

DIY networking as a boundary object for transdisciplinary education

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Wireless technology, low-cost open hardware and FLOSS software make it increasingly easy for people with less-technical inclinations to build their own local networks. They can thus become hosts of local communications between those in physical proximity, without a need to be connected to the commercial Internet, and to buy a domain name or online space in commercial platforms. The coverage can vary in range, and thus the relevant types of applications, depending on the number of connected network nodes. In the simplest scenario, a single wireless router can host the local application, and the coverage radius could extend up to several hundred meters. Through the formation of a network of such devices, which may be technically configured as a ‘mesh’ --often called a wireless community network-- the network can organically grow according to the voluntary contributions of individuals or communities. Links between distant locations can only be prevented by physical obstacles, and thus such a network can expand as far as line-of-sight allows.

This DIY networking technology has special characteristics compared to the public Internet in terms of privacy, ownership, and control, and thus holds a unique potential for empowering citizens to shape their hybrid urban space toward conviviality and collective awareness (Antoniadis et al. 2014; Antoniadis & Apostol 2015). It can also play the role of a “boundary object” for facilitating interdisciplinary interactions and participatory processes between different actors such as researchers, engineers, practitioners, artists, designers, local authorities, and activists.

This is an important role for DIY networks because despite the numerous research projects and different technological solutions for the design of ICTs for communities, there is a long way to understand the complexity introduced by the hybridity of space. In this context, the question of interdisciplinarity in the design of the hybrid urban environment becomes urgent. Social scientists need to become more aware of the capabilities of technology and also get involved in the design processes, while engineers should tackle legitimate local social issues and their inherent complexity, by coming to an understanding beyond simple optimization techniques and data analyses.

Building on the experience gathered from a series of interdisciplinary events co-organized by the authors during the last two years (Antoniadis et al. 2015), the paper describes the concrete design of a transdisciplinary university course, offered in common by the departments of engineering, and architecture and urban studies of ETH Zurich, in the context of the university-wide critical thinking initiative, and more specifically the Innovedum fund¹. The course will take place in collaboration with local authorities and communities, and will follow learning-by-doing and community outreach principles. It will be structured around the design of local DIY networks to be deployed for short or long durations in different parts of the city like semi-public and public spaces, urban cooperative projects, and the like.

The aim of the deployment of such networks will be to facilitate the interaction between strangers living in physical proximity, and at the same time raise the awareness of the role of ICTs in city life, and the corresponding threats on privacy and political self-determination due to the current domination of big tech corporations over the virtual space.

The proposed course will have a double objective. On the one hand, it will help turning DIY networking easier to install and configure according to specificities of local environments, but also enabling local actors -authorities or motivated citizens- to appropriate this technology for the common good. On the other hand, it will build within a process of transdisciplinary collaborative efforts that are closer to the harsh realities

¹ <https://www.ethz.ch/services/en/teaching/educational-development-innovation/innovedum.html>

of practice in shaping future (hybrid) cities. In this manner it will facilitate contacts and collaborations at an early stage between engineers, spatial designers and urban planners, in order to build better understandings of both technological and human dimensions of the hybrid city.

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