

# Higher Education for Sustainable Transitions by Mutual Learning in Immersive Transdisciplinary Real-world Laboratories (RwL)

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### Abstract

In order to address the complex and interconnected phenomena related to planetary boundaries challenges, 'real-world laboratories' (RwL) are increasingly used in sustainability and transitions research for experimenting with sustainability solutions. More recently RwL are also introduced in higher education aiming to create a better understanding for societal sustainability transitions, and furthermore to train competences for personal sustainability by academic-practitioners mutual learning settings. This paper pre-sents insight and experiences with transdisciplinary RwL in immersive urban and rural learning environments following a system-ic, participatory and inventive 'Research Arts approach'. An im-pact analysis exposes early findings of this evolving educational methodology highlighting gains as well as lessons learned.

### Keywords

Transdisciplinary Reallab, Research Arts Approach, Community-Design Practices, Capabilities for Collaboration, Mutual Learning by Immersive Settings, Higher Education for Sustainability.

### Introduction

Within the context of transdisciplinary sustainability research and transitions research different attempts have been undertaken to address the gap between academic knowledge as e.g. used for designing prospective sustainable scenarios and an their hands-on implementation, often failing due to social realities as habits, convenience or short term interests. The German term 'Real- world laboratory' or 'Reallab' is a concept mostly referring to research that addresses real-life problems and bases on academic-practitioners knowledge coproduction and practical co-implementation by jointly elaborated solutions. Schöpke et. al. (2015) refer to related concepts as living laboratories, urban transition labs, social innovation labs and further niche experiments. The experimental lab environment is combined with the real- world context to test transferable solutions for sustainability challenges

(Schneidewind 2014, Schöpke et al. 2015). However in education, the Reallab-approach is still a peripheral phenomenon (Beecroft; Parodi 2016: 5) despite of its potential for enabling transformative mutual learning processes, strengthening environmental awareness and cultivating capabilities to deal with sustainability challenges.

### Higher Education for Sustainable Transitions

RwLs as trained by the author at Leuphana University in Lüneburg are rooted within the twofold framework of 'transitions education' providing systemic understanding of the preconditions and options for sustainable action and 'transformative education' focusing on expected or occurred transformative impact of socio-ecological innovations, both approaches focusing on the transformative power of personal actions (WBGU 2011: 24). Besides, the RwL aims to build students' capabilities for Responsible Research and Innovation RRI (current European Commission Research Strategy) training among other anticipation, self-reflection, openness, transparency and responsiveness through an immersive learning context. In this way, RwL intend to foster societal sustainable transitions by cultivating students personal sustainability (Veciana 2017b) and by exploring ways of up-scaling practitioners' socio-ecological innovations.

### Mutual Learning within Immersive RwL Settings

Following a unpublished survey by student A. Lomberg, (2016) Leuphana University students often consider their curricula too predominated by theory, requesting in its place for more practical learning environments, and guidance for further exchange options and formats with practitioners or local actors. RwLs intend to accomplish both.

On one hand, the RwLs offer real-world observation and experiments e.g. by 'immersion in a sustainable lifestyle' of an ecovillage<sup>1</sup> in a rural context (Stützel E.,

<sup>1</sup>An eco-village is a human-scale, full-featured settlement in which hu-

personal communication, 23.02.2017, Sieben Linden ecovillage) or by immersion in a challenging urban context. Students e.g. spend some days in an ecovillage and immerse themselves in the sustainability culture they are studying. The immersive character of the learning experience often confronts students with situations that take them out of their comfort zone. This can raise mental awareness e.g. about own pre-conceptions or unsustainable habits. Additionally immersion enables to integrate mental observations with emotional and physical perceptions leading to a long-lasting learning experience for personal sustainability. On the other hand, RwLs support academic-practitioner mutual learning by applying the integrative and participative Research Arts methodology that combines the use of (1) research methods of trans disciplinary research as qualitative interviews, participatory observation, systematic data- collection, etc. (2) community-design methods as trained in intentional communities e.g. Forum or A-B talks, and (3) creativity methods related to artistic practice as urban interventions, human sculptures or co-created imaginative video-documentations. Mutual understanding and authentic communication is stimulated in an intense while stress-free experiential learning environment.

### **Transdisciplinary RealLabs in Practice**

#### **Transdisciplinary Reallabs for future models of sustainable lifestyles**

Since 2015 three RwL were realized in close cooperation with German ecovillages (Centre for Experimental Social Design ZEGG, Schloss Tempelhof. community and Sieben Linden ecovillage), some of them within regions of a comparative low level of infrastructural development.

After an introduction into transdisciplinary research and methodology, students discover during an excursion on site stimulating social&technical innovations created by ecovillagers. They learn e.g. anticipating the benefits of humus formation for soil-fertility/food-supply or how innovative community-building/decision-taking

man activities are harmlessly integrated into the natural world in a way that is supportive of healthy human development and can be successfully continued into the indefinite future. (Gilman, R. 1991: 10). The term 'eco-village' covers the most varied forms of communities: from traditional villages to intentional communities to sustainable urban neighborhood projects, which are becoming increasingly networked (Veciana 2016: 39).

processes solve problems of inclusion.

In a world café the students gain the capacity to create with practitioners common responsive research questions. The tandem teaching enables exchanges with ecovillager-experts in specific areas during and after the excursion. In their follow-up research papers, students enhance these local innovations invigorating a community-based research agenda. Some paper proposals were continued in an student-ecovillager collaboration after the RwL, resulting e.g. in a 'keyline design' feasibility study applied on an ecovillage agricultural landscape for maximizing beneficial use of water, recognizing cultivation patterns, etc..

The Reallab is an exciting open process to engage students into RRI from a sciart approach as it: (1) fosters anticipation and reflection about problems that matter; (2) teaches communication techniques that encourage openness and transparency for mutual understanding in academic-practitioners collaborations, and (3) equips students with responsiveness and competencies for adaptive change (4) by introducing students into the complexity of future risks.

### **Transdisciplinary Reallabs for Good Life**

While the previously mentioned RwLs took place in rural environments, the following Reallab-type focused on urban areas of Lüneburg. After an introduction into urban sciart transition initiatives e.g. a sustainable art & renewable energy project to revitalize an abandoned building, students analyse these good practices reflecting on what is meaningful to them for a good life (buen vivir/vivir bien).

The common task for the students is to co-create a participative and local RwL project, by following step by step a particular participative Research Arts procedure: first, students combine in a playful artistic collaborative method their personal research interests and backgrounds, and elaborate a common research question oriented by a shared notion of good life. Second, students experiment with the situationist practice of urban drifting (derive) being drawn by the attractions of the terrain and the encounters they find there. In the meantime, the tandem teachers map their 'psychogeography' through a continuous mobile feedback loop. Through these particular situationist perception students identify an unsustainable situation in a specific urban context. Third, students use qualitative interviews or other research instruments to analyse

the chosen problem in depth while documenting their observations with audiovisual recordings. Local actors are chosen randomly or by further exploration and asked for collaboration. Forth, students co-create a digital collection of data, analyse their findings, and finally integrate them into a solution-oriented video-narrative by applying inventive digital art practices.

As an outcome e.g. one project identified the problem of unused public sports facilities in Lüneburg and created a video for a ‘mobile mini-festivals’ project as a solution to promote local artists, to revalue urban abandoned spaces as shared commons for good life, and to facilitate cultural exchange between all ages and cultural backgrounds.

### Transdisciplinary RealLabs impact

In this section, first some initial results for students, teacher/researcher and community-members are summarized. Second, lessons learned are exposed. Findings are based on Leuphana University course evaluation (LVE), the author’s transdisciplinary self-evaluation analysis (Klein 2008), and an unpublished survey by Leuphana students Lomberg A. and Muser J. (2017) of all three RwLs for future models of sustainable lifestyles.

**Academic advances** Academic-practitioners tandem teaching in RwL resulted in a fruitful co-design of the theoretic contents and practical exercises including students’ ideas and feedbacks. By integrating mixed collaborative methods in RwL an attitude of reciprocal academic-practitioners support and of mutual trust in each other’s knowledge, skills and capabilities. Furthermore, the theoretical RRI principles could be implemented in to real-life experiences in higher education for sustainability as an innovative approach for Education for sustainable development (ESD).

**Students knowledge and capabilities gain** Students (1) discover new fields of sustainability research integrating the four dimensions of sustainability, (2) learn about sustainable life-stlyes and experience community life, (3) experience how theory and practice can come together in their respective research fields becoming actively engaged in socially relevant issues, (4) get the opportunity to develop their re-search questions on sustainability through personal contacts with ‘pioneers of change’, (5) can contribute with their paper in a participatory study on the research needs of intentional communities contributing to a research agenda in this

area, and (6) cultivate curiosity, creativity and critical think-ing skills by artistic tools.

Key capabilities for sustainability (Veciana 2017b) resulting out of the immersive learning experience that combines research methods with community-design practices are particularly self-reflexivity and openness to others beliefs or values, conflict culture and self-responsibility, self-empowerment and leadership.

**Community and Society at large** The communities remarked encouraging outcomes as: (1) specific relevant outputs to the community, and few being continued in further research or practical projects, (2) recognition of intentional community as learning environment for academic partners, (3) research approaching the challenges of the everyday life of ‘pioneers of change’ (WBGU 2011), (4) creation of new local or regional alliances and new inter/national connections via networks (e.g. GEN, ICSA, ECSA, ECOLISE). For society at large, the outcome of a survey on research needs based on the co-developed findings of young future re-searchers and ‘pioneers of change’ can contribute to good governance recommendations and a research agenda for sustainability research that integrates the four dimensions of sustainability.

**Lessons learned** for improving the transdisciplinary RwL experience: Students need more (1) time for field trip as some students felt overwhelmed by the amount of information and new experiences, (2) and personal support for students to overcome challenging feelings coming up while experiencing the gap between their everyday life and the ecovillage live-style and how to make a relevant contribute to the well-thought socio-ecological innovations of ecovillagers. (3) More supportive funding is required to pay honoraria for practitioners and travelling costs for students.

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### Conclusions

By linking the transdisciplinary RwLs approach with higher education for sustainability, the author aims to enrich the panorama of transformative learning environments for personal and collective sustainability. This paper shows how the systemic, participatory and inventive ‘Research Arts approach’ stimulates mutual learning processes to nurture key capabilities for lived sustainability as by immersion in the sustainable lifestyle of an ecovillage. Further research need concerns long term transformative impact of transdis-ciplinary RwL on different educational settings, diverse social contexts and research practice itself.

### AuthorBiography

Dr. Stella Veciana lives at Sieben Linden ecovillage and teaches at Leuphana University, Lüneburg. She worked at the Civil Society Platform Forschungswende for a participative research governance. For the German Agency for International Cooperation (GIZ) & Fondo Indígena (FI) she created a transdisciplinary research program for indigenous communities. Studies in experimental arts (UdK Berlin), computer arts (SVA, New York), MBA in research management (UPC/ESEA Barcelona), PhD in transdisciplinary artistic research (UB Barcelona). Research fields: sustainability research, community-based research, artistic research, open science, transdisciplinary collaboration methods, participatory governance. Veciana is founder of the Research Arts platform: [www.research-arts.net](http://www.research-arts.net)