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Fostering Education of Environmental Citizenship through Food Living Labs †

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Abstract: The human food system is complex; has significant social and environmental impact; and raises questions around identity and culture. This mix of individual, collective, public, private and environmental concerns, positions Environmental Citizenship central to food system transformation. We discuss three 'FUSILLI' food living labs—a food waste NGO; a venue for creative experimentation of alternative food practices; and a forest-based library. These living labs use participatory research through design to place citizens at the forefront of change processes. We analyse them using the model of Education for Environmental Citizenship to consider how they foster EC and thereby sustainable food system transformation.

Keywords: EEC model; Food Living Labs; participatory research through design

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1. Introduction

Environmental citizenship (EC) is: "responsible pro-environmental behaviour of citizens who act and participate in society as agents of change..." [1]. We posit EC is fundamental to food system transformation. The human food system generates 20–40% of anthropogenic emissions [2]. The effects of climate change on food systems are extensive, complicated, geographically varied and seriously impacted by socioeconomic circumstances [3–5]. In such a critical and complex system, involving citizens in decision making as agents of change is crucial [6].

We discuss three food living labs developed in Kolding, Denmark, within the FUSILLI project [7]. FUSILLI has as its aim to transform twelve European city food systems, to be more sustainable through the implementation of innovative food living labs. The living labs we highlight include: a volunteer-run NGO that problematises food surplus distribution and waste; a food lab for experimentation and prototyping new food practices; and a Forest library that aims to entangle citizens with more-than-human nature.

To shape and evaluate the effectiveness of these efforts in developing EC and fostering food system transformation, we use the Education for Environmental Citizenship (EEC) model [8] to determine their impact. Our aim is to determine in what ways these food living labs foster EC, and whether there might be gaps in their development that warrant attention.

2. Materials and Methods

Food Living Labs are open innovation ecosystems that support experimentation, collaboration and learning around food system transformation [7]. The term "living lab" [9] indicates a methodology where people formulate, prototype, and substantiate complex solutions in real-life environments. Food Living Labs are public and communal, whereas Citizenship is often experienced as individual. According to the EEC model [8], the actions

that a citizen can take have individual and collective dimensions and may be applied in private and public spheres on local, national and global scales. The model highlights personal capacities related to EC: knowledge, values, attitudes, skills, competencies and behaviours, and introduces the notion of being an agent of change, who participates actively in decision-making processes. We use the EEC Model to determine the relationships between the presented Food Living Labs and the need to foster EC to achieve sustainable food system transformation.

3. Food Living Labs as Incubators for Environmental Citizenship

We describe the living labs, then use the EEC model to formulate new understandings about how they enable citizens to not only participate or be responsible but to develop their capacities as agents of change (moving through different forms of citizenship [10] towards a full expression of EC). The living labs are in different stages of development. They show how FUSILLI gathers stakeholders, develops new forms of governance, raises awareness of nature-relatedness and finds ways of transforming impacts across the food value chain. Each serves as a platform for stakeholders to engage with problems and activate change processes using experimentation and dialogue with food as the primary enabler, approaching food as subject, research object, cultural practice and vibrant matter (following [11]).

Food Reformers [12] (est. June 2019) is a volunteer-run NGO that brings focus to surplus food, to raise awareness around food waste and distribution and press for food system change. The NGO hosts regular 'Dumpster Dinners' in a local restaurant, using donated and rescued surplus food (from local supermarkets). In June 2021, they partnered with R10, a local citizen involvement initiative [13], to build a Community Fridge to expand their impact. The fridge is centrally located and open 24/7 [14]. It contains rescued food, in good condition, with an impending sell-by date. As an organisation, Food Reformers is nationally certified to redistribute the collected food. They are active in the community and promoted by the municipality and other organisations, which inspires confidence. Their work has been introduced nationally by themselves and like-minded activists such as Matt Homewood [15], and at the European level and globally, through FUSILLI.

Food Lab [16] (est. November 2021) sits in the centre of Kolding, at R10, where the Community Fridge is found. Food Lab is a venue for experiments, events and workshops focused on participatory governance and citizen innovation actions across the food value chain. These efforts use food as the medium for experimentation to prototype new ways of thinking about the food system transformation. At the Food Lab soft launch, we served surplus food collected by Food Reformers, in the form of relevant data— e.g., a guacamole with strings threading out the relative distance travelled by each ingredient—to make tangible the challenges we must grapple with in the food system. Guests included politicians, municipal representatives, educators, entrepreneurs, farmers, representatives of the water and energy companies, a rewilding consultancy, a poet and more. They enjoyed the food while using it as a ticket-to-talk [17] and a prompt for a facilitated discussion around four questions: What does a sustainable food system look like to you? What do you need to be sustainable in your food-related practices? What do wildlife need to flourish? Where can we start? At the subsequent public launch, we held workshops on i) Food Waste and Packaging, and ii) Aquaponics in small spaces and mental health. Working with citizens, we established a wildflower garden and mini forest, which serve as an exemplar pollinator restaurant and hotel, for a forthcoming citizen science project.

Forest Library (in the making). In September 2021, an ad-hoc Steering Committee (SC) was tasked with establishing a forest-based Library of Foraged Foods and Practices to support citizens to gain knowledge about what grows locally; what can be foraged from forest, field and fjord; how to connect to, respect and engage with nature; sharing knowledge in more-than-human exchange. The SC includes representatives from research and education, small businesses, the Art and Design Museum, chefs, librarians and more. To date, two meetings have been held in the proposed forest location: a walk-and-talk

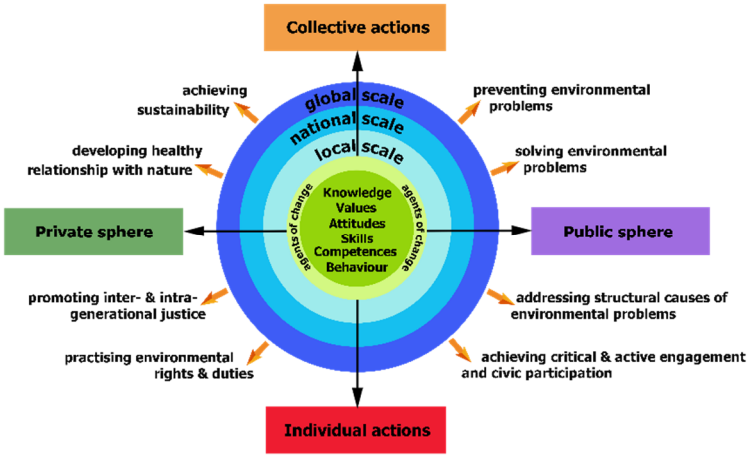
and (10-days later) a dinner. The walk-and-talk introduced the SC to the forest, each other and our partially formed ideas and provided space to negotiate a collective vision for the library. The dinner included a backcasting session using found objects for envisioning and planning [18] and a meal of elements foraged from the forest, brought together by a local chef. These activities resulted in a co-created mapping of concerned stakeholders; revealed a map of interconnections between divergent agendas; helped to consolidate the vision for the library; and articulate a burgeoning plan for its implementation.

4. Findings

Figures 1 and 2 maps the living labs to the EEC model, differentiating between the actions of the living labs, participating citizens and organisational stakeholders. For analysis, the Forest Library is separated into formation efforts and vision. In each case, the living labs curate collective efforts in the public sphere, typically hyper-local actions that draw on participatory research through design methodologies [18] to invite enriched, embodied participation. Careful attention is paid to expanding participants' capacities for EC, attending to the characteristics at the centre of the EEC model, which are understood to scaffold the pathway towards being agents of change. The mapping affords nuanced consideration of each living lab.

FoodReFormers' efforts (Figure 2, top-left) take place at a local scale, supported by a solid infrastructure of volunteers and other stakeholders (e.g., the Municipality). Their impact extends beyond the local by telling their story on international stages. The strong establishment of local output relates to how long that living lab has been operating, combined with consistently solid infrastructure and branding. In contrast, Food Lab (Figure 2, top-right), was established less than a month ago, yet has a strong research foundation. Despite being in its early stages, its national and global output is already well established. This difference demonstrates two very different pathways towards EC from an infrastructure perspective.

With Forest Library, we see established activities (Figure 2, bottom-left) tightly held to collective actions in the public sphere. The vision—the propositional mapping (Figure 2, bottom-right)—has expansive reach across spheres and scales. Similar to the Food Lab, the Library is supported by a strong research foundation. As with Food Reformers, it represents a singular vision, driven by local stakeholders. The missing link, for the moment, is strong involvement of those stakeholders to achieve the level of societal integration demonstrated by Food ReFormers, which has a constant flow of citizens interested in knowing more about their work and output. The qualities of engagement they provide through their interventions activate people in wanting to join their efforts. Those techniques of engagement—future workshops and social interventions that leverage commensality—are at the foundation of all three living labs, and we hope will result in similar impact, whether their vision is singular, or—as in the case of Food Lab—embodies a multi-faceted commitment to the full food system value-chain.



(**a**)

Figure 1. The Education for Environmental Citizenship (EEC) Model [8:240].

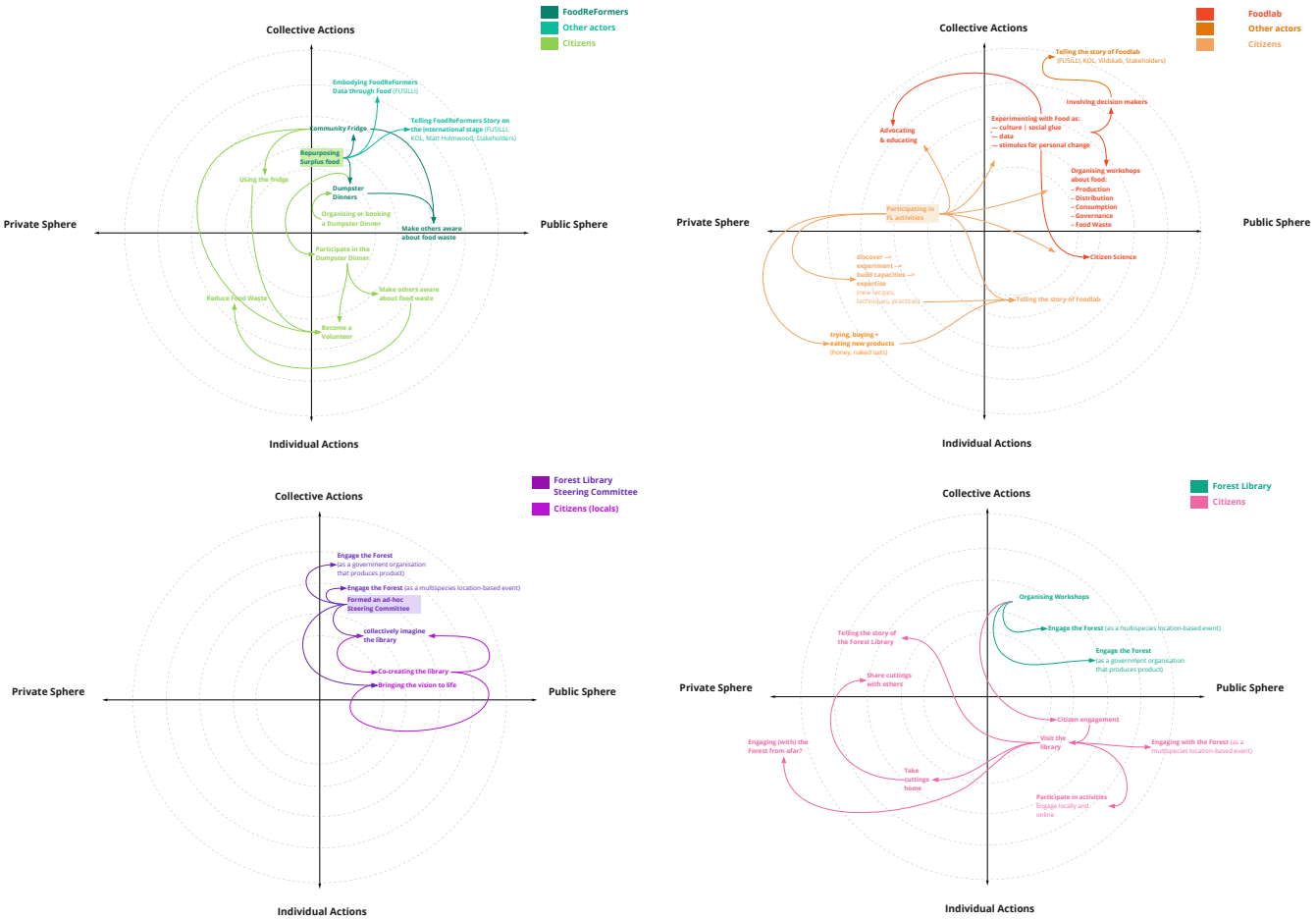


Figure 2. Three FUSILLI Food Living Labs mapped to the EEC model: top-left: Food Reformers; top-right: Food Lab; bottom-left: Forest Library Steering Committee efforts; bottom-right: Forest Library vision.

5. Conclusions

The three FUSILLI Living Labs we described here draw on participatory research through design to involve diverse citizens in food system transformation. They use food as the locus for radically open innovation that both requires and fosters EC. The result is a form of non-formal education that has a certain aesthetic quality and playful elements which invite for constant participation, and enriched engagement with the burning topic of food system transformation. When analysed according to the EEC model, this approach seems to scaffold the skills that citizens of diverse ages and interests require to participate in society as agents of change, individually and collectively, in public and private spheres, with local, national, and international impact.

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Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

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