

Territorial Education through Urban Agriculture: Contributing to Building Sustainable Cities in Times of a Pandemic

Sandrine Simon

Universidade Lusófona de Humanidades e Tecnologias de Lisboa

The multi-dimensional damages caused by the Covid-19 pandemic have highlighted the fragility of our economic systems and their lack of resilience. People are starting to question globalisation, and debates on alternative modes of development are back and alive. If economic paradigms need reforming, we also need educational systems that will equip people to build more sustainable societies. With this in mind, this article focuses on two crucial components in 'current issues in comparative education'. One relates to the emergence of a so-far under-explored area of research in education, that of Territorial Education (TE), and places it in the context of both the 1990s educational reforms, intended to create a standardised 'world class education', and of 'education for sustainability'. The second one focuses on the experiential nature that skill-orientated Territorial Education can provide, in contrast to other types of 'education for sustainability' approaches that are more conceptual. Using Urban Agriculture initiatives in Lisbon as illustrative examples, the article shows that such practical approaches might help to make cities sustainable and resilient in the future.

Introduction

The COVID-19 pandemic we are experiencing has encouraged people to question globalisation not only from an economic perspective but also with regards to how it has affected our education systems. Authors such as Teodoro (2020), Santos (2006), and Sahlberg (1996) have explained the mechanisms by which the calls for a standardised 'world class education' global reform in the 1990s were mainly targeted at adapting educational institutions to new configuration systems in world organisations. The OECD assumed a central role in this global reform, directly motivated by achievements in the economic sphere, and encouraged competition and standardisation mechanisms. This 'educational reform' was very different from the humanistic approach to 'Global Citizenship Education' put forward by UNESCO (2014) which "referred to a sense of belonging to a common humanity, and emphasised socio-political, economic and cultural inter-dependency, and interconnectedness between the local, the national and the global" (UNESCO, 2014: 14). The 1990s educational reforms also contrasted with efforts to develop educational approaches that would help communities to 'put sustainability into practice'. This paper focuses on the types of knowledge and learning processes needed to understand what urban sustainable communities would look like if cities were to reduce their dependency on food produced outside, in a less globalised world. The article focuses on the so-far little explored area of research in Territorial Education (TE).

Part One presents the emergence of TE, first as a reaction against the 1990s educational reforms and then in the context of research on education for sustainability. Part Two uses Urban Agriculture (UA) and project-based educational approaches related to UA in Lisbon as a practical illustration of how TE could be used to make the city more sustainable. It first explores the contribution of UA to the sustainability of a city and its links to food security and food systems. By showing the evolution of policies focused on the greening of Lisbon, Part Two also highlights the development of participatory processes in urban planning that contribute to making TE usable at different levels and with various stakeholders, extending education for sustainability not only to more practical urgent topics (such as feeding a city) but also beyond the educational institution.

The emergence of Territorial Education

As Champollion explained, “while the different contexts having influence on education—spatial, political, institutional contexts for instance—have been analysed for a long time, territoriality has only really been tackled for fifteen years” (Boix et al., 2015, p. 12). Other authors focused on related issues - such as learning with local communities (Gargiulo Labrida, 2016), territorial governance (Jahnke, 2019), sustainable development and territories (Barthes & Champollion, 2012), territorial development (Courlet & Pecqueur, 2013), educational territories (Leite & Carvalho, 2016) – but ‘territorial education’ *per se* is relatively unexplored and ill-defined. Explaining the context in which it developed and the needs it meets will help to grasp better what it means.

TE and the global educational reforms of the 1990s: why does the - local - territory matters?

The main characteristic of TE is its focus on the local level in the context of a global pandemic that has triggered concerns and critical reflexions on globalisation. Some of the most obvious of these have explored how the reduction of transportation costs derived from globalisation has brought infectious diseases everywhere. Harrold James (2020), international historian, reflected on whether the coronavirus pandemic could bring about the waning of globalisation. Fujita and Hamaguchi (2020) discussed possible impacts of the COVID-19 pandemic through “a first scenario in which the fear of acute supply shocks of essential goods motivates rich countries to hoard domestically produced goods – a setback for globalisation – and a second scenario, in which the global economy adjusts to living with the coronavirus, creating opportunities to innovatively ‘re-orientating globalisation’ through cooperation”. In parallel, as Vidal points out, “a number of researchers today think that it is actually humanity’s destruction of biodiversity that creates the conditions for new viruses and diseases like COVID-19 to arise—with health and economic impacts in rich and poor countries alike”. As David Quammen explained, “we cut trees; we kill animals or cage them and send them to markets. We disrupt ecosystems, and we shake viruses loose from their natural hosts. When that happens, they need a new host. Often, we are it” (2020).

One way or another, the current pandemic has encouraged us to question economic globalisation. It has also highlighted the unsustainability in our ways of living. This realisation reveals a failure not only with policy-making processes but also with the way in which citizens behave. Education has an important role to play in equipping

people to make the world more sustainable, but it seems to have had difficulties in doing so.

As we will see in the next section, the various reforms focused on generating approaches to education for sustainability have recently led to approaches that are more territory centred. However, before exploring this evolution, it is worth explaining how, during the 1990s, educational reforms also focused on globalised dimensions and how this affected people's attitudes.

The major global educational reforms undertaken in the 1990s aimed to create a 'world class education' everywhere through the Global Education Reform Movement (GERM), which generated a process of comparison between educational systems' performances and was reinforced by the Programme for International Student Assessment (PISA), carried out periodically by the OECD. With such objectives in mind, these reforms did not leave room for the broader aims of schooling, except insofar as they can be of economic benefit. For example, "issues of citizenship and socialization are not considered as concerned with how humans interact, but immiserated, as merely providing stable, economic conditions favourable to economic growth" (Gillies as cited in Colucci-Gray & Gray, 2014, p. 80).

As Teodoro deploras, "the rise of neoliberalism in the 1980s-90s produced a fundamental change (...): the traditional professional university culture, based on the freedom of enquiry and open debate, has been progressively replaced by the rationale of performance and has created a paradigm of 'entrepreneur education' "(2020:84). The GERM has been mainly criticised (Teodoro, 2020; Cowen & Kazamias, 2009) for the technical fragility related to making international comparisons but also for generalising societal values based on Western economic principles, enhancing competition in the learning environment, and homogenising pedagogical approaches to entirely different communities. Besides, an underlying belief in the neo-classical approach to economic issues was translated into the ways in which development and environmental problems were being tackled, which resulted in a detachment of our communities from nature. The socio-economy-environment interactions advocated by ecological economists (Martinez-Alier, 1987) as being core to the notion of development were never integrated in educational reforms, which consequently did not help to modify attitudes, beliefs systems and all that had contributed to creating environmental crises in the first place.

The relatively new focus on the territory accompanies what Courlet and Pecqueur (2013) described as a crisis in the notion of 'Nation State', in a somehow 'post-normal paradigm' within which liberalism, globalisation and growth models are being questioned (p.7). Focusing on the notion of 'territorial economy', these researchers describe it as a 'new grammar of economics' which seeks to contest the dogma of the 'homogeneous space' and encourage the emergence of 'local and territorial development' within which the territory, as a complex system, is aligned with the deepest challenges of current societies. The original interest in 'the territory' was closely linked to the 'theories of localisation', which suggest that the diminution of transportation costs amplifies the polarisation of activities (Courlet & Pecqueur, 2013). All challenges of recycling, energy saving, and reclaim encourage territorial innovation and 'new proximities.'

The territory we are focusing on is the Lisbon Metropolitan Area (LMA), which hosts a third of the population of Portugal. The LMA has grown dependent on the rural areas and on food imports, despite its dense network of agricultural activities - the second most expressed land-use pattern (Oliveira and Morgado, 2014). With efforts focused on making Lisbon the Green Capital of Europe in 2020, combined with concerns about food security raised by the current pandemic, this paper explores how the sustainability of this territory could be enhanced through educational programmes focused on the various benefits brought by UA.

TE in the context of sustainability-focused educational approaches

With the rise of environmentalism in the 1970s, efforts to raise environmental awareness grew, partly through the creation of NGOs such as the World Wildlife Fund, but also through education. The term 'Environmental Education' (EE) was first mentioned at the 1972 United Nations Conference on the Human Environment, during which the establishment of the International Environmental Education Programme (IIEP) was recommended. Initial EE focused on helping students to understand better the natural environment from a scientific perspective. Although the socio-economic and political dimensions of 'un-sustainable' practices had been discussed, "the multi-disciplinary approach to EE was left to small bands of enthusiasts in each country" (Fien, 2020, p. 4). This situation remained throughout the 1970s and 1980s and it is only at the end of the 1980s that a broader understanding of the issues at stake helped reform EE.

Formerly known as the World Commission on Environment and Development (WCED), the Brundtland Commission helped in formulating the concept of 'sustainable development' in 1987, providing the definition for it that is now most referred to: "a type of development that meets the needs of the present generation without putting at risk the capacity of generations to come in meeting their own requirements" (WCED, 1987, p. 43). For UNESCO, Education for Sustainable Development (ESD) involved integrating key sustainable development issues into teaching and learning. The UN Decade of ESD (DESD: 2005-2014) mobilized the educational resources of the world to help create a more sustainable future. Various ways to do so were described in Agenda 21, the official document of the 1992 Earth Summit. UNESCO coordinated DESD initiatives and published their findings (Buckler & Creech, 2014). Were these initiatives successful? As Fien (2020, p. 1), who explored the history of EE over the past 30 years, showed: "student levels of awareness of key concepts for sustainability are low, with few able to correctly define essential concepts—e.g. precautionary principle and sustainable development". With this disappointing conclusion in mind, researchers explored further the shortcomings of the 'greening' of the educational system.

Much energy was put into reflecting on the type of effective changes that were needed. Some focus was put on the overall content of the teaching. Thus, for instance, in Coriddi (2008), Ros Wade introduced the notion of Education for Sustainability (EfS) into the debate, preferring the term EfS to ESD and discussed how EfS aims to overcome the separation of development and environmental education that is frequent in the global North. Besides, a plethora of individual initiatives, project-centred educational programmes were put in place around the

world. Some networks of initiatives also helped to identify common features, characteristics of education for sustainability, and skills for 'sustainability learners'. Thus, for instance, Howard et al. (2019) presented the Living School concept. As they explain, "in keeping with the ethos of ecological thinking and the interdependence of communities, the values of local relevance, and cultural appropriateness, an approach to scalable educational change through sustainable community economic development (CED) is offered" (p. 2). The main message of Living Schools is that the learning outcomes of education for sustainability have to be meaningful in practice for communities, who therefore need to get a sense of ownership of the concept through acquiring the skills and the ethos that will lead to its operationalisation. "The curriculum of the Living School is founded on understanding the vitality of one's place within the larger landscape as being inextricable from human well-being", (O'Brien & Howard, 2016, p. 123).

Living Schools have built on reflections of skills and competencies that are needed to prepare young generations for the 21st century. With sustainability at the core of preoccupations and new technologies and contexts specific to the 21st century, these competencies include critical thinking, communication, collaboration, creative problem solving, character education, and citizenship but also innovation, creativity, computer-enhanced learning and entrepreneurial mindsets (Fullan & Langworthy, 2013). The focus on well-being ensures that Living Schools support outdoor learning (Williams & Brown, 2012), positive education, as well as social-emotional learning (CASEL, 2019) and health (Morrison & Peterson, 2013). These competencies together with the principles of Community Economic Development (CED), call for holistic and interdependent approaches to creating sustainable communities. CED, defined as "action by people at the local level to create sustainable economic opportunities and to improve social conditions contributing to well-being for all" (http://www.cf-sn.ca/community_economic_development/definition.php) occurs when people in a community take action and, as a result, local leadership and initiative are then seen as the resources for change (Schaffer et al. 2006).

Work on Living Schools and CED helped re-localise and contextualise work on sustainability. Although, historically, economic development and community development were viewed as separate concepts, researchers were encouraged to progressively integrate them, highlighting the benefits of partnership-building within communities (Beauregard, 1993; Reese & Fastenfest, 1996).

Identifying what needs to be learnt to transform our societies into sustainable ones still needs improving. As Ison, et al. (2007) suggested, 'sustainability science' needs to create new understanding by a coupling of multiple knowledge systems into 'learning systems' based on social networks. Research has demonstrated that sustainability-oriented programmes could not be successful unless concerned parties were also involved in their design and running (Healy, et al. 2013). This implies an appropriate size of activities, at a manageable scale, but also a move away from a teacher-student model and more active participation.

As we will see in the next part, food production in a city constitutes a relevant case study and platform for the application of TE, since UA both facilitates a practical understanding of what greening a city, contributing to food security and linking food

production to other activities in a “circular – zero waste - economy’ mean. The evolution of policy responses by the municipality of Lisbon and local stakeholders demonstrate that learning platforms are also developing outside the educational system, extending to its subject of study itself: the city as a sustainable territory.

UA as a practical example of TE in Lisbon

There are numerous definitions of UA, all of which converge into describing UA as the growing of plants and the raising of animals for food and other uses within and around cities (Van Veenhuizen, 2006). UA also includes concepts such as aquaponics, indoor agriculture, vertical farming, rooftops production, edible walls, edible landscapes, school and community gardens, and many other forms of integrated agriculture (Skar et al, 2020). The wish to concentrate our research on UA initiatives in Lisbon stem from the realisation that: (a) according to the World Food programme, the Covid-19 pandemic could force more than a quarter of a billion people into acute hunger by the end of the year unless swift action is taken to ensure that food supply chains keep running; and (b) while cities cover 3% of all land areas on the planet, they consume 75% of the world’s energy, generate 80% of CO2 emissions, use large quantities of water, and create an enormous amount of waste and pollution (UN, 2018). UA could both contribute to improving a city’s food security as well as making them greener and healthier environments.

In this part, we will first link UA to food security, food systems, and environmental protection; we will present how Lisbon’s local institutions recently addressed them. Then, a second section will explore how the policy achievements and new governance approaches, together with insights from practical skills for sustainability developed through project-based UA initiatives, could contribute to putting into place a model of TE to create EfS that leads to tangible results.

UA as a core ingredient to making cities more sustainable

The dimensions of sustainability that we are most interested in here focus on food security and sustainable food systems as key ingredients to transforming the city into a resilient, no-waste and environmentally friendly environment.

The FAO (2002) defined *food insecurity* as a socioeconomic situation that leads to limited or uncertain access to the nutritious food necessary to maintain a healthy life. Various studies have focused on food security in Portugal (Alvares & Amaral, 2014; Gregorio et al., 2018; Maia, et al., 2019), which concluded that the prevalence of food insecurity was 17% on average (2014-2019). We are now experiencing a world pandemic during which many households are losing their means of living, and food supply and circulation is changing. In Portugal, at the end of April 2020, articles in the *Correio da Manhã* indicated that calls for help in the form of charitable food donations had increased by 50% since the 1st of March. In total, 600 000 people had then been reported as not being able anymore to meet their own needs and earn a living because of the COVID crisis. Learning how to feed the city and strengthen food autonomy is both useful in the short term and in designing strategies for the post-Covid uncertain transition. Portugal, which turned its back on agriculture after its entry in the EU, now needs to import food to meet its own needs (FAO, 2017). Related to food security, a *food system* includes various stages in the food chain. A *sustainable food system* is “one in which the food production chain (production, processing, distribution, trade to final consumption, and waste management) ensures

food and nutrition security in terms of quantity and quality, accessing food for all, while promoting a healthy environment, economic dynamism, social cohesion and public health” (Oliveira & Morgado, 2014, p. 5).

During the last 20 years, much research has been carried out to demonstrate that UA could contribute to improving both food security and cities’ environmental improvement. It has shown that UA can contribute to minimising the effects of climate change and to improving the quality of life in urban areas, addressing the UN Habitat’s concerns (2012). McDougall, et al. (2019) showed that small-scale UA results in high yields. Altieri and Nicholis (2018) focused on the potential to increase UA yields through *agro-ecology* and suggested ways to re-design UA to explore whether UA, which can currently provide 15% to 20% of global food, could help cities reach food self-sufficiency. Saavedra, et al. (2017) showed that 20% to 30% of total anthropogenic environmental pressures derived from private consumption are caused by the global food system and investigated potential food system transformation and changes of diet. Most studies demonstrate that UA can contribute to sustain a regular supply of food for low-income urbanites ignored by long food chains (Sonnino, 2009).

In terms of territory, the city could grow as a more autonomous entity, part of a group of interconnected local production units, with UA at the core of the overall food system. For this to happen, the ‘territory’ on which food systems are being considered needs changing. As Oliveira and Morgado (2014) explain, “strategies for food security in cities have highlighted the need to re-localize production-consumption systems and to find innovative approaches in urban planning” (p. 1). The fact that, in the LMA, 37% of the land is used for agricultural purposes, which justifies in itself the need to adopt a strategic vision for the LMA’s food system planning.

As Delgado (2017) stressed, “so far, UA in Lisbon is not approached from a city food system perspective that connects producers, distributors, processors, retailers, formal and informal markets, restaurants, institutional food service and waste management” (p.141). However, examples of ‘connected’ food systems exist. Thus, the cooperatives Fruta Feia and ADREPES collect fruits and vegetables that are rejected by the corporate sector and distribute them through a large network of producers (Fruta Feia CRL, 2017). Other programmes, such as Programa PROVE, have established short distribution chains between small-scale producers and consumers. In the context of ‘social economy and entrepreneurship’ (still relatively new in Portugal with its first ‘social economy law’ appearing in 2013 -law N. 30/2013), they can help us to understand how improved food systems could contribute to making economic activities of the city more circular.

Various studies have documented today’s revival of UA in Lisbon. Mougeot (2015) focused on hortas urbanas and short food chains. Branco (2016) explored the 2011 ‘Parques Hortícolas Municipais’ programme. Delgado (2017) mapped 29 UA initiatives in Portugal and highlighted their focus on food production for self-consumption among formal or informal frameworks. Besides, the Portuguese National report to Habitat III (2013) listed allotment gardens initiatives, covering 27 hectares. The European programmes Cost Urban Allotments Gardens in European

Cities (2012-2016) and Cost Urban Agriculture Europe (2012-2016) strengthened the connections between Portugal and Europe. These programmes generated networks of researchers from more than 29 countries who investigated how UA can provide solutions in Europe and contribute to innovative cities” (Sanye-Mengual, 2015). In addition, Portugal and 136 other countries joined the Milan Urban Food Policy Act, aimed at engaging cities around the world in the development of sustainable urban food systems (MUFPP, 2015).

Integrating the food system into urban planning implies that some urban land must be devoted to food production, taking advantage of all the eco-services that this component of the system could provide (Oliveira & Morgado, 2014, p. 4). Although the complexity of an urban food system brings to bare a substantial pressure on existing planning public policy tools (for instance, an urban food system does not geographically comply with administrative boundaries), debates on how to design adequate spatial planning and governance instruments are needed. In 2009, Castro Henriques carried out a piece of research focused on the planning of UA. At the time, “the existing legal framework did not provide any protection to those practicing UA and much of the land farmed (legally or illegally) belong[ed] to the municipality” (p.49). A major change occurred when Lisbon Municipal Assembly ruled that its *Plano Director Municipal* had to incorporate a *Green Plan* - designed Portuguese landscape architect Gonçalo Ribeiro Telles - (*Plano Verde de Lisboa*, 2012). This decision opened up new possibilities for the development of UA in the city. The idea was to form “green corridors” linking various land uses, such as *hortas urbanas* urban parks, gardens, bicycle lanes and footpaths. Subsequent work included the development of an UA Strategy by the Commission for UA, which “stressed the utility of UA sites, namely because of the city’s dependence on imported fresh vegetables, the rising prices in the international food markets, the added income UA provides for families and the importance of UA in dealing with food shortages” (Castro Henriques, 2009, p. 50).

Since then, work has been done in the area of land use planning which, in Portugal, is divided between the regional level (where the Regional Coordination and Development Committee for Lisbon and Tagus Valley, CCDR-LVT, is responsible for creating the Regional Land use plan for the Metropolitan area of Lisbon (PROT-AML) and the city level (where Lisbon Municipality develops the Master Development Plan (PDM), which establishes territorial development strategies) (Santos, et al., 2015). The Lisbon municipality established the Lisbon Strategy (2010-2024), whose objectives focus on city regeneration, climate change adaptation, and connectivity of green spaces. The municipality also put great efforts into developing participatory governance by providing information platforms and developing participatory instruments (such as Lisbon Participatory Budget (OP-L) ^[1]. Together with the Biodiversity 2020 Strategy, Lisbon’s Master development plan (2014) and the Green Plan (2008) promoted UA, stressing that it can enhance sustainable urbanisation, restore (i.e., repair) ecosystems, contribute to climate change mitigation and adaptation, and improve risk management.

Recently, a research report came out highlighting that Lisbon still needs a comprehensive strategy to integrate the Food System into urban planning and spatial management. The European project conducted semi-structured interviews with 31

types of stakeholders strategically identified ^[iii] to select preferences for food strategy priorities (Serra, 2021). These priorities were ranked out of 21; those with the highest scores were short food supply chain, food security, food waste, and food literacy. From this, four main clusters (boosting agricultural production, stimulating sustainable food distribution, developing food education and valuing waste) emerged. Participants explained how they understood a food strategy could improve elements belonging to these clusters. Thus, a global food strategy could stimulate sustainable food distribution by improving transport logistics to create short supply chains. It could also put into place food education programs, farmers training on sustainability and innovation, and help to incentivise people to separate bio-waste from other waste. About half of the people being interviewed identified a 'food platform' as a preferred governance platform for the development of a food strategy and the majority of respondents favoured autonomy through a food strategy that would develop its own initiatives (Serra, 2021, pp. 21-22). This research highlighted the importance of the governance process that helps linking urban planning with food production, contributing to advances in social urbanism and TE.

TE learning approaches through UA

Research carried out on EfS in Portugal has highlighted a general lack of integration of national strategies in HEIs with regards to the goals of the UN DESD 2005-2014 (Farinha, 2018), as well as a lack of long-term objectives (Teixeira and Koryakina, 2016), and of an underpinning framework (Dlouhá et al., 2016) in what seems to mainly be top-down efforts. One important conclusion is that, in order to grasp the practical dimensions of what makes a territory sustainable, one has to embrace practical projects and acquire skills. As Kolb explained (1984), learners need experiential components to really understand concepts. Many researchers have also highlighted the importance of adopting a systems perspective like Bawden (1991) to appreciate the multiple dimensions (economic, social, political, environmental) of a 'sustainable city'.

In the examples of TE applied to UA projects, systemic learning is fundamental because agriculture is a human-natural system. In the transdisciplinary agro-ecology educational projects presented by Francis et al. (2011), work on sustainable farming and food systems created an effective learning landscapes "for students to deal with complexity, uncertainty and a range of biological and social dimensions, life-cycle analysis and long-term impacts" (Francis et al., 2011, p. 226). In those, students develop new governance and management systems in order to better manage interconnections between agriculture and overarching resource systems of food, energy, water and land-use, using a whole set of skills - such as negotiating, open-mindedness, and appreciation of different perspectives. In Landscape Architecture, Keeler (2011), for instance, documented the benefits derived from the 'Urban Farm educational Program' (University of Oregon). He concluded that "place-based education implies a process of re-storying, whereby students are asked to becoming part of the community, rather than a passive observer of it" (Laurie Lane-Zucker, in Keeler, 2011: p.11).

In Lisbon, about a third of the UA projects (including the LIPOR programme, Lisbon Allotments Parks, and Cascais allotments) focus on mandatory training, education or capacity building programmes (Abreu, 2012). As Cancela (2009) showed, some UA initiatives created small-scale pedagogic kitchen-gardens in schools, or "pedagogical

allotments”, where the public can visit and learn farming techniques, or even farm their own plot. “Olivais Pedagogical Farm” is one of the first examples, with the “Alta de Lisboa” where, thanks to the organization of local residents, an “urban agricultural park” of three hectares was born in a bottom-up approach (Cancela, 2009, p. 7). Practically all the UA initiatives (22/29 selected by Delgado in 2017) include educational activities in parallel with food production. The way in which the learning is enhanced is both conceptual and skill orientated. TE based on UA projects could also include debates on health and immunity – debates that are much needed during the Covid-19 pandemic. Focusing on this could constitute one of the motivations for learning about sustainability.

For citizens, institutions, small businesses, and urban planners, working together at linking activities that could make the city greener could help them to appreciate what a sustainable city might be. Away from top-down approaches to education and training, TE through UA “focuses on the collective influence and responsibility in creating inclusive and responsive public spaces” (Smaniotto et al., 2017, p. 53). Through this, the territory both becomes an educational agent and content (Villar-Caballo, 2001). Such an approach to TE could build on the participatory platforms that have recently been put into place in the context the Lisbon’s Food Strategy.

Conclusion

The current pandemic is motivating us not only to think about how to make our societies more sustainable but also how to ensure that educational activities can contribute to doing so. Here we have explored the potential contribution of ‘Territorial Education’ through the example of Urban Agricultural initiatives in Lisbon. Nominated as the Green Capital of Europe in 2020, Lisbon hosted a number of UA initiatives throughout time, especially in times of crisis.

After exploring the historical context from which TE emerged (in reaction against the 1990s GERM and in continuity with efforts to improve education for sustainability), this article explored the various characteristics of this type of educational approach ‘in the making’. From integrating initiatives focused on UA into it, we can conclude that TE deals with local, practical problems in view of developing skills to address them and also develops solutions to the problem in view of improving the sustainability of the place. This approach enhances the formulation of solutions through long-term communication and collaboration amongst a variety of stakeholders whilst respecting the needs, perspectives and skills of various stakeholders through a dialogical iterative social learning process that enables the ‘co-creation of spaces’ (Estrela and Smaniotto, 2019). TE encourages networking and exchanges of ideas and know-how locally and globally, in order to improve learning about sustainability in line with Global Citizenship principles. It also integrates activities such as UA within the broader creation of the city’s resilience and circularity and therefore, puts action at the core of learning.

Building on the recent participatory processes carried out in the LMA to initiate the formulation of a comprehensive Food Strategy will help in understanding the centrality of food within the overall urban sustainability and constructing learning platforms and networks that will facilitate the collaboration of various stakeholders to build a circular, no-waste and resilient city.

Acknowledgements

We have no known conflict of interest to disclose

Correspondence concerning this article should be addressed to Sandrine Simon.

CeiED, Universidade Lusófona de Humanidades e Tecnologias. Campo Grande 376, 1749-024 Lisboa Portugal. E-mail: sandrine.simon.dina@gmail.com

Sandrine Simon works at the Universidade Lusófona de Lisboa in social urbanism and urban agriculture. With a background in Ecological Economics, she has worked on environmental issues from an interdisciplinary perspective, focusing on decision-making tools and participatory governance, water management, a systems approach to complex issues, and the circular economy.

References

- Abreu, A. (2012). *Hortas Urbanas – Contributo para a sustentabilidade. Caso de Estudo: Hortas Comunitárias de Cascais*. Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa.
- Allegretti, G. & Antunes, S. (2014). The Lisbon Participatory Budget: results and perspectives on an experience in slow but continuous transformation. *Field Actions Science Reports*, Special Issue 11. Available online at: <http://journals.openedition.org/factsreports/3363> (accessed on 10/ 02/2021)
- Altieri, M.A. & Nicholls, C.I. (2018). Urban agro-ecology: designing biodiverse, productive and resilient city farms. *Agro Sur* 46(2): 49-60.
- Alvares, L. & Amaral, T.F. (2014). Food insecurity and associated factors in the Portuguese population. *Food Nutritional Bulletin*, 35(4):395-402. doi: 10.1177/156482651403500401
- Barthes, A. et al. (2017). *Evolutions of the complex relationship between education and territories*. ISTE Edition.
- Barthes, A. & Champollion, P. (2012). Éducation au développement durable et territoires: Évolution des problématiques, modification des logiques éducatives et spécificité des contextes ruraux. *Éducation relative à l'environnement: Regards – Recherches – Réflexions*, 10: 36-51.
- Bawden, R. J. (1991). Systems thinking and practice in agriculture. *Journal of Dairy Science*, 74: 2362–2373.
- Beauregard, R.A. (1993). Constituting Economic Development: A Theoretical Perspective. In R.D. Bingham & R. Mier (Eds.), *Theories of Local Economic Development: Perspectives from Across the Disciplines* (pp. 267–283). Sage.
- Boix-Tomàs, R., Champollion, P. & Duarte, A.M. (Eds.). (2015). Territorial Specificities of Teaching and Learning. *Sisyphus*, 3(2), 1-124.

- Branco, C. (2016). *Relatório Nacional I Habitat III*. Available online at: http://habitatiii.dgterritorio.pt/sites/default/files/ficheiros_publicos/PT_UN-HabitatIII_NationalReport_2016_08_04_EN.pdf: Direção Geral do Território (accessed on 10/ 02/2021)
- Buckler C. & Creech, H. (2014). *Shaping the future we want: UN Decade of education for Sustainable development: final report*. UNESCO.
- Cancela, J. (2009). UA in city planning process. Experiences from Portugal. 45th ISOCARP Congress 2009: Urban agriculture in city planning process, Porto.
- CASEL Collaborative for Academic, Social, and Emotional Learning (2013). *Elective Social and Emotional Learning Programs*. Preschool and Elementary School Edition. Available online: www.casel.org/s/2013-casel-guide-pdf (accessed on 10/ 02/2021). (accessed on 10/ 02/2021)
- Castells, M. (1996). *The rise of network society*. Blackwell.
- Castro Henriques, J. (2009). Urban Agriculture and resilience in Lisbon. The role of municipal government. *UA Magazine*, 22: 49-50 www.ruaf.org
- Champollion, P. (2020). *Territorialisation of education. Trend or necessity*. ISTE-Wiley.
- Colucci-Gray, L. & Gray, D. (2014). One Planet residency: Perspectives on Globalisation and Education. *Special Issue Sisyphus Journal of Education* 3, Volume 2.
- Cost Urban Agriculture Europe (2012-2016). <https://www.cost.eu/stories/urban-agriculture-europes-untapped-potential/>.
- Courlet, C. & Pecqueur, B. (2013). *L'économie territoriale*. Presses Universitaires de Grenoble.
- Coriddi, J. (2008). *Policy and Practice. A development education review*. Centre for Global Education.
- Courrier International (April 2020) *Crise. Au Portugal, un nombre croissant de familles au bord de la famine*. 28/04/2020 Courrier International. Article de Correio da manhã.
- Cowen, R. & Kazamias, A.M. (Eds.). (2009). *International Handbook of Comparative Education* (Vol. 2). Springer Science and business media.
- Delgado, C. (2017). Mapping urban agriculture in Portugal: lessons from practice and their relevance for European post-crisis contexts. *Moravian Geographical Reports*, 25 (3), 139-153.
- Dlouhá, J., Glavic, P. & Barton, A. (2016). Higher education in central European countries and critical factors for sustainability transition. *Journal of Cleaner*

- Production*, 151: 670-684, available online at: <http://dx.doi.org/10.1016/j.jclepro.2016.08.022> (accessed on 10/ 02/2021)
- Estrela, E. & Smaniotto Costa, C. (2019). Reflections on territorial capacity – the interplay between education and understanding and acting in the urban fabric. In M. Menezes & C. Smaniotto Costa (Eds.). *Neighbourhood & City – Between digital and analogue perspectives* (pp. 25-34). Edições Universitárias Lusófona.
- FAO Food and Agriculture Organization of the United Nations (2002). *The State of Food Insecurity in the World 2001*. Food and Agriculture Organization of the United Nations.
- FAO (2017). FAOSTAT. Available online at <http://www.fao.org/faostat/en/#country/174> (accessed on 10/ 02/2021).
- Farinha, C.S., Azeiteiro, U., & Caeiro, S.S. (2018). Education for sustainable development in Portuguese universities: The key actors' opinions. *International Journal of Sustainability in Higher Education*, 19(5): 912-941 available online at: <https://doi.org/10.1108/IJSHE-09-2017-0168> (accessed on 10/02/2021)
- Fien, J. (2020). *Educational policy and practice for sustainable development*. Encyclopaedia of Life Support System EOLSS, UNESCO.
- Francis, C.A., Jordan, N., Porter, P., Breland, T.A., Lieblein, G., Salomonsson, L., Sriskandarajah, N., Wiedenhoef, M., DeHaan, R., Braden, I. & Langer, V. (2011). Innovative Education in Agroecology: Experiential Learning for a Sustainable Agriculture. *Critical Reviews in Plant Sciences*, 30 (1-2), 226-237.
- Fujita, M. & Hamaguchi, N. (2020). Globalisation and the Covid-19 pandemic: a spatial economic perspective. *Research based policy analysis and commentary from leading economists. VoxEU*. Available online at: <https://voxeu.org/article/globalisation-and-covid-19-pandemic>. (accessed on 10/ 02/2021)
- Fullan, M. & Langworthy, M. (2013). *Towards a New End: New Pedagogies for Deep Learning*. Collaborative Impact.
- Fruta Feia Crl. (2017). Fruta Feia I Gente Bonita Come Fruta Feia [online] <http://www.frutafeia.pt/en> (accessed on 10/ 02/2021)
- Gargiulo Labrida, A. (2016). *Being open to the educational competencies on the community life experience*. EDUCA. Available online <https://educa.fmleao.pt/tag/territorial-education-cooperation> (accessed on 10/ 02/2021).
- Gregorio, M.J., Rodrigues, A.M., Graca, P., de Sousa, R.D., Dias, S.S., Branco, J.C. & Canhao, H. (2018). Food Insecurity Is Associated with Low Adherence to the

- Mediterranean Diet and Adverse Health Conditions in Portuguese Adults. *Frontiers in Public Health*, February 2018.
- Healy, H., Martinez-Alier, J., Temper, L., Walter, M. & Gerber, J. (2013). *Ecological economics from the ground up*. Earthscan from Routledge.
- Howard, P., O'Brien, C., Kay, B. & O'Rourke, K. (2019). Leading educational change in the 21st century. Creating Living Schools through shared vision and transformative governance. *Sustainability* 2019,11, 4109; doi:10.3390/su11154109 Available online at: www.mdpi.com/journal/sustainability (accessed on 10/ 02/2021).
- Ison, R., Roling, N. & Watson, D. (2007). Challenges to science and society in the sustainable management and use of water: Investigating the role of social learning. *Environmental Science Policy*, 10: 499–511.
- Jahnke H., (2019). Territorial Governance of Schooling and Education in Rural Areas: Case Studies from Northern Germany. In H. Jahnke, C. Kramer & P. Meusburger (Eds). *Geographies of Schooling. Knowledge and Space*, Vol 14. Springer. Available online; https://doi.org/10.1007/978-3-030-18799-6_2 (accessed on 10/ 02/2021)
- James, H. (2020, March, 4). Could coronavirus bring about the 'waning of globalization'? *World Economic Forum*. Retrieved from url: <https://www.weforum.org/agenda/2020/03/globalization-coronavirus-covid19-epidemic-change-economic-political>
- Keeler, H. (2011). *Considering the Urban Farm program and the role of place-based experiential education in the pedagogy of landscape Architecture*. [Masters Dissertation]. Department of landscape Architecture. University of Oregon.
- Kolb, D. (1984). *Experiential Learning: Experience as the Source of Learning and Development*. Prentice-Hall, Inc.
- Leite, L.H.A. & de Carvalho, P.F.L., (2016). Full-time Education and the Establishment of Educational Territories. *Educacao & Realidade*, 41(4): 1205-1226. Available online: <https://doi.org/10.1590/2175-623660598>. (accessed on 10/ 02/2021)
- Maia, I., Monjardino, T., Frias, B., Canhão, H., Cunha Branco, J., Lucas, R. & Santos, A.C. (2019). Food Insecurity in Portugal Among Middle- and Older-Aged Adults at a Time of Economic Crisis Recovery: Prevalence and Determinants. *Food Nutritional Bulletin*, 40(4), 504-513.
- Martinez-Alier, J. (1987). *Ecological Economics. Energy, Environment and Society*. Basil Blackwell.
- McDougall, R., Kristiansen, P. & Rader, R. (2019). Small-scale urban agriculture results in high yields but requires judicious management of inputs to achieve sustainability. *PNAS*, 116(1): 129-134. Available online at: <https://doi.org/10.1073/pnas.1809707115> (accessed on 10/ 02/2021)

- Meybeck, A. & Redfern, S. (Eds.). (2016). Sustainable value chains for sustainable food systems. A workshop of the FAO/UNEP Programme on Sustainable Food Systems, 8-9 June 2016, Rome. FAO.
- Mougeot, L. (2015). Urban agriculture in cities of the global south: four logics of integration. In D. Imbert (Ed.). *Food and the city: histories of culture and cultivation* (pp.163-193). Harvard University Press.
- Morrison, W., P. Peterson, (2013). Schools as a Setting for Promoting Positive Mental Health: Better Practices and Perspectives, 2nd ed. Available online: http://www.jcsh-cces.ca/upload/JCSH%20Best%20Practice_ (accessed on 10/02/2021)
- MUFPP (2015). Milan Urban Food Policy Pact [online] <http://www.milanurbanfoodpolicypact.org/text/> (accessed on 10/02/2021)
- O'Brien, C. & Howard, P. (2016). The living school: The emergence of a transformative sustainability education paradigm. *Journal of Education for Sustainable Development*, 10: 115–130
- Oliveira, R. & Morgado, M.J. (2014). Planning the Urban Food System of the Lisbon Metropolitan Area in Portugal. A conceptual framework. In R. Roggema & G. Keefe (Eds), *Finding Places for Productive Cities*. Proceedings of 6th International AESOP Sustainable Food Planning Conference, 5-7 November, Leeuwarden, The Netherlands.
- Plano Verde de Lisboa (2012). <https://www.lisboa.pt/cidade/ambiente/estruturacoloredologica/corredores-verdes>
- PROVE (2017). PROVE – Promover e vender. Available online at: <http://www.prove.com.pt/www/english.T9.php>
- Quammen, D. (2020, January, 28). We made the coronavirus epidemic. *The New York Times*. <https://www.nytimes.com/2020/01/28/opinion/coronavirus-china.html?smtyp=cur&smid=tw-nytopinion>
- Reese, L.A. & Fastenfest, D. (1996). Local economic development over time. *Economic Development Quarterly*, 10: 280–289. Available online: http://www.cf-sn.ca/community_economic_development/definition.php
- Saavedra Cardoso, A., Domingos, T., Raposo de Magalhães, M., de Melo-Abreu, J. & Palma, J. (2017). Mapping the Lisbon Potential Foodshed in Ribatejo e Oeste: A Suitability and Yield Model for Assessing the Potential for Localized Food Production. *Sustainability* 2017(9).
- Sahlberg, P. (2016). The global reform movement and its Impact on Schooling. In K. Mundy, A. Green, B. Lingard & A. Verger (Eds.), *The handbook of Global Education Movement* (pp. 128-144). Wiley Blackwell.

- Santos, A. et al. (2015). Lisbon, Portugal. Case study portrait; part of a green Surge Study on urban green infrastructure, planning and governance in 20 European cities. Available online at: Doi: 10.13140/RG.2.1.4000.9121. (accessed on 10/ 02/2021).
- Santos, B. de S. (2006). *A Gramatica do Tempo: por uma nova vultura politica*. Afrontamento.
- Sanye-Mengual, E. (2015). *COST Action Urban Agriculture Europe: Freelance STSM: Stakeholders' acceptance, governance and power relations in innovative forms of UA*. Europe Scientific Foundation.
- Schaffer, R., Deller, S., & Marcouiller, D. (2006). Rethinking community economic development. *Economic Development Quarterly*, 20: 59–74.
- Serra, A. (2011). *Lisbon food strategy. A guide to approach food systems*. Available online at: [https://rural-urban.eu/sites/default/files/Lisbon Food Strategy.pdf](https://rural-urban.eu/sites/default/files/Lisbon_Food_Strategy.pdf) (accessed on 10/ 02/2021).
- Skar, S.L.G. et al., (2020). Urban agriculture as a keystone contribution towards securing sustainable and healthy development for cities in the future. *Blue Green Systems*, 2(1): 1-27. Available online at: <https://doi.org/10.2166/bgs.2019.931> (accessed on 10/ 02/2021)
- Smaniatto Costa, C. & Ioannidis, K. (Eds.). (2017). *The making of the mediated public space. Essays on emerging urban phenomena*. Series Culture and territory. Edicoes universitarias Lusofonas.
- Teodoro, A. (2020). *Contesting the global development of sustainable and inclusive education. Educational reform and the challenges of neoliberal globalization*. Routledge.
- Teixeira, P. & Koryakina, T. (2016). Political instability, austerity and wishful thinking: Analysing stakeholders' perceptions of higher education's funding reforms in Portugal. *European Journal of Education*, 51 (1): 126-139, doi:10.1111/ejed.12126.
- UNESCO (2014). *Global Citizenship Education: Preparing learners for the challenges of the 21st century*. UNESCO.
- Van Veenhuizen, R., (2006). *Introduction, Cities Farming for the Future. Cities Farming for the Future, Urban Agriculture for Green and Productive Cities*. RUAF Foundation; IIRR; IDRC.
- Villar Caballo, M.B. (2001). *A cidade educadora:nova perspectiva de organização e intervenção municipal*. Lisboa Instituto Piaget.
- Williams, D. & Brown, J. (2012). *Learning Gardens and Sustainability Education: Bringing Life to Schools and Schools to Life*. Routledge.

World Commission on Environment and development (1987). *Our Common Future*.
Oxford University Press.

ⁱThe OP-L had a budget of 2.5 million euros in 2015 and, in 2012, more than 200 projects were improved, voted upon by almost 30 000 citizens. 30% of these projects involved green space enhancement (Santos et al. 2015, p.7; also see Allegretti and Antunes, 2014).

ⁱⁱ6 producers, 6 distributors, 7 institutions, 6 local administrations, 4 organisations and 2 universities.