

ECO-DIDACTIC DESIGN IN THE PUBLIC REALM

CARMELA CUCUZZELLA

Design and Computation Arts, Concordia University, Canada

ABSTRACT

The aim of this paper is to assess a distinctive form of environmentally driven art and design practice that has emerged in urban contexts over the last two decades. This art and design form, which is provisionally named the “eco-art installation”, distinguishes itself from previous environmental work in its crossing of disciplines – specifically, art, environmental design, and architecture – in its mobilization of different publics within various urban landscapes, and in its sanctioned collaboration with municipal authorities. This paper proposes that the urban eco-art installation does not simply demonstrate its alignment with pressing ecological issues; rather, it is driven by the urgent need to explain, and thus constitutes an entirely new form of explanatory discourse that places an “eco-message” squarely in the public realm. In this perspective, these eco-art installations in the public realm can help construct personal, social and cultural meanings of place, as urban agents of sustainable change. This paper presents a series of cases meant to illustrate the increasing world-wide phenomenon of public spaces as hinges for sustainable change in cities.

Keywords: environmental architecture, environmental art, eco-design, communication, awareness, engagement, didacticism, dialecticism, public space, placemaking.

1 INTRODUCTION

If ecological awareness can be traced back to the 1960s and early 1970s, with the energy crises, then the Rio Earth Summit in 1992, when a series of international environmental agreements were politically defined, constitutes a significant turn. Artists were already on high alert, as exemplified by a first major exhibition of eco-art that same year [1]. This exhibit, *Fragile Ecologies: Contemporary Artists' Interpretation and Solutions*, surveyed artist projects that responded to the environmental crisis while signalling an activist and educational stance. During this exhibition, there was an attempt to disambiguate the terms “environmental” and “ecological” in art [2].

Today's eco-art installations are not about suggesting. Rather, this distinct mode of public installation does not only attempt to persuade the viewer of ecological priorities, it is driven by the urgent need to explain and to act as a moral imperative. It is possible to identify an expanding corpus of urban installations that are not simply persuasive in their ecological ethics, but that explicitly seek to be didactic, communicative devices that can be easily understood by all viewers [3], [4]. This new form – public environmental art as didactic device – may be testimony to a change in citizens' relationships to overwhelming environmental issues over the last twenty years. In this growing gap between collective awareness and individual responsibility, artists have found new terrain as agents of public enlightenment, a role that Suzanne Lacy first identified in the mid-1990s [5].

The author proposes that the urban eco-art installation does not simply demonstrate its alignment with pressing ecological issues; rather, it is driven by the urgent need to explain [6], and places an “eco-message”, directly in the public realm. This paper presents a series of eco-art works meant to illustrate this increasing world-wide phenomenon by responding to: How do these eco-art installations in the public realm create places that can act as hinges for sustainable cities as means for raising eco-awareness?



2 RAISING AWARENESS THROUGH DESIGN IN THE PUBLIC REALM

Given the collective scientific knowledge about the environmental crisis to date, and the ever increasing new eco-technologies and improved efficiencies to our existing technologies, the rate of environmental damage is still increasing across the planet [7]. Population growth is only one of the many factors influencing the environment [8]. It alone does not explain this phenomenon of increased worldwide degradation and resource depletion. Human behaviours are one of the many factors in this environmental crisis. Indeed, the technological emphasis for efficiency systematically developed throughout the 1980s and 1990s to address both global and local environmental degradation started to reveal its limitations at the turn of the century [9]–[12].

These limitations can be categorized into three general areas. First, the prescriptive or normative nature of sustainable evaluation tools leaves little room for profound exploration to innovative solutions. The design of buildings and infrastructures in recent history has shown that the prevalent sustainable approaches remain rather normative where experimental solutions are avoided as too unreliable and economically risky [13]–[15]. Second, the narrow focus of most environmental management tools tends to fragment the given design problem into a finite set of variables that rarely capture the complexity of the design situation, resulting in very little or no thought given to the encompassing context [10], [16], [17]. This disconnectedness between the analyses of the many parts and the whole project becomes problematic especially in terms of capturing synergies and project coherence, at times even resulting in counter-productive solutions [18]. Third, the profound problems facing humanity cannot be solved through technology alone, since social or cultural conditions and/or assumptions, and in particular outcomes of actual individual behaviours, may obliterate any measured and designed performance optimization in the built environment [13], [19].

The third limitation is the focus of this study, since collective awareness and individual responsibilities towards a sustainable future are inseparable from the eco-technical progress yet paradoxically, such considerations are also often omitted from the eco-technical innovation processes.

This paper argues that public spaces can be part of a larger domain of exploration for addressing unsustainability by honing in on questions of social and cultural conditions and embedded assumptions regarding the quotidian, including the normalized notions of being, having, and doing. The premise is that public spaces can become intersection points between community and any agent of change. Here, public spaces as part of the civic common, have the power to influence behaviour, both, individually and collectively through their acquired meaning [20]. These agents of change in the public realm can address key community questions related to deep social and cultural assumptions that impact daily behaviours. Using public spaces as ways to understand, experience, and even activate sustainable changes relies on principles that consider community values as tantamount.

What do these eco-art installations comprise? They reside in the public realm and are often deeply grounded in sustainable design. They occupy space in ways that invoke architecture, urban, and landscape design, but these projects are rarely confined within the expertise of these professions alone [21], [22]. They draw from the fine arts disciplines, yet the didacticism that they deploy would have been viewed with suspicion within late 20th and early-21st century art discourses. They embrace culture and community for addressing the sustainability agenda with the aim to increase environmental awareness and civic engagement [23].

The emergence of this new kind of eco-art works can be seen to be related to the public perception of the persistent failure of politicians to address ecological crisis [24], [25]. The following cases make use of public spaces in ways that provide eco-messages intended for



users to read the works, ask questions, deliberate, and even act. How do designers draw upon the power of public spaces to raise awareness or mobilize environmental actions? In the next section, the author presents the analysis of three eco-art works in urban spaces around the world.

3 CASE STUDIES OF ECO-ART PRACTICES IN THE PUBLIC REALM

Let's consider as a first case, a piece by Particle Works of California. Particle Falls (2010), provides a real-time visualization of particulate pollution in the San Fernando Corridor (Fig. 1). The billboard announces how to read the visualization (Fig. 2). What can we say about its aim to raise awareness concerning air toxicity in this region? Does this visualization in the public realm, aiming towards the identification of place, lead to reduced car use? Does it lead to staying indoors to avoid the toxic particles? One thing we can say, it makes air quality visible, making community acutely aware of the toxicity in the air.



Figure 1: Particle Falls – Andrea Polli and Chuck Varga, San José, USA, 2010. (Source: <http://eco-publicart.org/particle-falls/>.)



Figure 2: Particle Falls provides a real time visualization of particulate pollution in the San Fernando Corridor, Billboard announcing art Installation. (Source: <http://01sj.org/2010/artworks/particle-falls/>.)

The second case is the CityTrees initiative, which started after a pilot project, known as Pollinating Ideas, was completed in the Netherlands to channel human energy and ideas in support of the environment. Three entrepreneurs, Jechiam Gural, Elwin Nuyts, and Ami Ikan, wanted to support meaningful initiatives in their community. Their design did not introduce heavy infrastructure, rather they wanted to harvest human energy to light up the area. They designed a kinetic stick such that when it is hooked onto the trees the lights would turn on (Fig. 3). Once the sticks are energized through human activity, and placed on the trees' energy connectors, the once marginalized area becomes a welcoming and beautiful space (Fig. 4). This design impacts an entire community, is environmental, and good for the health of the participants. This example was not planned in the spirit of place-making, yet its outcome is directly in line with its mission of sustainable urban environments through the elimination of grid-energy use for public space lighting while engaging community to run or walk to energize the kinetic sticks. The eco-message of healthy movement to create useful energy is best experienced in action. So, it is meant for the active passers-by.



Figure 3: World City Trees Project by Jechiam Gural, Elwin Nuyts, and Ami Ikan, 2012. (Source: <http://www.worldcitytrees.org/#4>.)



Figure 4: A CityTree pilot installation, Amsterdam, The Netherlands, 2012. (Source: <http://www.zumzum.nl/index.html>.)

The third example is Mary Miss's urban art practice from New York City intended to make sustainability a concrete problem in the minds of citizens as well as to encourage action. Her initiative, City as Living Laboratory provides an integrative framework in which art, science, and design explicitly demonstrate the resource consumption of ordinary lifestyles [26]. In *Broadway: 1000 Steps* [27], Miss aims to make viewers aware of their implication in nature, and how the city has shaped ecosystems. The project locates environmental information along Broadway, in New York, in conjunction with a series of mirrors, which include the viewer in the narrative of the piece (Fig. 5). This work asks viewers to look for specific physical sites and explains their impact. It helps them learn about the disturbances in ecosystems of urban development. The eco-messages in each of the sites is clearly conveyed and is augmented with public workshops and lectures. The experience was successful in raising awareness. Yet, it is not evident if this experience leads to any form of reduced consumption.



Figure 5: City as a Living Laboratory, Mary Miss, 2008. (Source: <http://www.cityaslivinglab.org/>.)

4 DISCUSSION

In an attempt to summarize the cases studied, indeed some eco-art works can and have engaged community, while others clearly aim to engage viewers in dialogues. The following presents our provisional summaries of the “eco-messages” of each work studied:

1. Particle Falls: the visualization of real-time environmental data in the public realm provides ongoing information and is intended to shift individual actions.
2. Light Trees: the active engagement need by the community to light up the marginalized area is specific enough, with a direct beneficial impact for the people living in the area;
3. 1000 Broadway Steps: the eco-didactic strategies of public urban installations completed with the public workshops and lectures are intended to educate community about the impacts of urban development on ecologies of nature.

Each of these works shows the diversity of the use of public spaces as potential agents of change. The qualifier potential is key here since it is not yet clear how far individual responsibility is actually enabled. Indeed, the gap between collective awareness and

individual responsibility remains large. It is through the lens of place-making that public spaces can be adopted as hinges for exchanging knowledge towards awareness and eco-action. This is not a new phenomenon as the many examples around the world indicate. These new hybrid practises in the public realm are depositories of legitimate knowledge and at times, point to potential solutions, as they distance themselves from the more abstract or conceptual ethos of their predecessors. Furthermore, they seek alliances with multiple stakeholders, such as municipal governments and scientific authorities, in their address to various communities, encapsulating a particular stage in environmental awareness.

However, this model is a rare attempt to theorize art-based approaches of knowledge translation. This points to the need to study the phenomenon of municipally sanctioned eco-art projects for public spaces, not only in terms of how, where and for whom the works are constructed, but also to better grasp how these works have an impact on various communities and individual behaviours.

ACKNOWLEDGEMENT

I wish to thank the Canadian Social Sciences and Humanities Research Council for funding this project.

REFERENCES

- [1] Matilsky, B.C., *Fragile Ecologies: Contemporary Artists' Interpretations and Solutions*, New York: The Queens Museum of Art, 1992.
- [2] Zapf, H. (ed.), *Handbook of Ecocriticism and Cultural Ecology (Handbooks of English and American Studies)*, De Gruyter Mouton; Digital original edition, 715, 2015.
- [3] Weintraub, L., *To Life! Eco Art in Pursuit of a Sustainable Planet*, University of California Press: Oakland, 2012.
- [4] Kagan, S., *Art and Sustainability: Connecting Patterns for a Culture of Complexity*, Transcript-Verlag, 514, 2011.
- [5] Lacy, S. (ed.), *Mapping the Terrain – New Genre Public Art*, Bay Press: Seattle, Washington, 296, 1995.
- [6] Iandoli, L., *Organizational Cognition and Learning: Building Systems for the Learning Organization*, Information Science Group/Idea Group: London, 2007.
- [7] Venter, O. et al., *Sixteen Years of Change in the Global Terrestrial Human Footprint and Implications for Biodiversity Conservation*, Nature Communications, 2016.
- [8] Ehrlich, P.R., *The Population Bomb*, Buccaneer Books: Cutchogue, 1968.
- [9] Kohler, N., Cultural issues for a sustainable built environment. *Buildings, Culture & Environment: Informing Local & Global Practices*, eds R.J. Cole & R. Lorch, Blackwell Publishing: Oxford, pp. 83–108, 2003.
- [10] Rossi, M., Reaching the limits of quantitative life cycle assessment. *Clean Production Action*, European Commission, 2004.
- [11] Papanek, V., *Design for the Real World: Human Ecology and Social Change*, 2nd ed., Academy Chicago Publishers: Chicago, 2000.
- [12] Cucuzzella, C., The limits of current evaluation methods in a context of sustainable design: Prudence as a new framework. *International Journal of Design Engineering*, 2(3), pp. 243–261, 2009.
- [13] Stirling, A., Precaution, foresight, and sustainability: Reflection and reflexivity in the governance of science and technology. *Reflexive Governance for Sustainable Development*, eds J.-P. Voss, D. Bauknecht & R. Kemp, Jan-Peter Vob: Cheltenham, UK, 457 pp., 2006.
- [14] Ravetz, J., The post-normal science of precaution. *Futures*, 36(3), pp. 347–357, 2004.



- [15] Cucuzzella, C., Tensions between expert evaluations and qualitative judgment in canadian architectural competitions. *Architectural Competitions as Institution and Process*, eds J.E. Anderson, G.B. Zettersten & M. Rönn, The Royal Institute of Technology: Stockholm. pp. 117–138, 2016.
- [16] Guy, S. & Farmer, G., Contested constructions: The competing logics of green buildings and ethics. *Ethics and the Built Environment*, ed. W. Fox, Routledge: London, pp. 73–87, 2000.
- [17] Farmer, J., *Green Shift: Towards a Green Sensibility in Architecture*, Butterworth Architecture in association with WWF-UK: Oxford, 1996.
- [18] Cucuzzella, C., What does complexity have to do with sustainable design? *Sustainability Research by Designers: An Anthology*, ed. L. Graham, OnDesign, pp. 145–162, 2011.
- [19] Benaim, A., Collins, A.C. & Raftis L., The social dimension of sustainable development: guidance and application. *Master of Strategic Leadership Towards Sustainability, School of Engineering*. Blekinge Institute of Technology: Karlskrona, 2008.
- [20] Lefebvre, H., *The Production of Space*, Blackwell: Oxford and Cambridge, MA, 1991.
- [21] Awan, N., Tatjana, S. & Till, J., *Spatial Agency and Other Ways of Doing Architecture*, Routledge, 2011.
- [22] Bianchini, S. & Verhagen, E., *Practicable: From Participation to Interaction in Contemporary Art*, MIT Press, 2016.
- [23] Dunn, P. & Leeson, L., The aesthetics of collaboration. *Art Journal*, **56**(1): pp. 26–37, 1997.
- [24] Lippard, L., *Undermining: A Wild Ride Through Land Use, Politics, and Art in the Changing West*, The New York Press: New York, 2014.
- [25] Lamoureux, É., *Art et Politique : Nouvelles Formes d'engagement Artistique Au Québec*, Montréal: Éditions Écosociété, 2009.
- [26] Jones, O. & Jones, K., On narrative, affect and threatened ecologies of tidal landscapes. *Methodological Challenges in Nature-Culture and Environmental History Research*, ed. J. Thrope, S. Rutherford & A. Sandberg, Routledge, 322 pp., 2017.
- [27] Miss, M., *Broadway 1000 Steps from the Project, City as Living Lab*, 2013. www.cityaslivinglab.org/.

