

Next (Re)Generation Architectural Education: Disrupting design pedagogy through social lab processes

Mat Jones

University of the West of England

Holly Doron

CoLab Dudley & Birmingham City University

Lorna Prescott & Jo Orchard-Webb

CoLab Dudley

Rachel Sara

Birmingham City University

ABSTRACT

There is a need for radical disruption of architectural education in the context of the growing crises of climate change and environmental and social injustice. This paper reflects on collaborative live projects between Birmingham City University students and social lab, CoLab Dudley in Dudley, UK: an experimental form of infrastructure creating conditions for cultural action rooted in long-term thinking, collective imagination and regenerative design. We explore how collaboration with a social lab can provide an experimental, systemic and social setting to disrupt normative architectural education, and the qualities and techniques creating the fertile ground for this to be successful.

KEYWORDS

live projects; social labs; disruptive design; Dudley; regenerative design

Architectural education: The need for change

There is an urgent need for the radical disruption of architectural education to address the multiple crises of climate change, biodiversity loss, and growing environmental and social injustice. With the building sector contributing 38% to global greenhouse emissions, there are calls for greater climate literacy in the way architects design.¹ Often the response to this challenge is a drive to improve building performance, applying innovative technologies to reduce energy use and emissions, and reducing carbon embodied in materials and their production.² However, a focus on material and technological solutions alone will not enable us to co-evolve with our planet towards more flourishing and regenerative futures, which is primarily a cultural and psychological issue.³ A focus on creating buildings, profit, and disjointed, short-termist project deliverables draws architects away from social and ecological justice, which contributes to, and will continue to worsen, the climate crisis.⁴ To achieve a transition toward a flourishing future requires the nurturing of conditions that can disrupt normative ways of designing, enabling and enabled by shifts in individual and collective mindsets.⁵ Increasingly, it is being argued that this requires the reorientation of design and designers towards more relationally attuned ways of being, knowing and doing to achieve flourishing futures.⁶

In this paper we present a case study of a two-year collaboration between Birmingham School of Architecture and Design (BSoAD) and CoLab Dudley, a social lab based on Dudley High Street, which aimed to explore this ambition. We analyse two live project collaborations to explore how the combination of architectural and social lab processes might challenge normative architectural education. The focus is on the interplay between two ontologies: architectural education, particularly the pedagogies of live projects; and regenerative social lab approaches and techniques. Through a framework drawn from literature we analyse two projects: a twelve-week interdisciplinary live project and a seven-month Master of Architecture design studio unit. While architectural education live projects and social labs have been previously documented, the interactions and interplay between these two fields has not been previously explored. Here we aim to tease out the potential of social lab techniques to disrupt architectural design processes as a catalyst for regenerative action. We highlight the qualities, conditions and techniques employed by the project team that disrupted normative architectural education processes. Through this analysis, we offer a perspective of one way to shift from what architectural education *is* to what it *could* be in response to global challenges.

Live projects in architectural education

As the normative means of educating architects, University degree courses have a responsibility to impart the knowledge, skills, and behaviours needed to achieve a transition to flourishing futures, in other words, regenerative futures in which *all* life can flourish.⁷ While the profession is becoming increasingly collaborative, albeit constrained by a capitalist competition paradigm, design studios are often remote from the real world and the types

of relationships that occur in practice.⁸ Architecture education has been criticised for producing ‘the solitary genius, rather than today’s collaborator’.⁹

One response is a renewed focus on live projects, a shift previously documented in Charrette¹⁰ and which has gained significant momentum in recent years.¹¹ Live projects are as a way to bridge the gap between academic curricula, architectural practice and the real world, seen for example in the work of Rural Studio, a design build programme part of Auburn University, USA; Live Projects and Live Works at Sheffield University, UK, running since 1999; Co.LAB at Birmingham City University, running since 2011; Hands-On-Bristol at UWE Bristol, UK, running since 2015; and the Live Projects Network, an online resource connecting global live projects in education, hosted by Oxford Brookes University, UK.

Live projects vary in scale and approach from 1:1 design-build projects, to client-initiated and participatory community-based design, to co-design and activism, to feasibility studies.¹² Often carried out in groups, live projects connect students, academics and external collaborators, encouraging peer and collaborative learning and generating knowledge through an inherently social process.¹³ Projects introduce different experiences and possibilities for students beyond design studio, exposing students to alternative viewpoints, interests, knowledges and lenses alongside professional skills such as group dynamics, team roles, responsibilities and cooperative problem solving.¹⁴ More recently, a shift toward socially-engaged projects has been documented which sees projects engage with diverse communities, sustainability issues and societal challenges.¹⁵ By their collaborative nature, live projects can shift the locus of knowledge, education and power from sharing knowledge that is created within the University to collaboratively creating knowledge in situ with communities.¹⁶

Social labs: Systemically experimenting with societal challenges

In this paper we reflect on a live project collaboration between Birmingham School of Architecture and Design and CoLab Dudley, a social lab based on Dudley High Street. Social labs bring together diverse participants to prototype approaches that address the root cause of systemic issues.¹⁷ Social labs began to emerge in 2003 to respond to complex social challenges.¹⁸ Timmermans et al posited six features social labs must have ‘to adequately deal with the complex, emergent nature of social challenges’:¹⁹

- **Systemic** - Experiment on a systemic level to achieve systemic change.
- **Contextual** - Are ‘intently part of the real world’ with experiments in context of social challenges.
- **Experimental** - Provide a space for action-oriented experimentation.
- **Participatory** - Require ‘active participation of a wide range of societal stakeholders that are of relevance to or have an interest in the social challenge’.

- **Multidisciplinary** - Are ‘multi- and interdisciplinary involving a wide range of expertise and backgrounds as well as approaches’.
- **Iterative** - Have iterative, agile approaches rather than pre-set plans with learning cycles that ‘allow the evolution of prototypes and solutions over time’.

Each social lab has a different focus, for example food, leadership, museums, business, health, funding, energy, transport, security, environment, education, etc.²⁰ CoLab Dudley’s focus is nurturing conditions for cultural action rooted in long-term thinking and collective imagination towards a regenerative High Street. Regenerative approaches seek to repair ecological systems and create conditions for self-renewal. This involves growing people’s capabilities to connect with, learn about, respect, become embedded within (as opposed to separate from) and care for their places and the more-than-human life through dialogue and imagination.²¹

Since 2016, CoLab Dudley has been experimenting with new forms of social infrastructure to nurture conditions for narratives and worldviews based on regenerative relationships between all beings, rather than mechanistic, colonial and extractive worldviews. CoLab Dudley seeks to democratise cultural practices and call attention to who gets to create culture by lifting cultural co-production rooted in place. This includes convening Dudley’s Time Rebels: mostly local doers and creatives who have taken up the challenge to nurture imagination and long-term thinking in Dudley.²²

CoLab Dudley’s regenerative focus has led to different approaches when compared with other social labs. We have therefore used Timmermans et al’s features of social labs to structure a literature review of social lab approaches and to determine how these compare with CoLab Dudley’s regenerative approaches (Table 1).

Table 1:
Comparison of social lab approaches
between literature and CoLab Dudley
(Holly Doron 2023)

Social Lab Approaches	CoLab Dudley’s Regenerative Approaches
<p><i>Systemic</i></p> <ul style="list-style-type: none"> • Addressing the root cause of challenges.²³ • Provide a setting to collectively develop an understanding of a systemic situation, and identify emerging alternatives and potential leverage points.²⁴ 	<p><i>Systemic</i></p> <ul style="list-style-type: none"> • ‘Aim to support the resilience and health of the whole system, to foster diversity and redundancies at multiple scales, and to facilitate positive emergence through paying attention to the quality of connections and information flows in the system’.²⁵
<p><i>Contextual</i></p> <ul style="list-style-type: none"> • Situated in real-life settings.²⁶ • Can vary in scale and can be held at venues, within institutional settings, or even virtual spaces.²⁷ • Can be temporary and ‘dispersable and movable’, arising ‘around people rather than places’.²⁸ 	<p><i>Place-embedded</i></p> <ul style="list-style-type: none"> • Cyclical process of developing an understanding of place, designing for harmony with that place, and co-evolution through developmental integrative processes, growing stakeholder partnerships and living systems thinking.²⁹ • ‘Co-evolution among human and natural systems... in specific places, using approaches that are precisely fitted to them’.³⁰ • Working hyper-locally over a sustained period.³¹

Social Lab Approaches	CoLab Dudley's Regenerative Approaches
<p><i>Experimental</i></p> <ul style="list-style-type: none"> • Ongoing iterative prototyping of solutions to co-defined social challenges, as opposed to project-based.³² • Build on methods and tools from design, systems and participatory practices.³³ • Experimentation through workshops and programmes for pilot idea development.³⁴ 	<p><i>Experimental</i></p> <ul style="list-style-type: none"> • Start from potential rather than problems to develop mutual caring and enthusiasm.³⁵ • Co-creation of evolving experiments and responses to changing conditions, as opposed to finite solutions, through long-term embeddedness within place.³⁶ • Experiment with and share tools from regenerative approaches, permaculture.³⁷ • Experimentation through an infrastructure that enables multiple points of entry and levels of participation.³⁸
<p><i>Participatory</i></p> <ul style="list-style-type: none"> • Inherently social, involving a diverse range of participants, including from antagonistic factions, to enable collective sensemaking and action.³⁹ • Co-creation with the citizens within and impacted by the system being explored, building relationship relationships at the speed of trust within a horizontal structure that challenges power and privilege dynamics.⁴⁰ • Team of recruiters and facilitators who leverage their existing contacts to identify and invite potential candidates to participate.⁴¹ • There is a risk of power players and structures in existing systems to co-opt processes.⁴² 	<p><i>Co-creative</i></p> <ul style="list-style-type: none"> • Network guardians using an understanding of the systems they are nested within and network weaving to nurture a flourishing network of people collectively working differently for regenerative futures.⁴³ • Network guardians holding boundaries to avoid extractive behaviours that could inadvertently cause harm to what is being co-produced.⁴⁴
<p><i>Multidisciplinary</i></p> <ul style="list-style-type: none"> • Require diverse teams of stakeholders with members from government and businesses, in sometimes with traditional hierarchical team structures.⁴⁵ • Transdisciplinary teams working flexibly across disciplines they are unfamiliar with for a multitude of capabilities and perspectives.⁴⁶ • Permeable boundaries between the team, wider network and ecosystems with a multiplicity of perspectives, worldviews and experiences.⁴⁷ 	<p><i>Transdisciplinary</i></p> <ul style="list-style-type: none"> • Non-hierarchical transdisciplinary lab team, with diverse skills and activities fluctuating with the potential within the ecosystem.⁴⁸ • Permeable boundaries between the team, Time Rebels and wider ecosystem.⁴⁹
<p><i>Iterative</i></p> <ul style="list-style-type: none"> • Avoid pre-determined outcomes with cyclical and iterative processes of experimentation and mutual learning to support emergence of innovation.⁵⁰ • Sharing and open-sourcing learning and findings for others to adapt and evolve in different contexts.⁵¹ • Create learning experiences.⁵² • Adaptive and agile infrastructure to build alternative approaches and change with contexts.⁵³ • Paying attention to the connections and flows within the system to see and share emerging stories and meta-narratives.⁵⁴ 	<p><i>Co-evolutionary</i></p> <ul style="list-style-type: none"> • Avoidance of preconceived solutions.⁵⁵ • Cultivation of support for, storage of and sharing of learning.⁵⁶ • Use of developmental principles-focused evaluation to navigate and adapt to the shifting complexities, with co-evolving GUIDEing principles⁵⁷: <ul style="list-style-type: none"> • Be good ancestors⁵⁸ • Seek living systems health • Invite curiosity • Learn by doing together • Nurture connections

There is evidently a spectrum of social lab approaches and behaviours that are informed by the scale, location, participants and focus of each individual lab. Given CoLab Dudley's focus upon regenerative approaches, we feel it appropriate to reframe Timmermans et al's features into six defining characteristics of social labs that are, or aim to be, regenerative:

1. **Systemic** – paying attention to scales, connections and flows within systems.
2. **Place-embedded** – intently part of the social and physical context of the ecosystem they are operating within.
3. **Experimental** – responding to the potential of context through co-created experiments.
4. **Co-creative** – doing together with beings of place through a focus on relationships and holding boundaries to extractive behaviours.
5. **Transdisciplinary** – cultivating fluid boundaries of a multitude of capabilities and perspectives.
6. **Co-evolutionary** – supporting and sharing continual learning as good ancestors.

Methodology

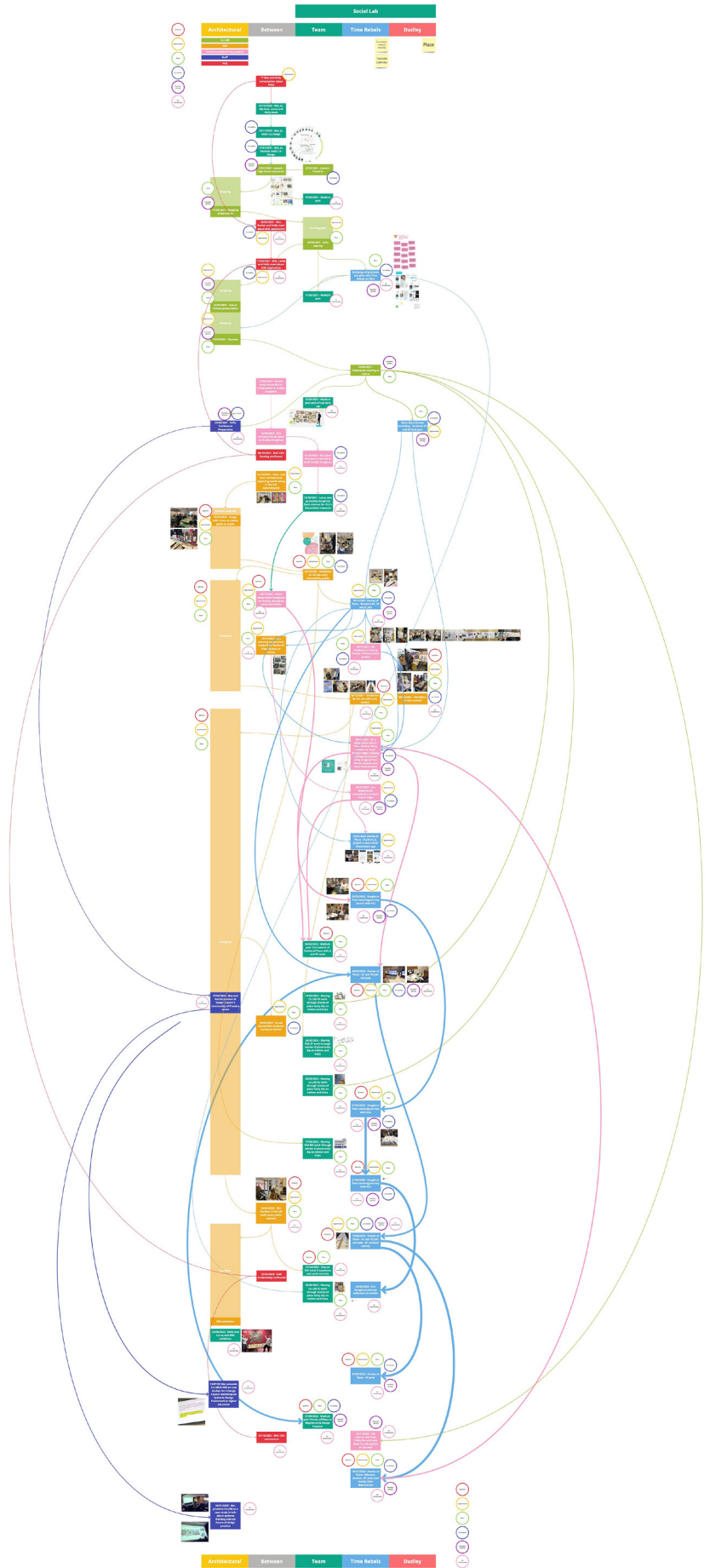
Through analysis of the collaboration between CoLab Dudley and BSoAD we explore the potential of social lab processes to disrupt architectural education. In Spring 2021, an elective was run as part of BSoAD's Collaborative Laboratory or Co.LAB (not to be confused with CoLab Dudley), a twelve week live project module designed to bring together undergraduate and postgraduate students from varied design disciplines in experimental projects with community and industry partners.⁵⁹ High Street 2030 brought together a group of 15 undergraduate and postgraduate students,⁶⁰ two academics, three collaborators from CoLab Dudley, and a network of community-based Time Rebels to explore regenerative futures for Dudley High Street.

The collaboration evolved into a co-designed Master of Architecture design studio unit option running between September 2021 and April 2022, Extinction Rebellion Architecture (ERA). Students joined CoLab Dudley to develop a radically new form of architecture that contributes to the health of the planet. Alongside the collaboration, students explored alternative forms of operation including self-organising structures and regenerative practices that aimed to push the boundaries of architectural knowledge, processes and production.

Through analysis of the two projects, we highlight the qualities and conditions designed into the partnership that enabled a disruptive architectural education process to emerge. We used qualitative methods founded on a process of reflection-in-action and reflection-on-action to study the pedagogical process.⁶¹ Reflection-in-action occurred through:

- tutor-led student group reflective discussions during the two projects;
- idea sharing sessions between students and CoLab Dudley collaborators, who fed back resources, connections, and place-based knowledge;

Figure 1:
Diagram of the case studies events
and network interactions
(Holly Doron 2023)



Zoomed in example of part of a student journey:

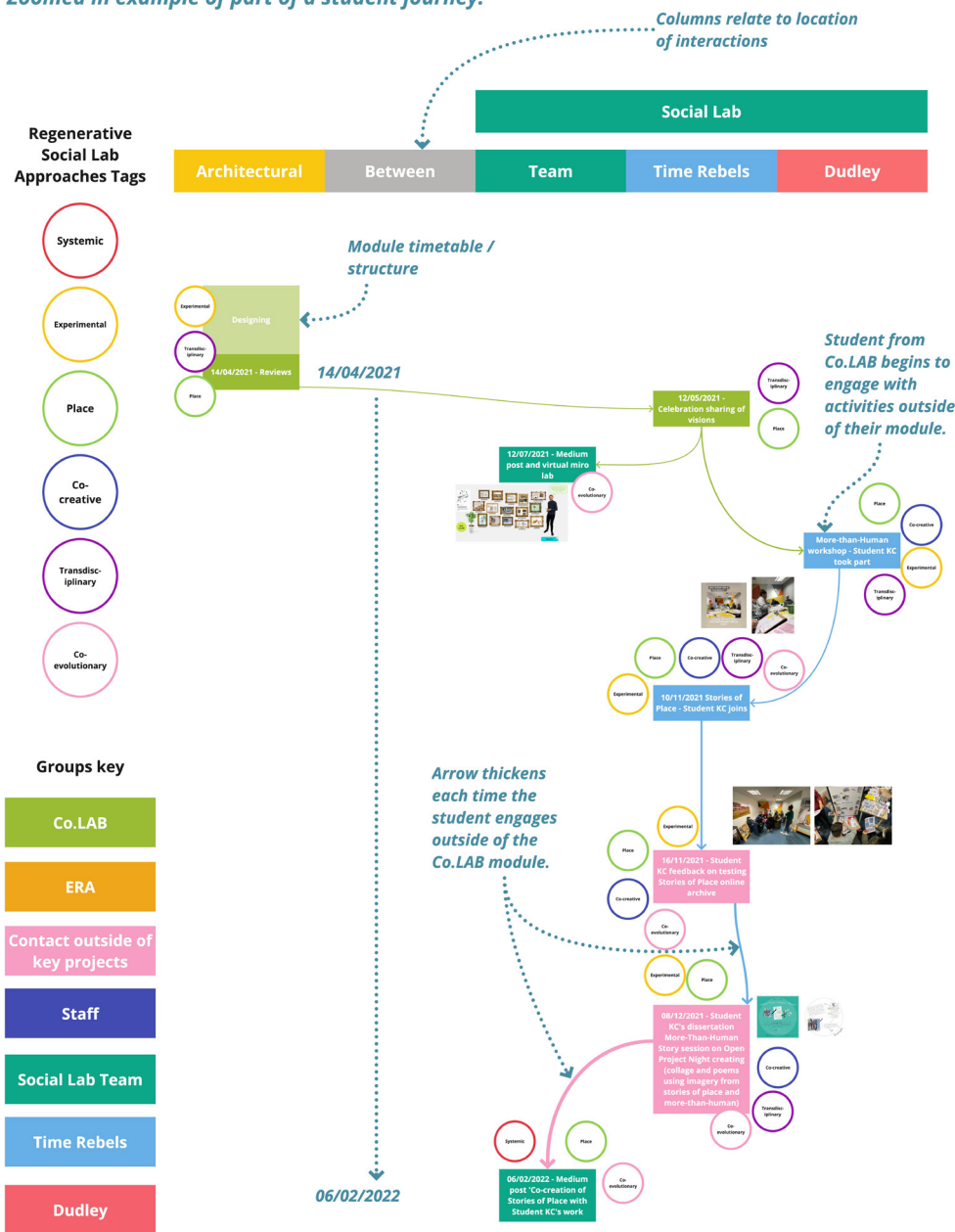


Figure 2:
Diagram of one student journey
(Holly Doron 2025)

- reflective process meetings between tutors and CoLab Dudley collaborators;
- joint authoring of blogs throughout the process, hosted on Medium;
- CoLab Dudley team journals and social media activity.⁶²

Reflection-on-action was carried out through:

- reflective statements from the students' module submissions;
- an online semi-structured focus group between the two academic staff and three collaborators at CoLab Dudley. The focus group aimed to collect both individual and collective reflection on the project through both focused questions, as a prompt for discussion, and use of a Miro board to collect individual responses from participants.

In order to collate and analyse this data we used Miro, a digital whiteboard, to create a diagram (Fig.1) of the project activities and interactions, 'playing with the data' to reveal insights and meaningful patterns.⁶³ We used the diagram as a coding device against the six defining characteristics of social labs adapted from literature to triangulate where CoLab Dudley's regenerative approaches (represented as circles) were most implicit.

Each activity (in Fig.1 and Fig.2) was colour-coded according to whether it was instigated by:

- CoLab | Co.LAB project (light green)
- ERA unit (orange)
- Student interactions outside of the two case studies (pink/light blue)
- Staff (dark blue)
- Research (red)

The activities (Fig.1 and Fig.2) are positioned chronologically, with the most recent at the bottom of the diagram. Activities are positioned horizontally depending on whether they took place within (left to right):

- Normative architectural education practices
- A zone between normative and social lab approaches
- Social lab approaches (divided further into interactions with the CoLab Dudley Team, Time Rebels and Dudley public)

Connections between activities are represented with arrows. Arrows representing cumulative interactions between individuals from projects increase in thickness.

We created another diagram (Fig.3) to summarise the occurrences of each characteristic to more easily determine where they occurred in relation to each project, and their alignment to or between normative architectural education and social lab processes.

F i n d i n g s

As indicated in Fig.1, Fig.2 and Fig.3, the activities often related to several of the regenerative social lab characteristics. To reflect on moments of disruption of the architectural design process, we structured our findings into the six characteristics, albeit recognising there are overlaps between them.

(1) SYSTEMIC - paying attention to scales, connections and flows within systems.

The focus of the collaborations was on the intersectional challenges facing Dudley High Street, such as the climate and biodiversity crises, the impact of Brexit, and social inequality. This was complemented by CoLab Dudley's focus on systemic and regenerative change. The High Street is a complex, dynamic, connected ecosystem and students were asked to understand the parts of the system and their interconnections- the relationships between the elements and not just the elements themselves.⁶⁴

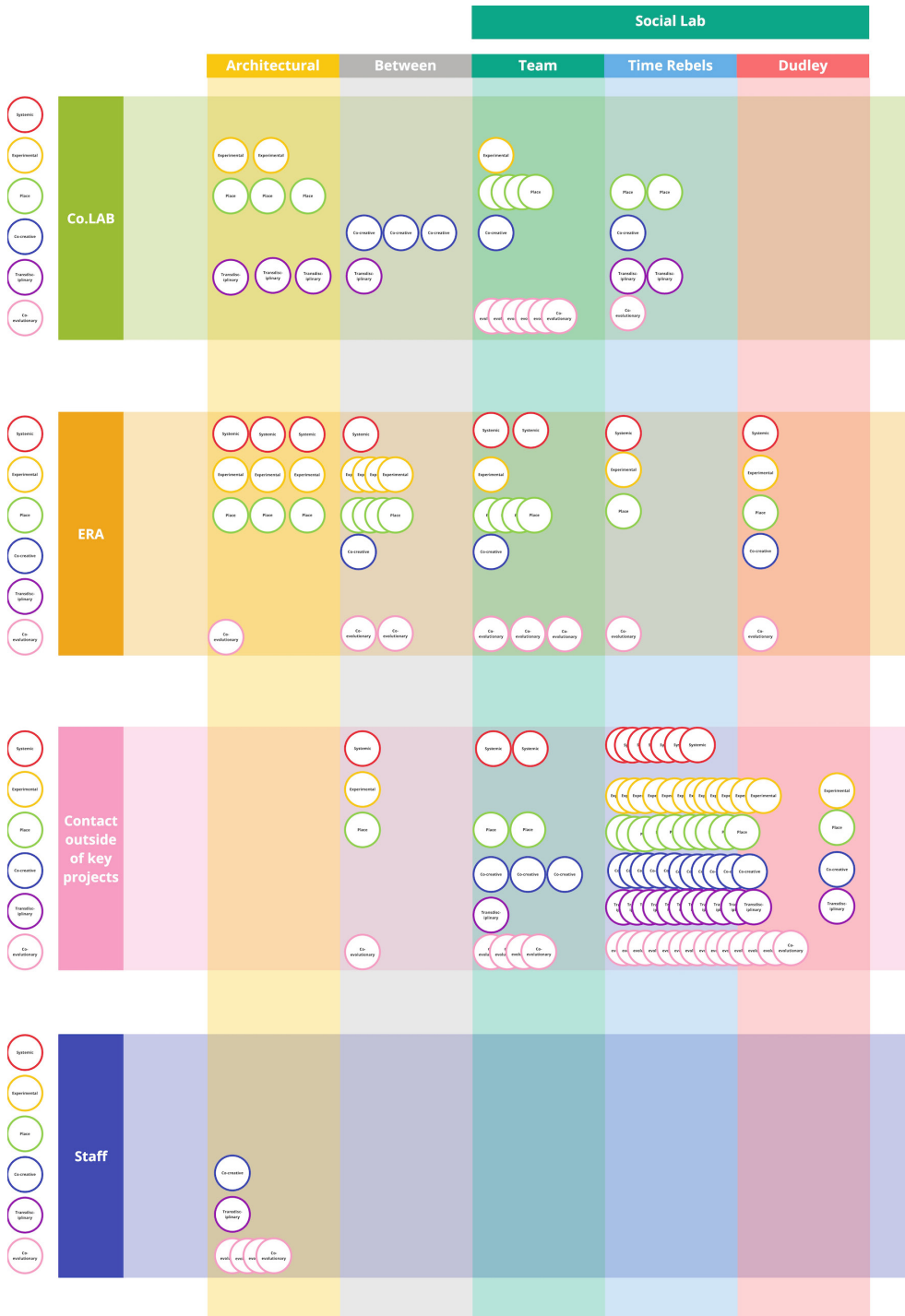


Figure 3:
Diagram of cumulative occurrences
of regenerative social lab approaches
within interactions inside and outside
of the case study projects
(Holly Doron 2023)

This was a challenge for the Co.LAB students who struggled to engage deeply with systemic thinking due to the limited timescale and the module's undergraduate-focused learning outcomes. Through carefully scaffolded tasks and dialogue with CoLab Dudley, students focused on systemic issues for their propositions: food, energy, circular economy, and biodiversity. However, they lacked a rigorous depth of knowledge to support their future visions with a systemic understanding of the implications of their proposals. In contrast, the ERA studio had a particular focus on systemic thinking in response to Extinction Rebellion (XR)'s statement:

We are facing an unprecedented global emergency. We are in a life-or-death situation of our own making. We must act now...We must radically and immediately begin reducing emissions and improving carbon absorption, drawing it down and locking it up again [...] Let's make a better world.⁶⁵

The ERA studio worked with CoLab Dudley to push the boundaries of normative practice to explore how architecture may become an active part of responding to the multiple crises. Students worked co-creatively with CoLab Dudley to explore new materials; intensification of biodiversity and embracing the more-than-human; spaces that improve air quality; and new methods of energy generation. Students and collaborators looked beyond architecture towards fine art and critical spatial practice to transgress the boundaries of what is already known and create radical responses to systemic challenges. Projects included explorations of how lichens can protect towns and work in harmony with a community in sustainable ecosystems; the potential of greening a town centre through Miyawaki forestry; how the High Street can support home working; the potential of the High Street as a place to generate renewable energy; and introducing farming onto the High Street.

This presented a challenge for the module team and students; while key criteria were covered elsewhere in the course the module had to meet certain criteria for the accrediting bodies and a balance needed to be sought between systemic, evolutionary and co-design processes and the need to result in an *architectural* thesis outcome. For students who expect to be designing a building through normative linear architectural processes this required careful support and granting of permission to explore across scales and to engage with social issues with care and imagination. The lab acted as a bridge connecting the architecture student's module criteria-aligned architectural thesis, focused on the built environment infrastructure, and a focus on social infrastructure for regenerative change.

(2) PLACE EMBEDDED - intently part of the social and physical context of the ecosystem they are operating within.

CoLab Dudley, located on the High Street, is rooted in its place. However, with the Co.LAB project taking place during the Covid-19 pandemic, students were not able to visit in person. Ensuring the project responded to the specifics of the High Street context was a challenge. Google maps, Lab reports, Digimap and internet research were supplemented by insights shared by others who knew the High Street well. Local people offered to record video tours while on Government-sanctioned daily walks, the closest students could get to a visit. Virtual exploration both showed the potential of virtual platforms in building understanding of the essence of place and highlighted the dangers of this approach, as relying on online information can distort the reality of a place. Students uncovered news articles highlighting high levels of crime and naming the High Street as the worst place to shop in the UK, which was a very different experience to that of those living and working in the area.⁶⁶ The

Figure 4:
Co.LAB student's gift of ornamental
sweets celebrating textures in Dudley's
ironwork (Sita Patel 2021)



added complication of working over Microsoft Teams and Miro made human connection between participants difficult and the multiple realities of the High Street more complex to untangle.

In non-lockdown circumstances, the project would have been more rooted in the lived reality of the High Street. But despite the limitations of online learning, this phase of project was still a shared enquiry rooted in place with an exchange of ideas between the students, CoLab Dudley team and Time Rebels. Students analysed the High Street from different perspectives, building an understanding of physical, economic and social aspects of the High Street and how it is changing. Using examples from landscape architecture (James Corner), urban analysis (Gordon Cullen, Christopher Alexander and Kevin Lynch), artistic practice (Iain Biggs and Larissa Fassler) and ethnography (the Urban Ethnography Lab), students combined their research into collaged maps where information, data and visual imagery was overlaid, juxtaposed and combined. This research phase culminated in The Gift, a task for each student to create an object to reveal an aspect of the High Street that may be overlooked, misunderstood or considered mundane. Made from found materials and designed to a standard size, these crafted objects were shared in a virtual gallery with collaborators (Fig.4). The creating and sharing of these gifts more closely connected students with the High Street than was possible without visiting in person.

The ERA studio students, on the other hand, were able to work in the lab and on the High Street. Their first session involved exploring the High Street in groups, returning to the lab space to co-create a collection of drawings of the High Street (Fig.5). They later curated exhibitions and facilitated activities within the lab space and Dudley market (Fig.6), engaging directly with local people and Time Rebels. Interim and summative reviews were held in the

lab as open events for local people to join, listen and contribute to the conversations. Some students were also able to join in-person Time Rebel-led events and activities outside of their ERA design module.

(3) EXPERIMENTAL - responding to the potential of context through co-created experiments

The Co.LAB live project set out to explore how the High Street could be reimagined post-Covid, aligned with long-term thinking and regenerative principles. Working in groups of three to four students, students were introduced to futures thinking and storytelling to explore possible scenarios for 2030 through design thinking and social lab processes. Reflecting on their research and ideas, students were asked to develop 'How might we...?' questions, to shift their perspective on the societal challenges they were exploring and to flip challenges into opportunities:

How might we reconnect people to each other? How might we use the High Street to encourage people to stay outside longer? How might we make the High Street a place of enjoyment? How might we promote a collective sense of place and interaction?

This was followed by a task to bring back stories from the future. A 'Remember when...' narrative framing asked students to imagine looking back on 2021 from 2030 and recall Dudley's response to the pandemic, spatial injustice, and the climate crisis; how challenges were overcome and potential lifted. Shifting the viewpoint enabled students to quickly imagine possible futures where change had happened and its consequences, before then considering the cumulative stepping stones to create a shift toward making that future a reality. These new physical and social infrastructures were informed by exchanges with the Time Rebels network via a digital Human Library, sharing collages, storytelling, poetry, and much more. This was a new approach for many students, introducing a way to find connections, propose questions and consider the long-term impact of design decisions.

The project explored ways of learning and working to imagine alternatives to business-as-usual views of the High Street's future. The Co.LAB module is designed with a focus on process rather than output in line with the module's open learning outcomes, and the project approach was founded on CoLab Dudley's guiding principles.⁶⁷ Used to firm guidance and a clear outline of deliverables in project briefs, students found this openness challenging. The focus on process, risk-taking, and the need to take a position was unfamiliar and required careful scaffolding of weekly tasks and workshops to build confidence. Careful support from tutors and collaborators was important to reassure, amplify, reinforce, and celebrate emerging ideas, while nurturing virtual connections between the students, High Street, and Time Rebels.

The ERA unit tasked students with generating radical solutions to business-as-usual, looking beyond architecture to explore alternative approaches drawing

Figure 5:
ERA students co-creating a Dudley
High Street drawing (CoLab Dudley
2021)



Figure 6:
ERA students' exhibition on Dudley
market (CoLab Dudley 2021)



from fine art, critical spatial practice and material innovations. This was inspired by a revolutionary ambition, where 'revolution implies an ambition to fundamentally change the way in which society [or architecture] works or is organized: it suggests a particular, radical intent, as well as inferring the use of action as a catalyst for change'.⁶⁸ Students developed experiments from a shared regenerative vision based on a series of overarching principles that set the foundation for ERA's thesis projects:

- responding to and engaging in living and natural systems on a site as the 'building blocks' of architecture;
- understanding bioregions and what the ecosystem of that place would originally have looked like;
- being carbon positive – using materials that take carbon out of the atmosphere and buildings that generate more energy than they consume;
- being water positive – harnessing natural water sources for living systems;
- using biophilic design approaches to improve wellbeing and biodiversity;
- designing for re-use using circular economy principles.⁶⁹

These shared values, co-designed by students and aligned with CoLab Dudley's guiding principles, enabled students to experiment creatively with regenerative design principles across a range of scales and sites.

(4) CO_CREATIVE - doing together with beings of place through a focus on relationships and holding boundaries to extractive behaviours.

Co-creation was particularly practiced between BCU staff and the CoLab Dudley team in the co-design of the Co.LAB structure and content. The collaboration started from a position of trust between the partners. Discussions started two years before the module commenced and built on an existing relationship between the teaching team and a graduate architect working with CoLab Dudley, who had experienced an earlier version of the Co.LAB module as a student. The potential fit of the project with CoLab Dudley's ecosystem, values, and ways of working was known from the outset and a trusting relationship between the collaborators formed.

Multiple points of contact throughout the projects built a sense of a shared endeavour between staff, students and collaborators. These exchanges took place within sessions as a way of working openly and co-creatively; between sessions through online conversations and the exchanges of messages on Teams, email and the project Miro board; and between the projects through continuing dialogue and exchange of ideas.

A particularly important moment in the Co.LAB was the Gift, a point of change where students moved from research and mapping toward futures thinking and design. The gifts aimed to reveal aspects of each student's research, shedding new light on overlooked aspects of place or challenging preconceptions, bridging the evidence building phase of the project to creating a future vision. Gifting as an idea is seen as redistributing resources in a model of abundance and interdependence which is particularly suited to the nature of this project.⁷⁰ Gifting is rooted in Indigenous communities and can serve to connect people with each other and the more-than-human world more deeply, and connect projects and ideas.⁷¹ When shared with the wider network of Time Rebels, the Gifts inspired co-creative responses such as a dance, poem and collage (Fig.7), connecting students with local people and other creatives. These responses enthused the students who saw their



Figure 7:
A Time Rebel's reflection on creating
a collage from a Co.LAB student's gift
(CoLab Dudley 2021)

"It was nice to be able to use the image for something else. It made me think about placing the cut-out roadmap onto a slightly brighter future version, with colour, vibrancy and plantlife, so that it reminds me what we are heading towards, but still with a hark back to the people and the industry that made Dudley the town it is..."

ideas being celebrated by local people, creating a sense of connection and co-creativity despite the restrictions of the Covid-19 pandemic.

After the students' final assessment, the Co.LAB project concluded with a celebratory online event where the students shared their work with Time Rebels; an occasion that lifted the students' talents and enabled people local to Dudley to share their gratitude and further connections. Despite being limited to online communication, this relational approach led to some students continuing their collaboration with CoLab Dudley by joining in-person events, contributing to other collaborative projects, or joining the ERA unit. This ongoing connection reflected the relationships forged with students as peers, rather than a traditional client and expert relationship. The CoLab Dudley team subsequently reflected on this process, which informed how they have since created conditions for this quality of relationship to emerge in future partnerships.⁷²

In ERA, the Masters students worked as a collaborative, participatory and inclusive unit that was supportive and nurturing. They started by co-designing a manifesto for ERA before carrying out research into the most radical emerging responses to the climate emergency, then relating these to research about the site and local context. The students collectively identified the sites and programme foci for their investigations, as well as establishing smaller, more focused projects in collaboration with CoLab Dudley.

Being able to visit, exchange ideas and exhibit work through a market stall and exhibition in the lab gave emerging ideas greater grounding in place and enabled a wider exchange and co-creative process. The students' participatory exhibitions invited curiosity from local people, working under the principle of 'Think Global, Act Local!'. Instead of being staff-led, students

created opportunities for co-creation in their exhibitions and related global climate and biodiversity emergency issues to the local context, making them more relevant for local people. By occupying the markets, students were able to share systemic thinking and their learning with members of the public outside of the lab. However, there was less of a connection between CoLab Dudley and students in this phase of the collaboration. The most successful connections came where students went beyond the scope of their design modules, for example working in Dudley for their dissertation or engaging in extra-curricular workshops and events with other Time Rebels (Fig.8). This may be a result of the lifting of Covid restrictions; during the pandemic the collaborators and tutors worked hard to create a sense of community and collaboration. With ERA, despite a focus on participatory and social approaches, the emphasis shifted subtly toward more normative design studio approaches and individual agendas.

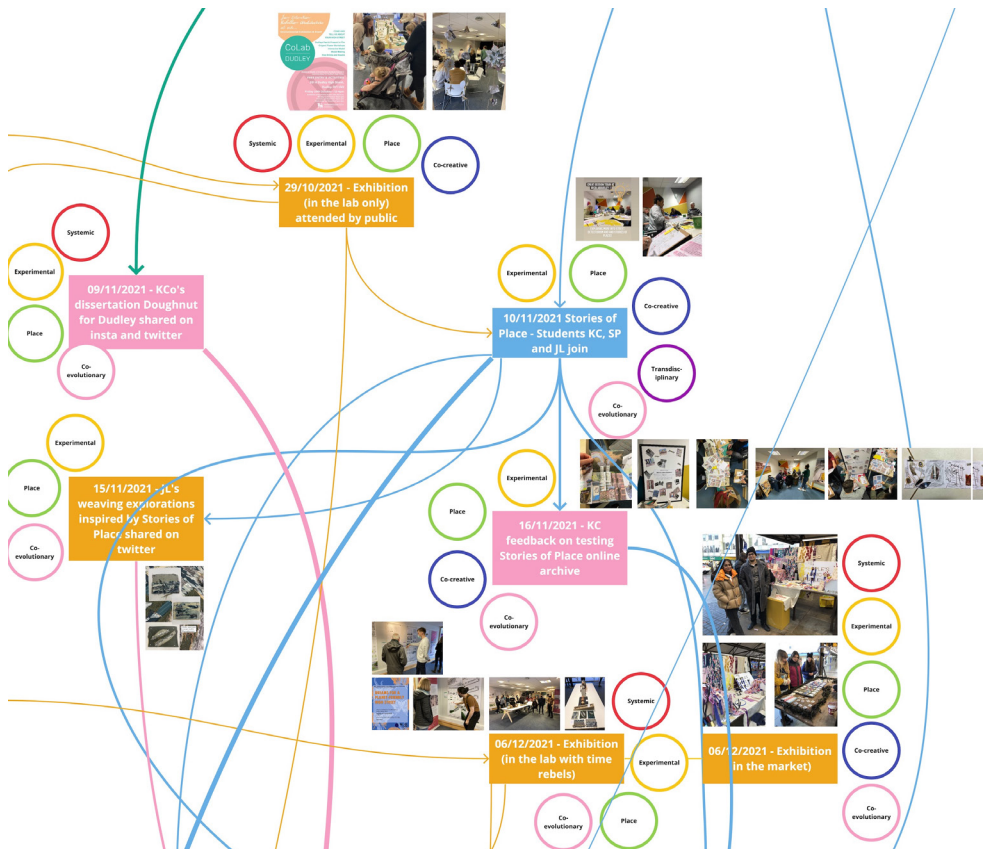
(5) TRANSDISCIPLINARY cultivating fluid boundaries of a multitude of capabilities and perspectives.

In engaging students from Architecture, Landscape Architecture, Interior Architecture, Product and Furniture Design and Design for Future Living with external partners, Co.LAB is by its nature interdisciplinary. With a growing consciousness of the challenges affecting the UK and its communities the need to work not only for but also with the city and its communities has led to increasingly transdisciplinary elective projects.⁷³

From the outset, effort was made to ensure participants from all disciplines felt they could contribute openly to the online sessions. At the start of the first meeting, CoLab Dudley set a 'check-in' question as a means to settle attendees into a session and focus on the task at hand. In this case, a photo of Dudley High Street was shared and each attendee in turn had to describe one aspect that drew their attention. Answers included a lack of colour, patterns on the pavement, cars blocking movement, a lack of anything growing and empty benches. This revealed for students many of the challenges CoLab Dudley have been exploring through their work. Following this check-in, students were asked to draw a memory of a High Street they were familiar with: what was distinctive, what happened there, how people used the space and how it made them feel. This task helped students to build their confidence and aimed to demonstrate that all experiences and backgrounds were of value and started bonding the student group.

In contrast, the ERA unit comprised only architecture students. Working within the constraints of a graduating Masters thesis module (carrying professional body criteria) and without the openness of the Co.LAB module, transdisciplinarity was more difficult to practice. However, students engaged with Time Rebels from different disciplines during their exhibitions, and several students went on to collaborate with CoLab Dudley and the wider network of Time Rebels outside of their design module. Two students who had been part of the Co.LAB project, one now part of the ERA studio,

Figure 8:
Extract from diagram of the
case studies events and network
interactions illustrating ERA students'
interactions with Time Rebels, public
and extra-curricular experiments
(Holly Doron 2023)



continued to participate in Time Rebel-led activities. This resulted in one student collaborating with another Time Rebel around food systems; another leading a more-than-human collage and poetry workshop with local people as part of their dissertation (Fig.9); and a third student leading an activity around participatory processes, again informing their dissertation. Finally, one ERA student began to work in the lab around their dissertation research into Doughnut Economics and eventually joined a six-month peer learning journey with eight other Time Rebels exploring the application of the approach in Dudley's communities.⁷⁴

(6) CO-EVOLUTIONARY supporting and sharing continual learning as good ancestors

The social lab setting introduced co-creative and co-evolutionary interactions between students, collaborators and Time Rebels. Despite the Co.LAB project being online, these points of connection were vital in nurturing students' ideas, building their confidence in an open and challenging process, and in celebrating their achievements. Design thinking approaches were used to engage all participants in an open discussion where all perspectives are valued. Frequent discussions with the collaborators throughout the project built trust between CoLab Dudley and the student group, supported by reciprocal sharing of ideas and gratitude. These approaches disrupted the typical tutor-student power dynamic. Tutors here became mentors, and moved away from instruction toward collaboration and the nurturing of a trusting relationship, seeding long-term collaborations between individuals and not just as students on a module.

Figure 9:
A former Co.LAB student leading a
more-than-human collage and poetry
workshop with local people as part
of their dissertation (CoLab Dudley
2021)



Co.LAB students shared their final projects with the lab team in their final review but also in an online celebratory event with local stakeholders after the module had ended. The lab team created posters of the four future visions that have since been displayed in several other events, generating inspiration and conversation amongst local people and Time Rebels. The students' work was also shared in blogs published on Medium, on social media and in an online archive called Stories of Place which Time Rebels can access for inspiration and knowledge to inform future experiments on the High Street.⁷⁵ In this respect, the CoLab Dudley team led the sharing of learning. The students were kept informed via email each time their work was shared or contributed to ideas. Students who returned to the lab a year later could still see their work being cared for and celebrated.

The ERA students were able to take a more active role in creating learning experiences through their exhibitions in the lab space and on Dudley market, as well as sharing their learning in their end-of-year exhibition at BSoAD. The CoLab Dudley team invited each student and staff member to write a 'What if...' question and photographed them with their work to share on social media (Fig.10).⁷⁶ The CoLab team were also able to share the students' work in-progress portfolios on social media, and the Stories of Place archive. The students' High Street model and interim review presentations were gifted to the lab and have since been reused and adapted into other activities, with continual learning with the material they produced.

Students who engaged with CoLab Dudley and Time Rebels outside of their modules flourished with social lab practices. They participated in, contributed to, co-led and facilitated co-creative, transdisciplinary, systemic and experimental activities within place. They shared their learning and co-evolved experiments,

Figure 10:
ERA students and their 'What if...?'
questions (CoLab Dudley 2022)



bringing their learning and networks back into the Lab. Four Masters students joined Stories of Place projects and became participants in CoLab Dudley's Time Rebel network, with three engaging with CoLab Dudley and Time Rebels as part of their dissertations, feeding their learning and analysis back into the ecosystem. The principle of working out loud has led to the projects and process being shared with Design Council, Sheffield Hallam University's High Street Network and the Edinburgh Futures Lab through the High Street of the Future project. Working in the open and weaving networks beyond the projects enabled learning to be shared and others to adopt and evolve the emerging learning in their own projects, while bringing the CoLab Dudley team into transdisciplinary co-creation within normative academic practice.

D I S C U S S I O N : T H E P O T E N T I A L O F S O C I A L L A B P R O C E S S E S T O D I S R U P T A R C H I T E C T U R A L E D U C A T I O N

This section reflects on the findings drawing out a series of pedagogic approaches, capabilities, constraints and questions for further research against each of the regenerative social lab approaches. This starts to suggest how lessons from the project could be translated to other places (Table 2).

The collaborations shifted thinking beyond sustainability as a technical issue to explore a wider impact on people and place and how designers can influence this, while also engaging with people beyond the discipline with different values and ways of knowing and making. This suggests one approach to departing from our era's bias for outcomes (e.g. those embedded in the expectations of the thesis module) towards regenerative design emphasising social processes and relationships.⁷⁷

Experimentation, place and transdisciplinarity was made possible through the open and collaborative nature of the Co.LAB module, both in its intent and academic framing. Open learning outcomes, a focus on collaboration with external partners and a trusting relationship between the academic staff and CoLab Dudley enabled the team to create moments of disruption within a design process using techniques drawn from social lab processes. While for students this initially created uncertainty and nervousness, by its nature CoLab Dudley works well with uncertainty and through the support of the lab team and effort to nurture, cultivate and celebrate, students were able to generate more possibilities and ongoing collaborations. Within the ERA unit, systemic thinking, experimentation, place, and co-evolution were constant practices. Engaging with local people and the Time Rebel network opened opportunities for co-creative and transdisciplinary working.

The gratitude and support of the lab team was vital in building confidence with unfamiliar processes and encouraging students to embrace uncertainty and complexity. The diagrams suggest the best examples of regenerative design existed outside the modules, in spaces where students were proactive in connecting learning and weaving their own networks beyond the formal structures of the university. Here, CoLab Dudley creates a space where people can take the time to be curious and experimental, something that may not happen in other parts of their lives.

These collaborations reveal the sense of agency some students gained from the process. However, for others, without formal module structures to support their learning and to validate their need to be collaborating with CoLab Dudley, the collaboration ended, perhaps due to a scarcity of time and shifting focuses. The student work is now part of a one hundred year archive; while their engagement may be limited by time or module constraints the gifting of their work continues to influence, seeding ideas full of possibility for local people.

Through co-creation of the briefs and participation throughout the projects, CoLab Dudley's principles and ways of working brought disruptive moments to the normative education that architectural designers receive, including:

- Systemic thinking;
- Place-embedded weaving of networks and designs into wider ecosystems;
- Experimental imagining of regenerative futures through narrative, storytelling and principles that guide emerging ideas and actions;
- Co-creative practices rooted in gratitude and reciprocity;
- Transdisciplinary skills exchanges between students and communities;
- Co-evolutionary approaches through long-term thinking and shifting from seeing buildings as the end point of a project toward seeing regenerative design as an ongoing process of collaboration.

CoLab Dudley's focus of cultural democracy and intergenerational justice sits outside of the established processes and systems within academic institutions and mainstream practice. By nurturing different competencies to normative design processes, the projects enabled students to engage with the systemic and complex nature of societal challenges. In both cases, knowledge production was shared, inclusive and open, posing a challenge to established academic ways of knowing and assessing understanding. This requires a significant shift in how we conceive, support and deliver learning and teaching within the limits of academic structures and professional body validation processes. Perhaps more importantly, the partnership also required careful nurturing to build a trusting, reciprocal and mutually beneficial relationship. Within a higher education sector that is increasingly under pressure and required to be efficient in use of resources, the time needed to build trusting and lasting relationships is becoming increasingly scarce.

Table 2 outlines the regenerative social lab approaches and pedagogical approaches that created conditions for disruptive moments, or emerging capabilities, in both students and local people, revealing constraints and questions for further exploration. In addition to this, these processes led to the evolution of CoLab Dudley's ways of working. Drawings and models gifted by students have continually been exhibited, adapted and integrated with lab activities since, inviting and expanding imaginations and conversations of what is possible in Dudley. Socialising and celebrating these knowledges as an act of care has led to ripple effects of emerging capabilities around systemic thinking and imagining flourishing futures. The process of the first project led to CoLab Dudley writing *A Friendly Guide to Collaboration with CoLab Dudley*.⁷⁸ The lab's practice and focus have evolved since these collaborations, particularly around regenerative learning infrastructures, but the difference in pace of peer-reviewed academic journal timeframes and a social lab having to constantly adapt to shifting complexity has invited moments of reflection and re-orientation in what conditions are needed for co-evolutionary collaboration and learning.⁷⁹ The questions for further exploration outlined in Table 2, in combination with the lab's learning since, will contribute to the co-design of any future collaboration with academic institutions.

Regenerative Social Lab Approaches	Pedagogical Approach / techniques	Emerging Capabilities	Constraints	Questions for Further Exploration
<p>Systemic – paying attention to scales, connections and flows within systems.</p>	<ul style="list-style-type: none"> • Briefs inviting responses to multiple crises and • Mapping and proposals transgressing boundaries and scales. • Lab as place-embedded bridge between built and social infrastructure. 	<ul style="list-style-type: none"> • Students – Systems thinking, interconnectedness, holistic thinking • Local people – Gifted student systems diagrams introducing systemic thinking. • erconnectedness, holistic thinking • Local people – Gifted student systems diagrams introducing systemic thinking. 	<ul style="list-style-type: none"> • Limited timescale, undergraduate-focused learning outcomes, lack of rigorous depth of knowledge. • Accrediting body requirements requires (need for a complex architectural thesis / building) 	<ul style="list-style-type: none"> • How might we better support students in developing a systemic understanding of their proposals? • How might student research contribute to systems thinking capabilities in everyday places? • How might accreditation criteria be demonstrated beyond the design of a building?
<p>Place-embedded – intently part of the social and physical context of the ecosystem they are operating within.</p>	<ul style="list-style-type: none"> • Learning from place, community engagement, combining virtual exploration with lived experiences. • Creating gifts for place, e.g. the gift, digital copies of work, and models. • Place-based exhibitions and activities with local people. 	<ul style="list-style-type: none"> • Students - Weaving networks and designs into the wider ecosystem. • Local people – Engaging with systemic issues and ideas rooted in place. Activities as invitations for longer-term involvement in the lab. 	<ul style="list-style-type: none"> • Online learning limits place-based experiences and human / more-than-human connection. • Engagement on the university's terms rather than local people's terms. • Academic calendars limit engagement to certain time periods, often coinciding with dark/cold months, limiting long-term and place-embedded collaboration. 	<ul style="list-style-type: none"> • How might modules design in flexibility to centre place-based rhythms and networks? • How might we enhance the integration of local knowledge into learning frameworks? • How might the academic calendar be rethought or modules be connected to encourage year-round place-based engagement?
<p>Experimental – responding to the potential of context through co-created experiments.</p>	<ul style="list-style-type: none"> • Action research, prototyping, iterative learning, futures thinking and storytelling. • Open, process-focused brief with co-designed guiding principles. • Creative exploration of flourishing visions for 2030 and stepping stones to get there. 	<ul style="list-style-type: none"> • Students - Imagining regenerative futures through narrative and storytelling connected with local knowledge. Creative and innovative principles guiding emergent ideas and action. • Local people – Gifted student work opens up imagination of what is possible. 	<ul style="list-style-type: none"> • Uncertainty, risk of failure. Students prefer clear guidance and assessment criteria, which may not be defined at the start of an open process. • The need to demonstrate accreditation criteria can limit experimentation and risk taking. 	<ul style="list-style-type: none"> • How might learning be scaffolded to meet accreditation criteria while encouraging an experimental and open design process? • How might we build confidence in students to embrace process-focused learning?

*Table 2:
Connecting regenerative social lab processes with pedagogic moments within the projects
(Holly Doron & Matthew Jones 2025)*

Regenerative Social Lab Approaches	Pedagogical Approach / techniques	Emerging Capabilities	Constraints	Questions for Further Exploration
<p>Co-creative – doing together with beings of place through a focus on relationships and holding boundaries to extractive behaviours.</p>	<ul style="list-style-type: none"> • Collaborative projects, participatory processes, gifting and reciprocal gratitude. Focus on regenerative propositions in briefs. • Ensuring time to develop reciprocal and trusting relationships between collaborators. • Creating spaces for dialogic exchanges of ideas. 	<ul style="list-style-type: none"> • Students – Practices rooted in gratitude and reciprocity. • Local people - Gifting adaptations of or responses to student work invites place-based creative experimentation. • Democratisation of knowledge creation through co-creative processes. 	<ul style="list-style-type: none"> • Module credit rather than relationship focus. • Constrained time of staff to nurture long-term relationships with communities. • Limitations of online communication and information gathering. • Established power dynamics. 	<ul style="list-style-type: none"> • How might HEIs create conditions for educators to nurture long-term trusting relationships with communities that transcend academic cycles? • How might we enable equitable participation in co-creative processes? • How can we maintain a sense of connection and co-creativity despite physical restrictions?
<p>Transdisciplinary – cultivating fluid boundaries of a multitude of capabilities and perspectives.</p>	<ul style="list-style-type: none"> • Cross-disciplinary collaboration valuing multiple perspectives. • Check-in questions, collaborative drawing and memory drawing. • Open invites for collaborations between students and local people. 	<ul style="list-style-type: none"> • Students – Broadened perspectives and critical thinking. • Confidence building. • Skills exchange with local people. • Creative problem solving • Local people – Skills exchange with students through student and local-led experiments 	<ul style="list-style-type: none"> • Potential communication barriers. Disciplinary silos. Professional body criteria. • HEI structural limitations on collaborations between courses. • Student outcome / benefit prioritised over local people. 	<ul style="list-style-type: none"> • How might HEIs invite transdisciplinary, reciprocal collaborations between students and local people? • How can we practice transdisciplinarity within the constraints of professional criteria?
<p>Co-evolutionary – supporting and sharing continual learning as good ancestors.</p>	<ul style="list-style-type: none"> • Lifelong learning. Reflective practice. • Design thinking. • Trust building to seed long-term collaborations. • Valuing reciprocity (eg: gifting student work to share in perpetuity in learning blogs, archive, etc) • Reviews held in place with local people. 	<ul style="list-style-type: none"> • Students – Longer term thinking and legacy building. • Reciprocal sharing. Shift from seeing buildings as the end point to an ongoing process of collaboration. • Local people – Contributing to discussions on imaginative systemic potential in place. 	<ul style="list-style-type: none"> • Resource constraints, maintaining momentum, disrupting power dynamics. Time for trust building and long-term and cumulative collaborations. 	<ul style="list-style-type: none"> • What practices can sustain long-term co-evolutionary learning? • How might HEIs create conditions for staff to nurture long-term and cumulative collaborations?

Conclusion

The paper demonstrates how collaboration between architectural education and a social lab created a space for learning (virtual and physical) that enabled students to explore the in-between: a unique critical position partially outside the established cultures and vested interests of the academy, the everyday and professional practice.⁸⁰ By creating a space for emergent learning partially outside the established cultures and norms of architectural education, the collaborations nurtured processes that were co-evolutionary, transdisciplinary, co-creative, experimental, systemic, and firmly rooted in place.

While this paper explores two collaborations with one social lab, further research is needed to deepen our understanding of the fertile ground emerging from the combination of architectural and social lab processes and their role in creating creative, optimistic and regenerative approaches to learning that has potential to prepare architectural students for the future of practice. While student reflections and evidence from continued collaboration between students and CoLab Dudley suggest the collaboration was transformative on their thinking, it was also an instrumental growing point for the lab and for tutors, revealing what regenerative learning could be, in turn expanding the boundaries of their own praxis.

Bringing creative cultural organisations such as social labs into the studio offers a way to disrupt architectural education processes, creating the conditions for learning that challenges established values, allows students to learn reflectively, amplifies and celebrates their creativity, creates conditions for curiosity and enables transdisciplinary collaboration. Learning from social lab processes has potential to expand our perception of what design education *is* and what it *could* be, creating the conditions for next (re)generation learning. With the outcomes of the ongoing shifts in architectural education yet unknown, now is the time to embrace the potential of radical social collaborations to prepare architectural students to engage critically and creatively with the urgent and interconnected challenges of the twenty-first century.

REFERENCES

- 1 UN Environment Programme, 2020 *Global Status Report for Buildings and Construction* (2020), p. 23; Adam Cohen and Clarke Snell, 'Climate Change and the Bottom Line: Delivering Sustainable Buildings At Market Rate', *Architectural Design*, 88 (2018), p. 112; HM Government, *Net Zero Strategy: Build Back Greener* (2021), p. 139; Alan Jones and others, 'The Way Ahead: An Introduction to the New RIBA Education and Professional Development Framework and an Overview of Its Key Components' (2020), p. 7; Scott McAulay, 'What if Architecture Was Reimagined for a New Economic Reality?', *Medium*, <<https://medium.com/reimagining-economic-possibilities/what-if-architecture-was-reimagined-for-a-new-economic-reality-2d711ace117f>> [accessed 13 February 2025].
- 2 London Energy Transformation Initiative, *LETI Climate Emergency Design Guide How new buildings can meet UK climate change targets* (London: LETI, 2020).
- 3 Pamela Mang and Ben Haggard, *Regenerative Development and Design: A Framework for Evolving Sustainability* (Hoboken: John Wiley & Sons, 2016), p. xiv.
- 4 Doina Petrescu, 'An Alternative Practice in Times of Crisis', in *Architects After Architecture* (Routledge, 2020), p. 106; Jayne Engle, Tessy Britton and Pamela Glode-Desrochers, 'Social Infrastructure for Our Times: Building Participatory Systems That Value the Creativity of Everyone', in *Sacred Civics: Building Seven Generation Cities*, ed. by Jayne Engle, Julian Agyeman and Tanya Chung-Tiam-Fook (Oxon: Routledge, 2022), p. 151.
- 5 Terry Irwin, 'Transition Design: A Proposal for a New Area of Design Practice, Study, and Research', *Design and Culture*, 7.2 (2015), 229–246 (p. 235) <<https://doi.org/10.1080/17547075.2015.1051829>>.
- 6 Yoko Akama, 'Being Awake to Ma: Designing In-Between-Ness as a Way of Becoming With', *CoDesign*, 11.3–4 (2015), 262–274 <<https://doi.org/10.1080/15710882.2015.108124>>; Arturo Escobar, *Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds* (Durham: Duke University Press, 2018).
- 7 Sarah Ichioka and Michael Pawlyn. *Flourish: Design Paradigms for Our Planetary Emergency* (Dorset: Triarchy Press, 2021).
- 8 Cristina Cerulli, 'Conflux of Interest: Revealing Multiple Value Systems in Socially Motivated Collaborative University-Based Projects', *The Journal of Public Space*, 2.3 (2017), 11–20 (p. 12); David Nicol and Simon Pilling, eds., *Changing Architectural Education: Towards a New Professionalism* (London: Spon Press, 2000).
- 9 Peter Buchanan, 'The Big Rethink: Rethinking Architectural Education', *Architectural Review*, 28 September 2012 <<https://www.architectural-review.com/>

archive/campaigns/the-big-rethink/the-big-rethink-part-9-rethinking-architectural-education?tkn=1> [accessed 10 February 2025].

10 See for example the issue 'Architecture Connects: Strategies for the Co-Production of Architectural Knowledge', *Charrette*, 5.2 (2019).

11 Ashraf M. A. Salama, *Spatial Design Education: New Directions for Pedagogy in Architecture and Beyond* (Surrey: Ashgate, 2015).

12 Rachel Sara and Matthew Jones, 'The University as Agent of Change in the City: Co-Creation of Live Community Architecture', *Archnet-IJAR: International Journal of Architectural Research*, 12.1 (2018), 326-337.

13 Harriet Harriss, *Architecture Live Projects: Pedagogy into Practice* (London: Routledge, 2014), p. xxi.

14 Nigel Cross and Anita Clayburn Cross, 'Observations of Teamwork and Social Processes in Design', *Design Studies*, 16.2 (1995), 143-170 (p. 144).

15 Rachel Sara, 'Learning from Life: Exploring the Potential of Live Projects in Higher Education', *Journal for Education in the Built Environment*, 6.2 (2011), 8-25 (p. 9); M. Jones and Alessandro Columbano, 'From Civic Responsibility to Socio-Spatial Civic Agency: Critiquing the Civic University Movement through Live Projects', *Charrette*, 8.2 (2023), 26.

16 Sara and Jones, 'The University as Agent of Change', p. 336.

17 Zaid Hassan, *The Social Labs Revolution: A New Approach to Solving Our Most Complex Challenges* (San Francisco: Berrett-Koehler Publishers, 2014), p. 3.

18 Zaid Hassan, *The Evolution of Social Labs* (2019) <<https://social-labs.org/evolution-social-labs/>> [accessed 1 January 2023].

19 Job Timmermans and others, 'Social Labs as an Inclusive Methodology to Implement and Study Social Change: The Case of Responsible Research and Innovation', *Journal of Responsible Innovation*, 7.3 (2020), 410-426 (pp. 413-416).

20 Ilse Marschalek and others, 'The Social Lab as a Method for Experimental Engagement in Participatory Research', *Journal of Responsible Innovation*, 9.3 (2022), 419-442 (pp. 428-430).

21 David W. Orr, 'Foreword', in *Regenerative Development and Design: A Framework for Evolving Sustainability*, Pamela Mang and Ben Haggard (Hoboken: John Wiley & Sons, 2016), pp. v-ix.

22 'Time Rebel' is a term used by CoLab Dudley for their network of community collaborators, derived from Roman Krznaric's call in 'The Good Ancestor' for a global movement of 'time rebels' dedicated to intergenerational justice and long-term thinking. See: Roman Krznaric, *The Good Ancestor: How to Think Long Term in a Short Term World* (London: WH Allen, 2020).

23 Hassan, *The Social Labs Revolution*, p. 3.

24 Hendrick Tiesinga and Remko Berkhout, *Labcraft: How Social Labs Cultivate Change through Innovation and Collaboration* (London: Labcraft Publishing, 2014), p. 70.

25 Daniel Christian Wahl, *Designing Regenerative Cultures* (Axminster: Triarchy Press Ltd, 2016), p. 43.

26 Hassan, *The Social Labs Revolution*, p. 97; Timmermans and others, p. 414; Marschalek and others, p. 436.

27 Tiesinga and Berkhout, *Labcraft*, p. 39; Marschalek and others, pp. 425–426; Esteban Romero-Frías and Nicolás Robinson-García, 'Social Labs in Universities: Innovation and Impact in Medialab UGR', *Media Education Research Journal*, 25.1 (2017), 29–38.

28 Marlieke Kieboom, Chris Sigaloff and Thijs van Exel, *Lab Practice: Creating Spaces for Social Change* (Kennisland, 2015), p. 19; Tiesinga and Berkhout, *Labcraft*, pp. 39–43.

29 Pamela Mang and Bill Reed, 'Regenerative Development and Design', in *Sustainable Built Environments*, ed. by Vivian Loftness (New York: Springer, 2013), p. 22.

30 Mang and Haggard, *Regenerative Development and Design*, p. iii.

31 Lorna Prescott, 'Spot the Difference: Urban Rooms and CoLab Dudley', *CoLab Dudley*, 27 November 2023, <<https://medium.com/colab-dudley/spot-the-difference-urban-rooms-and-colab-dudley-92cadfe3d0>> [accessed 18 December 2023].

32 Hassan, *The Social Labs Revolution*, p. 3; Tiesinga and Berkhout, *Labcraft*, p. 90; Marschalek and others, p. 423.

33 Rosamund Mosse and Lewis Muirhead, 'The Art of Hosting Participatory Practices in Social Labs: Moving Beyond Participation to Deep Engagement: A Case Study of the Economic Immigration Lab in New Brunswick, Canada', *FormAkademisk*, 13.4 (2020), 1–13 (p. 5).

34 Marschalek and others, p. 427.

35 Mang and Haggard, *Regenerative Development and Design*, p. 194.

36 Prescott, 'Spot the Difference: Urban Rooms and CoLab Dudley'.

37 *Ibid.*; Lorna Prescott, 'Permaculture: A Whole Design Philosophy for Sustainable Living', *CoLab Dudley*, 13 January 2019, <<https://medium.com/colab-dudley/permaculture-a-whole-design-philosophy-for-sustainable-living-7204f0a57edb>> [accessed 18 December 2023].

38 Prescott, 'Spot the Difference: Urban Rooms and CoLab Dudley'.

39 Hassan, *The Social Labs Revolution*, p. 3; Tiesinga and Berkhout, *Labcraft*, p. 75; Mosse and Muirhead, 'The Art of Hosting Participatory Practices', p. 7.

40 Tiesinga and Berkhout, *Labcraft*, pp. 27–28; Mosse and Muirhead, 'The Art of Hosting Participatory Practices', p. 5.

41 Marschalek, Ilse and others, p. 426.

42 Tiesinga and Berkhout, *Labcraft*, p. 108.

43 Lorna Prescott, 'Lab Notes #11 | Guardians of the Network', *CoLab Dudley*, 3 February 2018, <<https://medium.com/colab-dudley/lab-notes-11-guardians-of-the-network-1abaca0d04bb>> [accessed 18 December 2023].

44 *Ibid.*

45 Zaid Hassan, Mia Eisenstadt and Menka Sanghvi, *The Social Labs Fieldbook: A Practical Guide to Next-Generation Social Labs* (2015), pp. 22–24; Marschalek and others, pp. 421–423.

46 Tiesinga and Berkhout, *Labcraft*, p. 56; Mosse and Muirhead, 'The Art of Hosting Participatory Practices', p. 1.

47 Tiesinga and Berkhout, *Labcraft*, p. 51; Mosse and Muirhead, 'The Art of Hosting Participatory Practices', p. 5.

48 Prescott, 'Spot the Difference: Urban Rooms and CoLab Dudley'.

49 *Ibid.*

50 Hassan, *The Social Labs Revolution*, p. 3; Marschalek and others, p. 422; Tiesinga and Berkhout, *Labcraft*, p. 27.

51 Tiesinga and Berkhout, *Labcraft*, p. 120; Hassan, Eisenstadt and Sanghvi, *The Social Labs Fieldbook*, p. 21.

52 Mosse and Muirhead, 'The Art of Hosting Participatory Practices', p. 6.

53 Tiesinga and Berkhout, *Labcraft*, p. 55.

54 *Ibid.*, p. 115.

55 Mang and Haggard, *Regenerative Development and Design*, p. 194.

56 Jo Orchard-Webb, 'Principles-Focused Evaluation is at the HEART of How We Make Sense of Change', *CoLab Dudley*, 21 September 2022 <<https://medium.com/colab-dudley/principles-focused-evaluation-is-at-the-heart-of-how-we-make-sense-of-change-2408e0e786a9>> [accessed 18 December 2023].

57 Michael Quinn Patton, *Principles-Focused Evaluation: The GUIDE* (New York: Guilford Publications, 2017); Orchard-Webb, 'Principles-Focused Evaluation'.

58 Krznaric, *The Good Ancestor*.

59 See the Co.LAB Live Project Archive for examples of projects <<https://collaborative-laboratory.org/2014/03/12/live-project-archive-1956-65/>> [accessed 13 Oct 2022].

60 13 undergraduate BA Architecture, BA Product & Furniture Design, BA Interior Architecture & Design and BA Landscape Architecture students and 2 postgraduate MArch Architecture students.

61 Donald A. Schön, *The Reflective Practitioner: How Professionals Think in Action* (Abingdon: Routledge, 1992).

62 See <<https://medium.com/colab-dudley>> [accessed 28 February 2023].

63 Robert K. Yin, *Case Study Research: Design and Methods*, 4th edn (Thousand Oaks, CA: Sage, 2009), p. 132.

64 Design Council, *Beyond Net Zero: A Systemic Design Approach* (London: Design Council, 2021), p. 26.

65 Extinction Rebellion, *Emergency on Planet Earth* (2019) <<https://rebellion.earth/the-truth/the-emergency/>> [accessed 30 April 2023].

66 Kelly Ashmore, 'Crime Soars in Dudley: Here are the Worst Hit Areas', *Birmingham Live*, 1 July 2020 <<https://www.birminghammail.co.uk/black-country/crime-soars-dudley-here-worst-18516927>> [accessed 28 February 2023]; Heather

Saul, 'The 10 "Worst" Places to Shop in the UK', *The Independent*, 7 November 2014 <<https://www.independent.co.uk/news/business/the-10-worst-places-to-shop-in-the-uk-9847129.html>> [accessed 28 February 2023].

67 Lorna Prescott, 'Revisiting Our GUIDeIng Principles', *CoLab Dudley*, 7 October 2020 <<https://medium.com/colab-dudley/revisiting-our-guideing-principles-5de4ab0938bb>> [accessed 28 February 2023].

68 Jonathan Mosley and Rachel Sara, 'The Architecture of Transgression: Towards a Destabilising Architecture', *Architectural Design*, 83.6 (2013), pp. 14–19.

69 Rachel Sara and Andrew Hilton, *MArch Module Brief Unit Outline: Extinction Rebellion Architecture* (Birmingham: Birmingham School of Architecture & Design, 2020); Holly Doron, 'Extinction Rebellion Architecture is Coming to Dudley!', *CoLab Dudley*, 9 September 2021 <<https://medium.com/colab-dudley/extinction-rebellion-architecture-is-coming-to-dudley-high-street-b0e0667a132a>> [accessed 2 May 2023].

70 Robin Wall Kimmerer, 'The Serviceberry: An Economy of Abundance', *Emergence Magazine*, 10 December 2020 <<https://emergencemagazine.org/essay/the-serviceberry/>> [accessed 12 February 2023]; Matthew Jones and others, 'Educating Radical Practitioners: A Case Study of Regenerative Design on a UK High Street', *ARENA Journal of Architectural Research*, 8.1 (2023), 8 <<https://doi.org/10.55588/ajar.375>>.

71 Holly Doron, 'Co.LAB #2 Gifts for Dudley High Street', *CoLab Dudley*, 17 March 2021 <<https://medium.com/colab-dudley/co-lab-2-gifts-for-dudley-high-street-c7282c6343d3>> [accessed 29 December 2022].

72 CoLab Dudley, 'A Friendly Guide to Collaboration with CoLab Dudley', *CoLab Dudley* (2022) <<https://www.notion.so/colabdudley/A-friendly-guide-to-collaboration-with-CoLab-Dudley-ddf8fb2a0a7b46b284554154359310a2>> [accessed 23 January 2024].

73 Jones and Columbano, 'From Civic Responsibility'; Rachel Sara and others, '25 Ways to Regeneratively Reimagine Our High Streets: A Co-Creative Process', unpublished paper delivered at the conference 'AHRA Ground for Climate Collectivism – Architecture after the Anthropocene' (Pratt Institute, 17–19 November 2022).

74 Kate Raworth, *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist* (Vermont: Chelsea Green Publishing, 2017).

75 Holly Doron, 'Co.LAB #3.0 Memories from a Regenerative Future', *CoLab Dudley*, 12 July 2021 <<https://medium.com/colab-dudley/co-lab-3-0-memories-from-a-regenerative-future-f91d4aa555de>> [accessed 19 April 2023]; Holly Doron, 'Co.

LAB #3.1: "My" Street 2030', *CoLab Dudley*, 12 July 2021 <<https://medium.com/colab-dudley/co-lab-3-1-my-street-2030-1b2a71e98335>> [accessed 19 April 2023]; Holly Doron, 'Co.LAB #3.2: Industry 4.0', *CoLab Dudley*, 12 July 2021 <<https://medium.com/colab-dudley/co-lab-3-2-industry-4-0-d1bb961606df>> [accessed 19 April 2023]; Holly Doron, 'Co.LAB #3.3: Culture, Inclusivity and Colour', *CoLab Dudley*, 12 July 2021 <<https://medium.com/colab-dudley/co-lab-3-3-culture-inclusivity-and-colour-bde1d1feea4f>> [accessed 19 April 2023]; Holly Doron, 'Co.LAB #3.4: New Green Network', *CoLab Dudley*, 12 July 2021 <<https://medium.com/colab-dudley/co-lab-3-4-new-green-network-49d8276c044a>> [accessed 19 April 2023].

76 Inspired by Rob Hopkins' 'What If' framing of future change. See: Rob Hopkins, *From What Is to What If: Unleashing the Power of Imagination to Create the Future We Want* (London: Chelsea Green Publishing, 2019).

77 Matthew DelSesto, *Design and the Social Imagination* (London: Bloomsbury Publishing, 2022), pp. 29–37; Mang and Haggard, *Regenerative Development and Design*, pp. 1–24; Wahl, *Designing Regenerative Cultures*, p. 128.

78 CoLab Dudley, 'A Friendly Guide to Collaboration'.

79 Jo Orchard-Webb, 'An Emergent Story of Regenerative Learning Infrastructure', *CoLab Dudley*, 12 March 2024 <<https://medium.com/colab-dudley/an-emergent-story-of-regenerative-learning-infrastructure-737e44429ce0>> [accessed 20 February 2025].

80 Sara and Jones, 'The University as Agent of Change', p. 330.