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The Public Collaboration Lab— Infrastructuring Redundancy with Communities-in-Place

Abstract In this article we share an example of challenge-driven learning in design education and consider the contribution of such approaches to the weaving of communities-in-place. We describe the research and practice of the Public Collaboration Lab (PCL), a prototype public social innovation lab developed and tested via a collaborative action research partnership between a London borough council and an art and design university. We make the case that this collaboration is an effective means of bringing capacity in design to public service innovation, granting the redundancy of resources necessary for the experimentation, reflection, and learning that leads to innovation – particularly at a time of financial austerity. We summarize three collaborative design experiments delivered by local government officers working with student designers and residents supported by design researchers and tutors. We identify particular qualities of participatory and collaborative design that foster the construction of meaningful connections among participants in the design process – connections that have the potential to catalyze or strengthen the relationships, experiences, and understandings that contribute to enrich communities-in-place, and infrastructure community resilience in the process.

Resilience through Redundancy

Resilience through redundancy is a natural strategy.[1] Nassim Taleb comments on the propensity of nature to overinsure itself, suggesting, "layers of redundancy are the central risk management property of natural systems."[2] He points to human physiology as evidence of this: two kidneys when one will do, and the spare parts and extra capacity of the lungs, neural systems, and coronary arteries. Taleb also challenges the notion of cost in relation to redundancy. He argues that while redundancy "seems like a waste if nothing unusual happens, … something unusual does happen – usually."[3] Furthermore, if we have surplus of an asset then we may be able to draw upon or trade that asset in times of shortage, and in this regard what appears to be insurance against risk is actually better understood as investment in opportunity.

For a system to be resilient it must have redundancy – multiple and diverse ways and means of achieving desired outcomes. However, local government in the UK – the city, district and borough councils, charged with ensuring the quality and continuity of public services aimed at ensuring equitable access to public goods for citizens – is under unprecedented attack in this regard. Redundancy here too often refers to reductions in the staffing required to deliver public services rather than the superabundance[4] that affords surplus ways and means of achieving objectives and goals within resilient systems.

In the UK, local government has four main sources of funding: the Revenue Support Grant (RSG) received from Central Government, monies from local business via the Business Rates Retention Scheme, Council Tax paid by residents, and fees and charges for council services.

Bank bailouts and fiscal initiatives such as the Private Finance Initiative (PFI) – introduced in the 90s as a way to fund public infrastructure projects – have seen central government increasing the burden of debt servicing upon local government whilst at the same time reducing the funding provided to local government by an estimated thirty-seven percent[5] between 2011 and 2016. A predicted further £7.8 billion, or seventy-eight percent, reduction over the next four years is anticipated to drive an unprecedented number of councils into financial crisis[6] reducing support to the communities they serve.

In response to austerity, many local government services have been encouraged to become more efficient. Local and national scrutiny – including via legislative tools like The Local Government and Accountability Act 2014 – has driven many councils headlong into cost saving measures and round after round of restructuring and cost cutting in an attempt to deliver "more for less – providing services that meet people's needs, while costing less."[7]

This sounds like a sensible response, and to some extent it is; waste is rarely a virtue. However, often that which is seen as waste is in fact the redundancy essential to resilience. In the Local Government context, the pursuit of efficiency is pernicious in that it overlooks two key considerations, discussed below.

Efficiency versus Efficacy

"Efficiency is concerned with doing things right. Effectiveness is doing the right things."[8]

Efficiency and effectiveness are not the same thing, and political imperatives can sometimes mean that "[local government] does the wrong things really well."[9] The pursuit of efficiency beyond that which is effective will inevitably reduce the quality of public services and outcomes. This is especially true of relational services, which are "deeply and profoundly based on the quality of interpersonal relations between participants."[10] Building relationships takes time, and, when the

1 Editorial note: while the body text conforms to U.S. English, all project titles and institution names adopt British English where appropriate.

2 Nassim N. Taleb, *Anti-Fragile: How to Live in a World We Don't Understand* (London: Allen Lane, 2012), 44.

3 Ibid., 45.

4 The Oxford English Dictionary (1788) defines "redundancy" as, "the state or quality of being redundant; superabundance, superfluity."

5 The Comptroller and Auditor General, "Local Government Report: The Impact of Funding Reductions on Local Authorities" (National Audit Office, November 19, 2014), accessed March 13, 2018, https://www.nao.org.uk/wp-content/uploads/2014/11/Impact-of-funding-reductions-on-local-authorities.pdf.

6 Sean Nolan and Joanne Pitt, *Balancing Local Authority Budgets* (CIPFA, 2016), accessed March 13, 2018, http://www.cipfa.org/policy-and-guidance/publications/b/balancing-local-authority-budgets-online.

7 Jamie Bartlett, *Getting More for Less: Efficiency in the Public Sector* (London: Demos, 2009), 7, available at http://bssec.org.uk/wp-content/uploads/2009/08/Getting_more_for_less.pdf.

8 Mike Bennett and Robert Hill, eds., *Efficient Local Government* (London: SOLACE Foundation Imprint, 2008), 4, accessed March 13, 2018, http://www.solace.org.uk/library_documents/21_SFI_Efficient_local_government_June2008.pdf.

9 Local government officer, workshop comment, 2016.

10 Carla Cipolla and Ezio Manzini, "Relational Services," *Knowledge, Technology & Policy* 22, no. 1 (2009): 45–50, DOI: https://doi.org/10.1007/s12130-009-9066-z.

11 Between 2015 and 2020, over a period when the general population is expected to rise by three percent, the number of people aged over sixty-five is expected to increase by twelve percent (1.1 million); the number of people aged over eighty-five by eighteen percent (300,000); and the number of centenarians by forty percent (7,000). "Challenges of an Ageing Population: Key Issues for the 2015 Parliament," *Parliament.uk*, accessed March 13, 2018, https://www.parliament.uk/business/publications/research/key-issues-parliament-2015/social-change/ageing-population/.

12 One in three (37%) adults aged sixteen to seventy-four with conditions such as anxiety or depression, surveyed in England, accessed mental health treatment in 2014. This figure has increased from one in four (24%) since the last survey was carried out in 2007. Sally McManus et al., eds., *Mental Health and Wellbeing in England: Adult Psychiatric Morbidity Survey 2014* (NHS Digital, 2016), accessed March 13, 2018, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/556596/apms-2014-full-rpt.pdf.

13 Local Government Association, "Adult Social Care Funding: 2016 State of the Nation Report" (Local Government Association, November 2016), accessed March 13, 2018, https://www.local.gov.uk/sites/default/files/documents/adult-social-care-funding-c17.pdf.

14 Ibid., 8.

15 Stefan H. Thomke, *Experimentation Matters: Unlocking the Potential of New Technologies for Innovation* (Boston: Harvard Business School Press, 2003), 1.

16 Andrew Zolli and Ann M. Healy, *Resilience: Why Things Bounce Back* (New York: Free Press, 2012), 126.

17 "Manifesto for Agile Software Development," accessed March 13, 2018, http://agilemanifesto.org.

18 Eric Ries, *The Lean Startup: How Today's Entrepreneurs Use Constant Innovation to Creates Radically Successful Businesses* (UK: Penguin, 2011).

19 Saras D. Sarasvathy, *Effectuation: Elements of Entrepreneurial Expertise* (Cheltenham: Edward Elgar Publishing Ltd., 2008), 84.

relationships being built are with public sector employees, time costs money. Relational services include those that care for the elderly and more vulnerable within communities, a burgeoning proportion of the population as life expectancy[11] and incidence of mental health treatment[12] increase. This places growing demand on public health and adult social care services (ASC) funded by local government. The latter currently accounts for roughly thirty to thirty-five percent of total local government expenditure — expenditure that is to be significantly reduced in coming years. Consequently, in November 2016, the Local Government Association estimated that adult social care in England and Wales faced a funding gap of £1.3 billion by the end of the decade.[13] A reduction in local care services may contribute to reduce early intervention and prevention and increase demands upon National Health Services (NHS). Already, the funding gap in ASC has led to unmet need amongst some of the UK's most vulnerable citizens and increased demand within the NHS, as clearly stated in an enquiry into the issue.

> "Cuts to social care funding over a number of years have now exhausted the capacity for significant further efficiencies in this area. We have heard that the savings made by local councils in the last parliament have gone beyond efficiency savings and have already impacted on the provision of services. Based on the evidence we have heard we are concerned that people with genuine social care needs may no longer be receiving the care they need because of a lack of resource. This not only causes considerable distress to the individuals concerned but results in significant additional costs to the NHS."[14]

Efficiency Is the Enemy of Innovation

Secondly, and perhaps more challenging, is the idea that efficiency is the enemy of innovation. This is because efficiency drives out redundancy — it removes the space to experiment, reflect, and learn — which reduces opportunities to find alternative ways and means of meeting the needs of communities in the process.

> "Experimentation matters because it fuels the discovery and creation of knowledge and thereby leads to the development and improvement of products, processes, systems and organisations…. But experimentation has often been expensive in terms of the time involved and the labour expended, even as it has been essential to innovation."[15]

Experimentation requires consideration of the expenditure described above. It might be construed as a risky investment in opportunity when there is no space for error, or as insurance against the risks of proceeding with business as usual when the business landscape is unusual and uncertain. Here, Taleb's assertion that "something unusual does happen — usually" frames investment in public sector experimentation as insurance against the risk of failure of business as usual and also as investment in realizing opportunities to benefit from doing things differently.

Experimentation must also accommodate the uncertainty of the outcomes of doing things differently. These risks may be managed through scale, iteration, and redundancy. Small scale experiments, or prototypes, redundant within the overall system, can be developed and tested without impeding the host system's ability to "maintain its core purpose and integrity."[16] These understandings underpin the agile[17] and lean[18] methodologies, borrowed from software development and entrepreneurship respectively, currently much referenced in service and policy innovation. The same understanding is echoed in Saras Sarasvathy's affordable loss[19] principle, one of five core principles characterizing entrepreneurial effectuation, which suggests that redundancy — the space to learn through failure without critical injury to the system — is essential to the ability to experiment, innovate,

and effectuate. Efficiency within a system removes the space for experimentation within that system. Thus, pursuit of efficiency in service delivery in response to austerity, in the context of local government, is an impediment to service innovation in that it denies the public authority the opportunity for de-risked experimentation through which to find new ways to deal with the complexities of supporting communities in the face of demographic change and financial austerity.

Efficiency, in this scenario, rather than increasing the resilience of public services and thus ensuring continued equitable access to public goods for citizens, may lead them into crisis, in turn reducing the resilience of the communities they serve. Consequently, local authorities, responsible for the stewardship of public goods in the face of diminishing resources with which to deliver public services, are exploring alternative ways to build community resilience. In a briefing paper for UK local government on the subject, the Local Government Information Unit, a local democracy think tank in the UK, defines resilience in this context as "the capacity of local areas to respond to immediate crises, to build their resources and adapt to changing circumstances in the future."[20] They highlight that "councils also have an important role shaping local, place-based resilience," and note that councils "can't make resilience happen, but they can help to create the conditions that enable resilience" by "developing strategies that draw together the institutions, communities, and citizens in the areas they are responsible for."[21]

This article shares an approach to building place-based resilience, in response to the crisis of austerity, through participatory design experiments involving local government, design education, and communities. In the coming sections, we will explore the ways these creative collaborations build connections between people and institutions that strengthen communities in place, as "groups of people who interact and collaborate in a physical context."[22]

Designing the Resilience of Communities-in-Place

Applying the principles of design for social innovation to building community resilience in the face of reduced funding for public services involves rewriting the roles of citizens as service users.[23] Moving them from passive individuals to active collaborators, from service users to service participants, and from people with needs of service delivery to people as assets in service delivery.

In this scenario, the role of local authorities also changes from being the (sole) providers of services to being stewards of civic and civil resilience afforded by new multiple models of service provision. This suggests a role for local government in brokering interactions, unlocking community resources, and increasing the diversity of how citizens interact with local government, other organizational actors (businesses and third sector organizations), and each other. These new approaches require space for experimentation and reflection to co-produce plural ways of supporting people in meeting their own and each other's needs.

It is here that design education can contribute to community resilience, bringing skills and competencies in creative and collaborative experimentation to help to build the capacity of communities to find new ways of meeting societal needs. In this scenario, the design school — a bastion of the diversity and redundancy of thinking and doing essential to experimentation, reflective learning and innovation — is a social resource with the capacity to bring redundancy in the form of a superabundance of creative resources to those to whom it is denied through austerity and efficiency. This is the opportunity to which the Public Collaboration Lab (PCL) responds.

20 Andrew Walker, "Resilience in Practice" (report, LGiU, November, 2015), 3, available at https://www.lgiu.org.uk/report/resilience-in-practice/.

21 Ibid.

22 Ezio Manzini and Adam Thorpe, "Weaving People and Places: Art and Design for Resilient Communities," *She Ji: The Journal of Design, Economics, and Innovation* 4, no. 1 (2018): 1, DOI: https://doi.org/10.1016/j.sheji.2018.03.003.

23 Ezio Manzini and Eduardo Staszowski, eds., *Public and Collaborative: Exploring the Intersection of Design, Social Innovation and Public Policy* (DESIS network, 2013), available at http://www.desisnetwork.org/wp-content/uploads/2017/04/DESIS_PUBLIColab-Book.pdf.

24 European Network of Living Labs (ENoLL) and Garcia Robles et al., eds., *Introducing ENoLL and Its Living Lab Community* (Brussels: ENoLL, 2015), 13, available at https://ec.europa.eu/digital-single-market/en/news/introducing-enoll-and-its-living-lab-community.

25 Geoff Mulgan, "The Radical's Dilemma: An Overview of the Practice and Prospects of Social and Public Labs, Version 1," *Nesta*, 1, accessed March 13, 2018, https://www.nesta.org.uk/sites/default/files/social_and_public_labs_-_and_the_radicals_dilemma.pdf.

26 Ibid., 2.

27 Jacob Buur and Susanne Bødker, "From Usability Lab to 'Design Collaboratorium': Reframing Usability Practice," in *DIS '00: Proceedings of the 3rd Conference on Designing Interactive Systems: Processes, Practices, Methods, and Techniques* (New York: ACM, 2000), 297, DOI: https://doi.org/10.1145/347642.347768.

28 Martin Johansson et al., "Partner Engaged Design: New Challenges for Workplace Design," in *PDC '02: Proceedings of the Participatory Design Conference* (Malmö: CPSR, 2002), 163.

29 Thomas Binder and Eva Brandt, "The Design: Lab as Platform in Participatory Design Research," *CoDesign* 4, no. 2 (2008): 115–29, DOI: https://doi.org/10.1080/15710880802117113.

30 Ruth Puttick, "Innovation Teams and Labs: A Practice Guide," *Nesta*, 4, accessed March 13, 2018, https://www.nesta.org.uk/sites/default/files/innovation_teams_and_labs_a_practice_guide.pdf; "Royal College of Art Pioneers Design Innovation Lab with Tata Consultancy Services," Royal College of Art, last modified May 29, 2015, https://www.rca.ac.uk/news-and-events/news/royal-college-art-design-innovation-lab-tcs.

31 Marlieke Kieboom, *Lab Matters: Challenging the Practice of Social Innovation Laboratories* (Amsterdam: Kennisland, 2014), 9.

32 Sam Laban, "Social Innovation Lab," Waterloo Institute for Social Innovation and Resilience, last modified February 07, 2014, https://uwaterloo.ca/waterloo-institute-for-social-innovation-and-resilience/projects/social-innovation-labs.

Introducing the Public Collaboration Lab

PCL is a prototype for a public and social innovation lab focused on service, social, and policy innovation at a local level. The PCL is born of a partnership between the Design for Social Innovation towards Sustainability Lab of the University of the Arts London (UAL DESIS Lab) and a London Borough Council. The Arts and Humanities Research Council funded the development and testing of this prototype as an eighteen-month action research project between April 2015 and October 2016.

As a way of encouraging diverse cross fertilization of ideas, innovation, and development, and providing a place for experimentation and testing, the lab model has become widely deployed over the last decade. The European Network of Living Labs identifies nearly four hundred living labs around the world, with one hundred and seventy of these based in Europe.[24]

Mulgan sets out the historical context of the lab within public service provision, detailing how the idea of applying science lab principles was adopted by agricultural research centers in the mid-nineteenth century.[25] This period also saw the development of similar lab principles applied to social issues, with examples such as the Musée Sociale in Paris in the 1890s and Robert Owen describing the cooperatives, schools, and healthcare he ran in nineteenth century Scotland as a laboratory.[26]

Early iterations of the lab in design were described as a design collaboratorium[27] and partner engaged design.[28] Binder uses the term "design:lab" as "a shorthand description of open collaboration between many stakeholders sharing a mutual interest in design research in a particular field" which "puts emphasis on a transparent, delimited process that is potentially scalable."[29] Binder found that bringing together industry and potential users in the highly innovative setting of the design lab enabled them to "stage an agenda of change" leading all the participants to "collaborate on equal terms."

The nomenclature for labs that apply design processes to social transformation has widened enormously to include living lab, innovation lab, social lab, change lab, policy lab, i-lab, i-team, social innovation lab, policy innovation lab, government innovation lab, and more. Similarly, there is no single, specific definition of a lab, rather comparable variations that all speak of experimentation, user participation, co-creation, and innovation in address to real world situations. UK innovation charity Nesta uses the term "lab" as shorthand for the different structures that utilize "experimental methods to address social and public challenges."[30] Marlieke Kieboom describes a lab as "a container for social experimentation, with a team, a process and space to support social innovation on a systemic level."[31] These definitions are in contrast to Frances Westley and Sam Laban, who, rather than focusing on the enabling structure of the lab, define "a Lab as a process, one that is intended to support multi-stakeholder groups in addressing a complex social problem."[32]

Both central and local governments have adopted the use of labs for innovation within the areas of policy and public services,[33] particularly within Europe. Notable examples include MindLab in Denmark, which describes itself as "a cross-governmental innovation unit which involves citizens and businesses in creating new solutions for society;"[34] the UK Policy Lab, set up in 2014 as part of the Civil Service Reform plan to make policy making more open;[35] and the (now defunct) Helsinki Design Lab[36] based in Finland, which applied strategic design in support of more holistic government decision making.

Drawing on these precedents, PCL shares characteristics that are common to other public social innovation labs:
- Project teams are typically multi-stakeholder and multi-disciplinary;
- Projects seek to understand the wider system whilst prioritizing human experience;

- Collaboration and co-creation with end-users of services and stakeholders are central to the work of the lab; and
- Approaches are iterative and agile following a robust design process framed as action research in real life scenarios.

However, despite these similarities with other innovation labs, PCL is differentiated by its primary emphasis on partnership between local government and design education. Local government officers and design students are supported by tutors and academic research staff to engage with residents and other stakeholders via participatory design activities including collaborative and creative exploration, visualizing, and visioning activities delivered in response to challenges defined by local government.

In this way, the PCL provides a platform for projects that configure participatory design experiments in social, policy, and service innovation in the form of what Paulo Freire calls "problem-posing" education, a model that "bases itself on creativity and stimulates true reflection and action upon reality, thereby responding to the vocation of persons as beings who are authentic only when engaged in inquiry and creative transformation." Within such a learning context, all those involved in the project are "jointly responsible for a process in which all grow.… No one teaches another, nor is anyone self-taught. People teach each other, mediated by the world."[37]

This collaborative praxis constitutes an example of challenge-driven learning, in that it "develops students by putting them up against difficult problems and challenges for which there are no established answers. Instead students draw on many disciplines to solve them; they have to work in teams; and they have to collaborate with organizations outside higher education."[38] The students' "specialized [design] knowledge" is "complemented by and built through open-ended, challenge based, interdisciplinary team work" enabling students "to bridge the gap between knowledge and societal demands, enabling them to make a contribution to society."[39]

In this way, PCL, in keeping with the philosophy of the International DESIS Network, considers staff and students of design universities to be societal assets capable of bringing design skills and competencies to bear on societal challenges, and the community context to be an action-learning environment for all those involved. Participants share knowledge, skills, experience and expertise, working collaboratively to address local goals and challenges linked to the co-design and prototyping of public service and social innovations.

PCL projects provide participants with an opportunity for experimentation and reflection that contributes to innovation. The lab introduces and integrates a design-led approach to the work of local government officers. Students – led by local government officers together with experienced design research and teaching staff – deliver ethnographic design research developing and testing methods and tools for co-discovery and co-creation in the process. Projects address specific challenges and service areas, including how to consult more meaningfully with citizens on public issues, such as the future of libraries and the planning process; finding ways of increasing recycling rates; dealing with the effects of overcrowded housing; and reshaping youth centers to facilitate the integration of youth services. These activities provide greater capacity for local government to engage with residents and other stakeholders. The open and collaborative nature of the projects fosters the assembly of publics around the issues of concern/service areas addressed. The participatory design process engages the diverse actors assembled in a process of making visible their experiences, concerns, and desires in relation to the issues and services considered; identifying and prioritizing challenges and opportunities for

33 Ben Williamson, "Governing Methods: Policy Innovation Labs, Design and Data Science in the Digital Governance of Education," *Journal of Educational Administration and History* 47, no. 3 (2015): 251–71, DOI: https://doi.org/10.1080/00220620.2015.1038693; Christian Bason, "Designing Co-production: Discovering New Business Models for Public Services" (paper presented at the 2012 International Design Research Conference, Boston, MA, August 2012), 1.

34 "MindLab," accessed March 13, 2018, http://mind-lab.dk/en.

35 "Policy Lab," *GOV.UK* (blog), accessed March 13, 2018, https://openpolicy.blog.gov.uk/category/policy-lab/.

36 Helsinki Design Lab ran from 2009 to 2013.

37 Paulo Freire, *Pedagogy of the Oppressed*, trans. Myra Bergman Ramos, 50th Anniversary ed. (New York: Bloomsbury Academic, 2018), 80.

38 Geoff Mulgan, Oscar Townsley, and Adam Price, "The Challenge-Driven University: How Real-Life Problems Can Fuel Learning," *Nesta* (blog), 1, accessed March 13, 2018, https://www.nesta.org.uk/blog/challenge-driven-university-how-real-life-problems-can-fuel-learning.

39 Marie Magnell and Anna-Karin Högfeldt, *Guide to Challenge Driven Education, ECE Teaching and Learning in Higher Education no 1* (Stockholm: KTH Royal Institute of Technology, 2014), 8, available at https://oar.sci-gaia.eu/record/174/files/PUBLICATIONSOTHER-2016-005.pdf.

40 Quotation from Chris Widgery, cited in Adam Thorpe, "Learning Together by Doing Together," *CSM Public Newspaper* 20, February 3, 2016, https://issuu.com/csmtime/docs/csm_public_newspaper-web03.

41 Camden Council, "The Camden Plan 2012–2017" (Camden Corporate Strategy Team, 2012), accessed March 13, 2018, www.camden.gov.uk/ccm/cms-service/download/asset?asset_id=2847298.

42 University of the Arts London, "Research Strategy 2015–2022," accessed March 13, 2018, http://www.arts.ac.uk/media/arts/research/documents/Research-Strategy-2015-2022.pdf.

43 Camden Council, "The Camden Plan 2012–2017."

44 Ibid.

45 University of the Arts London, "Research Strategy 2015–2022."

intervention; and collectively visioning new ways of addressing these challenges and opportunities. The outputs of these activities include rich qualitative insights that support decision making and priority setting by local government officers and politicians. Participants also explore and propose alternative ways to achieve outcomes and deliver services, feeding into the process of service innovation and transformation. Depending on the nature of the projects, they may contribute to raising awareness, changing behaviors, and redefining and redesigning ways of developing and delivering services. Comments made by the local government officer responsible for managing support for service transformation within the Council attest to the efficacy of this approach:

> "PCL offers us the chance to explore new ways of collaborating with our partners and our communities, to design services that are based around the needs of residents. It is also allowing us to tap into the creativity and energy of Central Saint Martins staff and students, which is adding a completely fresh perspective to how we go about solving problems."[40]

Strategically, the PCL responds to the objectives of both the council[41] and the university.[42] PCL provides a way for the council to "get closer to communities supporting them to be self-sustaining" and supports officers in "developing personalized solutions and support for residents in need, and where possible enabling them to lead the problem solving to achieve the outcomes they want."[43] More broadly, the PCL helps the council to "explore new solutions alongside partners to make a positive difference to people's lives." The PCL contributes to the "social infrastructure" of the borough that is "critical to making [the borough] a better place to live."[44]

Concurrently, PCL helps the university build "resilient partnerships with local communities" by "placing creativity at the heart of changing society" and "using art and design to support communities in understanding how to develop innovative and sustainable solutions to the issues they face."[45]

Collaborative Design Experiments

For eighteen months, PCL worked with local government officers, residents, and other stakeholders, in the ways described above, to deliver a series of collaborative design experiments. These experiments explored potential social and service innovations that may help improve outcomes for communities while simultaneously reducing costs of public service delivery, in an attempt to meet the aims of medium term financial strategies. These experiments explored synergy between the learning objectives of design education and the operational objectives of local government. They also tested the degree to which problem-posing design education of this kind can provide a redundancy of resources to support social and service innovation, while simultaneously supporting the development of social connections and ties, enriching communities-in-place. We briefly describe three of these experiments below.

Example 1. Amplifying Relational Value within the Home Library Service

Many public authorities provide a Home Library Service (HLS) in an attempt to ensure equitable access to library services for housebound residents. In this case, between four to five hundred residents use the HLS. Many HLS users find it difficult to access public services outside their homes due to age or medical conditions and receive visits from home care providers. Some of these residents are those that the UK Public Service Transformation Network Service's Transformation Challenge Panel (2014) refers to as "individuals with multiple complex needs." These residents

are referred to as "readers" by the HLS and the home librarians who visit them on a fortnightly basis know their interests and literary preferences.

In response to demands for cost savings in every service area, the public authority was seeking new service models for the HLS that could reduce running costs by sixty percent. During the research phase of the project, student designers from MDes Service Design Innovation at London College of Communication, supported by council officers and research and teaching staff from the PCL, shadowed the librarians and observed their interactions with readers. It was evident that the services provided by the librarians far exceeded the selection and delivery of reading books. The same librarian had visited some readers for several years and had built trusting relationships with them. Librarians were welcomed into readers' homes. A reader's request for larger print triggered a referral for an eye test and revealed that the instructions on medication were illegible to the reader. The temperature of a readers' home led to a conversation about heating allowances. A request for audiobooks led to an impromptu training session on how to use a CD player. The role of the librarian as an information provider, combined with the trust established, helped to personalize the interactions between readers and librarians. A reader's request for information around care homes led to a discussion with the librarian around the care provision necessary for a reader to stay in her own home and resulted in the librarian making referrals to relevant council support. In this way, books and their delivery provided a context for trusted encounter and exchange. The service was noted as unique in that it was predicated on recognizing the reader as a person with individual interests rather than needs.

The ethnographic research made visible the deeply relational nature of the service the HLS team was providing to the readers. The design team made a number of integrated service proposals with the intention of amplifying the unique value observed within the service so as to improve outcomes for citizens while delivering cost savings in the long term linked to signposting and support for early intervention from Adult Social Care and Public Health services. Within these proposals, back office functions such as sorting, packing, and loading books were designed to be fulfilled by volunteers. This would enable HLS staff to dedicate more time to the relational aspects of reader engagement, supported by a digital platform that could help make timely and appropriate referrals to other support services as required. The platform also allowed for the coordination of other informal care support from family members and volunteers who shared interests with the readers, with the intention that volunteering could be more mutually rewarding through exploration of shared interests—inside and outside the home. The integrated new services were named the Home and Community Library Service (H&CLS) in reference to the way the new service would transform the HLS model by extending interest oriented social care provision into the community. Service touchpoints were prototyped and developed iteratively in dialogue with service users and other people of similar experience to service users such as elderly community center users and care home residents, for example. The service proposals were also shared with public, private, and third sector organizations that engaged with the service users, including volunteer networks, energy companies, and other council departments. The new service proposition was capable of delivering "interest oriented early intervention" whereby home librarians could be trained and supported in connecting readers to volunteers with shared interests, and making referrals to community activities, community support systems, and council services—explicitly amplifying the tacit roles and values that had been identified as present within their current practices. This service innovation responds to recent research findings in this area, which report that

"Civil society organizations have pressed for a person-centred approach to

46 Anthea Tinker, Jay Ginn and Eloi Ribe, *Assisted Living Platform—The Long Term Care Revolution: A Study of Innovatory Models to Support Older People with Disabilities in the Netherlands* (London: King's College London, 2013), 5, available at https://www.ifa-fiv.org/wp-content/uploads/2013/11/HLIN-Case-Study76-Netherlands.pdf.

47 *Buurtzorg*—"care in the neighborhood"—is an innovative approach in the Netherlands to deliver home care. It originated in 2006 from staff dissatisfaction at traditional home care organizations. Bureaucratic duties, working in isolation from other care providers, and, above all, neglect of their professional competencies were amongst the complaints. The organizational model of *Buurtzorg* is to have care delivered by small, self-managing teams consisting of a maximum of twelve professional carers, and to keep organizational costs as low as possible, partially by using ICT for the organization and registration of care. From the LTC process point of view, *Buurtzorg* introduces a built-in attempt to contact and integrate with other local carers and with informal caregivers. *Buurtzorg* is better care for reduced cost. Cost may decrease up to fifty percent, according to the consultancy agency PWC. Pieter Huijbers, "Care in the Neighbourhood: Better Home Care at Reduced Costs," *Interlink,* accessed March 13, 2018, http://interlinks.euro.centre.org/model/example/NeighbourhoodCareBetterHomeCareAtReducedCost.

48 The Duke of Edinburgh's Award is a youth achievement award, see https://www.dofe.org.

care, one which gives voice and choice to disabled people while promoting re-ablement and preventing deterioration in health. Social relationships, allowing for frequent face-to-face interaction, are recognized as vital to older people's health and wellbeing. Experts say more development on these lines is needed, especially reaching out to isolated individuals, and … also to invest in internet-based systems designed to promote social interception and combat loneliness."[46]

All those consulted recognized the potential the new service proposals had to foster the development of relationships that could support early intervention in social care. Some effort was made to explore business models that might sustain the service, including a "public service mutual" approach, which has proven to deliver exceptional value and performance in home care in the Netherlands.[47] However, funding was not available to pilot the new service (due to the necessity of cost savings). Related service areas under similar pressure to cut costs were wary and unwilling to support what some regarded as a transference of service costs from one service area to another (libraries to adult social care). A further barrier to piloting the proposals was the time available to implement the cost savings before the deadline. Consequently, the Home and Community Library service was not piloted. Instead, the Home Library Service was transferred to a courier delivery model, losing the relational value that had been accrued and the potential that it offered to fulfill public service reform objectives around early intervention in adult social care and public health.

Example 2. Accommodating the Integration of Youth Services

Public authorities provide youth services to young residents in an attempt to ensure equitable access to opportunities for personal development and wellbeing. In this case it was necessary for the council to reshape youth service provision to deliver financial savings of around 30%. Despite this financial situation, the council was committed to making progress on their objective to build resilience amongst young people and communities and to increase the number of young people in education, employment, and training, particularly those who need extra help, such as those who live in poorer areas or are disabled. The strategy for doing this that was proposed and consulted upon, involved "integrating" youth services to be delivered through newly configured "youth hubs" located in the areas of the borough with the greatest need of youth support services. In this way council resources are to be targeted to those young people who need them most, including those in need of one-to-one support who have committed a criminal offence or are in danger of doing so; those who are not in employment, education, or training; those who require careers advice; those who need support addressing drug and alcohol issues; and those attending group programs and activities that build young people's skills and confidence (such as Duke of Edinburgh's Award).[48] It seems likely that Voluntary and Community Sector organizations working through the youth hubs will increasingly be responsible for providing "universal" open-access youth provision—the sort of youth services typically associated with traditional "youth clubs": safe spaces and facilities where young people can engage in social and leisure activities supported by trained youth workers.

Three locations in areas of greatest need were proposed. Design teams from the PCL, supported by council officers and research and teaching staff, worked with the young users of the centers and the council staff responsible for delivering the existing and proposed service models to collaboratively design the spaces that could accommodate the integrated service delivery. The ten-week project helped to make visible the concerns of both young people and youth workers and created

a space for negotiation and exchange around how best to address them. The three groups of design students made design proposals that were pragmatic in terms of delivery, and acceptable – even desirable – in terms of the needs and desires of young people and youth workers. The design proposals were site specific but could be adapted and reconfigured for different activities and scenarios, helping youth workers to meet the diverse needs of the different groups of young people that would be using the spaces. Whilst there is enthusiasm to implement elements of the design proposals, a significant unforeseen contribution of the project was the space it created for diverse constituencies to share and hear one another's uncertainties and concerns, and also clarify and define possible future scenarios around the integrated service proposals.

At the time of writing, plans for universal support have yet to be finalized. However, stakeholders more fully understand the value of these seemingly less critical services. The voices of young people have been heard through formal consultation and made further visible through the dialogues facilitated within the co-design project. Stakeholders recognize the importance of these safe spaces as places where young people can develop positive relationships and avoid activities that could see them requiring more intensive support, and there are plans for further collaborations bringing together young people within youth centers with art and design students.

Example 3. Addressing the Challenges of Overcrowded Living

Many of the UK's cities are densely populated. This leads to a high demand for housing that drives up the price of accommodation. Increased costs combined with lack of investment for new social housing means that many families wishing to remain in their communities as they grow are living in overcrowded conditions. Overcrowded living conditions can seriously impede residents' wellbeing and contribute directly or indirectly to a number of negative outcomes for residents, as Table 1 indicates.

Table 1. Impact of overcrowding on residents living in overcrowded conditions.

Indirect or Direct Result of Overcrowding	Symptom of Overcrowding
Direct	Sleep disturbance
Direct	Lack of privacy generally
Direct	Lack of storage space
Direct	Lack of privacy and space to study or job hunt/work
Indirect	Lack of space to socialize or play
Indirect	Stress levels and wider mental health impact
Indirect	Physical health (illness and infection)
Indirect	Family exclusion
Indirect	Relationship breakdowns
Indirect	Anti-social behavior
Indirect	Educational attainment

Source: Overcrowded Living project briefing, Camden Council 2016 (Unpublished document).

In this case, numerous families in social housing within the borough were living in overcrowded conditions, with little prospect of rehousing. The council recognized the challenges this presents to families and took action to support families in addressing them.

The council aimed to reduce the impacts of overcrowding for any household in the borough, but there are four groups that were identified as a priority:

- Households with children, particularly families with children aged under five;
- Households with people with mental health problems or learning disabilities;
- Households with people with other health problems; and
- Households that are part of the Complex Families program.

A council officer whose specific responsibility was to explore support for overcrowded families led a team of student designers – supported by teaching and research staff from the PCL – who worked with overcrowded families to identify the adverse impacts of overcrowding on their lives and seek ways to lessen them. Design students and researchers shadowed the council officer visiting families in their homes to meet with them and see and hear about how they were living, the challenges they faced, the actions they were taking to alleviate them, and the support they felt could further help to address the challenges left unmet. During each visit, designers applied different tools – iteratively developed between visits – to support the officers' and residents' process of reflection and planning in response to their overcrowded situation. The tools initially helped to identify and prioritize the challenges the residents faced, then to explore assets and resources available to them through their own networks that might help them address these challenges. Next, the conversation explored assets and resources available through the council and other agencies and actors within their communities; and finally together, the officer and residents set out a plan of action to take to make improvements.

The project team also spoke to officers and front line staff across the council services that came into contact with the overcrowded families. These consultations explored how the tools being developed might be useful to the officers in providing support and signposting residents to further support outside the officers' specific service area.

The prototype tools that had been iteratively developed with residents during the house visits were tested in collaborative workshops with residents and officers in libraries and community centers to gain further advice and feedback to ensure the tools were useful and usable for officers and overcrowded residents in their day to day interactions. The tools were tailored to online and offline formats and delivered to officers for final development and implementation for use across the service areas that support overcrowded families. The project's main challenge was to support constructive conversations with concerned and frustrated residents, the majority of whom wanted engagement with council officers to result in rehousing. Unfortunately, rehousing was impossible in the majority of cases so the team had to come up with different ways to engage with residents, which led to rethinking home visits and how to support and advise overcrowded households. The design of these interactions needed to be engaging and useful for residents, but also insightful to the council. The tools were found to structure conversations that residents felt to be meaningful, allowing their challenges to be heard and helping them understand the limitations of what the council could do for them. The tools helped the council to work with the residents to find areas for intervention as well as supporting referrals to council and community support. They helped to support a constructive dialogue between the council officer and the residents that was otherwise difficult to have and helped to foster new relationships between residents and other actors and agencies within the community.

Learning Together by Doing Together

Design students from different disciplinary backgrounds – service design, industrial

design, spatial design, and product design – delivered the projects we describe above. They were working within the context of "live" course projects supported by tutors and researchers experienced in participatory and collaborative design for service innovation and social innovation. The projects were co-designed with council officers and Heads of Service so as to be strategically useful to council operational objectives whilst affording learning opportunities for the students involved. The projects also produced research insights around the application of collaborative design techniques in the context of service and policy design that were of interest to the design researchers involved and the council officers. Additionally, other stakeholders, including residents and third sector service providers, contributed their expertise to the projects and gained insight into design methods and processes. In this way PCL projects offered experiential learning opportunities to everyone involved, and the projects benefitted from the expertise and experiences of these diverse practitioners and participants. A detailed account of the practices within these projects, their outputs, and outcomes is documented elsewhere. Here we share some reflections concerning their commonalities, exploring how these collaborative design practices may contribute to the "weaving" of communities-in-place – the focus of this special issue.

Design Process Model as "Boundary Object"

All of the PCL projects were mapped onto adaptations of a typical design process model, the Design Council's "double diamond"[49] which structures a journey through divergent and convergent stages of the design process, progressing from sense making and problem/opportunity definition to ideation, concept development and prototyping of outputs that respond to the challenges defined. Within planning and delivery of PCL projects the process model itself was found to act as a kind of "boundary object."[50] It was recognizable enough to the diverse actors involved to allow them to navigate the process from their particular perspective whilst at the same time understand the relevance of the collaborative design-led activities they were participating in, and their aims, thus providing a means of translation between the diverse understandings of the people involved. In this way, the process model itself – visualized in sketch form each time it was discussed to help structure the conversation – was found to be "both adaptable to different viewpoints and robust enough to maintain identity across them."[51] This method of sharing understandings was a first step in fostering participants' agency in, and ownership of, the process. Able to navigate the proposed activities and understand them from their own diverse perspectives, participants were better able to discuss and negotiate the planned activities, collaborating in the shaping of future actions, outputs and outcomes.

Fostering Communities-in-Place through Design "Things," "Probes," and "Games"

Each of these collaborative experiments applied a different mix of design tools and methods depending on the aims and context of the project. Common to these methods was their bespoke nature. In the discovery stage of all projects, students were encouraged to design original interactions, supported by artifacts that would elicit insights from people with experience of the issues being addressed. These artifacts took many forms depending on the context of engagement.

For example, within the overcrowded living project, families experiencing overcrowding were engaged in their homes using a kit of stickers, maps, and templates to support activities that structured a conversation around their use of their home and the surrounding community assets that might be brought into play to help alleviate the stresses of overcrowding. These tools were iterated with several families in their homes and were also shared publicly, in a library and a

49 Design Council, "A Study of the Design Process" (Design Council, 2005), accessed March 13, 2018, http://www.design-council.org.uk/sites/default/files/asset/document/ElevenLessons_Design_Council%20(2).pdf.

50 Susan Leigh Star and James R. Griesemer, "Institutional Ecology, 'Translations' and Boundary Objects: Amateurs and Professionals in Berkeley's Museum of Vertebrate Zoology, 1907–39," *Social Studies of Science* 19, no. 3 (1989): 387–420, available at http://www.jstor.org/stable/285080.

51 Ibid.

52 Thomas Binder et al., *Design Things: Design Thinking, Design Theory* (Cambridge, MA: MIT Press, 2011); Erling Bjögvinsson, Pelle Ehn, and Per-Anders Hillgren, "Design Things and Design Thinking: Contemporary Participatory Design Challenges," *Design Issues* 28, no. 3 (2012): 101–16, DOI: https://doi.org/10.1162/DESI_a_00165.

53 William W. Gaver, Andrew Boucher, Sarah Pennington, and Brendan Walker, "Cultural Probes and the Value of Uncertainty," *Interactions—Funology* 11, no. 5 (2004): 53–56, DOI: https://doi.org/10.1145/1015530.1015555.

54 Pelle Ehn, "Participation in Design Things," in *PDC '08: Tenth Anniversary Conference on Participatory Design Proceedings* (Indianapolis: Indiana University, 2008), 92–101, available at https://dl.acm.org/citation.cfm?id=1795248.

55 Freire, *Pedagogy of the Oppressed*, 43.

56 Marc Steen, "Co-Design as a Process of Joint Inquiry and Imagination," *Design Issues* 29, no. 2 (2013): 16–28, DOI: https://doi.org/10.1162/DESI_a_00207.

57 Elizabeth B.-N. Sanders and Pieter Jan Stappers, "Co-creation and the New Landscapes of Design," *CoDesign* 4, no.1 (2008): 5–18, DOI: https://doi.org/10.1080/15710880701875068.

community center, to solicit further validation as to their usefulness. These public iterations brought together residents with experience of the challenges of overcrowding, council officers who usually engage with and support overcrowded residents, design students and researchers, and other members of the public that unexpectedly came across this public engagement and joined the discussion. This collaborative interaction in public space could be considered as a public performance that fosters community in place, supporting dialogue and catalyzing connections between participants. Through this performance, a public was assembled around an issue of concern. The assembled public contributed their experience and expertise to attempt to address the issue, in this case the development of tools that might structure further supportive interactions to help alleviate the stresses of overcrowding. However, it is important to note that even though the iteration of the tools was the focus of the assembly, it was not the only collaborative activity taking place. Participants initiated their own conversations, and there were many other exchanges of information and support between them. The impact of these activities and their contribution to "weaving communities-in-place" is illustrated in the comments of the council officer leading the project who reported that,

> "The probes worked really well on yesterday's visit. We left quite late because it helped the mother to think of the positives for her, about home and community…. She also said that it felt as though you had all worked to personalize the tools which made her feel that we were there to help and understand…. She got quite emotional. But it was nice that the probes had helped her to think about her space differently. She was very impressed with the skills swap [one of the exercises in the toolkit that explores the possibility of resident-to-resident support] — she was sure it would help bond the community."

This is just one example of the numerous collaborative interactions staged within PCL projects. All of these interactions can certainly be thought of as design "things" — "socio-material assemblies that deal with matters of concern."[52] Their character and application within these projects also locates them as "cultural probes,"[53] in that they are "evocative tasks meant to elicit inspirational responses from people."

Within these collaborative design experiments, publics are assembled and experiences and visions shared, fostering connections between people (participants) and people and place (participants and context). These experiments can be seen as what Pelle Ehn and his colleagues refer to as "participative, entangled, meaning-making design games"[54] whose enactment, as well as having potential to democratize involvement in design and decision making around the future of public services, contributes to meaningful dialogue between people that strengthens communities-in-place.

Fostering Communities-in-Place via Participatory and Collaborative Design

PCL projects develop and apply participatory and collaborative design approaches in the context of problem-posing design education. Such approaches are recognized for their inclusive and equitable nature. Echoing Paolo Friere's "pedagogy of the oppressed",[55] in which subjects attain "knowledge of reality through common reflection and action" and "discover themselves as its permanent re-creators," co-design is described as a process of "joint enquiry and imagination"[56] involving the "creative activity of designers and people not trained in design working together in the design development process."[57] Participatory design is democratic and emancipatory; it has a commitment to ensuring everyone's voice is heard in the decision-making processes that will affect them. The embodiment of these disciplinary

principles within the collaborative experiments the students delivered, combined with the core design principle of prioritizing empathic understanding of those effected by design processes and outputs[58] creates conditions conducive to forming meaningful connections between people and between people and resources that might contribute to the enrichment of communities-in-place.

Such meaningful relationships were formed within the PCL projects described above. Researchers from the Institute for Local Government Studies at the University of Birmingham, who conducted interviews and reflective focus groups with project participants, found that "many interviewees spoke about the importance of the relationships within the PCL. Some reflected that the value of the work is in the relationships and networks and conversations that were had between people, and suggested that the relationships were the outcome." The researchers identified that, "for students, the relationships were complex. They felt deeply responsible for establishing good relationships; held guilt about the quality of the nature of the relationships, and built deep relationships with individual residents."[59] Freire asserts that "the presence of the oppressed in the struggle for their liberation will be what it should be: not pseudo-participation, but committed involvement."[60] The evaluators reported that "Students found that the intensive engagement with residents made them want to do something for them – they were emotionally engaged – and that engagement became more than just an aspect of their course. "Working with real people – with thoughts and feelings and struggles – we want to do a good job, not just get a good mark."[61] Ultimately, the University of Birmingham researchers found that, "The students are able to establish different relationships with residents compared with those that [council] officers are able to develop. The students listen to the residents first and the client second. They start with residents, take time to appreciate and understand their issues. They bring a "wide eyed interest in the issues, caring about the residents, time and willingness to listen to issues." They are able to reflect what residents are saying to the council in a way that they hear and listen; they can distil points and present them in an accessible way."[62]

Sociotechnical Infrastructuring through Collaborative Design Experiments — Enriching Communities-in-Place

The examples above, and reflections upon them, demonstrate how the PCL and the collaborative experiments it facilitates contribute to the weaving of communities-in-place in three ways.

First, although the PCL – its people, processes and resources – is configured primarily to afford a space for collaboration and experimentation in search of place-based solutions to local challenges in the context of austerity, it also provides a socio-technical infrastructure that fosters connectivity between agencies and actors within the London borough it serves through the co-design and co-delivery of the collaborative design experiments it catalyzes and supports.

Second, these collaborative design experiments foster meaningful dialogues between participants – council officers, residents, students, teachers and researchers – building understanding and trust that supports the formation of relationships between them.

Third, the outputs of these experiments – the social and service innovations that are co-created; a service for connecting people with common interests as in the Home and Community Library Service, or tools for structuring dialogue around building resilient networks such as that co-designed within the Overcrowded Living project – have the potential to further support the formation of connections between the people that engage with them in future.

58 Merlijn Kouprie and Froukje S. Visser, "A Framework for Empathy in Design: Stepping into and out of the User's Life," *Journal of Engineering Design* 20, no.5 (2008): 437–48, DOI: https://doi.org/10.1080/09544820902875033; Tuuli Mattelmäki and Katja Battarbee, "Empathy Probes," in *PDC '02: Proceedings of Participatory Design Conference* (Malmö: CPSR, 2002), 266–71; Carla Cipolla and Roberto Bartholo, "Empathy or Inclusion: A Dialogical Approach to Socially Responsible Design," *International Journal of Design* 8, no. 2 (2014): 87–100, available at http://ijdesign.org/index.php/IJDesign/article/view/1255; Lorraine Gamman et al., "Hey Babe—Take a Walk on the Wild Side: Why Role-Playing and Visualization of User and Abuser 'Scripts' Offer Useful Tools to Effectively 'Think Thief' and Build Empathy to Design Against Crime," *Design and Culture* 4, no. 2 (2012): 171–93, DOI: https://doi.org/10.2752/175470812X13281948975495.

59 Catherine Mangan et al., *Evaluation of PCL by Institute of Local Government Studies at the University of Birmingham*, 2016.

60 Freire, *Pedagogy of the Oppressed*, 43.

61 Post graduate student PCL project participant as recorded in evaluation interview by Institute of Local Government Studies at the University of Birmingham, 2016.

62 Mangan et al., *Evaluation of PCL by Institute of Local Government Studies*.

The first and last of these are examples of "co-design *for* weaving communities-in-place" – they are enabling platforms that support groups of people to interact and collaborate in a physical context. The second of these, the collaborative design experiment itself, is an example of "co-design *as* weaving communities-in-place" – in that the co-designing participants assembled through the projects are groups of people who interact and collaborate in a physical context.

This understanding defines a role for the design school – and place-based, challenge driven, problem-posing design education in particular, in building community resilience through an open-ended process of connecting diverse actors and agencies who are able to configure and reconfigure shared resources in response to the challenges they face so that they can survive and thrive despite the depletion of public service provision imposed by austerity.