Change Laboratory as a method of innovation management in an Urban Living Lab

Virpi Lund & Soile Juujärvi [a]

[a] Laurea University of Applied Sciences
virpi.lund@laurea.fi

Abstract

Urban living labs (ULL) challenge researchers and developers with bottom-up approach and diverse problems which require appropriate tools for innovation management. The Change Laboratory® (CL) is such a promising method which has widely been used in organizational development but not yet applied in living lab contexts. The present paper describes the application of the CL in the suburban area in Southern Finland. Residents, city planners, civil servants and non-governmental organizations (NGOs) were invited to join the workshop process aiming at enhancing collaboration and establishing shared goals for urban development. Problems were analyzed and reinterpreted with the CL tools revealing contradictions in current practices. The results suggest that mirror data and conceptual tools as intervention methods are powerful stimulus for problem-analysis and goal-setting in urban and community development.

Keywords

Change Laboratory, living labs, residents, stakeholder collaboration, urban development

1 Introduction

Cities can be said to be self-organizing organisms, involving complex problems, such as excessive bureaucracy, social segregation, poor image, or economic differences (Baynes, 2009). Living laboratories provide a promising approach to handle those problems and innovate new solutions in urban areas, requiring bottom-up innovation process and collaboration among multiple stakeholders. One of the success factors for urban living labs is a composition of all actor roles: enablers, utilizers, providers and users (Leminen, Westerlund & Nyström, 2012). Enablers represent public-sector actors providing strategy, visions, and networks, and allocating financial resources; utilizers are enterprises, public sector actors, and NGOs willing to experiment services and products; providers represent research and development institutions offering innovative methods and taking care of systematic augmentation of knowledge. Finally, users are residents and other people habiting the area who give opinions, participate in co-creation and empower other residents in developmental initiatives (Juujärvi & Pesso, 2013).
Urban Living Lab (ULL) has been defined as a forum for innovation that integrates residents and other stakeholders to develop and test new ideas, systems and solutions in complex and real contexts (JPI, 2013). ULLs capture many essential features identified in

the living lab literature (Westerlund & Leminen, 2014). First, they represent an ecosystem or networks involving multiple stakeholders which are motivated by different objectives but would benefit from collaboration. Prerequisites for successful collaboration are learning for interaction and handling power issues (Hakkarainen & Hyysalo, 2013). Second, ULLs provide tools for enhancing and implementing public and user involvement. Resident involvement has been regarded crucial for speeding up innovation process and enhancing participatory democratic practices; despite that recruiting residents is challenging and they need targeted support (Friedlich, Karsson & Federley, 2013; Veeckman & Graaf, 2015). Third, ULLs can be seen as an innovation management tool for building networks and user involvement in urban development (Edwardsson et al., 2012; Westerlund & Leminen, 2014).

Notwithstanding all above-mentioned aspects are important, the present paper is focused on innovation management that has received little attention in past studies. The Change Laboratory® is a formative intervention method based on the theory of expansive learning (Engeström, 1987, 2007; Virkkunen & Newnham, 2013) which has been widely applied for promoting innovation and learning within organizations but not explicitly used in regional or urban development to date. The aim of this paper is to present the application of the CL with the emphasis on one of its distinguishing features: the analysis of contradictions. We argue that the CL provides a comprehensive conceptual framework for innovation management, and effective tools for analyzing and solving multidimensional urban problems through collaborative learning. Our challenge is to modify it to respond to the needs of ULL that gathers actors across variety of organizations and sectors lacking explicit shared goals, rather than from single organizations with officially defined objectives.

The remainders of the paper are organized as follows. The target area of the ULL initiative, Espoo Centre, is next described, followed by the description of the CL and its recent application, Community Workshops. Then the application of the CL is exemplified by the case *Community Space* emerged in the workshops, focusing on the phase of problem-analysis (analysis of contradictions). In particular, we wish to illuminate one of the distinguished CL tools, using double stimulation, as means of enhancing problem-solving and collaboration. Last, the paper is finalized by conclusions. Our aim is to describe the implementation of the Change Laboratory method and its possibility to reveal the contradictions of everyday practice.

2 Espoo Centre as an ULL platform

This study is a part of a three-year participatory action research (Kemmis &McTaggart, 2000) aiming at examining and enhancing residents' participation and developing efficient means for residents and stakeholders' collaboration in urban development. The focus area is a part of the municipal district in the city of Espoo, in southern Finland, consisting of the administrative centre of the city with a railway station and two shopping malls, surrounded by two neighbourhoods of 17 000 people altogether. The area is characterized by different historical layers in terms of construction and waves of migration, mainly refugees, from 1970's onwards. Cultural and ethnic diversity in daily life is reflected in a high proportion of immigrants and over 70 of spoken languages. In the light of social and economic indicators, the area represents the least advantaged area in the City of Espoo, mainly due to the concentration of social housing (Residents' welfare in Espoo, 2013). The area has also multiple strengths, such as good transportation and availability of services, surrounding nature with indoor activities, and historical buildings. The area has been a focus for dozens of research and development projects in last decades, including current renovation projects by the city.

The present research project is motivated by two main observations: low user involvement in previous development projects and a lack of systematic collaboration between various local stakeholders and developers. Recent interviews with stakeholders however revealed their strong will to develop collaboration and engage residents in development activities (Juujärvi, 2014, Juujärvi & Lund, forthcoming). It was concluded that the living lab approach could provide an appropriate innovation platform for a systematic collaboration initiative that would bring together local residents and other stakeholders with overlapping aims to share their interests and build collaboration. The CL was primarily selected as a suitable method, because its aims at expanding participants' understanding about the objects of development work that would furthermore lead to shared goals enabling purposeful collaboration. Second, the CL starts with the analysis of contradictions in current work practices that are historically molded and outdated to respond to urgent challenges in work. It seemed obvious that current practices in urban and community development were heterogeneous originating from various historical layers and developed to respond individually to emerging urban problems at different times. We therefore expected that the analysis of contradictions could be essential for creating sustainable new ways of collaboration.

3 Change Laboratory as an intervention method

CL is a formative intervention method widely used in organizational development which has roots in cultural-historical activity theory (Vygotsky, 1978; Leontj'ev, 1978), and its Finnish application of developmental work research (Engeström, 2007; Engeström, Virkkunen, Helle, Pihlaja & Poikela, 1996; Virkkunen & Newnham, 2013). In the cultural-historical theory, work can be conceptualized through the activity system with six components: the subject, the object, mediating artifacts, the rules of participation, community, and the division of labor. The activity system is usually depicted as a triangle-model (see Figure 1) (Engeström, 1987, 2001). The activity system is a unit of analysis in the CL; it is used to describe the entity of activity with the changing object. A crucial part of the analysis is contradictions within and between the components which are seen as a driving force for a change (Il'enkov, 1977, 1982). Contradictions are systemic, structural obstacles that need to be broken away from new forms of activity to emerge. Each activity system has its own history against which contradictions and challenges can be understood. The analysis of the internal contradictions of the activity system helps CL participants to shape and renegotiate the shared object and work on other components as well.
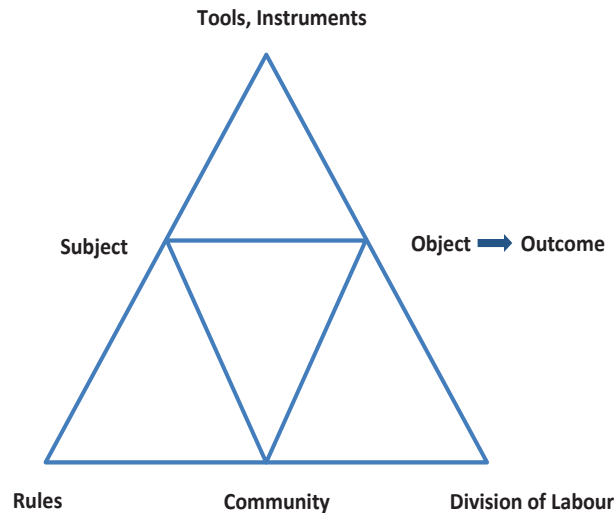
Figure 1. The structure of human activity (Adapted from Engeström, 1987, p.78)

Collaboration among participants in the CL is based on expansive learning which means new understanding in concrete situations with the elements (components) of the activity system. Expansive learning forms a cycle where questioning and analyzing contradictions necessitate changes in current practices, leading to innovating new models and ways of working. The cycle of expansive learning is interwoven in the phases of the CL process (see Figure 2). Usually the CL process has from five to ten successive sessions. In our case, we made a shortened version of five workshops for ULL purposes covering five phases with the experimentation period of two months. The main reason for shortening was that people participated on the voluntary basis and, therefore, it could be difficult to maintain their participation over long time.
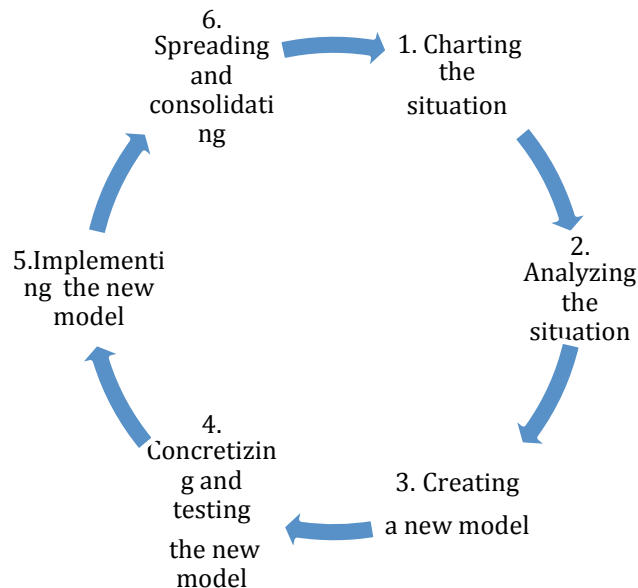

Figure 2. The phases of Change Laboratory process (Virkkunen & Newnham, 2013, p. 17)

4 Community workshops

The research project Välittävät Valittavat Verkostot (Caring and Sharing Networks in English) arranged the Community Workshops in winter-spring 2015. The procedure

involved five successive workshops with two-week intervals and the experimentation period of two months between the fourth and five workshops. The workshops were scheduled to start at 04.30 p.m. in a local city hall and took approximately two and half hours. Forty-seven invited people attended to the workshops, varying from 30 to 38 across the workshops. The participants involved residents and members of resident associations, managers of regeneration projects, city planners, public servants and experts in the city administration, representatives of non-governmental organizations and local parishes, and managers of shopping malls. The workshops were managed by a consultant qualified for practicing the CL method in collaboration with four researcher-interventionists who acted as group facilitators in four groups. For research purposes, all workshop activities were recorded and documents photographed.

The analysis of the present paper is confined to the second workshop in which participants with similar interests grouped together and were instructed to analyze present troubles and contradictions in current practices. The authors listened to the recordings several times, reviewed prior observations by the group facilitators and analyzed the group documents. Finally, one of the groups was selected a case to illustrate the workshop process.

5 Double stimulation as an intervention method

Collaboration and learning in the CL is based on the method of double stimulation (Vygotsky, 1978; Sannino & Engeström, 2015). Double stimulation enables human being to use volition and agency for transforming the contradictory circumstances with the help of the external artifacts providing meaningful tools (Sannino, 2015). There are two types of stimulus material: the mirror data as the first stimulus and conceptual tools as the so-called mediating second stimulus. The mirror data is ethnographic data collected in various ways such as observing events, interviewing actors, shadowing practices, or studying documents representing critical viewpoints, trouble and problems in current practices. The mirror data can be collected by participants or research interventionists. The purpose of the mirror data is to make distracting and deviating things in current practices visible; it has a crucial role in identifying contradictions in the current system of activity. It is presented to participants in order to challenge various interpretations and get them engaged in seeking new solutions. Tasks, models and questions given by researcher-interventionists serve as the second mediated stimulus that helps participants to analyze and interpret the mirror data. These two types of stimulus serve different purposes; the mirror data makes participants confront unpleasant facts of the current activity, whereas theoretical tools help them to distance themselves from the emotionally difficult situation. Movement between concrete observations and abstractions is important, because it fuels participants' learning and real change (Virkkunen & Newnham, 2013).

6 Case Community Space

The purpose of the second workshop was to analyze present troubles and contradictions in current practices and ways of working. The session was started with a speech of one researcher-interventionists that summarized the outcomes of the previous workshop and introduced the role of the mirror data in problem-definition and problem-solving. In addition, another researcher gave a short presentation about the history of the residential area and its distinctive characteristics. Participants then were divided in four groups of interest each focusing on a certain developmental challenge identified in the previous workshop. It was expected that every challenge would have an activity system of its own, reflecting a definite aspect of general development.

This paper is focused on a group dedicated to further process the theme Community Space that had emerged in needs-charting in the previous workshop. There had been a chronic lack of public non-commercial premises where residents and associations could meet and organize social activities. The group members represented various stakeholders who had a sort of premises on their agendas but who did not know interests of each other that well. There have been several individual attempts to find and establish such premises for citizens, but they had constantly failed due to the bureaucratic model of municipal governance and a lack of political will. The specific mirror data was built to illustrate this complicated situation based on earlier observations and interviews with stakeholders: people talked a lot about "the residents' house", however referring to various existing premises and different kind of concepts. This contradiction had been presented as a PowerPoint slide to participants in the beginning of the workshop and competing expressions by various stakeholders were further elaborated by one of the researcher-interventionists (Figure 3).

Figure 3. Dimensions of "Residents' House" (Salin, 2014)

The purpose of the mirror data is to stimulate discourse that would reveal one-sided perspectives and repeating myths in current practices and point out the need of change (Engeström, 1987, 2007). The participants were asked to pinpoint problems, interruptions and conflicts in present practices and identify tensions and contradictions against the mirror data. The following excerpt from the group conversation exemplifies how participants start to build the big picture of the problem by sharing their own presumptions.

> Amanda (a worker of the city planning department): I have heard so often that people want a community space, so I am curious, why this issue does not go any further.

Josh (a second -generation immigrant): I am interested in having an office for my association, we have tried to buy a place, but it fails constantly. But we keep on doing this again, and we do have an intention to purchase a place.

Macy (a worker of an international encountering place): Taking into account how much we have space available here, it is a pity, that they are vacant and not utilized.

Jill (a worker of the cultural department): We do have space and we can offer it to others, too. There are places available, but how can we utilize them? We have a happy problem; we can provide spaces.

Macy: The problem is who is managing this? Someone said that the NGOs should be the ones who coordinate but they do not have money to finance activities. The money has to come from elsewhere; the associations do not have money! The problem is that there should be the municipality involved who would lead this, and then in collaboration, we can do things....

Tim (a leading staff member of social services): Coordination is lacking here. And the perspective; should social services be involved or should it be cultural activities, this has not been crystallized yet.

Jane (a resident, a social worker): There are a plenty of organizations with money, if we only could have so-called "heart" which could be a prime mover for more networking, and when it bubbles over coordination starts to happen just by coincidence The groups could find each other, if they had a place.

Mike (an architect of city planning): The aims are not yet defined. After that it would be easier to find a place.

Keith (a director of a NGO): Do we have a vision? Mushrooms have its mycelium beneath the ground, but we need caps for the mushroom. That's why we need the community space, to enable the mycelium functioning, we are the mycelium with the activities.

Jane: We cannot go and use premises owned by the municipality, because then we will be involved with the housing department, and we will have rental payments, limitations and troubles. The aim is to enable residents' activities in evenings and weekends too, it should function as free as possible to enable its flourishing

Jill: It pops up more and more all the time, I can't outline the big picture, there is so much happening all the time, isn't there already enough of places and activities? Do we need more premises? Could it be so that residents' premises are located in different places, do we need only one space?

Amanda: Premises cost, who takes the responsibility? We do have places available, but no one dares to ask how they are utilized. Should someone just ask?

Keith: The problem is connected to the place. As citizens, we can allow time, the organizations can allow other resources, but we need the place. Associations are financed according to their activities, not according to premises.

Jane: Coordinating needs resources, running activities needs walls! I have been involved in many meetings and groups dealing with the future residents' house, but they are all abolished. The discussions have been going on in many arenas. You are certainly confused about which place you are gonna to plan and draw for us?

Mike: Well, there are a plenty of places, but I don't know what kind of premises you want.

Tim: These issues have been taken care of separately, in different "boxes".

Keith: The municipality should be the core layer: (providing) the place and the coordinator. After that the civil society will arrive and produce other stuff: time, resources, activities, and then everything starts blooming.

Keith: The thing is that everyone starts to protect own resources, instead we should give resources to our shared target.

The summary of the discourse was documented in a three-piece clipboard and its findings were explained to other groups (see Table 1). The phases of the clipboard was to show the present practice with the disturbances and tentative suggestions for the future. It was not necessary to invent yet complete ideas for the solutions of the problem; the thorough processing was more crucial.

Disturbance/problem	Present Practice	New Ideas
- A heart that collects stakeholders together, layers of the mushroom? -Who takes care of responsibilities, management and coordination? -Overall picture is missing, aims are unclear. -How to combine the resident house and its ideology to the architectural planning process?	- everyone is working in"boxes" of their own	-something common -coping an already existing concept of "the residents' house" -occupying new space -assisting the ongoing planning process of " the residents' house"

Table 1. The analysis of the disturbances of the Community Space present practice

As explained above, analytical tools provide another component of the double stimulation method. In the CL sessions, the triangle model of the current activity system is usually used for this purpose. The triangle model illustrates the structure of the present practice and reveals tensions and contradictions embedded. It also helps participants to shape and advance a joint object in a visible way. This phase is strongly guided by researcher-interventionists' questions: why there is a need to a change, who are involved, what are the tools needed, who belong to the community, according to what principles the work is divided, what are the rules, instructions and limitations? The participants are also instructed to mark the recognized contradictions within and between the components of the activity system by flashes. The triangle model constructed by the participants is shown in Figure 4.

Case: Community Space

Tools, instruments:
• projects, meetings
• contacts with civil servants
• students' thesis works

Subject:
• various groups
• City of Espoo
• non-governmental organizations
• projects

Object: community space

Outcome: community development

Rules:
• lack of funding

Community:
• non-governmental organizations
• residents, key civil servants
• (relevant government departments)

Division of Labour:
• numerous processes
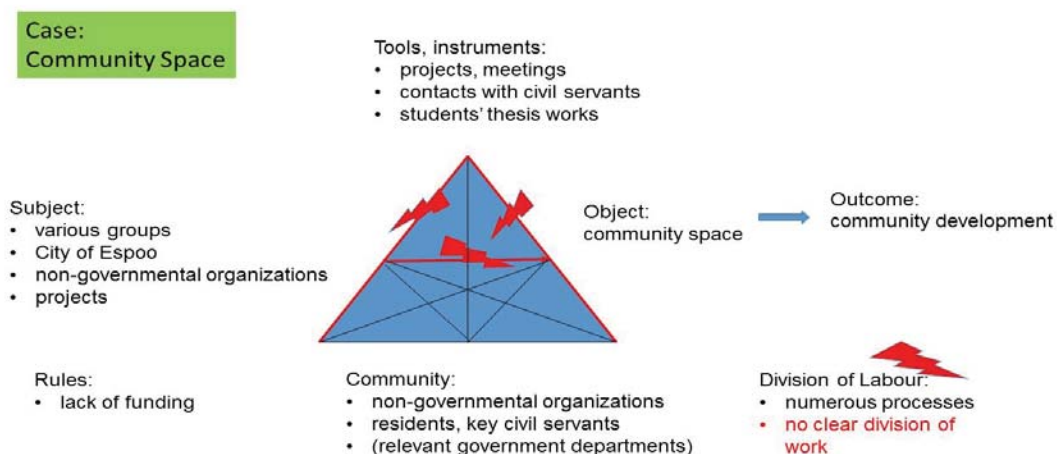• no clear division of work

Figure 4. The analysis of the structure and contradictions of the present practice

To summarize the outcomes of the group work, the analysis of the current practices revealed that there have been a number of actions and initiatives by single residents, small groups and larger communities to promote community spaces in the area. The main obstacles have been a lack of funding and suitable premises, as well as confusion about which stakeholders should take responsibility to advance and organize community spaces. All interested stakeholders had not even met each other before. Stakeholders have not been able to act alone which has caused frustration. The present discourse revealed that group members have a plenty of resources for creating a joint community space: time, activities, experienced practitioners, premises, and even a public initiative with a budget for the future residents' house. Many of them were ready to take more responsibility for planning, organizing and implementing a joint community space or the residents' house, but the shared vision with specific aims should be created at the first place. There were still competing views on the ideology and purpose of the potential joint community place. The group members recognized urgent needs for further coordination of collaboration. Political decision-makers should get involved in the planning process, and various options for financing should be sorted out.

As a result of the workshop session, the participants succeeded to form a big picture and shape a joint goal for future activity. The intervention tools helped them to elaborate scattered and unfinished ideas and build new knowledge. The atmosphere was constructive and enthusiastic, enabling creating relations and mutual learning. The experiences from other groups not reported here were quite similar, showing that the presentation of various types of data (excerpts for residents' interviews, a letter to a local newspaper) elicited emotional responses and got the participants engaged. The chosen analytical tools proved challenging but manageable within the time limits. Gained knowledge provided a basis for planning experiments in the following workshops.

7 Conclusions

The findings highlighted the importance of the analysis of contradictions and conflicts in current practices in order to create shared understanding and appropriate goals for future development. The mirror data served as a powerful stimulus for shared reflection and learning, whereas the triangle-model of activity system as a conceptual tool made current contradictions visible to participants, enhancing understanding of the emerging shared object. Double stimulation boosted stakeholder collaboration that is critical in solving multidimensional urban problems. The participants started to take charge of the development process by exercising agency provoked by the mirror data and double stimulation.

It is worth noting that the present ULL activity was driven by the researchers who had an opportunity for deriving the appropriate mirror data from the project's multiple databases. Another option would have been to have participants gather the mirror data themselves. This however proved too challenging within the scheduled workshop programme. Successful mirror data is emotionally touching, and may provoke powerful and contradictory feelings that must be handled carefully by facilitators in order to maintain constructive atmosphere.

As the final conclusion, the Community Workshops based on the CL provided an innovation platform and helped to build new practices in urban development through collaboration between various stakeholders. The sessions succeeded to build a creative encounter of multiple perspectives with complementary expertise and resources needed in problem-solving and creating new models of practice (Miettinen, 2014). The CL provides a structured procedure for managing innovation process, still allowing room for creativity of

individuals. The major challenge might be a relatively big number of participants that is typical for urban living lab networks. Therefore, the CL method needs to be modified to meet needs of heterogeneous groups and actors involved in urban development.

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