Title of paper: Out-of-Box Experiences: An opportunity for Inclusive Design

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Chapter X

Out-of-Box Experiences: An opportunity for Inclusive Design

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1.1 Background

Nowadays we rely on technology to perform a myriad of daily activities, from leisure to work and education, all of which are essential for individuals to function independently and interact successfully in society (Hiltz and Czaja, 2006). The growing use and usefulness of technology along with a rapidly ageing population present a challenge to develop products that are accessible to and usable by older people (Eisma *et al*., 2004).

The emergence of technology has prompted concerns about products' usability and utility, which traditionally focused on cognitive issues such as learnability, ease of use and efficiency (Carroll and Mentis, 2008). In 1998, the International Standards Organisation defined usability as "the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use" (ISO DIS 9241-11 1998), thus adding 'satisfaction' as an aspect to be considered when designing to meet human needs.

Jordan and Green (2002) state that an approach based solely on usability issues encourages a limited view of people that fails to consider the complex nature of consumer needs, expectations and desires. User Experience Design has become established as a key element of interactive consumer product design (Preece *et al*., 2002). The emotions that accompany experiences have a prime impact on user satisfaction (Pine and Gilmour, 1999). A user's experience will be retained in memory and directly influence expectations of the present product, and of similar products in the future (Westerink *et al*., 2008).

The Out-of-Box Experience (OoBE) is a term used to describe the initial stages of a user's interaction with a new product, including purchase decision, packaging and unpacking, set-up or installation, configuration, initial use, and assistance (Ketola, 2005). All these aspects should enable users to begin using a product effectively as soon as possible and failure to do so can influence acceptance of the product (Gilbert *et al*., 2005), how the company is perceived (Kowalski, 2001) and

overall marketplace success (Gilbert *et al*., 2005; Kowalski, 2001). In a survey on older adults' use of computers, Goodman *et al*. (2003) found that many of the difficulties experienced concerned elements of the OoBE such as complicated documentation, too much jargon and inadequate support for inexperienced users.

The first step towards creating a good Out-of-Box Experience is to define the intended OoBE for the target users (Kowalski, 2001). This means thinking about static elements – components of the package that do not change over the life cycle of the product, such as physical form of the device, its accessories, and the user manual – and dynamic elements – components that have the capacity to adapt to new user behaviour, like software and user support (Gilbert *et al*., 2005).

Research has generated some recommendations on how to create a positive OoBE (Kowalski, 2001; Intel Corporation *et al*., 2000), though the question of whether it can become a tool for inclusivity, persuading older adults to overcome barriers to their use of these products, remains open.

1.2 Aims and objectives

The Out-of-Box Experience (OoBE) is a spontaneous and transitory phase that encompasses users' initial experiences with products and, therefore, influences their perception of a product even before use.

The aim of this research is to investigate the Out-of-Box Experience of interactive consumer products for older adults and to apply these findings to improve user experience of a product, through manipulating factors of the OoBE.

In order to achieve this, research will be guided by the following objectives:

- To understand current theoretical thinking about Out-of-Box Experience design in order to achieve a working definition for this research;

- To review existing methods and tools used by designers and researchers to study product experience in order to develop a suitable methodological approach to studying OoBE;

- To understand the characteristics of older adults as a heterogeneous and complex group, and their motivations for using interactive consumer products;

- To determine what characteristics of the OoBE engage older adults in the use of interactive consumer products and which ones typically present barriers to use;

- To design resources that can be used to inform the design of OoBEs in order to improve the inclusivity of interactive consumer products.

1.3 Research approach

A Participatory Design approach will be applied during this research, with an emphasis on encouraging user involvement throughout the process. The researcher has a design background, which has a strong influence on the approach of this research. Through this project the researcher aims to gain knowledge about the richness of user experience by using methods which engage the participants and are relevant to practical design applications.

User experience is essential to the development of successful products or services (Rhea, 2003). Even though designers cannot guarantee a particular user experience, understanding their target users' needs and motivations to use a product or service enables designers to positively influence their experience through design (Visser, 2009). However, the complex and holistic nature of experiences means people's ability to describe them is tainted by multi-layered, fragmented, individual and ephemeral factors (Visser, 2009). In order to counter difficulties in capturing rich experience information, Visser *et al*. (2005) propose adopting a Contextmapping procedure which relies on a combination of research and design orientated methods (Figure 1).
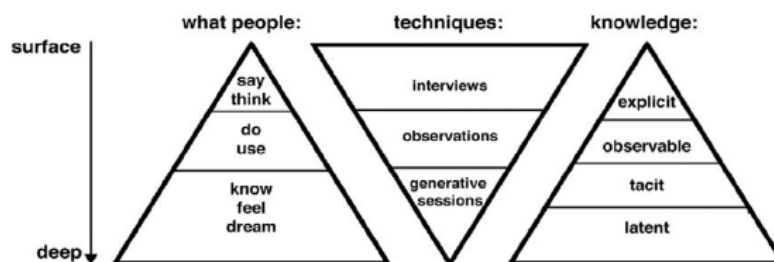
Figure 1. Different levels of knowledge and methods to capture them (Visser *et al*., 2005)

In line with this methodology, a range of methods will be used to investigate the various levels of user experience. In the initial stages an analytical user centred approach will be used to ensure a rich understanding of older adults' experiences with interactive consumer products and provide insight into their motivations to use these products and the barriers they currently face with the Out-of-Box Experience. This will enable initial user requirements to be defined for successful Out-of-Box Experiences for older people. During later stages, participants will be involved in generating and evaluating concepts through an iterative Participatory Design process.

This research will contribute knowledge and methods relevant to the needs of designers engaged in concept development during the 'fuzzy' front end of the design process, a term used to describe the necessary activities to inform and inspire the exploration of open-ended questions, such as understanding users and contexts of use (Sanders and Stappers, 2008).

1.4 Methodology

1.4.1 First study

Older adults are frequently considered a homogenous group, mostly segmented according to age and abilities. However, in western societies, the over-50s lead varied lifestyles and are involved in a wide range of activities, and this will become increasingly true in the future (Lahteenmaki and Kaikkonen, 2004). Monk (2004) suggests that investigating the similarities between older adults and younger generations will point to universal requirements for home technologies, such as dependability, sociability and enjoyment.

The purpose of this study is to gain insight into this user group and their motivations for using interactive consumer products. On the one hand, this study will investigate what benefits older adults expect to gain from the products they acquire and use. On the other hand, it seeks to understand the costs associated with use of technology, particularly those related to first use (from acquisition, through set-up to early use).

Technology biography (Blythe et al., 2003) was chosen as the basis for this study because it is a method that provides insight into people's everyday use of technology. Technology biographies are a combination of various elements: Technology Tours, where participants show the researcher round their home and answer questions about their use of technology; Last Time questions which are adapted from the critical incident method; Personal History interviews focusing on technology and routines that participants remember from the past; Guided Speculation on possible future developments; and finally cultural probes adapted to elicit Three Wishes for products that participants would like to see. Blythe et al. (2003) describe how this method provides an engaging and effective way of opening up a dialogue with user groups that are difficult to research by other means by eliciting information about people's emotional, psychological and social habits.

Blythe et al. (2003) used this method to develop assistive technologies for user groups with varying support needs. However, the focus on this study is on understanding older adults' experience of interactive consumer products in context rather than developing technological solutions and, therefore, this method has been adapted to suit the purpose of this research. The materials used are described in the following table.

Table 1. Materials of first study

Study elements	Purpose	Adapted from
Best/ worst/ most recent product (Semi-structured interview)	Determine perceived functional, aspirational and emotional benefits.	Last Time questions/ Personal History

	Determine usability problems experienced, particularly associated with acquisition and early use.	
	Understand the context in which the OoBE takes place (e.g. the role of others).	
Technology tour	Determine products older people own and ones they do not.	Technology Tour
	Understand the role of perceived benefits and actual experience on the uptake and use of technology.	
Guided speculation (Semi-structured interview)	Determine overall feelings towards technology.	Guided Speculation/ Three Wishes
	Determine what products they aspire to own and why they have not acquired them.	
	Understand how the OoBE could be improved.	
Questionnaire	Gathering demographic data.	
	Participants for future studies.	

This study will provide insight into older adults' needs and wants of the Out-of-Box Experience of interactive consumer products. It will also contribute towards building an understanding of 'What constitutes a rewarding OoBE for older adults' These findings will inform further studies, which will focus on manipulating the static elements of the OoBE (e.g. packaging and instruction manuals) to engage older adults in the use of new and possibly unfamiliar interactive devices.

1.4.2 Participants

For the purpose of this study, people over the age of 50 will be recruited. The sample size is anticipated to be 30 participants and will comprise of a balanced mix of male and female participants, segmented into three age groups: 10 participants aged 50-64, 10 participants aged 65-75 and 10 participants 76 years old and over.

1.4.3 Emerging results

This study is currently in the piloting phase, though some interesting results are beginning to emerge. All participants reported an interest in using technology and were willing to invest time in learning new skills, provided they felt motivated by the expected benefits of using the new product. Some motivational trends for the use of interactive consumer devices are beginning to appear, such as sociability, efficiency, and enjoyment or entertainment; these findings support the theory that universal requirements exist across generations (Monk, 2004).

None of the participants cited personal ability or the physical attributes of a product as reasons not to engage with technology; on the contrary, some respondents mentioned having upgraded devices they owned in order to continue using their functions as their abilities declined. When asked about products that they do not currently own but might like to own in the future, all participants said that if there were a product they wanted they would buy it; this implies that older adults do not feel hindered by unfamiliar interactive devices. However, most participants reported that product functions were not always clear and they felt they did not use some products to their full potential.

There is a tendency for people in the older age group (over 76 years old) to avoid the Out-of-Box Experience completely, often relying on friends, family or experienced personnel to unpack and install their new products. The majority of these individuals cite time efficiency, fear of making serious errors, and a lack of familiarity with the devices and their installation requirements as the main reasons for avoiding this stage of product interaction. Furthermore, people in this age group are more likely to rely on others to choose and acquire new products for them.

These preliminary findings suggest there is opportunity for the OoBE, as a person's first experience of a new product or service, to communicate and emphasize relevant benefits of that product or service. Future studies will continue to investigate older adults' needs and requirements of technology, in order to determine what elements can be manipulated to engage them in a rewarding OoBE.

1.5 Next steps

As described in the Contextmapping procedure (Visser *et al.*, 2005), a range of methods will be used to provide a collection of glimpses into older adults' experiences during the early stages of interaction with a new product.

An observation study of older adults opening, setting up and beginning to use a new product will enable observable and explicit knowledge of the Out-of-Box Experience to be documented.

A probe study and a Participatory Design study will rely on generative tools, which make use of creative techniques such as collages and photography, to help participants reflect on their experiences and generate design inspiration.

As the Out-of-Box Experience is a spontaneous and transitory phase, one of the challenges with this research is capturing these elements of the experience in a natural environment. The probe kit, to be left with the participants, is intended as a

way of overcoming some of these difficulties and also of countering privacy issues that may arise in other studies, where participants are required to allow the researcher access to their homes.

The Participatory Design study will focus on one technology type identified through Study 1: either a type of product that older adults currently experience problems with or a type of product which they aspire to own (candidate products identified from the guided speculation stage of study one). The researcher will run creative focus groups with older adults to enable them to access and express their feelings about these products and their first use. In order to do this, the researcher will review the static elements of the Out-of-Box Experience, encouraging participants to discuss and 'design' concepts for an improved OoBE using a variety of creative and playful methods.

The materials collected through the generative sessions will be analyzed by the researcher who, adopting the role of designer, will translate these concepts into 'mock-up' Out-of-Box Experiences. These design solutions may include packaging concepts, improved ways of providing instructional information or even completely novel product elements that could be provided with interactive products to enhance and encourage early use and product exploration. These concepts will be evaluated with other groups of older adults and younger people.
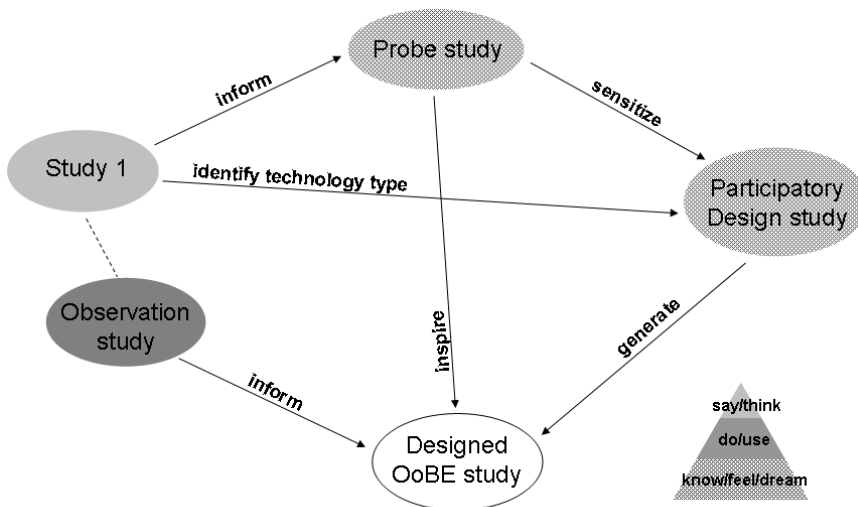
Figure 2. Combining methods

Overall, this research will contribute new knowledge to Inclusive Design, User Experience and methodological approaches (in particular Participatory Design). Data collected during this research will also be used to design a toolkit for designing and/or evaluating future Out-of-Box Experiences.

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