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Design for Supporting Sustainable Behaviour Retention through Context Change

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Abstract: The socio-economic transitions in developing countries and emerging economics have led to consumption behaviour changes in almost every aspect of individuals’ life, resulting in consumerist lifestyles and growing numbers of social and environmental problems. It is of crucial urgency to retain the existing sustainable lifestyle before unsustainable behaviour become embodied in people’s daily life. Approaching this challenge from a design perspective, the overall goal of this study is to explore how design can support sustainable behaviour retention through context change. The study aims to understand and identify the individual and contextual factors that influence behaviour retention, then translate these insights into design interventions. The study is expected to inform design opportunities and tools to support people who are undergoing through context change to retain their sustainable consumption behaviour.

Keywords: design for sustainable behaviour, user-centred design, behaviour retention, design research, sustainable consumption

1. Research Background

People in developing countries and emerging economics are experiencing huge socio-economic transitions towards growing prosperities and higher level of living comforts, resulting in an individual lifestyle change from subsistence to consumption. The emerging consumerist lifestyle has led to undesired consumption behaviour changes in an individual level such as shifts from public transportation to private automobile, from household energy and food conservation to waste, which has caused an increasing social and environmental impact in a macro level (Jackson, 2005). Therefore, guiding and retaining people’s existing sustainable behaviour and habits into the new emerging lifestyle through the transition process is of crucial urgency for a sustainable future (de Koning et al., 2015; 2016).


2. Context Change and Behaviour Disruption

According to existing studies, when people are undergoing life event transitions such as residential relocation or having a baby, the changing contexts could lead to the disruption of their existing behaviour and habits (Wood et al., 2005; Verplanken and Wood, 2006; Thompson et al., 2011; Schäfer et al., 2012). Based on these findings, habit discontinuity hypothesis is proposed which points towards context change as a window of opportunity for individuals to form new habits and behaviour (Verplanken et al., 2008). Similar hypothesis is referred as moments of change hypothesis, which argues people’s existing habits and behavioural patterns can be disrupted not only by significant individual life events, but also by macro-economic events, for example credit crunch that took place in 2008 (Thompson et al., 2011). The reasoning behind those two hypotheses is that people tend to perform most of their habitual behaviour automatically under a stable interaction with its surrounding contexts, when a certain contextual cue is disrupted, the corresponding habitual behavior that used to be triggered by this cue can be disturbed. Thus, under this circumstance, people become more likely to consider and unfreeze their behaviour and habits with consciousness (Thompson et al., 2011).

Therefore, context change can be seen as a potential opportunity for guiding people’s lifestyles towards a more sustainable direction. The notion has been proposed by Verplanken et al in the study about understanding people’s travel mode choices after residential relocation, in which he argued that “context change can activate important values that guide the process of negotiating sustainable behaviors” (Verplanken et al., 2008). And it has been further tested in larger scale field experiments by Schäfer (et al., 2012) and Verplanken (et al., 2016), in which effective interventions were implemented for changing people’s unsustainable behaviour through context change. However, a successful guidance of sustainable lifestyles entails both the change of undesired behaviour and the retention of desired behaviour. As context change can open up a window for people to consider their behaviour, the existing desired sustainable behaviour also can be unfreeze and disrupted, and its retention may be supported through interventions as well. While most of the existing studies set focuses on changing people’s undesired behaviour in life events transition process, the discussion of how to retain the existing sustainable behavior patterns through context change before unsustainable ones become embedded in people’s daily life is remained relatively untouched.

3. Research Motivation and What Do We Wish to REDO

In line with the research background, the project is closely linked to REDO from both academic and social perspective.

From an academic perspective, the project aims to REDO the design research for sustainable behaviour. In contrast to the existing projects in this field, which set focuses on studying sustainable behaviour change in given stable contexts, this PhD project will look into a relatively unexplored area: how design can support sustainable behaviour retention for people who are undergoing context change. From a social perspective, as most of the existing design for sustainable behaviour studies have been conducted in the context of developed countries, how to implement sustainable behaviour design for people in developing countries emerging markets has seldom been discussed before. The project expects to
contribute with insights to localizing sustainable behaviour design knowledge, and further explore the design opportunities to support people to REDO their consumption behaviour towards a sustainable lifestyle.

4. Research Aim, Objectives and Questions

The study aims to explore how design can support sustainable behaviour retention through context change. To achieve the research aim, the study is comprised of two research stages with their own objective and research questions:

Objective 1: To understand why people retain some behaviours and change others through context change.

- RQ1. What are the relevant theoretical perspectives to understand behaviour retention through context change?
- RQ2. What are the individual and contextual factors that affect behaviour retention? And how can those factors inform the design for sustainable behaviour retention?

Objective 2: To explore how to design products and services to support users in retaining sustainable behaviour and outcomes through context change.

- RQ3. What are the design interventions and where to introduce those interventions to support sustainable behaviour retention? How to incorporate them into product and service design process?

5. Research Design

This section clarifies the theoretical background, research methods and structure, and research scope.

5.1 Theoretical Background

Design for Sustainable Behaviour is a relatively new field of inquiry aiming to reduce negative environmental and social impacts of products and services by influencing user behaviour towards a sustainable way (Lilley, 2007; Elias, 2011; Wever et al., 2008; Wever & Vogtländer, 2015). Built on Wever’s review (2012), two research clusters in this field can be identified. The first cluster aims at understanding and translating factors that influence sustainable consumption behaviour into design interventions (e.g. Tang, 2010; Tromp, 2013). The second research cluster deals with informing design practitioners with approaches and tools to support the design process of products and services that affect users’ behaviour and practices (e.g. Elias, 2011; Pettersen, 2013; Lockton, 2013; Daae, 2014; Kuijer, 2014). Two dominant theories can be identified in each cluster: behaviour models from social-psychology perspective and practice theory from social-practice perspective.

A comprehensive comparison of the strengthens and limitations between these two theories regarding the application in Design for Sustainable Behaviour studies is presented by Pettersen (et al., 2013) and Piscicelli (2016). In summary, behaviour models can provide frameworks for analyzing how individual factors can affect consumption behaviour (Jackson, 2005), but the impact caused by the contextual factors such as social, institutional and cultural factors have seldom been discussed. In contrast to that, social-practice theory takes practices as the unity of analysis and investigate how people perform their routinized behaviour and why
they perform it (Reckwiz, 2002; Warde, 2005), whereas it fails to provide detailed frameworks for analyzing factors that affect behaviour.

Regarding the application of these two theories into the design process for sustainable behaviour, the psychological behaviour models have informed interaction-oriented design approach (Kuijer, 2014), while based on social-practice theory, Shove et al. (2007) introduced practice-oriented design. According to Kuijer (2014), with the aim of motivating the desired sustainable behaviour, interaction-oriented design focuses on studying interaction between user and product. While the practice-oriented design takes practices as unit of design and aims to influence the practices that people perform towards a less resource intensive way.

In line with Kuijer’s arguments, by investigating the implicit influence of design on user behaviour, Tromp (2013) also indicated two approaches, analytic approach and synthetic approach, for understanding product influence and designing it. Similar to the concept of interaction-oriented design, in the analytic approach, the interaction between users and products is the central focus, user behaviour is viewed as the result of product-user interaction. While the synthetic approach takes a holistic view and regards user behaviour as a part of dynamic context which comprises cultural, contextual and social factors.

What both of the theoretical perspectives and design approaches have in common, is that when applied within the field of Design for Sustainable Behaviour, they have so far focused on the potential for sustainable consumption behaviour change in given stable contexts, but not for sustainable behaviour retention through context change, which is the main topic of this PhD study. Furthermore, seldom design studies have tried to take insights from both perspectives to solve the sustainability problems. Although social-psychology and social-practice perspectives derive from different disciplines and present different philosophical worldviews, attempts can be made to explore how to apply them in different design research stages for answering different questions (Daae, 2014). To answer the research questions and achieve the research aim in this study, I plan to identify the contextual factors that influence behaviour retention by drawing on social-practice perspective, and apply synthetic design approach to explore where and when to introduce behaviour interventions. Individual factors will be identified by taking insights from social-psychological perspective, the question regarding how to introduce design interventions for sustainable behaviour retention will be explored by applying analytic design approach. The theoretical perspective of the research is illustrated below.

5.2 Research Methods and Structure

For the first research stage, a theoretical framework will be developed by reviewing literatures related to behaviour transition through context change. In order to identify the factors that affect behaviour retention and generate insights for design, I intend to collect qualitative data by applying ethnographic informed design method (see Blomberg & Burrell, 2009). A pilot study concerning eating habits and food consumption behaviour when international students move to Sweden for exchange study will be conducted to test and improve the data collection methods. After that, case studies concerning consumption behaviour patterns of Swedish household before and after moving into new accommodation will be conducted to identify and understand contextual and individual factors that affect behaviour retention through context change.

For the second research stage, as the goal is to introduce, evaluate and reflect on the potential design interventions, the research through design method (see...
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Zimmerman et al., 2007) will be applied. I intend to integrate design insights from previous case studies with reviews from relevant sustainable design literatures. Built on that, I plan on focusing the domain of household energy consumption with a specific interest in studying behaviour of urban middle class households in China, since their emerging consumerist lifestyles has led to a dramatically household energy consumption increase (Liu et al., 2011), it left potential opportunities for design to address the problem. An initial idea is to design, develop and evaluate an interactive service application prototype in participants’ mobile devices, which aims to support users’ sustainable energy consumption behaviour retention regarding the use of household appliances. For the design, development and evaluation process, user case study and design prototyping methods will be employed. The prototype is expected to be implemented and evaluated over medium-term (approximately over 3 months). An overall view of the research plan is illustrated in the figure below.

Figure 1. An overall view of the research plan.

5.3 Research Scope

In this study, context change refers to both socio-economic changes in a macro level (e.g. social mobility) as well as changes that are induced by individuals’ life events in a micro level (e.g. relocation, graduation, pregnancy). The behaviour interventions that this research aims to target are the ones that people perform in daily life, such as food consumption, energy and water usage, waste management, and so on. Since these behaviours are habitual and repeatable, they are more traceable and accessible for analysis. The geographic region of the research is limited to Sweden and China, the socio-economic contexts would enable the study to develop comprehensive understandings of how different contextual factors can affect behaviour retention.
6. Expected Contributions and Current Research Step

From a theoretical perspective, by REDOing the existing Design for Sustainable Behaviour researches, this study is expected to provide design knowledge and practices for supporting sustainable behaviour retention through context change. Furthermore, with a focus in implementing design interventions in the context of developing country, the study would contribute to the transition and localization of design knowledge between different socio-economic contexts.

Currently, I am in the first year of my PhD study. By the time of the REDO conference, I expect to have the results of the pilot case study ready. By participating the conference workshop, I would like to further discuss and receive feedbacks about the method and methodology part regarding the pilot study and the general study plan.

References


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**Wanjun Chu** has a background in Interaction Design and Sustainable Development, his interest is to explore how to use design approaches to address sustainability challenges in society. UCD for sustainable behaviour, sustainable interaction design are the areas he position himself.

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