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Learning in the Cat's Cradle: Weaving learning ecologies in the city

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Abstract

This paper uses the metaphor of the cat's cradle to explore how learning in the city can be understood as an entangled meshwork of social, material and discursive practices. Drawing on two years of ethnographic encounters in the city with organisers of adult learning, conveners of protests, leaders of elite city institutions, refugees, longstanding inhabitants, artists, medics, city farmers, older people's groups, parents, carers and social activists (amongst others), the chapter describes how a city's learning ecology is deeply shaped by physical infrastructure, planning laws, transport systems and in particular by key local actors actively nurturing rich learning experiences. We conclude by arguing that creating a vibrant learning city will require investing in and supporting these key actors and working across education, planning, transport and land departments if issues of equity and access to learning opportunities are to be fully addressed.

Learning in the Cat's Cradle: Weaving learning ecologies in the city

In 2016 two of us, Keri and Magda, set out to explore the question 'How does a city learn?' focusing on the city of Bristol in the UK¹. Over the following two years we walked the city, photographed the city, talked with organisers of adult learning, conveners of protests, leaders of elite city institutions, refugees, longstanding inhabitants, artists, medics, city farmers, older people's groups, parents, carers and social activists (amongst others). In the process we have learnt the hubris of our original question as well as its generative, provocative value and have come to see learning in the city as a deeply entangled meshwork of social, material and discursive practices (Facer & Buchczyk, 2019). Reading Donna Haraway (2015) has drawn us to the metaphor of the cat's cradle to help us make sense of these experiences². In invoking the image of the cat's cradle – a string game played between hands in which different figures can be made by knotting and twisting the string over different fingers – Haraway invites us to see how different forces and elements can be entangled to create new realities. In thinking through the image of the cat's cradle for this essay, we are beginning to see the learning ecology of the city as emerging from the personal and collective interweaving of multiple socio-material threads and practices; such threads create dense knots of activity and practice, as well as hollows and gaps, scarcity and sparseness; these activities and absences depend and tug on seemingly distant resources³.

¹ Bristol is a city of around 450,000 people in the west of England, near the border with Wales and around 2 hours from London. It was European Green Capital in 2016, is one of the 10 core cities in the UK and is rapidly growing due to its strong creative, digital and engineering sectors as well as its reputation for high quality of life. It is also, however, a highly unequal city both in terms of formal educational qualifications and wealth.

² Haraway's key point here is that reality is relational: 'Human and nonhuman, all entities take shape in encounters, in practices; and the actors and partners in encounters are not all human, to say the least. (1994: 65). The idea of the cat's cradle is also further developed in Haraway's (2016) book 'Staying with the Trouble' where she describes it as a practice of worlding. The cat's cradle in Haraway's terms is a form of knitting together different forms of knowledge to productively interfere with the existing order to '*make a difference in the world rather than displacing the same elsewhere*' (1994: 63).

³ Elsewhere (Facer & Buchczyk, 2019) we have explored whether the learning resources of a city might be understood as 'learning infrastructure': a social-material networked practice that is brought into being by social actors. This metaphor has the strength of being easily recognisable and usable by engineers and urban planners but misses some of the material playfulness of the cat's cradle that we work with here and some of the organic qualities of the metaphor of ecology that frames this book. We are still looking for the generative metaphor that will most productively help to think of learning at a city scale.



(Image courtesy of Will Luo, Available under Creative Commons Licence: CC BY-NC-ND 2.0)
<https://tinyurl.com/y824wkvg>)

Within the overarching ecological metaphor of this book, the idea of the cat's cradle draws attention to the individual trajectories of learners and how their learning ecologies overlap, interconnect and influence what is going on around them; one person's trajectory bends and pulls another's towards it or creates the conditions for others' trajectories to connect. The image of the cat's cradle emphasizes the core concept of interdependence that is central to the concept of the learning ecology. It visualizes how individual threads of experience come to overlap and rely upon each other, to become part of each other's realities. The language of emergence in complexity theory, which when too simplistically translated from the natural sciences tends to treat all actions as equivalent, is here understood as a located, embodied and specific process in which individual lives come together to take the shape of unique patterns or distinctive ecosystems. From this perspective we are interested in tracing how learning ecologies are not standardized systems or forms, but enmeshed practices with distinctive histories, in unique places.

Our aim, therefore in this chapter, is to give a sense of the highly textured and inter-dependent experiences of a city as it is inhabited by different individuals as learners and educators. In particular, we seek to trace how individuals weave through the city and explore how these seemingly disparate threads are connected; in other words, we are interested in how they come, through these tracings, to create what we might call a knot in the metaphor of the cat's cradle, but which might be understood as a niche in ecological terms (Geels, 2010), holding and protecting a cluster of different experiences.

Critically, our perspective suggests that these patterns are not the autonomous traces of individual agents – whether technologies or people - but that the learning ecology of the city comprises sites in

which key actors engage in an *intentional* interweaving of people and resources precisely to create moments of encounter and interdependence. Here, then, we may begin to ask whether the ecological metaphor that we draw from the sciences is adequate to grasping the intentional practices of weaving in human structures, or whether it needs to be further developed in the social sciences to envisage the role of what we have come to playfully imagine as the spiders in the ecosystem; knitting, weaving, threading together the trajectories of inhabitants, making and remaking niches within the wider ecosystem which the city inhabitants in turn come to make and remake.

The chapter is written in collaboration with a group of volunteers from the city who agreed to accompany us on this exploration as fellow researchers. Liz, Helen, Jackie, Gideon, Jessica and Xiujian worked with Magda to develop a set of personal inquiries that resonated with their own experiences and interests in learning and education⁴. We also worked with Zehra Haq who invited us to collaborate with two groups facilitated by the Dhek Bhal community organisation – these are friendship groups for older Asian men and women, convened to provide support in relation to issues of social wellbeing, health and loneliness. In this essay we weave together these inquiries with our sustained ethnographic fieldwork over the last two years⁵ and with a set of contemporary theoretical framings of the learning in the city that have opened up to us over this period, in order to explore the learning ecology of the city.

Our interweaving in this essay takes the form, first, of a collage (Vaughan, 2005; see also Harding (1996) and Lather (1995) that acts as an invocation of the physical, material, emotional and symbolic practices of learning that we have encountered. Next we reflect on the practices and people that seem to create intense knots in the cat's cradle, niches in the ecosystem, and patterns of inclusion and exclusion. We conclude by considering what understanding these processes might mean for those who are creating city-scale plans for education both here in our own city and internationally - in particular, at a time when the idea of the 'Learning City' is taking shape in international networks and when adult education is being framed within the simplistic logic of economic instrumentalism (Tuckett, 2017).

In writing in this way, we want to do justice to the ecology of the learning city as an idea that eludes

⁴ The community researchers were recruited online through the project website and social media as well as through voluntary sector and Bristol Learning City networks. Keri and Magda invited those who volunteered to develop a personal inquiry into learning in the city and supported them to develop their plans and their analysis of the research.

⁵ We have undertaken nine months of ethnographic fieldwork of learning spaces and personal experiences. We have also coordinated a community research project, co-curated an exhibition drawing from fieldwork data, and organized participatory art workshops exploring learning stories. Primary data included approximately 70 tape-recorded interviews, over 1000 photographs and extensive field notes from participant observation, meetings attendance and countless informal conversations. Secondary data comprised analysis of the educational statistics in the city, the development of the UNESCO Learning City programme as well as background documentation related to the fieldsites and initiatives that were the focus of the project

easy capture in empirical analysis, as a dynamic process and a constantly emerging complex system that resists simple summary (Brenner, 2015; Amin & Thrift, 2002; McFarlane, 2011). We want to explore how to make our writing adequate to the task of gesturing towards a reality that will necessarily exceed anything we can write down; and towards the necessarily unfinished nature of any attempt to capture the city in a single text. And in so doing, we also want to give a *feeling* of the relational, embodied, material, affective and entangled learning ecologies that we have witnessed.

Weaving the cat's cradle: 'Richness, Diversity, Hidden Things'

Abundant ecologies

We are not the first to inquire into the complexity and richness of learning in this city. South of the river there is a straw-built rubber-roofed eco-friendly building at the heart of one of the most economically deprived areas of the city: a former garden estate, fallen on hard times where the residents are mainly white Bristolians who have lived in the area for generations. The building was willed into existence by the strength, political skills and imagination of two women – Carolyn Hassan and Penny Evans – who have created a centre where digital arts and creative practice are nurtured by and with local residents of all ages, making projects of international standing as well as developing confidence, knowledge and professional expertise. This centre physically embodies the 20-year fight of these two women and their collaborators to create opportunities for rich, educational experiences and meaningful work in this area. Over a decade ago they collaborated with the artist Suzanne Lacy to develop what they called a 'university of local knowledge'. Penny observes

we were starting from a place where people don't think they have knowledge, so you ask somebody and you say 'What do you know?' and most people would say 'I don't know'. For me it was really important to have those conversations to talk to people, to allow them to realise some of those knowledges that they did have. So a young mum budgeting, a woman who looks after her disabled sister, you know what knowledge has she got. You've got older residents who are custodians of very expensive classic cars which you wouldn't necessarily equate with Knowle West. There's a huge ... there's a very strong link between the urban and the rural in Knowle West, you can see the countryside all around the area. A lot of young boys still go out rabbiting, people know what a 'lurcher' is, people have in their back gardens chickens, there's a lot of horses that ride up and down, young girls on horses. And so there's this kind of abundance, but equally there's also a lot of budget shops. So you've got the two sides always operating. And you can't ... within a community, within a space you have ... it is complex and it's not about one community reflected in one particular way. And that's what we wanted to get across really is the richness, embodied knowledge, diversity, you know the hidden things.

On the other side of the city, the co-ordinator of a drop-in day centre for Refugee Women takes time to talk to Magda between constant requests for help, information and advice. Pressed on all sides by growing demand, she explains how she came to the city as a highly qualified refugee herself but whose qualifications were not recognized, and how she came to know and value the centre as a place of friendship and advice. A skilled social worker who combines her time between these

activities and academic research, she now manages the volunteers for the one day a week that the centre can afford to be open, creating conditions for encounters and support that might open up new pathways for the women who pass through their doors, often with their children. At the heart of their practice is creating opportunities for the hidden talents of these women to be used and recognized:

they say 'Okay keep me busy', you know especially asylum seekers, imagine if they have nothing, they are not in the system, they are outside ... asylum seekers, the only contact they have is the Home Office, isn't it? Waiting for an interview or ... you know, it is very traumatic to be an asylum seeker. So anyway, and they really need to get ... to feel they are used, they are appreciated, they have something to give ... you know this the natural human interaction that anybody would need. [...] So the resources as I said are the human beings with the knowledge, expertise, for example the teachers, they have a teaching background, that's why we try to allocate people only who have taught before. So it is the same with the kitchen. So with a lot of support we try make healthy food for people you know [...] it's very cheap. And the teachers they bring their own resources, many of them they have their own curriculum, you know ... [...] ... they have expertise in it. It's the same with the kitchen [...] they have the expertise in what it is, it's good.

In another part of town, Magda and Keri sit with a group of women, long term inhabitants of the city, many of whom arrived from South Asia in the 1970s and 1980s, as they work with us to sew a quilt of their learning experiences. As we sew together, we talk. We are told stories of arriving in a strange country with three children, of a husband dying and of bringing up children alone by working all hours that could be found. Of those children having been encouraged to get a good education and now living across the country as doctors and accountants. As we talk, the woman sews 'I learnt the value of a good education' into the quilt. Another conversation, with an older woman, who talks with laughter of the role of technology in transforming her conversations and interactions. How do you learn? Keri asks. Into the quilt she sews 'I look at my iPad and it helps me understand things'. We talk of learning how to cook at home from mothers and grandmothers, of the role of religion and the mosque, of the personal capacities needed to persist and of the value of formal education. Across many lives the stories of making and listening, of caring and working are knitted together, stories of life experiences and challenges are interwoven in a way that makes a nonsense of those unhelpfully rigid categories of 'formal' and 'informal' education, a rich personal ecology navigated and shaped by deep personal commitments to children, to shared values and, for some, to faith.



(Fig 3. Image courtesy of the Reinventing Learning Cities Project, Bristol)

Navigating through the city's learning ecologies

The men's group gather in the same building, at a different time, and with us make a series of short films about their experiences of moving to Bristol and making a life here. Here, stories are told of travel overland by train from Pakistan to England with four children or by daredevil motorcycle. Of arriving as a student in the 1970s, with nowhere to stay and no friends. Of arriving with £2 in your pocket and being able to buy a house 6 months later through hard work. Of making longstanding successful careers in medicine, in the Post Office, in industry, in the department of employment. Of climbing the Avon Gorge without ropes or helmet. And stories are told too of deep loss, of grief at the recent death of a beautiful wife, of acting as carer for a loved and very sick wife at the age of 84, of loneliness and of the importance of the group as a network of support, respite, laughter and deep knowledge about how to live well. And as the conversations happen, there are jokes, respect, sadness and Zehra watches from the side and interjects with support as the conversations flow. Zehra who as first and only Chief Executive of Dhek Bhal, the organisation that we are working with, has nurtured these groups, found funding, set up systems and structures to make the organisation possible and continues to fiercely fight for the needs and interests of the South Asian community in the city.



(Fig 4. Image courtesy of the Reinventing Learning Cities Project, Bristol)

New arrivals to the city today as students and workers tell a different story. Xiujuan worked with Magda to develop an auto-ethnography of her own experiences and learning practices and shared these as a set of slide images and headings. The headings, captured here in a table, show the rich diversity of her experiences in the weeks of her recording, showing just what complexity is involved in the learning life of one individual:

What have I learnt?	Where did my learning happen?	What resources did I use?	What were the main methods I used?
About the UK English Language Skills Research and Learning Skills Work Related Skills Food and Cooking Driving Yoga Art	At home At work In the library In training/workshop rooms In the yoga Studio In museums In parks In shops On the Streets On the road Other places	Computer and Internet Ipad and Iphone TV Books Magazines Newspapers Training workshops, events Resources in parks, museums Others (advent calendar)	Online courses Website and online videos Talking to people Attending events Participating in Workshops Playing and making things Practicing and taking part in activities (driving) Spending time with Tom Learning journey notes and photos

The complexity and richness of the personal ecology of learning that Xiujuan draws upon to enter a new material and cultural environment is apparent here, as she draws on the human, technological and cultural resources available to her both in the place where she finds herself and in the interstices of the digital world.

Gideon, talking with five young professionals who were recently arrived in the city as teachers, as graduate students, and as travelers, talks of how they came with little knowledge of the city and about what they did to learn to settle in. There are new social and material actors at play in the learning ecology here, different from those that populate the stories told by the men of Dhek Bhal in recollection of the 60s, 70s and 80s. No houses are being bought in six months in today's overpriced

housing market to provide a firm foundation for growth and development. Instead, these new arrivals move through different Air BnBs, renting spaces, getting to know different areas before settling down. They use Facebook to find people and activities that chime with their interests. They turn to neighbourhood action groups and tourist information, taking buses around the city. Well (enough) resourced, they can travel, make the most of what they find in the city. Their personal learning ecologies can expand across the different spaces they move through. International, moving from Canada or Italy to Bristol; this city may be home for now – perhaps not always. A memory from our conversation at Dhek Bhal comes back, a story of the couple who arrived from India in the 1970s after getting married, who had simply planned a ‘quick look around’ at the city where the husband had studied; they stayed for a lifetime.

Liz’s interviews talk of what happens when mobility such as this is not possible or constrained, where the different threads of the learning ecology cannot be knitted together through movement. Interviewing 8 young women newly returned to study as teaching assistants after having children, she recounts the difficulties they faced of getting into college because of their caring responsibilities and the transport issues they faced. Parking and the difficulties of paying for parking, are lived material constraints on what they can do; an abrupt material limit to the personal expansion of their learning ecology. They talk of how their further education course offers trips to parts of the city – the city farm, the environment centre – that they had never visited before. From these conversations come a picture of a city that has rich learning ecology that remains inaccessible if there is also nothing in that ecosystem (here transport, childcare, time) to enable its exploration. Connect this observation to a comment from one of Helen’s interviewees, a city inhabitant who has been here for over 30 years:

I was just thinking back to when I first came to Bristol ... you had all sorts of courses which were local. People could get there of all age groups. It's all been centralised into the colleges that are taking these up and then it costs, everything, you know. [...] they've removed a lot of that to make it more viable, they've centralised everything into City of Bristol College and Filton College and all these colleges but it's the opportunity to just walk, actually, for older people who need to travel, to just walk to somewhere local to learn something, to meet other people to learn. That's gone now, except the Kingfisher cafe.

These conversations prompt us to examine the city’s plans. The City Council (Draft) Integrated Education and Capital Strategy (2015) states the following:

It is important to ensure that the development of the Adult Skills & Learning estate meets strategic expectations, including the following Delivery Priorities:

- a. To develop local provision to meet the needs of learners in an area/Neighbourhood*

- b. *To ensure, wherever feasible, 'good' local provision is within a 10-15 minute walk (with a buggy) for all children/families.*

The National Government post 16 Transport to Education and Training Guidance states the following:

Although on the face of legislation local authorities do not have to provide free or subsidized transport, when making their assessment of what is required, local authorities must act reasonably, taking into account all relevant matters, such as the needs of their population, the local transport infrastructure and the resources available.

And here we start to pay attention to different elements of the learning ecology – to regulatory systems, the financial resources available, and in particular, the transport system. And we note that the bus system in the city is run by a private company whose website states that *'travelling with First around Bristol, Bath and the West has never been easier'*. And here we observe that a weekly travel ticket is around £23.80. A single person under 25, on state benefits receives in the region of £68 per week as their total income. Getting into town from many of the poorer areas of the city, on a day with no traffic, is scheduled to take half an hour. The learning ecology of the city, from this perspective, has features, therefore, that actively reject and inhibit some inhabitants, it is being woven into a shape and a structure that only those with money and transport can access.

Embodiment

People are not the only educators in the city. Magda spent time with those activists who were trying to tell the city's hidden stories of slavery through protests and events that draw attention to the role of the slave trader Colston, whose name is inscribed on city streets, statues and concert halls in ways that provide an unwanted and hostile public pedagogy. The learning ecology of the city here takes material form: it forms a culture in which whiteness is codified as dominant, in which histories of exploitation have been silenced. Here race and racism play a role in shaping the learning ecology of the city, threads whose traces can be followed both to structural inequalities in the formal educational system, to the histories of successful resistance to inequality and to the powerful explosion of musical culture that characterizes the city.

The materiality of the learning ecology is also visible in those environments where inhabitants are making a physical connection with land, even in the heart of an urban environment. Jackie studied the participants in a new allotment scheme in the city, where land is being opened up for community growing use. Here she discovered the entanglement of local and global processes embodied in the practices of making and growing food. The participation in just this one setting offers a rich, multi-sensory experience where the processes of developing land, tending plants, cooking and eating are

all combined with the sharing of skills and social exchanges with other volunteers. There is woodsmoke and compost, polytunnels and nuts roasted in a firepit.



Images courtesy of Jacqueline Gilbert

Jessica, documenting the process of encountering the city with a toddler, describes it as *'a love affair with our local and surrounding communities as an area to live and learn in as a young family'*. She describes the daily dialogues and conversations that are prompted by the colours of a mural or a local playground. She traces the encounters that she and her two-year-old experience as they walk through the city parks, through the streets, in the free museums, taking up the invitations in the local area to visit the mosque or the city farm.



Courtesy of Jessica Tomico

Nurturing the ecosystem

At one of the City Farms, talking with the Chief Executive there, Keri hears of the deep intertwining of resources, people, animals and regulation that such a place entails, a deep knot in the meshwork of the city, a thriving and complex niche in the ecosystem. A dense entangling of myriad threads and personal learning ecologies in one place. He talks of the child care and nursery facilities on the site, of the volunteers who come to the farm for many reasons, from looking for social networks to purposeful work, who may be recovering from mental health issues or other illness, of the community garden and allotments, of the talks and drama sessions, of the development of new information boards and educational resources, of the café where local artists, young parents groups,

workers on laptops now congregate; of the football clubs. And he talks about what is needed to make such a place work, the endless search for funding from different charities, trusts and foundations, the negotiation and navigation of local council procurement processes, the lobbying needed to ensure investment in preventative mental health activities rather than remedial residential costs, of the way that such negotiations involve understanding the National and Local Government regulations which make dealing with people when they fall ill a statutory responsibility, but catching them beforehand an optional extra that gets picked up by the voluntary and charitable sector. And as we walk round the farm, looking at the polytunnels and the new outdoor kitchen with its wood fired pizza oven, designed to allow visitors to make the connection between food production and consumption, we talk of just what it takes in emotional, intellectual and physical labour, to create spaces such as this.

Here, a tangled knot of powerful learning draws together place, people, animals, local regulatory systems, treasury guidance, the decisions of local councilors, the smells and sounds of a farm lit with a low golden light on a summer evening, leaves glowing green, traffic passing by the perimeter. Steve talks of how the land is on a long lease from the council, how they have had to fight recently to extend the tenancy, how this cannot be extended further than 30 odd years at present so that there is always a risk of the place disappearing, all the buildings, gardens, facilities created by volunteer labour and charitable donations, reverting again to the city in a climate of rampant demand for housebuilding and an urgent search for income for the city.

And now we make the connection to other places, more immediately under threat. In September 2017 we ran an exhibition at Hamilton House, home to Coexist, a co-working space that hosted hundreds of community, arts, social enterprises, dance classes, drumming groups, co-operatives and bike repair facilities. A year later, we hear that this year will be their last in the space. The landlord wants the building back now that this community has proven the potential of that previously notoriously downbeat area of the city to act as a magnet for young, creative types seeking lucrative accommodation. The Co-Exist community could stay, the landlord offers, if it can find £10m to fund the purchase. This proves impossible.



(Image courtesy of the Reinventing Learning Cities Project)

Ecological Implications

Urban scholars describe the city as a *gathering*, a *dynamic process*, an *assemblage* of social, material, technological, discursive elements (Amin & Thrift, 2002; Brenner & Schmid, 2015). The learning ecology of the city is no less complex. What, then, are the theoretical resources that might help us think through what we have noticed through this collage of experiences? Traditions in anthropology and cultural geography would draw our attention to the practices of *dwelling* in the city, to the messages and guidance received from the very materiality of the city streets of how to live, to behave, to interact and the ways in which in the walking and movement and interactions of inhabitants in turn shape and co-constitute the city (Ingold, 2010; De Certeau, 1984; McFarlane, 2011). Scholarship in public pedagogy draws attention to the processes by which cities create moments of wonder and engagement that open spaces for the body to learn differently; what Ellsworth (2005) calls a 'pedagogic hinge'. This moment in which artists, architects and curated events in public spaces from murals to museums can create an experience of disruption and encounter with new ideas in which the 'learning self' is invoked. This is a moment of opening up to a sudden awareness that what the inhabitant previously knew might in fact be different from the way things are. Here, the learning ecology is characterized as stimulating a moment of dissonance, in which the inhabitant is provoked, disrupted, invited to change and come into being in a different way in interaction with others who are also, in this perspective, newcomers, who are also simultaneously invited into being and becoming subjects (Ford, 2013, drawing on Biesta, 2006). This moment of learning in the city through meaningful encounter with others, in which the recognition of the other is required, can be understood as a shift between simply occupying the 'habitat' of a city designed by others to becoming active 'inhabitants' of a city; actively shaping and reshaping what a city can be

(Ford, 2013). A learning ecology, then, not as 'context' but as site of co-constitution.

These different sets of literature encourage us to see the unruly, socio-material gatherings of the city that we have gestured towards in this essay, as elements of a learning ecology in which learning and citizenship are deeply entangled, in which inhabitants are not 'adult learners' needing to be oriented toward particular instrumental ends, but are coming, through living in this ecology, to shape different ideas of what it means to inhabit a city as citizens and in which the city, in turn, is creating conditions and resources that frame what that might mean.

What is missing from these analyses, and only implicit in the theorization of the learning ecology that frames this book, however, is attention to the way in which the learning practices of the city are at times actively curated, nurtured and shaped by individuals and organisations with a particular normative aspiration; and how these are facilitated or actively impeded by particular structural constraints in the ecosystem. In other words, returning to our metaphor of the cat's cradle, we turn our attention to how particular patterns are being intentionally woven, sometimes despite the prevailing values and cultures of the learning ecology of the city, and what it takes to achieve this.

From our encounters in the city, we notice that there are people and places that are actively making particularly dense meshworks of learning – the city farm, the refugee centre, the allotment site, the media centre. These knots or nodes might be understood, from an ecological perspective, as niches that serve to protect and nurture diversity, and to create welcoming encounters between inhabitants. Such knots are, we contend, critical to nurturing the overall health of the learning ecology of the city. They are, however, dependent upon other aspects of the overall ecology, and understanding these interdependencies matters.

Their first dependency relates to the question of land and rights to land in the city. Creating dense knots of learning such as the city farm, such as the media centre, such as the refugee centre, requires land and buildings and the confidence that these places will be secure over the longer term, to justify the investment and care that is being put into them by the educators and volunteers who are making these places. In a climate of gentrification and development speculation, such land rights and resources are increasingly under threat. Planning law and city plans that inform and defend such spaces may be as important a part of a learning ecology, then, as museums and schools.

The second dependency relates to transport. As we have seen, the capacity of individuals to engage with and explore the learning ecology of the city is in large part predicated upon mobility as a means of coming to learn about, know and dwell in the different ecological niches of the city. A city in which individuals struggle to move around to access the resources that are available, is one that is unlikely to create thriving ecologies for learning. Transport companies, and those who regulate them, then,

can be seen as key actors in the creation of a thriving learning ecology.

The third dependency relates to the capacity of those nurturing these knots and niches, to *care*. The creation of rich ecosystems for learning requires trust, the development of relationships, care and responsibility for those entering the space. An environment for learning – understood as that experience of coming into being, of learning to be and become – is not one that is achieved through short term instrumental investments in pursuit of certification. Rather, it depends on someone *taking care*, as Nel Noddings argues, to listen, to attend to what is happening and to open up possibilities; this is the care shown in welcoming and creating meaningful opportunities for volunteers in the farm; in creating spaces for conversations for refugees; in seeing the talents and knowledge of communities long ignored by formal education. The ecosystem that welcomes these groups does not simply ‘emerge’, it is actively and attentively knitted together. And those who are doing the knitting together, the spiders weaving and connecting the multiple threads of the city (the regulations, the land, the transport, the people, the knowledge, the volunteers, the plants and arts materials) are central to the creation of rich ecologies of learning at a city scale. Far from an image of a uniform self-organising system, therefore, we have here a complex picture of an ecosystem that is made of interconnected pockets of care, nurturing and investment (Facer & Buchczyk, 2019).

On a sunny day in September this year we invited a group together to discuss how the learning ecology of the city was experienced and navigated by different groups. We worked together – a group comprising community leaders, members of community groups and academics - to develop a set of ‘use cases’ of people who might want to draw on the city’s resources for learning and development. Three individuals were imagined – Najma, a 20-year-old with huge talents but with sight difficulties; Radha, a 15-year-old excluded from school, from a large family; Annie a 46-year-old with 2 children and an abusive husband. All three individuals were composites of people that those in the room had known over recent years. Together we traced the resources that these three might have access to, and the routes that they might take to harness the city for their own interests and needs and come to inhabit the city with confidence. The potentially abundant set of resources was mapped out but, in each case, as we teased out the issues, we realized that a mediator was needed, a point of connection between the person and the city, who can build trust and relationships, who can come to know and care for that person and who can help to make visible and create connections to what was available. These mediators, we realized, are central to enabling individuals to navigate the learning ecology of the city.

And through this, we came to better understand the importance of the deeply enmeshed sites of learning that we came across in our fieldwork. In their constant processes of attending to and understanding the needs and interests of different groups and working out how to knot them together, to entangle them, to create lines of connection along which those who entered their doors

could travel, these centres were creating productive encounters and conversations that would enable new patterns and possibilities to emerge. This was not a practice of industrial education, of repetitive predictable outcomes, but a craft practice of making and remaking, adapting and tweaking, linking and braiding to create experiences and communities that are able to respond and grow in interaction with the people who inhabit them and the places that they are a part of.

Nurturing the learning ecology of the city, then, means nurturing and valuing the craft-based embodied practices of *care* for individuals and communities that are deeply rooted to particular people and places. Penny and Carolyn know Knowle West deeply and intimately, Zehra understands the issues and concerns of South Asian adults through long experience, Steve lives in walking distance of the farm, his son attended the nursery, he is part of the place and the community that he is caring for. Together, they are central to building the capacity of the thousands of individuals that enter these dense knots of activity, to create learning ecologies that are meaningful to them.

Towards a thriving learning ecology

In 2016 Bristol announced a year of Learning and celebrated becoming the first English City to become a Learning City, joining the several hundred Learning Cities that form part of Unesco's network around the world. These cities are beginning to create a set of criteria and guidelines for effective governance of a learning city, practices that envisage partnership working and collective agendas. Central to this is the process of bringing together those 'responsible' for education and skills across the city - in the main, those leading sites of formal education, employers and large cultural organisations - to develop strategic initiatives for joint action.

What this essay leads us to suggest, however, is that these new governance structures will not be adequate for attending to and nurturing thriving learning ecologies in cities unless they are attentive to the fact that a rich learning ecology already exists, which is craft-based, embodied, networked and rooted in place. A critical role of any Learning City initiative therefore is to enrich that existing learning ecology. For that reason, Learning City partnerships need to be built beyond the silos of 'education and skills' directorates and to recognize the interdependence of learning ecologies with the wider infrastructures of the city. This means, at the very least, that educators need to create connections with those who are working to plan land strategies, property strategies and transport strategies across the city. This also, importantly, means ensuring that those people who are already creating rich community learning ecologies know that they are protected, that they can have the confidence and security to build, for the long term, in places where they can put down roots. As Jackson and Barnett argue in this introduction to this collection, learning ecologies embody values, they care for different forms of learning. If a city-wide learning ecology is to care for the learning ecologies of all of its inhabitants, it needs equally to learn to care for the carers, for those knitting

together the threads of the city to create, against the odds, the protective niches that foster learning in all of its rich diversity.

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