"Co-creating real-life experiences through the dialectic of system thinking and design"

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Design has, since its advent in the early 20th century, evolved from a product perspective (constructivism), to a designerly process perspective (design thinking) and is now entering a new era that uses systemic design methods to solve complex societal "wicked problems" (Rittel and Webber 1973). Dialectic design (Buchanan 2001) unites Herbert Simon's science for the artificial and John Dewey's pragmatic view on design (Dalsgaard 2014), which has led to a design thinking approach. Even this perspective is now blurring out when considering the design of sustainable and complex systems designed for interaction and evolution. Therefore, the design paradigm must be shifted towards a "purpose" driven system design perspective. Verganti (2009) gives us insight into the world of what radical innovation (and change) means for society. He also indicates that we should avoid overabundance and rather focus on designing meaningful products (Verganti 2017).

The "system design" approach that is proposed and adopted by the Industrial Design Centre of Ghent University Campus Kortrijk is one focusing on purpose driven design by incremental and collaborative change. It unites the dialectic of an abstract cybernetic design model (Krippendorff 2007) and a tangible realization (call it prototype) of the designed artifact. The intended and unintended uses of the design become gradually visible through a conversation (Dubberly and Pangaro 2009) and interaction of the product in a living lab environment.

Multiple research perspectives on the design problem (Ghent University council, 2015) are approached by bringing all involved stakeholders – experts form different specialisms, designers and end-users – together in an iterative collaborative change process (using co-creation methods). Prototyping real-life experiences in a living space plays a central role as integration and communication method throughout the development cycle. During every iteration, a co-experience is obtained by all involved stakeholders by directly interacting with the prototype in a real "make" or "use" context. These interactions gradually reveal affordances and disturbances by iterative adaptations.

The real-life experience can be obtained by simultaneously realizing (1) the product, (2) the activity of interaction and (3) its context of use. This is dialectically realized as an continuously updated cybernetic model (describing the abstract dynamic model) as well as through a threefold low-to-high fidelity prototype of the product, activity and context that is functioning as a living lab experiential playground.

This research through design principle is a double loop learning method. In the first iteration loop, the project is gradually enveloped towards a specific goal using adaptive strategies (designing). If the goal is not fitting with the expectations and requirements a second order loop is formed in order to find the real goal using adapting strategies (research, reflection).

This particular method will be illustrated by some specific student project cases in the domain of health-care (reminiscence game for people with dementia) and societal problems (urban community gardening and composting).

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