

Call for Papers for a Special Issue of “Environment, Development and Sustainability” JOURNAL

Theme Title: Transformative learning for Urban Sustainability: futures of transdisciplinary educational models, structures and tools

Guest Editors

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1. Motivation and goals

Urban Sustainability has recently developed into a highly rhetorical, contested societal discourse that is hotly debated in local and global power struggles over who has the right to envision and decide upon what our desired futures should look like [1]. Exacerbating such struggles is the fact that many of the current socio-environmental problems connected to sustainability transcend spatial, temporal, sector and disciplinary boundaries [2]. Taking into consideration all aspects of the environmental impacts of socio-economic development, and the complex interactions which occur between development and environment in cities is hard, and to this extent, education for sustainability is crucial to seek ways and means for achieving sustainable impacts in all human activities [3].

The academic debate on education for urban sustainability transitions is indeed like a large arena, where heterogeneous approaches and contributions, coming from different disciplines, flow into without converging on an interdisciplinary and co-produced and common vision [4,5]. The contribution of renovated learning models, in this respect, is essential for the transition from the “silos” mentality - that addresses separately issues of education in energy, transport, water, waste, local economic system- to approaching complex challenges as social inclusion, well-being for all, future-oriented policy making with new educational collaborative models [6,7].

The complexity of such issue has brought about the notion of the inevitability of fundamental transdisciplinary and transformative changes that hinge on changing values [8–10]. Transformative learning merges cognitive and non-cognitive learning methods, tools and pedagogies. It is the expansion of consciousness through the transformation of basic worldviews and specific capacities of the self [11], meaning those concerning the terms (life, matter, space, law of cause-effect, the self, the knowing) that jointly determinate the culture worldview. It is founded on a collaborative approach with both an interdisciplinary and transdisciplinary basis [12–14].

Interdisciplinarity (ID) and transdisciplinarity (TD) as knowledge regimes, are critically demanded to address the challenges of our era [15]. Interdisciplinarity implies a process of integration of different insights, values, and fields of knowledge, for example between the Arts, Humanities, Social Sciences (AHSS), among themselves and with Science, Technology, Engineering, Mathematics and Medicine (STEMM). Such process aims at building a common ground and an overarching understanding of a problem [16]. Transdisciplinarity does so by integrating different types of knowledges elaborated by a wide range of societal actors [17]. Based on reflexive, collaborative integrative principles[18,19], ID and TD aim at addressing the grand challenges by elaborating on approaches in education [10,20,21] and research [18,22,23] (in place of many others). How can this be achieved in the realm of transformative education for Urban Sustainability?

The aim of this Special Issue is to explore to what extent and how inter- and trans-disciplinary research, methods, tools and practices of education and transformative learning can contribute to address the future developmental and societal challenges in the realm of urban sustainability transitions.

More specifically, this Special Issue aims at identifying practical solutions and future scenarios to overcome the actual barriers to AHSS integration in interdisciplinary and transdisciplinary research towards the transformation of the current educational systems in the realm of urban sustainability transitions.

Contributions to this Special Issue may address any of the following topics:

- Exercises for “thinking outside the box” involving students, business, NGOs and citizens at various educational levels (local, national or global learning communities, online learning communities) to bear fruitful largely in the present, question dominant axioms and assumptions and deal largely with complex, interconnected problems.
- Novel interdisciplinary and transdisciplinary methods and tools introducing the concept of transformative learning in foresight and co-design scenarios.
- Discussions of what kind of inter/trans-disciplinary educational tools and approaches can support and improve sustainability in the realm of urban transitions.
- Analyses of the post-COVID19 educational needs in the anticipation and the management of sustainability issues such as the ruling of global educational in a remote mode, in context-based and future-oriented perspectives.

Contributing authors are asked to refer to at least **two** of the following guiding questions:

1. What might urban sustainability ‘missions’ look like in your vision for a better future? And if they were defined with the contribution of interdisciplinary or transdisciplinary education, how could this be achieved in the forthcoming education institutions?
2. Where does the greatest future potential lie for inter- or trans-disciplinary education practices to address urban sustainability challenges? How can AHSS disciplines and permanent learning/education can evolve towards capacity-based systems?

3. How to include transformative learning into the current system or into a new system? What can enable, or impede the innovation in inter- and trans-disciplinary education practices addressing urban sustainability processes? What needs to change now for this potential to be realised in the nearest future?
4. What is the new role and identity of inter- and trans-disciplinary researchers and practitioners working towards an Education for Sustainability? How could change in the future their/our way of working and their/our beliefs, the ways in which transformative science is performed, evaluated and communicated?
5. What idea or concept did the COVID-19 lock-down time add new to your vision on inter- and trans-disciplinary practices for sustainability? What would we have to leave now behind to make this new vision possible in the current educational/knowledge infrastructures?

2. Academic rationale: Contribution of the issue to the development of the field

“Education”, “Transdisciplinarity” and “Urban Sustainability” are three increasingly relevant issues in the vision of scientific, political and governmental arenas [2,6,8,24–26]. Indeed, Education and Urban Sustainability are addressed by specific UN 2030 Sustainable Development Goals: SDG4, “Quality of Education,” SDG17, “partnership for the goals” and SDG11, “Sustainable Cities and Communities” [27]. Here, we focus on the connection among the three, considering Education as the “tool” to achieve the goal of Urban Sustainability via inter- and trans-disciplinary approaches.

UNESCO’s Teacher Education Programme on teaching and learning about sustainable futures (2010) defines thinking about long term as a commitment to the common good, “to help define shared perceptions of long-term environmental issues and the appropriate efforts needed to deal successfully with the problems of protecting and enhancing the environment, a long term agenda for action during the coming decades, and aspirational goals for the world community.” [20, p.5]

Current education do not provide many opportunities to 'unlearn' one's position and appreciate the importance of other voices and perspectives. There is a bias towards asking and answering questions that fit the current academic, political or social direction, which can be limiting and impede empathy towards different perspectives and voices, and make it hard even to recognise one's perspective [29,30].

Education is becoming more and more about creativity, critical thinking, communication, collaboration, modern knowledge - including our capacity to recognise and exploit the potential of new technologies-, and about the qualities that help happy people lives and work together to build a sustainable society [31].

We align this proposal with the Editorial entitled “Introduction to ‘environmental education’ special issue [32], which concludes appealing for “strengthening sustainability-related competencies such as understanding complexity, identifying connections and interdependencies, taking part in democratic decision-making processes, critically examining systems, policies and routines which seem unsustainable or producing new forms of teaching and learning together with the necessary curricula which are important for fostering such competencies”[32, p.203].

As places of knowledge production, Higher Education institutions should pursue collaborative endeavours to work on problems and in contexts of real applicability, stimulating discoveries and interactions, feedback systems between different diverse actors and relationship channels [33,34]. That means to adopt an efficient and effective inter- or transdisciplinary process draws from methods and theories appropriately integrated into the societal challenges. Transdisciplinary research experiences highlight the inclusion of non-academic actors as the defining factor to reach "real-world problem solving" [19], that inevitably happen in urban arenas.

Urban sustainability, in this respect, helps us to evolve from the "silos" mentality, to intend and represent the city as a complex "systems of systems" as the underlying message of the SDGs framework claim: the need for a systemic perspective, where "everyone shares responsibility for problems generated by a system" [26, p.78]. Educating people to a systemic view on the future **VUCA world**, short for volatility, uncertainty, complexity, and ambiguity, passes irremediably by an awareness training, about ourselves and the consequences of our actions.

We believe that the concept of transformative learning, including tools like **mindfulness**, storytelling, back casting scenarios, actor-network theories, and so forth, itself is an object of a stream of collaborative research¹ practices such as inter- or transdisciplinary, and **can help to bridge the Education & Urban Sustainability Challenges**. It can also contribute to the integration of AHSS disciplines that are currently silenced in these contexts as relevant perspectives that add on more democratic and pluralistic educational practices.

3. Special circumstances

This Special Issue is framed in two H2020 projects :

- **TrUST: Transdisciplinarity for Urban Sustainability Transition:** is a research project that aims at better understanding how to achieve more efficient and effective **inter/trans-disciplinary research and education** for an urban sustainability transition. It received funding from the Interuniversity Department of Regional & Urban Studies and Planning - Excellence Award at Politecnico di Torino, and the support of more than 70 institutions and organisations working on SDGs implementation.² A concomitant activity of TrUST, an Unconference on Urban Sustainability Education, has been coupled with the SHAPE ID Learning Case Workshop. The event took place in Turin, on the 17-18 of February 2020. 25 participants from all over the world shared their vision about the future of University as a place to enact transformative education for Urban Sustainability transitions.
- **SHAPE-ID: Shaping Interdisciplinary Practices in Europe** has been funded by the European Commission (H2020) to explore the challenge of how to better support the integration of Arts, Humanities and Social Sciences (**AHSS**) perspectives into interdisciplinary research with Science, Technology, Engineering and Mathematics (**STEM**) and other scientific disciplines, including Health Sciences, particularly in the context of addressing societal challenges. SHAPE-ID reports directly to the **European Commission's Directorate-General for Research**

¹ See the review undertaken in T. Ericson, B. J. Kjonstad, B. Anders (2014), Mindfulness and Sustainability. The following are excerpts from that paper.

² More information at www.trustcollaboration.com.

and Innovation and thus has the opportunity to influence the Commission’s thinking and practice on this issue.³

In February 2020, a Learning Case Workshop (LCW) was organised as a collaborative effort between the TrUST and SHAPE-ID consortiums. The LCW was held in Turin (Italy) and it brought educators and researchers together to explore inter- and transdisciplinary educational models and approaches that support sustainable urban transformation.

Invited editors of this Special Issue together with confirmed contributed editors (listed below) are active researchers of these two projects and will align their articles to find complementarities between them.

4. Special Issue rationale

The multivalent and potentially highly impactful nexus between educational processes and urban areas is the main focus of the inter/trans-disciplinary practices under discussion in this Special Issue. The scope, indeed, includes the envisioning of novel inter- and trans-disciplinary education programs for sustainable behaviour, to align individual attitudes, incentives and values. Given the multi-facets of sustainable behaviour, it is a challenge that demands a change in the value systems and organisational structure in which education occurs.

The ultimate ambition of the special issue is to gather forward thinkers in suggesting how to trigger processes of **integration of education institutions** with other **urban stakeholders** to promote **sustainable urban transformations**. Field of investigations includes what new skills and competencies are needed for managing integration, what transformative efforts should happen individually and collectively, which governance for renewed and integrated structures that reward transdisciplinary careers, as well as what funding mechanisms, with appropriate selection and evaluation procedures, should be designed.

5. Deadlines and submission instructions

Open for submissions: from October 1st, 2020

Closing date for new submissions: March 31st, 2021

- Expected date of online publication of papers is 3 weeks from final acceptance
- Expected publishing date of Special Issue is approximately 6 months after closing submission date.

6. Brief information about the editorial and related experience of the Guest Editors

Giulia Sonetti is Principal Investigator of TrUST, Transdisciplinarity for Urban Sustainability Transition: a research project that aims at better understanding how to achieve more efficient and effective inter/trans-disciplinary research and education for an urban sustainability transition. She is an assistant professor in “Decision Making for SDGs” and “Real Estate Evaluation” in the “Architecture and urban economics, Creative City & Urban Regeneration” courses at Politecnico di Torino. She also teaches “Organizational Change

³ More information is available at www.shapeid.eu.

Methods and Teamworks” in the “Impact Prototypes Lab Courses” at the Cottino Social Impact Campus, in Turin. She is sustainability strategist in the Politecnico di Torino Green Team Office, which she co-founded and she has been invited as a guest lecturer, keynote speaker and professional facilitator in many conferences, workshops, university courses and city seminars around the world. She is a lead researcher and WPs coordinator at the Polytechnic of Turin in many research projects (Marie-Curie, FP7, H2020 or nationally funded), and she has been organising and implementing many workshops design and facilitation activities, impact evaluation of transition scenarios, decision-making process mapping, stakeholder analysis, societal engagement and participatory practices in an international environment with a variety of organization joining our projects.

Her main publications about urban sustainability and interdisciplinarity are:

- Sonetti, G., Arrobbio, O., Lombardi, P., Lami, I.M., Monaci, S., “Only Social Scientists Laughed”: Reflections on Social Sciences and Humanities Integration in European Energy Projects, *Energy Research & Social Science*, Volume 61, 2020, 101342, ISSN 2214-6296, <https://doi.org/10.1016/j.erss.2019.101342>
- Sonetti G., Lombardi P., Multi-criteria Decision Analysis of a Building Element Integrating Energy Use, Environmental, Economic and Aesthetic Parameters in Its Life Cycle. In: Mondini G., Oppio A., Stanghellini S., Bottero M., Abastante F. (eds) *Values and Functions for Future Cities*. Green Energy and Technology. Springer, Cham, 2020.
- Genta, C., Favaro, S., Sonetti, G., Barioglio, C., Lombardi, P., Envisioning green solutions for reducing the ecological footprint of a university campus, *International Journal of Sustainability in Higher Education* 2019, 1, 39; DOI 10.1108/IJSHE-01-2019-0039.
- Sonetti, G.; Brown, M.; Naboni, E., About the Triggering of UN Sustainable Development Goals and Regenerative Sustainability in Higher Education. *Sustainability*, 2019, 11, 254.
- Sonetti, G., Naboni, E., Brown, M., Exploring the potentials of ICT Tools for Human-Centric Regenerative Design, *Sustainability* 2018, 10(4), 1217; DOI:10.3390/su10041217.
- Sonetti G., Lombardi P. (2020) Sustainable Development Goals and Current Sustainability Actions at Politecnico di Torino. In: Leal Filho W. et al. (eds) *Universities as Living Labs for Sustainable Development*. World Sustainability Series. Springer, Cham. DOI:10.1007/978-3-030-15604-6_16
- Mourik, R., Jeuken, Y., de Zeeuw, M., Uitdenboger, D., van Summeren, L., Wilhite, H., Robison, R., Heidenreich, S., Blahová, M., Pidoux, B., Kern-Gillars, T., Arrobbio, O., Sonetti, G., Throndsen, W., Fox, E., Nikolaev, A., Radulov, L., Sari, R., Sumpf, P. and Balint, L., 2017. “Energy efficiency and using less – social sciences and humanities annotated bibliography”. Cambridge: SHAPE ENERGY.
- Sonetti, G. and Lombardi, P. (eds), “News from the front of sustainable university campuses”, 2017. Edizioni Nuova Cultura, Roma. ISBN Digital 9788868128654. DOI: 10.4458/8432. Pp 168.
- Sonetti, G., Lombardi, P., Chelleri, L., “Transition Towards a Post Carbon City - Does Resilience Matter?” In: *Future Challenges in Evaluating and Managing Sustainable Development in the Built Environment* / Brandon, Lombardi, Shen. Wiley, London, 2017, pp. 55-68
- Sonetti, G.; Lombardi, P.; Chelleri, L., “True Green and Sustainable University Campuses? Toward a Cluster Approach” *Sustainability* 2016, 8, 83. doi:10.3390/su8010083

Bianca Vienni Baptista is a postdoctoral researcher of the Transdisciplinarity Lab, ETH Zurich, in Switzerland. Since 2019, she works at the project entitled "SHAPE-ID: Shaping interdisciplinary practices in Europe", financed by H2020. As a researcher and lecturer, she works in the broad field of Science, Technology and Society Studies, focusing in particular on the study of interdisciplinary and transdisciplinary knowledge production processes. As a result, she is interested in methods and tools as well as concepts and theories as means of achieving transformative and developmental change to solve multidimensional social problems. These commitments arise from her background. Bianca has been trained as an Anthropologist at Universidad de la República in Uruguay. She has been working in research projects applying qualitative and interdisciplinary methods. In her Ph.D., conferred by the Faculty of Philosophy and Arts (University of

Granada, Spain), she focused the dissertation on a combination of perspectives from Science & Technology Studies with an interdisciplinary approach applied to a specific case study. Since then, she is interested in the problems associated to the production and the social use of knowledge and how society, politics and culture affect scientific research and vice versa. She has focused her research on the specific conditions for inter- and transdisciplinary research in different countries and the production and social use of knowledge in developing countries, including on the role of universities and other institutions in knowledge creation and use.

Bianca was an Associate Professor at the Academic Department at Espacio Interdisciplinario, Universidad de la República (Uruguay) in the period 2009 - 2017 and a postdoctoral researcher at the Center of Methods of the Leuphana University of Lüneburg (Germany) between 2016 and 2018. She has received both national and international awards and has been invited as a lecturer to several universities in Japan, Argentina, Costa Rica, Mexico, Colombia, and Chile. In addition to articles and book chapters, Vienni has authored and edited several books on interdisciplinarity: (i) *Vienni Baptista, B.* (2017). *La socialización del conocimiento científico como problema interdisciplinario: el caso del patrimonio arqueológico de Uruguay* (Scientific knowledge socialization as an interdisciplinary problem: the Uruguayan archaeological heritage as a case study). Montevideo: Biblioteca Plural, Council of Scientific Research, Universidad de la República, (ii) Ceitlin, J. and *Vienni Baptista, B.* (2019). *Convergencia: Facilitando la integración transdisciplinaria de las Ciencias de la Vida, las Ciencias Físicas, la Ingeniería y más allá*. Colección Educación Superior (translation into Spanish from “Convergence: Facilitating Transdisciplinary Integration of Life Sciences, Physical Sciences, Engineering, and Beyond”, with authorization from Committee on Key Challenge Areas for Convergence and Health Board on Life Sciences, Division on Earth and Life Studies). Buenos Aires: Universidad de Palermo; (iii) Hidalgo, C; *B. Vienni Baptista* and C. Simón (coordinators) (2018). *Encrucijadas interdisciplinarias* (Interdisciplinary crossroads). Colección Ciencia y Sociedad. Buenos Aires: Editorial CICCUS; (iv) *Vienni Baptista, B.*, Cruz, P., Repetto, L., Fernández, V., Lorigo, A. and von Sanden, C. (coordinators) (2015). *Encuentros sobre interdisciplina*. Montevideo: Editorial TRILCE; and (v) Gianotti, C., Barreiro, D. and *Vienni Baptista, B.* (coordinators) (2015). *Patrimonio y Multivocalidad. Teoría, práctica y experiencias en torno a la construcción del conocimiento en Patrimonio*. Montevideo: Universidad de la República.

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