard format across R&D projects have been developed. These templates for which the first iteration include the: Collaborative Roles Template, R&D Scale from Traditional to Creative and the Case Study Template will be used by early career researchers to support the recording and collating of research. These templates will be supported by a set of developed 'usable' methods for use by researchers, initially covering methods for: interview, focus groups, workshopping and surveys. Researchers are introduced to these methods through a workshop.The format of delivery for the workshop will be captured and used to create a protocol for methods support to accompany the final iteration of the developed framework, methods and tools. During methods support researchers will be introduced to an understanding of ethics and bias within research, with the template for Mapping Bias used to facilitate researchers' understanding of bias.

Research data collected through the framework will be collated and communicated within case study reports. To incorporate research legitimacy within the design of our case studies we have developed the Four-step Checklist for case Study Protocol Design from the skills development session led by Dr. Marta Gasparin. Developed case studies will be demonstrative of our research recommendations, providing qualitative insights into the activities, impacts and potential for design-led innovation activities within the fashion design and manufacture sector.

Research Framework (Iteration 1)

Focus							
(A) **Development of the framework & methods**	Skills Development Session & Proposed framework (iteration 1)	Review of available methods & frameworks	Development of Methods & Training for Early Career Researchers (iteration 1)	Developed methods used within FFF call 4 R&D projects	Methods & Framework Reviewed & developed (iteration 2)	Iteration 2 of methods used with FFF call 5 R&D projects	Methods & Framework Reviewed & developed (iteration 3)
(B) **Research within FFF R&D projects**	**Plan** Methods training for Early Career Researcher Including bias mapping & ethics consideration / requirements Case Study Protocol developed & agreed by research team	**Conduct** Researchers in the field using developed methods for research & recording	**Analyse** Data coded & analysed - Process reviewed by RCA research team	**Reflect** Researchers, collaborators & industrial partners reflections captured	**Communicate** Case Study Collated	**Synthesise** Research insights from across R&D project data sets collated - used for the development of research	
(C) **Research with micro and SME fashion design and Manufacturers engaging with Future Fashion factory**	**Scope** Identify and categorise stakeholders	**Plan** Select research activities for maximum data collection	**Develop** Methods and templates for research activities	**Conduct** Workshops Interviews Focus groups Survey	**Analyse** Data coded and analysed – process by RCA research team	**Analyse** Draw research insights from across data collected from research activities across stakeholder groups.	

Collaborative Roles Template – Template required for each collaborator and researcher

R&D Project:	
Collaborator / Researcher:	
Data Code:	
Job role:	Project role(s):
Knowledge / skills area:	

Collaboration activity log for reflections by researcher			
Date	Research stage	What happened – where the other collaborators involved?	What was the result?

Four-step check list for development of Case Study Protocol developed from framework provided by Dr Marta Gasparin

Protocol point	What this means	How we will address
1. Construct Validity	Use various sources of evidence from the field	— Development of field research methods with instructions, bias & ethical considerations, and methods for analyses, — researchers using developed methods will receive training.
2. Internal Validity	Methodological perspective Establishing causal relationships through the coding of data (threads of analyses)	— Development of methods for coding and analysing data — Review stage by research team
3. External Validity	Can findings be generalised?	— Plan in time & develop method for review of research findings across all R&D project (data sets) to identify generalisations
4. Reliability	Constructions of the research protocol	— Produce a step-by-step guide with training for early career researchers using the methods to enable the replication of field research methods across R&D projects and researchers, — Case study protocol (methods for research, analyses and format of final case study) will be agreed prior to first research activity commencing, — An iterative process will enable reflections on the methods used to be captured – reflections will be used to 'refine' the methods before being used in the next iteration.

Case Study Template

R&D Project:		
Researcher(s):		
Project commenced:	**Project commenced:**	**Project Funding & level:**
Collaborators:		Industry Partner(s):
Research Methods used & links to data & analyses:		

Completed Documents	Link
Literature Review	
Collaborative Roles Templates	
R&D Scale	
Project Outputs	

R&D Scale: From traditional to Design - led

R&D Project:		Researcher(s):		
R&D Activity				
Technical				**Creative**

Template for Mapping Bias

Bias	Researcher Experiences
Age	
Generation	
Gender	
Ethnicity	
Disability	
Social Background	
Ideology	
Topicality of Research	
Research Discipline	
Research Methods	
Evidence of Impact	
Public engagement / practice outputs	
Research Funding	
Publications	
Partners / collaborators	
Language of output	
Other	
Other	
Other	

Part 3

Schedule of training and workshops overview

Methodological training	
2 NOV	**Dr Marta Gasparin** Qualitative Research Methods — Changes and Challenges
5 NOV	**Dr Marta Gasparin** Qualitative Research Methods — Changes and Challenges
9 NOV	**Dr Jo Aiken** Interviewing for Insight
12 NOV	**Joel Gethin Lewis** Methodological Presentation
16 NOV	**Kendall Robbins** Evaluation methodologies and Frameworks **Dr Jo Aiken** Interviewing for Insight
19 NOV	**Joel Gethin Lewis** Methodological Presentation
23 NOV	**Josh Siepel** Creative Industries Policy
26 NOV	**Josh Siepel** Creative Industries Policy
30 NOV	**Douglas Atkinson** Contemporary Design Ethnographies & Their Controversies
2 DEC	**Kendall Robbins** Evaluation methodologies and Frameworks
8 DEC	**Dr Teresa Domenech** Circular Economy and the Fashion Industry **Patrizia Casadei** Fashion Cities in the Post-industrial era
17 DEC	**Douglas Atkinson** Contemporary Design Ethnographies & Their Controversies
22 JAN	**Dr Teresa Domenech** Circular Economy and the Fashion Industry

Workshops	
15 FEB	**Kendall Robbins + Josh Siepel** Policy
23 MAR	**Teresa Domenech** Case study 'Foundries of the Future'
24 MAR	**RCA staff** Design Pedagogies
21 APR	**Patrizia Casadei + Simona Immarino** Deriving policy recommendations from a data set

Staff Reflection

Jemma Ooi
Tutor Textiles School of Design RCA (ECR)

'I found these sessions really informative. Insight into methods of working outside of what I am familiar with was really fascinating and felt like information I wouldn't naturally be exposed to. The social sciences and ethnographic studies were particularly interesting and I gained insight into the multi-faceted nature of this type of study and the variables involved but I did not come away from these sessions with practical steps, stages or tools to work with. I found some examples difficult to comprehend ethically and was surprised by the power placed on past and personal experience influencing future conclusions and I left with a warning sign not to touch this model of study without thorough training or experience.
Where speakers within education were really motivating in the sense of signposting and highlighting interesting routes to research and building confidence in defining your own path to researching. I found the most practical advice came from industry, where theory of change and routes to policy change were approached in practical and realistic exercises. This was delivered in a way that was challenging but most useful in breaking down how a research question might be tackled and the stages required in order to create influence or large scale impact.'

Flora McLean
Senior Tutor FAM School of Design RCA
Designer (ECR)

'Joel Gethin Lewis' sessions were very useful indeed. I learnt the things listed below and have started to implement these in my work and with students. This was a memorable and informative talk as it was enjoyable and relaxing in its delivery and he asked for the audience to participate and be part of the discussions and conversations.
Anti Obfuscatory language
Little book of meditation
Utopic thinking
Non-experts can have an influence (all ages).
Question everything.
Binary counting
Combined expertise
High Weirdness'

Dr Marta Gasparin
Associate Professor
in Innovation and
Design Management,
Leicester UCU

Case studies in fashion

Case study research can be defined as a "process of conducting systematic, critical inquiry into a phenomenon of choice and generating understanding to contribute to cumulative public knowledge of the topic. Case study is an in-depth exploration from multiple perspectives of the complexity and uniqueness of a particular project, policy, institution, programme or system in a 'real life' context. It is research-based, inclusive of different methods and is evidence-led. The primary purpose is to generate in-depth understanding of a specific topic (as in a thesis), programme, policy, institution or system to generate knowledge and/or inform policy development, professional practice and civil or community action (Simons, 2009, p. 21).

It is a particularly useful mode of enquiry as it enables to study in depth a fashion process, uncovers its struggles, understand the influences of the socio-political contexts, and presents the accounts of the various actors involved.

As a case study relies on multiple sources of evidence, with data needing to coverage in a triangulating fashion (Yin, 2014), I have used predominantly archived data, observations, interviews, social media analysis and ethnographic research. In particular, I have used sensory ethnography. Sensory ethnography is based upon a multi sensorial experience, perception, knowing and practice (Pink, 2015). It is practice-based and applied. Sensory ethnography is a process of creating and representing knowledge that is based on ethnographers' own experiences on the field and visual ethnography. Sensorial ethnography aims to offer versions of ethnographers' experiences of reality that are as loyal as possible to the context, the embodied, sensory and affective experiences, and the negotiations and intersubjectivities through which the knowledge was produced. (Pink, 2013: 35). It frequently involves the use of digital visual and audio technologies to collect data (Pink, 2007a; Pink et al., 2004). Through this experiential process, through knowing and knowledge about the fashion process are created.

BIO Dr Marta Gasparin holds a Master in Philosophy of Aesthetic from Kingston (MA); a Master of Science in Economics and Management of Arts, Culture and Communication from Bocconi University (MSc); a Master of Sociology of Creative Business Processes from Copenhagen Business School (Cand.soc.); and a Bachelor degree in Management of Art and Culture from Bocconi University (BSc).
She has obtained an ESRC new investigator grant for 'Slow design-driven innovation'. Her research area is innovation and design management. She explores how design and innovation emerge, how value is created, and the role of the actors (objects, managers, designers) in the various innovation processes, drawing on ideas from science and technology studies. She is interested in design theory and the epistemological dimension of innovation, in particular in the relation between design and aesthetic, having recently completed a MA in philosophy of aesthetics.

Qualitative Research Methods
Changes and Challenges

The research investigated the innovation processes of socially innovative design and fashion organizations. The two sessions reflected on qualitative research methods, including case studies and sensory ethnography, and how they can be mobilized for action research, business and policymakers engagement. The sessions concluded with an overview of the challenges qualitative researchers face in light of the pandemic and how research methods have been forced to change.

Qualitative research:
1. problematization and research protocol for case studies
2. analyzing the data
3. findings: business engagement and policy dialogue

Sensory ethnography:
1. visual fieldwork methods
2. mundane objects
3. qualitative research in the pandemic: challenges and tentative approaches to conducting research at the time of COVID-19

Pink, S., Kurti, L & Afonso A.I. (editors). (2004). Working Images: Visual Research and Representation in Ethnography. Taylor and Francis. Kindle Edition.

Simons, Helen (2009). Case Study Research in Practice. London, Sage.

Harris, A., Wojcik, A., & Allison, R. V. (2020). How to make an omelette: A sensory experiment in team ethnography. Qualitative Research, 20(5), 632–648.

Reed, Mark S (2018). The Research Impact Handbook (2nd Edition). Aberdeenshire: Fast Track Impact.

Dr Jo Aiken
UCL London

Interviewing, as a research method, is more than asking questions. Ethnographic interviewing, a systematic approach used within design anthropology, provides an opportunity to gain insights that would otherwise go unnoticed. Researchers trained in this empirical approach to gathering data carefully construct a conversation with participants that dig deep into beliefs, perceptions, and culture. In the end, researchers are left with a colorful picture of how users, or societies, interact with the world around them as well as how they will engage with future designs.

BIO   Jo Aiken, Ph.D., is a design anthropologist and current research fellow in the Department of Anthropology at University College London (UCL). Her research interests and professional work lie at the intersection of organizational culture, design futures, and innovation. Before joining UCL's ETHNO-ISS project, Jo worked as an applied researcher in healthcare, aviation, and aerospace.

She has over 20-years of experience at NASA working in various roles from Mission Control to human factors engineering to executive leadership consulting. With interests in organizational culture, technology development, innovation, and the future, Jo is currently looking at innovation development within and regarding NASA's infrastructure and team performance.

Interviewing for Insight

Session 1
Interviewing for Insight, Part 1 – The Ethnographic Interview

This workshop introduced the principles and practices of ethnographic interviewing, one of the primary data collection methods of cultural and design anthropology. It provided practical instruction on using in-depth, ethnographic interviews including how to prepare for interviews, select participants, conduct interviews and collect data.

Session 2
Interviewing for Insight, Part 2 – Analyzing for Insight

This workshop covered how to make sense (and gain meaning) from interview data. It built on The Ethnographic Interview workshop by providing the theory behind qualitative data analysis as well as sharing practical tools and tips on analyzing ethnographic data.

LeCompte, Margaret D. (2000) "Analyzing qualitative data." Theory into practice 39, no. 3: 146-154.

Schensul, Stephen L., Jean J. Schensul, and Margaret Diane LeCompte (1999). Essential ethnographic methods: Observations, interviews, and questionnaires. Vol. 2. Rowman Altamira.

Strauss, Anselm, and Juliet M. Corbin (1997). Grounded theory in practice. Sage.

Weiss, Robert S. (1995) Learning from strangers: The art and method of qualitative interview studies. Simon and Schuster.

Sam Ladner, Practical Ethnography

Joel Gethin Lewis
Lead Lecturer CCI,
Camberwell UAL

It was such a refreshing experience to be so graciously hosted by the group of Future Fashion Factory researchers. I felt really held and supported, which was a big change to the way I normally feel in academic discussions. The blending of disciplines, approaches and career paths was an all too brief glimpse into the way that this work could be conducted in the future - with kindness, care and joy.

Methodological Presentation

Session 1+2
The sessions presented a tour of the methodologies that have worked for Joel over his 20-year career touring with rock bands, building installations using bleeding edge technologies and collaborating remotely with diverse globally distributed teams.

BIO Joel is an interaction designer and lecturer. His research spans solar-powered computing, the history of weaving and global scale augmented reality sculpture.
Ever since watching the Wizard of Oz he's been interested in the mechanisms or systems that enable stories to be told or society to function. Joel is interested in making work that allows for real-time interaction between people, places, stories and objects through the use of technology.

Since 2019 he's been the Interactive Creative Director at Universal Everything and the lead lecturer on the Diploma in Creative Computing at the Creative Computing Institute, Camberwell, University of the Arts London.

https://universaleverything.com
https://www.arts.ac.uk/subjects/
creative-computing/undergraduate/
ual-creative-computing-institute-
diploma
https://joelgethinlewis.com/

Kendall Robbins
Independent Cultural
Manager and
Student Nurse

Change is often unwelcome, but it could be argued we are living in changing times. For the global fashion industry there is ever growing evidence that it needs to drastically change the way it treats both material and human resources. Fashion often suffers from being insular and is struggling to look beyond itself for change. Part of the problem is that we always think 'how can we fix fashion?' when that shouldn't be the question. The question should be 'what do we value and how do we get there?' Perhaps we need to drop the word fashion entirely. It has become imbued with ideas and values we cannot remove – so long as we continue to find solutions within this framework, we cannot extract ourselves from its colonising origins and model of consumption. This is wrapped up in the need to decolonise design and completely rethink how we understand fashion. I don't think most sustainable fashion goes far enough to disconnect from the system and the western paradigm. It's still too often design as aesthetic, rather than systems and transitions. There is so much to be learned from other discourses and ways of thinking.

What does this change look like to me? We need to start by leading with care and evaluating what has come before. I think that degrowth is needed. I think practitioners need to take a post development approach and think locally and lead with values. Fashion is a system which has grown from capitalism and slavery, and we will need more transition designers to design us out of that system. At the centre of this, we need flexible, iterative, empathetic and conscious practitioners who can self-organise and work within local communities. Future Fashion Factory contributes to this by creating a platform for interdisciplinary minds to come together and explore radical new ways of thinking and doing policy, pedagogy and industry.

BIO　Kendall Robbins is an independent cultural manager and believes that through cultural practices like design and making that collectively we can address global challenges and inequalities. She is interested in how we care – for each other and across health, environment and culture – and how we transition to a culture of care. For 10 years Kendall worked in the Architecture, Design and Fashion department of the British Council, the UK's cultural relations organisation. She programmed, managed, commissioned, curated and produced hundreds of cultural programmes, projects, exhibitions and events in more than 60 countries. Exploring themes like emerging fashion ecosystems, resilient fashion, cultural heritage and craft futures, Kendall has collaborated with international partners such as Lagos Fashion Week, the National Craft Institute of Malaysia, the National Museum of Bangladesh, and Fashion Weekend Skopje. In 2020, Kendall left the British Council to pursue a nursing degree at King's College London and patient advocacy work for Ehlers-Danlos Syndrome.

Evaluation methodologies and Frameworks

Sessions Outline

I believe that within the fashion industry individuals need to start using processes like self-reflection and evaluation to develop a self-awareness of where they sit in a global system and how their practice impacts others. This includes a relational practice of understanding where your assumptions, views and biases come from and how they influence you.

Across two sessions, we unpacked lessons learned from a public cultural body alongside my own self-reflective journey and how these could be applied in fashion research. We explored methodologies and frameworks used for self-reflection, designing a project with evidence in mind and evaluation. We examined some of the practical existing tools from arts organisations and worked through a theory of change.

Alongside case studies from around the world, we looked at how these ideas of reflection, research, evidence and evaluation have been applied to design and alternative ways of thinking. On a journey through transition design, Indigenous wisdom, decolonising design, degrowth, and post development, we considered who a future fashion practitioner is, and what kind of mindset and tools they'll need.

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Dr Josh Siepel
University of Sussex

Creative Industries Policy

Session 1
Mapping and understanding the creative industries

This session provided an overview to how we identify and understand creative industries, including what the creative industries are (and are not), challenges in identifying creative industries companies, and the issues and challenges posed by trying to identify creative clusters. Drawing upon a series of pieces of research – from older Nesta research to the new Creative Industries Radar report on creative microclusters, this provided context to what creative industries are, what they do, and where they are.

Session 2
Creative industries policy and how researchers can engage with policymakers

This was a two-part session; Firstly it explored and explained the policy environment for creative industries – who makes decisions, what types of policies are made, and who (and where) is affected by these policies and a discussion of the economic logic underlying policy decisions (e.g. cost-benefit analyses and how they are presented to the Treasury). The second half was a workshop discussing how academics can engage with policymakers – drawing upon the experience of the Creative Industries PEC. Attendees were helped to think about policy-relevant results and how to present and target those results in an impactful way.

BIO Dr Josh Siepel is Senior Lecturer (Associate Professor) of Management at the Science Policy Research Unit at the University of Sussex. His research focuses on the intersection between entrepreneurship, skills and innovation, with particular reference to the role of creative industries and creative skills in the economy. He leads the Clusters and Innovation workstrand of the Creative Industries Policy and Evidence Centre.

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Douglas Atkinson
PhD candidate, UCL London

Fashion theory has traditionally taken a material culture perspective, derived from dress studies and museum studies, in which culture is read from a finished artefact.

Yet the majority of studies moving away from understandings of garments as fixed forms focus on the continued transformations of garments during wear, rather than the transformational process of making. In this case reading the identities and cultures (of use) which wearers create. Very little research currently approaches garments in process during making. In this context it is reasonable to ask what methods might help us to engage with this topic? Particularly as making processes are undergoing rapid digitisation and automation, at a time when their traditional low-tech predecessors are still little explored.

An additional issue is fashion's engagement with temporality. The trend focus of the majority of constructions of 'fashion thinking' prevents the discipline from truly thinking about futures beyond a limited design and sales cycle. The challenge is therefore twofold: to understand current making processes in practical terms and to speculate further into the future on how these may change.

Current studies which do explore making generally take a philosophical approach to reading the authors practice as research, but shed little light on the processes at play. How they enact skill and specific thinking? How skill is transmitted and making encounters themselves might be pedagogic? What might be lost and gained through the implementation of new making processes? What might the changing nature of making mean for design?

These are the pressing questions for research exploring fashion making.

BIO Douglas Atkinson is a PhD candidate attached to the IN-TOUCH project at UCL Knowledge Lab with a background in fashion pattern cutting and garment production. His research interests include touch perception of physical and digital objects, and the multi-sensory experience of garment making. Particularly the ways digital technology can be used to capture the sensory experience of a garment maker. His PhD research explores the role of touch in garment design development and the possibilities for emerging digital touch technologies to support and communicate designer's embodied, tactile understandings. Douglas has previously held a Research Fellowship at London College of Fashion, University of the Arts London, been a Research Associate on the 'Digital Sensoria: Design through Digital Perceptual Experience' project (RCUK Digital Economy Programme, Central Saint Martins, University of the Arts London & Brunel University London) and Co-Investigator on MIDAS (ESRC, London College of Fashion). He has published in the Journal of Design Research, the International Journal of Design and contributed chapters to Digital Bodies: Creativity and Technology in the Arts and Humanities (2017, Broadhurst & Price Eds.), The Sage Handbook of Visual Research Methods (2019, Pauwels & Mannay Eds.) and co-authored Interdisciplinary Insights for Digital Touch Communication (2020).

Contemporary Design Ethnographies & Their Controversies

Session 1
Controversies of Design Ethnographies

This session introduced and discussed three recent approaches to ethnography, all with links to design. Sensory Ethnography, Thing Ethnography and Anticipatory Ethnography all have short histories of theorisation and use as research approaches. Each of them challenges conventional ideas of ethnography in significant ways which some academics argue situate them outside of the discipline, yet each offers a different and valuable perspective that traditional ethnography cannot engage with.

Session 2
The Social Character of Future Technologies

This session explores recent interdisciplinary projects incorporating design methods to explore emerging technologies, so that their possible social impacts can be investigated. Sociotechnical imaginaries and other concepts relevant to our social construction of technology will be introduced and used to structure a discussion of our perceptions of globalised garment and textile manufacture.

Pink, S. (2015) Doing Sensory Ethnography, 2nd Edition. London: Sage.

Mager, A. & Katzenbach, C. (2020) Future imaginaries in the making and governing of digital technology: Multiple, Contested, Commodified. New Media & Society. Online First.

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Coulton, P & Lindley, J. (2019) More-Than Human Centred Design: Considering Other Things, The Design Journal. 22:4, 463-481.

Giaccardi, E. et al. (2016) Thing Ethnography: Doing Design Research With Non-Humans. Proceedings of the 2016 Conference on Designing Interactive Systems, ACM, Brisbane, Australia, June 4-8, 377-387.

Lindley, J. & Sharma, D. (2014) An Ethnography of the Future.

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Jewitt, C. et al. (2020) Sociotechnical Imaginaries of Digital Touch. In: Interdisciplinary Insights for Digital Touch Communication. Cham: Springer Nature. 89-105.

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*read introduction if available – not online

Dr Teresa Domenech Aparisi
University College London

While the content of each of the sessions was different, the discussions enabled to build a thread of continuation for collaborative exploring of new avenues of interdisciplinary research in the areas of circular fashion, sustainable manufacturing and research approaches. One of the most rewarding aspects of leading the workshop was to engage in dialogue with experts in fashion about the opportunities and limitations of circularity but also to learn about design-based research approaches and how they can complement quantitative modelling and other qualitative approaches for a more holistic assessment of the fashion industry. The workshop also helped to get to know each other better and identify areas for future collaboration. I really hope we can maintain the dialogue and work towards a small research project or proposal

BIO Teresa Domenech is Lecturer in Industrial Ecology and the Circular Economy at the Institute for Sustainable Resources. She holds a Bsc degree in Economics, an Msc degree in Environmental Management and Sustainable Strategies and completed her PhD at the Bartlett School of Graduate Studies (UCL) in the areas of industrial symbiosis and sustainable manufacturing. Teresa Domenech's areas of expertise and research interests lie in the areas of industrial symbiosis, sustainability, circular economy, urban metabolism, green manufacturing, environmental policy and the application of circular economy principles to industrial and urban transitions. In her research, she has made extended use of a wide range of research methods, including Material Flow Analysis, Life Cycle Assessment, Statistical analysis, Grounded Theory, Discourse Analysis and Social Network Analysis.

Circular Economy and the Fashion Industry

Session 1
Key Circular Economy principles and strategies

Session 2
Focus on fashion but from a supply chain perspective covering manufacturing practices, raw materials and alternative feedstocks, new business models, etc.
Workshop: Methodological approaches to assess sustainable manufacturing models in the fashion industry at urban and other system levels

Workshop
Circular fashion: understanding leverage points in the transition towards the CE of the fashion secto

The main aims of the workshop are: 1) to gain understanding of the concept of the CE and its potential and applications to the fashion industry and 2) to explore new methods and methodological approaches for systematic assessment of circular and sustainability implications of fashion design and manufacturing. The workshop was structured in three sessions as detailed above. By the end of the workshop, participants were able to identify key areas of opportunity for circular transition in fashion and have an understanding of different methodological approaches to assess fashion manufacturing and mobilise actors along the value network.

The teaching methodology was a combination of a lecture and a reflective discussion leading to the developing a new collaborative learning and researching approaches in the area of fashion manufacturing.

EEA (2017). Textiles in Europe's circular economy.

Ellen MacArthur Foundation (2014). Towards The Circular Economy, Vol. 3: Accelerating The Scale-up Across Global Supply Chains.

Ellen MacArthur Foundation (2017). A New Textiles Economy: Redesigning fashion's future.

Fashion for Good (2019). Tracing organic cotton from farm to consumer.

Fashion Revolution (2020). Fashion Transparency Index – 2020 Edition.

Gereffi, G. and Frederick, S. (2010) The global apparel value chain, trade and the crisis: Challenges and opportunities for developing countries. Policy research working paper 5281. World Bank, Washington, DC, USA.

JRC (2014). Environmental Improvement Potential of Textiles. JRC Scientific and Technical Reports. Seville: European Commission JRC – IPTS.

Dr Patrizia Casadei
University of Sussex

The design anthropology programme has been a great opportunity to discuss and share ideas on useful methodologies and policymaking in fashion research. My lecture was aimed at stimulating critical reflection on the different kinds of positioning that fashion takes in urban economies. An analytical framework developed through a Max Weber's ideal type approach was presented as a heuristic device to think about the characteristics of fashion cities and to trigger debate about their future development and policy directions.

The diversity of fashion's relationship with the urban is fully reflected in the variety of methodologies that can be used in fashion research. In particular, the growing emphasis on intangible or symbolic forms of fashion production has raised the need to explore people's perceptions and opinions for a more comprehensive understanding of the complexity of contemporary fashion. In this regard, in addition to traditional methods such as interviews or surveys, social media (e.g., Twitter, Instagram, Facebook, Linkedin) now represent a useful source of easily available data that allow researchers to investigate the views of industry actors, consumers, or the general public on a variety of fashion-related themes.

BIO   Dr Patrizia Casadei is a Research Fellow at the Science Policy Research Unit (SPRU), University of Sussex Business School. Her research focuses on local economic development, cultural and creative industries and the relationship between creativity, economy and cities, with a particular focus on the fashion industry and its role in urban economies.

Fashion Cities in the Post-Industrial Era

Session 1

Fashion cities in the Post-industrial era: exploring the tensions between creativity, manufacturing and symbolism. Over the last two decades, the concept of the fashion city has drawn the increasing attention of scholars, urban authorities and policymakers as a new model of local economic development. The lecture included an overview of the fashion industry as a driver of growth, revitalization and competitiveness of major and minor cities across the world. The relationship between fashion and cities was analysed through the lenses of the literature on creative industries and creative cities. Followed by a discussion on the heterogeneity of fashion centres and the theorization of such diversity into a theoretical framework proposing different ideal types of fashion cities.

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Casadei P and Neil L (2020) Global cities, creative industries and their representation on social media: A micro-data analysis of Twitter data on the fashion industry. Environment and Planning A, 52(6): 1195-1120.

Casadei P and Gilbert D (2020) The hunting of the fashion city: Rethinking the relationship between fashion and urbanism in the twenty-first century. Fashion Theory, 24 (3): 393-408.

Casadei P and Gilbert D (2018) Unpicking the fashion city: Global perspectives on design, manufacturing and symbolic production in urban formations. In: L. Lazzeretti and M. Vecco (eds.) Creative Industries and Entrepreneurship: Paradigms in transition from a global perspective. Edward Elgar.

Casadei, P. (2018) Unpicking the fashion city: theoretical issues and ideal types. An empirical analysis of London. PhD dissertation, Department of Economics and Management, Doctoral School of the Social Sciences, University of Trento.

Lazzeretti L, Capone F and Casadei P (2017) The role of fashion for tourism: Florence as a manufacturing fashion city and beyond. In: N. Bellini and C. Pasquinelli (eds.) Tourism in the City: Towards an Integrative Agenda on Urban Tourism, Cham: Springer, pp. 207-220.

Part   4

Appendix
Essay 1

The Executive Summary 2020, Manufacturing the Future Workforce, from The High Value Manufacturing Catapult recognises that the overall contribution manufacturing made to the UK economy was in decline, but that the government wanted to make the UK more competitive in this field - particularly involving digital technologies.[1]

The Longitudinal Education Outcomes data (LEO, 2020) suggested studying for an arts and humanities degree did not enable graduates to earn significant salaries by age 29 when compared to economics or science graduates.[2]

The Creative Industries Manifesto suggests that metrics beyond salary were urgently needed to capture the true value of creative education. Wider measures such as social value, creative achievements, and civic contribution must be recognised, they claimed.[3]

June of 2019 the UK government comprehensively rejected every recommendation of the Environmental Audit Committee's Fixing Fashion Report: Clothing Consumption and Sustainability (EAC Fixing Fashion Foundation 2019). The recommendations included: an Extended Producer Responsibility (EPR) scheme; a ban on incinerating or landfilling unsold stock that can be reused or recycled; mandatory environmental targets for fashion retailers with a turnover above £36 million; that the fashion industry must come together to set out their blueprint for a net zero emissions world; a scheme which would reward fashion companies that design products with lower environmental impacts and penalise those that do not; a more proactive approach to enforcement of the National Minimum Wage; a list of retailers required to release a modern slavery statement and an appropriate penalty for those companies who fail to report and comply with the Modern Slavery Act.

1. High Value Manufacturing Catapult (2020) Executive Summary. Manufacturing the Future Workforce Retrieved January 2020 from www.politicshome.com/news/uk/economy/opinion/high-value-manufacturing-catapult/109281/high-value-manufacturing-catapult

2. LEO (2019) Graduate earnings data on Discover Uni from the Longitudinal Education Outcomes (LEO) data https://www.officeforstudents.org.uk/data-and-analysis/graduate-earnings-data-on-discover-uni/

3. Creative Industries Federation Report. (2020). New Economic Growth Figures. Retrieved February 05 2020 from https://www.creativeindustries-federation.com

The Alliance Project Report [4]

Recommendations:

— encourage collaboration and consortia, as government has done in the aerospace and automotive sectors, to cost effectively support training, trade and investment;
— support the establishment of manufacturing 'Primes' that generate supply chain 'spill-overs'; and investment to grow SMEs that will support the development of micro-size firms; and
— support investment to secure growth opportunities in the 'circular economy' including the re-use and recycling of existing textiles resources, and generating new substitute materials.

Industry, working with Government, universities, and other public/private support agencies should deliver a physical space for industry that will drive innovation and excellence. This will enable and foster networking and collaboration between industry and globally recruited 'world-class' talent from the disciplines of Design, Fashion, Manufacturing and Engineering.

There is a clear need to promote the specific assets, capabilities and expertise which exists within these large organisations amongst SMEs that lack the contacts, connections and knowledge of opportunities for product development and design. This is reflected in the unmet demand to make small sample batches of new designs in locations that are physically near creative and design centres. p.109

Textiles and clothing sectors should seek new ways to increase collaboration between companies. For example, potential exists to develop the Virtual Factory concept whereby small firms use ICT to collectively win contracts.

4. Alliance Report (2014). https://s3-eu-west-1.amazonaws.com/ukft/wp-content/uploads/2018/05/13115441/Repatriation-of-UK-textile-manufacture-The-Alliance-Project-Report.pdf accessed 6.6.21

The research has highlighted four key opportunities that would help to deliver greater levels of innovation and create additional growth in the UK's textiles sector:

— Development of a physical space for industry that will drive innovation and excellence – through enabling and fostering networking and collaboration between industry and the globally recruited talent from the disciplines of Design, Fashion, Manufacturing and Engineering;
— Delivery of textiles product and process innovation in the 'circular economy';
— Foster opportunities for greater commercialisation, especially of new products, new scientific discoveries and innovation in new technologies and processes;
— Locating the centre within the densest concentration of textiles manufacturing in the UK, thereby capitalising on the proximity to, and partnership with, the biggest global centres of teaching and learning on textiles.

RSA's report from 2018 From Design Thinking to Systems Change: How to Invest in Innovation for Social Impact

Levelling Up Strategy.[5]

Green Industrial Revolution[6]
Ten Point Plan for a Green Industrial Revolution Building back better, supporting green jobs, and accelerating our path to net zero.

Links/ Data sources
SIC codes
ONS data
NOMIS
HMRC
LEO
Office of the Small Business Commissioner.
Local Economic Partnerships (LEP)
Centre for Cultural Value Leeds

5. https://www.gov.uk/government/collections/new-levelling-up-and-community-investments. Accessed 6.6.21

6. https://www.gov.uk/government/publications/the-ten-point-plan-for-a-green-industrial- revolution/title

Appendix
Essay 2

Design Theory

Design as an academic field saw several influential theories make their mark on the discipline over the last 3-4 decades, thereby forever changing the landscape and trajectory of design activities. This has hugely affected the types of roles designers now pursue in the industry and greatly incentivised popular courses like service design, interaction and innovation design and a range of future studies. One of the most notable changes of the recent past is design's turning away from physical object. The contributing factors to this move towards a post-thing[1], dematerialised practice are complex and manifold. One such factor is a shift in mindset after having severely contributed to some of the world's 'wicked problems'[2] including global consumerism, climate change and petro-pollution. This adjustment from a product to a service category is evidenced by a will to make good in the face of ecological, social and economic change. Design academia is marked by distinguishable turns as responses to changing markets and mindsets.[3] These influential design theories usually emerge along with changes in attitude towards practices, processes or new policies, clearly addressing specific needs or a lack within pervasive industrial and academic praxis, pointing us to actions to remedy these factors. The milestone models of the recent past I am referring to here are of course Design Thinking, Critical Design and Transition Design - all of them a direct result of our maturing understanding of complex systems and how they influence material culture. Far from being the universal frameworks they are often praised as, these theories and their resulting models are expressions of a zeitgeist and naturally garner critique as we progress to other systems and develop newer, more pluralistic theories.[4] It is misleading to think though that their influence cannot be long lasting; Design Thinking models[5] for example still prevail, particularly in

1. Clarke, A. J. (2017). The Anthropological Object in Design. In Design Anthropology. Object Cultures in Transition. Bloomsbury Academic.

2. Rittel, H., & Webber, M. (1973). *Dilemmas in a General Theory of Planning*. Policy Sciences 4, Elsevier Scientific Company: Amsterdam.

3. Tonkinwise, Cameron. (2017). *Post Normal Design Research: The Role of Practice Based Research in the Era of Neoliberal Risk*. In *Practice –Based Design Research* edited by Lauren Vaughn, p29-39. London: Bloomsbury Visual Arts.

4. Escobar, A. (2017). *Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds*. Durham; London: Duke University Press.

5. Design Council (2004). Innovation Framework: Double Diamond.

large parts of western institutions and design companies and continue to inform global research standards whilst having been extensively critiqued for their neoliberal, pro-growth structure.[6] Inherent to all of these theories is a certain vague grandiosity, an ambition for universal application. So rather than enmeshing fashion with either of these theories too tightly, we might ask what we can learn from them and how relevant parts can be integrated into our curriculum to lead us to more fitting educational models.

6. Dare, E. (2020). *Teaching Machines: platforms, pedagogies and the wicked problem of design thinking*. [online] The post-pandemic university.