Life-Based Design as an Inclusive Tool for Managing Microinnovations

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Abstract: This paper investigates the role of focus group methodology within the context of microinnovation management and life-based design (LBD). LBD is a multi-dimensional approach which emphasises the importance of understanding people's lives (forms of life and circumstances) as a basis for creating design ideas and concept design. Human-technology interaction (HTI) is embedded in the everyday lives of people from all age groups, yet the levels and approaches to this interaction vastly differ between various groups. Thus, based on the principles of LBD, this paper discusses a method for collecting and managing people's experiences to serve as guidelines within an inclusive design process. The focus group method operates in the form of group interviews, where the discussion is led by a theme and/or a particular activity.

Microinnovation management concentrates on the management of smaller innovations such as those produced on an individual or group level, within such processes as focus groups. We are using this paper as an opportunity to theorise the focus group method as an example of Experience Management, in the generation and management of microinnovations. In this paper we discuss the way we have the focus group method as a means to gain critical feedback and reformulate a user-centred questionnaire and conceptual design. Experience is seen as central to this paper for the following two reasons: 1) that we can learn from a variety of people's life experiences, based on various forms of life, in order to inform our own decisions when assembling design frameworks; and 2) that experience is an outcome of the design process – either past, present or future. The notion of microinnovation management comes into play when discussing the utilisation of ideas generated through such design methodologies to inform concrete design decisions.

1 Introduction

Much recent research activity in human-technology interaction (HTI) has focused on user-centred design, increasingly recognising the importance of end-user generated design input. Along with the content generated within the design process, comes the ever pressing need to refine innovation management methods. Methods designed to stimulate, collect and somehow pre-apply user generated design input have included activities such as story-boarding techniques, scenario creation, group storytelling, and joke telling [Bø99, Ka02, KVW10]. These methods draw potential users into the creative process by encouraging them to apply design ideas and possible solutions to hypothetical situations. They get participants involved in group dynamics which force them to be spontaneous and inventive, which in certain situations may also generate forms of performance anxiety and hesitation to participate. Other methods such as TRIZ (Teoriya Resheniya Izobretatelskikh Zadatch in Russian) or TIPS (Theory of Inventive Problem Solving in English), operate similarly as problem-solving, forecasting and analysis tools, whereby a systematic approach is applied to pinpointing areas where inventive solutions are needed [BDS10, SK-S10].

The method discussed in this paper, the focus group method, conforms to our user-centred approach of life-based design (LBD from now on), in which, we draw upon and apply knowledge obtained from people's everyday lived experiences, within the design and product development process. Thus, the way in which we apply the term 'Experience Management' within this paper, relates to the way in which people's (end-users') experiences can be managed to inform the direction of product development in a concrete way. The focus group method has been implemented within this study to directly inform the pre-production conceptual design process of a product for a major information technology (IT) company. We view the focus group method as providing a mechanism for what we term as microinnovation management. In other words, already within the stage of conceptual design, innovations in the forms of both existing products and hypothetical designs, are tried and tested within the contexts of participants' lived experiences. Thus, before the expenses of production and even concrete prototypes, designs can be tested and modified, and without the pressure of participants needing to think of creative uses for the designs.

What we emphasise in this paper is the nature of microinnovation management in the framework of LBD, this takes place in Section 2. Section 3 looks at experience-based methodologies, highlighting the significance of recent investigations into user experience design (UX). Section 3 also outlines how the focus group method has been used within our study, exploring the conceptual design of a social media domain. Section 4 looks at the way in which the information collected during the focus group sessions is refined and applied to the design process. A model is presented showing the relevance of the method in relation to people's informed lived experiences (previous examples of trial and error) in the context of their various forms of life (life situations), the way in which the information is refined (content-analysis, observing common themes and patterns), then applied through the creation of design guidelines. Section 5 concludes the paper by reflecting on the way in which the focus group method contributes to a cyclical design process, in which there is never a ground zero. Microinnovations are informed by previous experiences with other innovations, and aim at better developing the product to suit an ever-evolving consumer population.

2 Microinnovation Management and Life-Based Design

There are several traditional ways of looking at organisational innovation processes. Abernathy's and Utterback's [AU78] two phase model emphasises the importance of new small companies for their role in developing radical innovations due to their more flexible systems. Subsequently after utilising successful innovations, as time goes by companies' organisational systems become more rigid making it increasingly difficult to introduce completely new innovations. Instead of introducing new innovations, companies at this stage concentrate on process innovations. These are innovations designed to improve existing products or services. Knight [Kn67] presents a model of intra-firm innovation which illustrates that innovation is not a radical process, in order to be successful within the organisation, growth and changes should occur along the fabric of the former processes and arrangements. However, when linking the ideas of life-based design (LBD) in Experience Management (EM) with innovation management, the work of Martinsons and Schindler [MS95] can be seen to outline the broader picture in which our design methodology rests. By use of a case study, Martinsons and Schindler investigate the roads metaphor to discuss three alternatives for tailoring and communicating an organisation's vision by means of knowledge-based systems (KBS). These alternatives are: user-driven low road; technostructure-driven high road and team-based road network.

Unlike Martinsons and Schindler, who see user-driven KBS as a means for developing smaller scale innovative applications, we see user-driven KBS as a means of constructing a larger human driven information infrastructure. This infrastructure would be used as a template against which, through the detailed understanding of psychological processes in connection with various forms of life and life stages, multiple designs of products and services (ranging in scale) may be formulated. During our investigation we first collect then utilise the experiences and ideas generated within focus group sessions, as well as those provided in written questionnaires. The focus groups have served as thought platforms on which participants may freely reflect on past experiences, and cast out thoughts on products and features that would exist in their ideal design worlds. Microinnovation processes are thought processes similar to what will be discussed in the context of the focus group methodology, which eventually lead to actual innovations. Often we need masses of such small insights to create an innovation. These processes can be thought about from many different scientific perspectives. Our perspective is to investigate the processes from the view of psychology and consider what kind of factors affect the efficiency of existing and planned products. The main criterion for microinnovation research is that innovations are considered a sub species of human thinking [SK08, SKK08].

A critical problem in developing any new technology is to find a suitable place for it in everyday life. Technologies are tools which should make life easier rather than more challenging. They are not ends in themselves, but aids in achieving greater goals such as increasing social interaction, as we have investigated within our study. To improve the quality of life, we need to understand the forms of life (age, gender, culture etc.) and varied life situations (marital status, employment, education etc.). Based on this, one effective approach for innovation management is provided by LBD [Le09, LS08, LS10]. The main component of LBD is to reveal information about people's lives, in their forms and actions.

The problem often rests in finding effective methods for fostering innovative thinking. This means providing tools, which guide thinking towards appropriate problems in addition to the information which enables problem-solving. For this, we implemented a questionnaire guided focus group methodology, which encompasses two levels: 1) the level of gaining information directly relevant for application within product design processes; and 2) gaining life-based relevant information and insight regarding the formulation and mode of data collection (i.e. the questionnaire in terms of contents, length, style etc.).

3 Experience-based design research methodologies

With much attention being placed on user experience (UX) in HTI, it is consequential that numerous models for its measurement and design have been emerging during recent years. Many of these approaches focus on components of experience, emphasising the emotional, the hedonic (or pleasurable), experimental and experiential [FB04, Ha03, HT06]. Overall, the purpose of the paradigm shift in HTI being made towards UX was to draw attention to the fact that technology user issues are deeper than just task-related [HST08; HDO01]. With this said, we also realise that these more complex issues relating to HTI do not just rest within a generic idea of what a human being, or user is, rather they go deeper into understanding the diversity of the human users. This is where LBD plays a crucial role. This entails that any method aiming at an inclusive approach to generating and managing microinnovations needs to transfer focus from experiential-based models – focusing on the factors involved in constructing an experience – to experience-based methods – utilising past experiences and lessons learned from these to inform future design decisions.

Currently, academia and industry are striving to develop effective experimental approaches towards designing for experience. Many of these approaches in particular are group-based. Thus, the value of co-experience [Ba04] and socially constructed thought models of experience [Ka02] has been recognised not only within the end-products, but also within the design conceptualisation process. Approaches have included creative activities such as group story and joke-telling [Ka02] and story-boarding [He03, KVW10]. Rather than focusing on the performance of the subjects in their endeavours to creatively express ideas for products HTI, we focus on fostering relaxed and inclusive environments in which technology users of similar age groups can come together and share their experiences and problems with technology interaction. In other words, our tactic is not to place pressure on our participants in order to create something new and exciting within their group interaction, rather it is to emphasise personal experiences of the everyday, no matter how banal, to provide a framework through which we may observe the way in which diverse user groups perceive technological phenomena. Through this framework various inclusive microinnovations are generated. Within the present study, we viewed the focus group method as an effective vessel through which this may occur.

3.1 Focus Group Method and its application in this study

The focus group method is a qualitative research technique, or a group interview method, which brings together a cross-section of stakeholders in an informal discussion group format. It is a semi-structured discussion method, where the moderator leads the discussion according to predefined subjects. In this case, we recruited participants from three age group divisions: those born before 1965; those born between 1965 and 1980; and those born between 1980 and 1992. The purpose of the age division was to observe the ways in which participants from various age groups perceived and dealt with the subject contents. In addition, we were interested in observing how these groups offered knowledge regarding the structuring of a questionnaire to be published online early next year. A focus group session usually takes one to two hours. Thus, they can be carried out within a short time and at relatively low costs. In this study, the focus groups extended the full two hours, mainly due to the questionnaire that the participants were asked to complete at the beginning of the sessions.

An important characteristic of focus groups is that the goal is not to reach consensus or make any formal decisions. Rather, focus groups are known above any other method for its ability to generate surprises [G-SALAL04]. Instead of reaching consensus and decision-making, a focus group utilised in the HTI research process, brings distinct information on the needs of the users and illustrates the subject from different views. Thus, the method can be seen as a *top-down designer-driven instrument* for collecting comments, comparing products or objects, testing a hypothesis, or testing the formulation of questions in addition to other tools for a focused research. As mentioned above, our goal was to research some aspects of HTI through a product-based case study, but an equally important purpose for conducting the focus groups was to gain insight and feedback regarding the formulation of an online questionnaire. These points were the main factors which steered the focus group discussions.

When looking from the point of view of LBD and microinnovation, a focus group can also be used as a *bottom-up user-driven instrument* for innovation; creating new ideas, creative concepts and for examining a specific subject or theme, such as different forms of life. In the area of social media, for example, a focus group can be organised to study how people talk about this specific phenomenon, and what kind of language a certain group uses. In addition to exposing the discursive elements of a particular phenomenon, the focus group method can also be used to collect data about the group's knowledge, habits, motives, attitudes, experiences, and expectations. This is particularly what we are interested in within the LBD process – looking at real life examples, in addition to possible user suggested design solutions.

When focusing on product or service development, a focus group can bring together different stakeholders, such as end-users and their representatives, service providers, and experts from different occupational groups, positions and work environments. Regardless of the professional background of the participants, everyone partaking in the discussion is an expert from the user perspective. There are usually six to eight participants in a group. In our study this number sometimes varied between three to nine participants. The idea of interviewing more than one person per time was to stimulate participants' qualitative responses through peer generated cues.

The focus group discussion need not be directly guided by the specific product under investigation, in our case, a questionnaire. Instead, the focus group moderator may use a theme to initiate the thought processes of the participants. The theme may be more related to the participants' particular life situations, or forms of life, and phenomena which occur either in general or on a daily basis in relation to everyday activities. This was used in our study to reveal designs and features which are most likely lacking on the market today. In addition, it contributed to our understanding of the potential ways in which people would respond to future products, designed for specific social purposes. Overall, the aim of the focus group method is that, with the help of the qualitative data gathered, designers will learn to understand the positive as well as negative views of the users concerning a future product or service. Additionally, the data provides the designer with an idea about possible users, and the images or characteristics that the product or service should include.

4 Conceptualising information for design

The conceptualisation process occurs for the most part within the focus group discussions. Within the microinnovation process we have been discussing, the participants are presented with a combination of problems. One or more of these problems are directly related to a product or prototype which is undergoing development. In addition, further problems arise within the theme presented by the moderator of the focus group session. This theme, whilst existing separately from the product/service under investigation, happens to affect and steer the participants' perceptions and interpretations of the product/service, as it hypothetically imposes the discussed product/service into a real life situation. Thus, through thought and discussion, the participants conceptually and socially test the investigated phenomenon. The outcome of the discussion or individuals' input into the discussion may be a conceptual range of application scenarios, improvements or entirely new products/services.

To illustrate this process and its complexity, figure 1 below provides an overall view of how experienced forms of life inform the focus group discussion and translate to conceptual information within the design process. It highlights the way that rather than presenting one result or resolution, the focus group as a tool in HTI design results in a list of microinnovations from which, the next steps within the design process may be taken. In more detail, the figure illustrates the participants in light of the varied forms of life, which may differ according to a combination of a number of factors such as family and marital status, social status, profession, health issues, education, gender, skills etc. These factors ultimately impact everyday needs, such as transport, living assistance, medical, dietary, communication, social etc, which influence the ways in which users experience and evaluate available products and services.

Also, on the left side of the focus group diagram is the product/service in the form of an idea, prototype or existing (imperfect) product. The key rationale behind having a product/service as a focus for evaluation is that it is undergoing development, and the participants, as user experts, are the informants on how to develop it. The theme given by the moderator provides a conceptual basis through which participants can imagine themselves as users of the future product/service. This conceptualisation phase will positively or negatively affect the evaluation of the product/service, it will identify space for improvement or modification, it may uncover underlying problems in the product/service ideas in themselves, and it will also unravel any imminent problems that were not even considered in the initial design process.
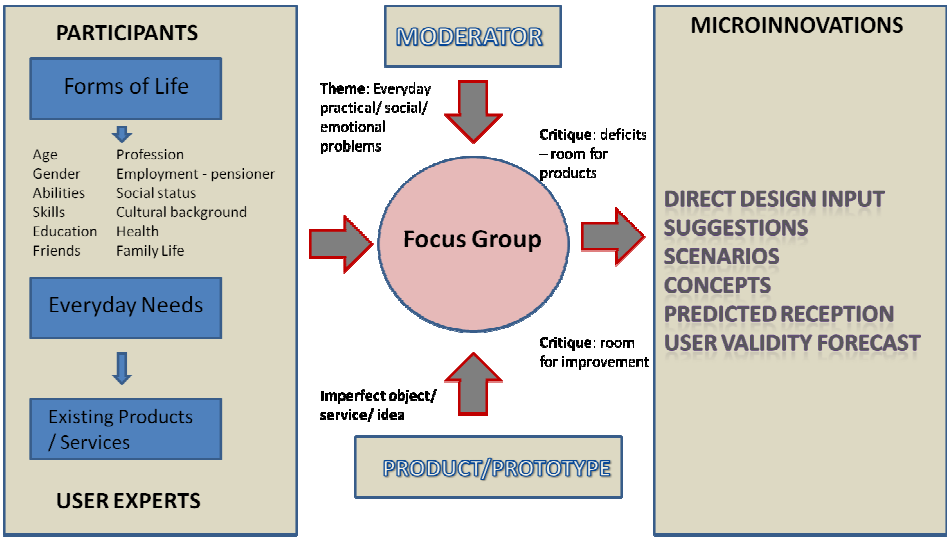

Figure 1: Focus Group method in life-based design framework for managing microinnovations

On the right hand side of the focus group diagram, both the critique of that which is lacking in products and services for everyday needs, as well as that which is lacking or ill-informed in the design itself, can be seen as part of the conceptual information which can be operationalised in the later design process. The microinnovations list includes: direct design input, suggestions, scenarios, concepts, predicted reception, and the forecast of user validity (is the product applicable to the user's everyday life in terms of wants and needs?). All of this information is valuable, and may in fact influence the development of a number of products or services, but from a practical and economic point-of-view, the recurring discursive elements of this conceptual information should be extracted for a deeper understanding and more advanced development of the product/service in question. This is where the next section, "From Fact to Design and Back to Life – yet not a conclusion" comes to the fore.

5 From fact to design and back to life – yet not a conclusion

Once the focus group has provided a range of scenarios and information conceptualisations based on the input of the participants' lived experiences, key points should be extracted and used as instructive design criteria. As mentioned above, these conceptualisations may lay the foundations for modifications and new products entirely, however, realistically speaking, the product/service which is already in the process of development, should be focused on. Discourse and content analysis may be used complementary to one another within the analysis of qualitative material. The content analysis which reveals patterns and repetitions in coded data can indicate specific concrete features and improvements that several of the focus group participants have had in mind regarding the product or service. For example, in the case of social media, more than one participant mentioning the need to improve the ease of use of security settings – i.e. through clearer labels, simpler language and shallower menus, are concrete examples of how a service may be improved. This information may serve as a direct guide for changes in the product or service, and subsequent future user tests of the updated version may or may not be implemented, as the focus group has already provided a more economic platform for gaining user feedback.

Discourse analysis on the other hand, is also interesting as it allows researchers and designers to gain insight into some of the underlying social and psychological problems of the product or service. For example, focus group participants may find that security settings in social media are adequate and do not need modification as they are already simple enough to use. However, within the focus group discussion, factors such as: the internet being a public domain – people should not post anything they do not want others to see; or "I do not mind if others see my details, but who owns them once they are online?" might indicate deeper problems which require further consideration from the designers. For example, easier-to-read terms and conditions stating ownership of contents may be one solution. Or even user-sensitive media-subversive statements and images playing with the ideas of public-versus-private may be positively received by the user.

As mentioned above, focus groups are not designed to offer a simple fix to design and management problems. What they do instead, is draw attention to the problematics or 'weak-spots' of product or service design and offer multiple solutions, or problem-solving input, for the disposal of designers and decision-makers. This method does provide a powerful tool for generating the recollection of lived experiences, activating conceptualisation based on everyday situations and solutions to everyday problems. This approach acknowledges the conceptual information received in the focus group discussions as microinnovations, available for application and deeper understanding in and of the design process.

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