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Sensing energy: Forming stories through speculative design artefacts

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ABSTRACT

The artificial world is part of an on-going negotiation of meaning, manifesting in social practice. From a sustainability perspective it is thus important to critically examine what norms are imprinted into the artificial, as well as to imagine, materialize and suggest artefacts that could afford more sustainable stories and practices to form. The project Sensing Energy is an attempt to explore how design could contribute to a re-imagination of everyday life and society, as well as what imaginaries (artefacts and related stories) could come out of such an endeavour. A critical and speculative design programme comprising the three leitmotifs *Natureculture*, *Micro-sizing modernity*, and *Focal things and practices*, provided a frame and foundation for a series of design experiments. The resulting artefacts were presented at two different workshops in which participants were asked to form stories that integrated one or more of the design experiments into their everyday life. Based on the material from the workshops we can conclude that the design experiments worked well as parts of or catalysts for new stories of the everyday.

1. Introduction

In many ways, our lives are made of stories: narrative structures through which we make meaning out of our encounters with the world [1]. This involves stories about the self, stories about others, and stories about relations, society and life at large. Stories are constructive. The making of story is thus the making of self-identify, but also the making of meaning, relations and rules [2]. This paper focuses on stories told (afforded) with and through artefacts, i.e. material and human-made things, places and spaces.¹ For the purpose of this paper we define a story as a specific configuration and representation of a narrative, and a narrative as a structuring mental device that allows us to make connections and meaning out of impressions and experiences [3].

Artefacts afford stories through a relational process in which the artefact is at the same time interpreted and inscribed with meaning [4]. We can think of this process as the activation of a kind of 'sociomaterial thesaurus' in which previous experiences form a basis for making meaning out of the artefact. It is this thesaurus that allows (or prompts) us to understand f.ex. a carpet as a thing to either stand, sit or sleep on, sometimes depending on its form (size, material, colour), and sometimes irrespective of that. The thesaurus also allows us to inscribe and

interpret artefacts as beautiful or ugly, male or female, sustainable or unsustainable (see e.g. [5]). In other words, the form and function of artefacts tell (invites us to become part of the telling of) stories. These stories are partly about what the artefacts are and do, but essentially about who we (as users/owners/wearers/residents...) aspire to be, as well as stories about society at large [6,7]. Apart from these symbolic (i.e. semiotic [8]), properties, artefacts also influence us in the way their materiality meet and relate to our physical bodies, affording certain types of use and interaction, and obstructing others.

The artificial world is thus part of an on-going negotiation of meaning [9], manifesting in social practice [10,11], in which artefacts act as materialized "knots of socially sanctioned knowledge" that define social order and direct what types of activities are carried out, as well as how, when and by whom ([12], p. 347). Today, a substantial part of acclaimed sustainable urban developments could be accused of settling with rather superficial attributes rather than challenging institutionalised ideas of convenience and comfort [13,14]. While technological 'solutions' such as green roofs and solar panels do have a proven potential to add to the environmental performance of a building, as well as having symbolic (meaningful) values, lots of 'green' design is essentially a type of 'green clothing', or 'green bling' [15], only

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E-mail address: wangel@kth.se (J. Wangel).¹ Indeed, given that one of the aims of the project is to question and blur the dichotomy of culture and nature, using the concept of the artificial (as separate from 'the natural') is admittedly causing a bit of inconsistency.

weakly connected to the practices going on inside the building [16]. Moreover, ‘green’ buildings and city districts are often marketed with traditional nuclear family ideals, status symbols of a material lifestyle and a business as usual attitude, since giving up the comforts and conveniences of modern life are not believed, most likely rightfully, to attract the potential customers that could afford this kind of housing. The design of the lived environment is thus very much a manifestation of past and present unsustainable norms instead of suggesting alternative, more sustainable, ways of living.

From a sustainability perspective it is thus important to critically examine what historical and contemporary norms and aspirations are imprinted into the artificial, and what consequences this might have for the possibility to live life sustainably. It also brings about an opportunity, and perhaps a responsibility, for design and designers to proactively analyse what practices that are supported, suggested or hindered by design at different scales, as well as to imagine, materialize and suggest artefacts that could afford more sustainable stories and practices to form [17].

The research project Sensing Energy, on which this paper reports, is an attempt to explore how design could contribute to a re-imagination of everyday life and society, as well as what imaginaries (artefacts and stories) could come out of such an endeavor. The contribution of this project is thus both methodological and empirical. Being a critical (and speculative) design project the artefacts produced are not intended to provide solutions to recognised problems, but to query the way problems are represented in the first place [18], and to afford new stories of the self and society to form.

The paper is structured as follows: In Section 1.1 the context of the project, a planned campus area in Stockholm, is introduced. Section 2 presents the design of the project, from its methodological framing to specific methods used. Section 3 reports on results from the project—the design programme and the design experiments, respectively, and Section 4 discusses the programme and experiments in relation to each other. In Section 5 the paper is discussed and concluded.

1.1. Introducing Campus Albano

Sensing Energy is grounded in a particular case—a planned campus area in Albano situated just north of inner city Stockholm, Sweden. In the near future this area will host new university premises and apartments for students and guest researchers. The campus area is located in the intersection between the northern and southern part the Royal National City Park making it an important node for both ecological and social connections. The planning process for Albano started in 2007 [19] but the development plan² for Albano was not established until 2015, after a long process of appeals. The ambitions for Albano have been high: the campus area should become a role model for sustainable urban development. This spurred Akademiska hus, the main property-owner-to-be, to, before the development plan was established, initiate and support a number of research projects with focus on Albano, looking into e.g. local energy production [20] and socio-ecological resilience [21]. Despite the high ambitions for the Albano campus the project has today abandoned some of its initial goals, for example the goal of being completely self-sufficient on energy. In relation to this the Sensing Energy research project has had the opportunity to add a more radical and experimental layer, augmenting the existing plan while at the same time challenging it through providing an alternative interpretation of what sustainable urban development could entail.

² A development plan is a specific type of planning document that detail how a delimited area is to be developed and used. In that sense, it can be compared to zoning plans. The development plan is produced by the municipality in which the area is situated and is binding with legal status.

2. Methodology and methods

This section first provides a general introduction to design research. Thereafter the methodological design of the project is presented, structured into three tiers of increasingly specific methods.

2.1. Introducing design research

In contrast to the ‘natural’ sciences that primarily are concerned with how things are, Simon [22], suggested that design is concerned with how things *ought to be*. Moreover, design (research) is a science not of the ‘natural’ but of the ‘artificial’ world. This science is neither inductive nor deductive but a third kind of thinking that traditionally has not been part of the scientific paradigm [23]. In line with Simon [22], Dahlbom [24] sees that artificial science should be a normative, design-oriented study of the qualities of artefacts in use, and as such it is not interested in finding the truth but rather exploring the possibilities of future living and good life.

Drawing on Fraying [25], the field of design research can be divided into three categories: research about design, research for design, and research through design. *Research about design* is the most common type of design research and focuses on the designer and the design process as well as what design is and could be. *Research for design* focuses on improving the design practice and deals with frameworks, philosophies, methods and implications for design. *Research through design* is distinguished by its focus on prototyping artefacts as research method to explore a specific question or phenomenon [26].

2.2. Tier 1: research through design

The first and epistemologically most overarching tier is the choice to base the project in the tradition of Research through Design (RtD), which denotes a knowledge landscape in which the design of artefacts serves as a key mode of inquiry [25]. The process of RtD builds on iterative cycles where each cycle includes the development of a prototype, which is then tested and analysed. The acquired knowledge is then used to develop a new prototype, which is then tested and analysed again, and so on. The prototype can take more or less any form, size and material. It can be sketched or coded, stitched or moulded, 3D-printed or soldered into shape. It can take its point of departure in an already existing materiality, adding, subtracting, tweaking or hacking it into something else.

The process of prototyping can be likened to the hermeneutic spiral of empirical sciences wherein the iterations are constituted by the development of a hypothesis, which is tested empirically where after the hypothesis is refined and then tested again (e.g. [27]). In RtD knowledge is thus generated both through the process of designing and from the situated experience of the prototype. This is a fundamentally reflexive practice that allows for new insights and inspirations to be integrated along the way [25]. Another strength of this approach is that it is an integrative issue-driven practice, in which different types of knowledge and ways of knowing – from abstract concepts to bodily experiences – can meet and merge. Through the practice of design, complex situations and unclear or conflicting agendas can be approached in a holistic manner [28,29].

2.3. Tier 2: design programme and experiments

The next tier represents the specific way in which RtD was carried out in the project, namely through a programmatic design research approach.

A design programme is a statement or posit of a specific phenomenon of relevance to the research question. Usually not more than one or a few sentences long, the design programme suggests a design space, which is then explored and manifested through design experiments, i.e. materialised interpretations of what the design programme could or

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