Innovation, Collaboration, Education: Histories and Perspectives on Living Labs

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Abstract: This paper suggests a genealogy of Living Laboratories (LL) by comparing similarities in their development with media labs and experimental art schools. These histories all share an interest in concepts of innovation, collaboration, interdisciplinarity, and in the subversion of traditional forms of governance and knowledge production. Originally conceived as a research environment in the field of computer science, and subsequently applied as a curatorial strategy for exhibiting and evaluating interactive art, the idea of the LL can be expanded and enriched with new potential. Looking at the models of media lab and the educational turn in contemporary art can not only add a chapter in media histories, but can also indicate a possible trajectory for LL towards the establishment of temporary communities engaged in forms of knowledge exchange. By ascribing new responsibilities to the public and addressing issues relevant to them, this can bring new perspectives on audience development and offer a context more suitable for the presentation of digital media projects.

1. Introduction

There is an increasing inclination in the art world towards a transition from spectatorship to active participation. Minimalism, happenings, public art, community specific art, interactivity, discursive practices, all contributed to a tendency which experienced an incredible acceleration with the rise of the Web 2.0 and its possibilities in terms of sharing, crowdsourcing and networking. The dream of a democratisation of art merged with the development of new curatorial strategies and the creation of platforms for online collaborative curating or to facilitate the collective production of artworks (Paul 2006). The idea of a user-centred approach is rooted in business studies, particularly around the concept of lead user developed by Eric von Hippel: according to his theories, innovation is largely generated by end-users rather than manufacturers (1986) whose role is mainly to respond and implement new needs identified in the marketplace. Subsequently, disciplines such as computer science, psychology and interaction design were informed by the principle of an open, distributed innovation[1], with the setup of dynamic environments to test user experience in a collaborative dimension closer to everyday life and

> engage all stakeholders such as end-users, researchers, industrialists, policy makers, and so on at the earlier stage of the innovation process in order to experiment breakthrough concepts and potential value for both the society (citizens) and users that will lead to breakthrough innovations. (Pallot 2006)

One of these platforms for innovation and experimentation took the name of LL and inspired a redefinition of exhibiting strategies for interactive art. Beta_Space, launched in 2004 at the Powerhouse Museum, Sydney, is an exhibiting space where interactive artworks are showed at different stages, from early prototype to product, and where the audience is involved in the evaluation process (Muller and Edmonds 2006). What is crucial at Beta_Space is that the audience is

> expected to provide feedback to assist the research happening in the same space. This action, this participation becomes the median by which the work is measured. (ibid.)

LLs provide a framework to address the ongoing question of how artistic practice is reshaped to suit the adoption of digital technology and scientific procedures. However, this paper takes as a starting point the contention that the application of the LL as a curatorial strategy contains a strong political potential which has not been fully explored yet. Pallot considers the potential of LLs in terms of citizen-government partnership and mentions a series of examples[2] at the level of local authorities where it has been applied as a model for regional development to facilitate the citizens understanding of various issues in their environment and test possible solutions (2006). Given the value of LLs as a means of participatory co-planning, territorial self-governance and citizen ownership, even though still at an experimental stage, a richer perspective can be envisioned also for contemporary art. Therefore its application should not be limited to the evaluation of interactive art but extended to a wider area of interest. One of the most problematic aspects

[1] This approach informs for instance ideas of Cooperative Design (Greenbaum and Kyng 1991) and Emotional Design (Norman 2004).

[2] For a detailed survey of LLs in the public sector see www.openlivinglabs.eu

in translating the user-centred model in innovation into artistic practice is the difficult coupling of user and audience. For this reason, LLs will be put in relation to creative platforms such as experimental art schools and media labs, especially in association with their contribution to the free culture and open source movement. We will show how this can provide a fertile model for future applications and will allow us to put an emphasis on learning as vector for creativity, social interaction and collaboration.

2. Media lab histories, free culture and innovation

By suggesting a collective-action model in innovation, Von Hippel's theories had an impact on the free/open source software (FLOSS) and Free Culture (Lessig 2004) movements. He directly addressed the question of open source software as a mixed private-collaborative strategy (von Hippel and von Krogh 2003). In *Democratizing Innovation* he explained how technology enabled users to initiate communities of innovators and why it is profitable to share intellectual commons freely (von Hippel 2005). Furthermore, open source software is an easier platform for those customisation, reinterpretation and adjustments which are typical of creative production, rather than tools protected by intellectual property (National Research Council 2003, 4). Innovation is in fact one of the key arguments adopted in Lessig advocacy of a free distribution of cultural content (2004, 184). Criticisms to this position however do not only come from copyright advocates, but also by those concerned with the dangers of free and anonymous labor: in his book *You Are Not A Gadget* (2010), Jaron Lanier warns that free culture may lead to the exploitation, rather than the empowerment, of small producers. What is also relevant is FLOSS's major role in promoting free and broad access to knowledge and enhancing peer led models for production and education.[3] This collaborative approach has proved essential for the growth of media labs across Europe. In a recent article commissioned by the Arts Council Charlotte Frost stresses their contribution to Open Source culture and also provides a basic definition of media labs, described as

> spaces — mostly physical but sometimes also virtual — for sharing technological resources like computers, software and even perhaps highly expensive 3D printers; offering training; and supporting the types of collaborative research that do not easily reside elsewhere (2012).

This definition is helpful to understand certain continuities between media labs and LLs: the idea of artist as innovator or lead user (not just applying existing technologies to creative purposes, but developing media and applications in close collaboration with scientists and technologists) is an essential premise with which to speculate on the role of the audience itself as innovator. However, it is interesting to notice how Frost's definition does not envisage a program explicitly open to the 'general' public. In media labs there is no audience: all participants are users and tend to form communities clustered around specific projects, rather than opening doors to occasional visitors. Frost (ibid) outlines a succinct account of media labs in the UK from the Nineties onwards culminating in their recent incarnation of the hacklab. However, the history of the productive synthesis of practices, resources and methodologies between science, art and technology is a more

[3.] The debate about free access to academic publishing is particularly relevant here to show how research can be affected by a limited availability of publications.

complex and long-lived one. Michael Century (1999) provides a compelling insight into this matter adopting the definition of studio-lab, which significantly emphasises the merging of artistic and scientific research spaces. Century's report describes the gradually intensified communication between the scientific and humanistic sectors leading to hybrid institutions "*where media technologies are designed and developed in co-evolution with their creative application*" (ibid). Century traces back the roots of this development in the early 20th Century avant-gardes and especially the Bauhaus, characterised by

> a strongly applied socio-technical project to shape the quality of mass reproduced designs with all the imaginative resources of the contemporary creative spectrum (ibid).

Subsequently, Century identifies the following three phases in the historical evolution towards the studio-lab. 1) Art centres created during the 1960s and 1970s to support the artistic experimentation of emerging technologies. For instance: E.A.T. (Experiments in Art and Technology), IRCAM (Institut de Recherche et Coordination en Acoustique et Musique) and the Centre for Advanced Visual Studies at MIT. 2) Media centres interested in research but also in engaging the public with festivals and exhibitions, appeared in the 1980s and 1990s (ZKM and NTTInterCommunication Centre). 3) Studio-labs created in the 1990s and based on strong partnerships with the industry or higher education. Examples are the MIT Media Laboratory, Xerox Parc PAIR artist in residence program, and the Banff Centre. This history demonstrates how the relationship between engineers and artists goes far beyond that of provider and consumer of technology, to become a "*flexible and thoughtful collaboration in which the roles of software designer and user are not rigidly distinguished*" (National Research Council 2002, 3). Studio-labs have been informed by hacker culture and its preference for the open source ethos, and have a strong tendency towards teamwork and interdisciplinarity. Not only does innovation become embedded in cooperative practices, but it precisely aims to address social needs (Frost 2012). What appears crucially reinforced in the last generation of media labs is the effort to engage a larger community outside their peer circle, and especially marginalised groups, not with an exhibiting program but with an open door approach, involving all participants in the maintenance of the space and its resources, offering opportunities for inclusion and learning-by-making, community-oriented projects, internet access, tuitions on software packages and professional training for unemployed people. Learning tends to happen in informal ways, often through direct application to creative production: "*once a media lab participant has learnt how to do something, they should pass this knowledge on.*" (Frost 2012). To illustrate this emphasis on social empowerment Frost provides the example of the Zero Dollar Laptop project (a collaboration between Access Space and Furtherfield 2009): a series of workshops to teach homeless people how to build and maintain a laptop created using recycled, donated hardware and open source software. This preference for recycled technology is not just a money-saving solution, but a way to disseminate the potential of creativity in re-using things and the importance of accessibility. Frost goes on stressing the importance of media labs in addressing the special needs of digital art, which often does not find an ideal context in traditional gallery spaces. The difficulties in exhibiting digital art have been widely debated (Dietz 2003, Paul 2008, Graham and Cook

2010) and lie, in part, in its process-oriented nature. Paul identifies a number of issues inherent to the display of digital art, including the requirement of a certain familiarity with the interface, an extended viewing period, a strong dependency on the context and participatory and non-linear qualities. She also tries to outline what an ideal setting would be:

> New media art seems to call for a distributed, "living" information space that is open to artistic interference — a space for exchange, collaborative creation, and presentation that is transparent and flexible (Paul 2006, 85).

Media labs offer the artists a platform to work, test, develop a process but do not require them to show a final product. This also made the role of media labs complementary to that of the gallery, sometimes resulting in fruitful collaborations between the world of contemporary art and that of digital media[4]. If we take the blurring of boundaries between production and exhibiting site as a defining feature of the LL, we see how strong its continuity with the media labs is. However, media labs partnerships are not limited to art organisations, as they are frequently affiliated, supported or hosted by educational institutions or universities. To sum up, what LLs can draw from the experience of media labs could be in the first instance a more concrete idea of its public. LLs need to address and nurture communities around specific projects. Community is defined here as any temporary collectivity built around a shared site of co-creation and common interests. Media labs also suggest a range of structural solutions: partnerships with the University and art organisations, networks of labs, online and offline presence, are all viable possibilities for the LL to pursue. Finally, rather than limiting the involvement of the public in the evaluation process, workshops and training activities introduce participants to the use of tools which can trigger further creative production and dissemination, and that suggests a shifting aesthetic paradigm. Open-ended pieces, subject to further modifications would be preferred to static artifacts. For instance, the possibilities offered by code (live coding, web scrapers, data visualization, rapid prototyping) tend to engender further re-writings and enable production by others, turning these creative languages into living organisms.

3. Experimental Art Schools

The emphasis that the Bauhaus put on the potential of creativity to encourage social change explains its influential role in shaping the imagination around the idea of the art school. It was mentioned earlier how Century considered the Bauhaus as a source of inspiration for the development of studio-labs. The institution founded by Walter Gropius is also claimed as model for a number of experimental art schools that contributed to what became popular since the mid-Nineties under the name of the 'educational turn' in contemporary art (O'Neill and Wilson 2010). This definition has worked as an umbrella term to classify a series of heterogeneous experiences associated with the adoption of formats and methodologies typical of educational infrastructure (seminars, classes, courses, research trips, workshops, lectures) within curatorial or artistic practice. This turned the exhibiting space into a site for discourse, but also expanded curatorial practice to alternative sites, outside the traditional gallery. The School of Missing Studies (n.d.),

4. Frost gives the example of Folly's collaboration with the Harris Museum and Art Gallery in a project involving the exhibition and acquisition of digital artworks. This is happening despite a certain historic antagonism between new media and mainstream contemporary art, a question recently tackled by Claire Bishop in an article on Arforum (2012).

for instance has a specific focus on architecture and urban studies, and its most famous project was the Lost Highway Expedition in 2006, located literally on the road:

> A multitude of individuals, groups and institutions will form a massive intelligent swarm that would move roughly along the unfinished "Highway of Brotherhood and Unity" in the former Yugoslavia. The road was made in [the] Sixties in the massive voluntary campaign of the peoples of all nationalities that constituted Yugoslavia. The expedition is meant to generate new projects, new art works, new networks, new architecture and new politics based on experience and knowledge found along the highway.

Expanded academia, artist as researcher, seminar as exhibition, the interpretation of the educational turn vacillates between two poles. On one side it could be considered as a further declination of the wider trend of 'art as encounter', (Dave Beech 2010, 48), that refers to a repertoire including relational and dialogical practices curtailing the role of the public as viewer and turning it into a user. On the other side, it can be cast in a more specific light as a reaction against the educational institution, which, with the introduction of the Bologna Accords of 1999, has been criticised for standardising and corporatising the entire Higher Education system within the European Union. More recently, the Arts Against Cuts movement reinvigorated similar antagonisms in the UK. This criticism is also addressed at the hierarchies traditionally informing the passing of a pre-determined set of knowledge on to coming generations. Experimental schools were conceived as a way to undermine an idea of pedagogy as discipline and encourage instead an educational practice driven by emancipatory and liberative forces (Freire 1972; Rancière 1991). The association between knowledge and power is a well-established one that acquired new complexity with the rise of the so-called knowledge economy. The question of immaterial labour (Lazzarato 1996) is having a deep and multifaceted impact on the art world which would take too long to analyse here. We can however say that the financialisation of intellectual practices nurtured a desire for opportunities of knowledge production outside the logic of profit. A case in point is the Copenhagen Free University. The house of its founders Henriette Heise and Jakob Jakobsen became a public space in which one could research archival material, take part in debates, present artworks or screen films. The following excerpt from the project website suggests how crucial the idea of performing education in a living environment is:

> Seeing how education and research were being subsumed into an industry structured by a corporate way of thinking, we intended to bring the idea of the university back to life. By life, we mean the messy life people live within the contradictions of capitalism. We wanted to reconnect knowledge production, learning and skill sharing to the everyday within a self-organised institutional framework of a free university. (Heise and Jakobsen 2007)

Further motivations for artists and curators to explore the dimension of learning are to be found in what we could define as the 'biennial fatigue'. As Anton Vidokle[5] points out, the exhibition might not necessarily be the most effective way to deliver an art

5. Invited to curate Manifesta 6, Vidokle envisioned it as an art school in Nicosia, Cyprus. The project failed due to the political contrasts between the Greek and Turkish population but it was successively realised in Berlin under the name of Unitednationsplaza (www.unitednationsplaza.org/).

aiming to engage and transform society, rather than simply present itself as a symbolic gesture. Large scale international exhibitions have become a trite reiteration of the same standardised formula, very often showing the same pieces by the same artists (2010). Additionally, Vidokle's fundamental belief[6] that art schools do not primarily teach but create the precondition for creative work (Vidokle 2006), raises questions about the self-reliance of contexts. Jan Verwoert warns about the risk of thinking that creating a platform is a self-sufficient strategy, without much concern for the content, reduced to a "*semi-disposable filling for the format*" (Verwoert 2010, 26). The idea of adopting education as a medium implies troublesome questions. How to balance the needs of learners with aesthetical requisites? How to avoid forms of exploitation (towards the students) for the sake of art? Piero Golia, co-founder in 2005 with Eric Wesley of The Mountain School of Art, operated out of a bar in Los Angeles, radicalises this point:

> I don't think a school is part of an art practice, I think that's where the confusion is. I think some people misunderstood and wanted to play education as a medium because they noticed it was successful for others. But education is not a media, it's education. It's just for the students and not for educators/artist's personal research. (Golia 2010)

We can consider under this rather functional perspective also The University of Openness, founded by Saul Albert as an experiment in the self-provision of a collaborative research infrastructure (Albert n.d.). This is a case in point to trace back to our discourse on media labs, free culture and open source and to demonstrate how the idea of collaborative learning is productively intertwined with the creative applications of media technologies. Or, to slightly rephrase it, this clarifies the importance of digital and networking technologies in facilitating alternative and independent forms of education. The University of Openness was devoted to researchers interested in the possibilities offered by Unix to art production. It was structured in weekly sessions at Limehouse Town Hall but the community grew significantly when resources were made available and shared through those platforms emerging as the favoured sites for collaborative work for geeks and media practitioners: wikis, mailing lists, blogs, IRC. Despite such a heterogeneous collage of experiences, some commonalities among experimental art schools prove useful in understanding where LLs can go. The idea of learning as a structure for inclusion and access is combined with a rethinking of the dialectic between exhibiting space and sites for dialogical practices. By removing the gap between production and discussion, and encouraging questioning rather than aiming at the achievement of an expertise, these models of education empower the community by transferring responsibility to all participants of carrying out the project and filling the platform with content. LLs can be envisioned as self-organising systems where the transmission and production of knowledge are intertwined and not dramatically separated as in traditional schools. Even though we can only consider labs in a complementary role in the broad educational system, they are indicators of deep transformations in the way we tend to organise knowledge. The relationship between humanistic and scientific areas of research, developed in relation to digital culture, is in fact a symptom of the inadequacy of the traditional discipline-based educational practices, and calls for a rethinking of the system towards a project-based

6. After Walter Gropius famous claim that art cannot be taught (1919).

approach. This obviously demands a great amount of time and commitment, but it pays back with a sense of shared ownership towards the outcomes of the projects itself. This is also made possible by subverting the traditional separation between artist, curator and audience: a certain degree of criticism towards the institution, its hierarchies and power structures is ascribable to most of the experience we took into account. The emergence of new curatorial strategies, new institutional configurations and new models of representation comes together with a new conception of art and its public. Curator Simon Sheikh talks about a fundamentally fragmented public sphere and investigates how to construct participatory models of spectatorship as opposed to modernist generalised ones. The erosion of nation states and the process of globalisation played an important role in this shift, since the public realm can no longer be associated with a location, but rather with networks, groups or subgroups (Sheikh 2004). A plurality of more or less specialised publics means not only that the traditional divide between cultural providers and cultural receivers is less and less substantial, but also that curators should stop treating the audience as endowed with an equal, neutral background. Rather, everyone can bring their own specific knowledge and share it with the participants in a given project. This has important consequences in terms of the sustainability of the LL, suggesting forms of gift economy and exchange whereas large financial resources would have been otherwise indispensable.

Additionally, the performed character of most experimental art schools indicates a drive towards liveness, conceived as both the re-creation of a context mimicking everyday life situations and concerns, and the live dimension of the presented projects, experienced in their own making. An interesting perspective for LL would be to set up a situation that works on the double level of real life and symbol, assembly and performance, specific setting and archetype. From a curatorial perspective, liveness also establishes a new autonomy for art practice, by avoiding the usual displacement of the artwork in the space and time of the exhibition (and letting it inhabit, instead, the space and time of its own creation).

4. Conclusions

This study addressed a range of issues involving media labs, experimental educational practices and the FLOSS movement. The latter contributed to the delivery of forms of self-education and to the digitalisation of educational resources into open-source packages available to everyone (Roush 2011). One of the key arguments to support FLOSS is that of innovation (the free circulation of cultural content is not an impairing force in the market but rather a propulsive one). We have discussed the relationship between innovation and user-centred approaches first in business research, then in computer science and finally as applied to curatorial and artistic practice. We have also emphasised the role of digital technologies in facilitating a democratisation of innovation by enabling more and more people to access resources and skills to creatively reuse those already in circulation. This culture of sharing and collaborative co-creation is typical of media labs. By tracing a history of the different incarnations of media lab we identified relevant commonalities with the still open-ended concept of LL and key features of its possible future trajectories: a) there is no such thing as a general audience, but rather temporary project-oriented

communities (with a potential in terms of sustainability); b) partnerships with research or art organisations can contribute at different levels (including financial support, participation in large research projects, outreach); c) the program is focused on workshops and other activities encouraging an exchange of knowledge and skills that can trigger further creative production, able to enter into an active life beyond its initial implementation (for instance coding). Experimental art schools are also imbricated in the FLOSS movement as models for collaboration and self-regulation (Roush 2011). They developed as a response to a series of crises: of the audience, the public, the exhibition, the educational institution (and against the monetarisation of knowledge typical of the new economies). The attempt to reintegrate the putative inclusive role of education is enhanced by the effort to disrupt a set of hierarchies and power relationships traditionally associated with a top down transmission of knowledge where expertise is intended as authority. LLs emerge from this discussion as possible sites for the transfer of responsibilities from the usual cultural gatekeepers to the public. This leads us to consider creative practice as a space where people can think about how to fit in society and arises questions for possible future research around the role of the LL as an environment in which to experiment with new forms of governance and production. If involvement in creative projects can be an emancipatory force, supported by the feeling of giving a contribution to the collectivity, how can it be put in relation with ideas of DIY and gift economies, equality, autonomy and self-governance? How can we bypass the spasmodic utopian flavor of community ethos which might be applicable, after all, only on the small scale? The risks embedded in this approach lies precisely in making the public interest as a guiding principle. The point will be to understand where the shift between merely gathering people together around some digitally-enabled bricolage and actually engage them, take place. In the context of LLs, liveness invokes responsibility and choice, but also performance and representation: an effort towards the synthesis of the contingency of a specific situation and the staging of the symbolic.

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