User-Originated Innovation of Mobile Financial Services

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Abstract. This paper presents a three-phased study in which new mobile financial services were designed iteratively in close co-operation with users and experts on finance. The studies utilized a web platform for open innovation and evaluation of new service concepts. The first study with quite raw concepts revealed needs and worries that were then taken into account in developing the concepts further. The second phase of the study included parallel design utilizing both student assignments and experts on finance. The most interesting and promising concepts from this phase were then selected in cooperation to be assessed by the consumers in the web platform. The different perspectives of the participants in the studies, and the iterative approach engaging potential users right from the beginning, helped us to enhance the quality of the new service concepts in a cost-effective way.

Keywords: User involvement, co-design, iterative design, online ideation, mobile financial services.

1   Introduction

Mobile devices and applications have become more and more common in our everyday life [1]. Many trials and service concepts have been introduced in the domain of mobile financial services, but no successful breakthrough has been achieved yet. Mobile payments are considered as one of the most critical factors for successful mobile commerce [2], and potential applications, such as Google Wallet and Square Wallet, have emerged. Our previous studies have, however, indicated that in Finland, widely used debit and credit cards, and online banking services offer such reliable and simple enough payment methods that consumers are not eager to adopt new ones [3]. Additionally, consumers perceive mobile phones as a more insecure media than desktops, and even half of the consumers that responded to our survey, do not use mobile banking services due to security concerns [4]. Therefore, when developing financial services for mobile devices, security related issues need to be tackled in a reliable way, and consumers' attitudes and opinions must be studied already in the early phases of design to find suitable solutions. Applications that consumers perceive financially as less risky could also make way to wider adoption of mobile payments.

Our project – called Mobile Financial Services 2 (MoFS2) – is part of TIVIT Digital Services program [5], and aims to develop these new innovative mobile services that are interesting and relevant enough to attract consumers' attention into mobile finance. At the moment, we are for example developing an application to help consumers in stabilizing their economy, and to support their decision making when considering costly purchases. To ensure that new applications will take into account the consumers' needs and concerns, the development is done iteratively and in close co-operation with the consumers during the whole development process, following the principles of human-centered design [6].

In this study we want to empower people to take part in the service design process starting already from the concept ideation. We follow the core idea of participatory design, which is a design approach where the users of a system or a service are playing a critical role in the design process [7-9]. Participatory design has been widely adopted and it can be followed through several methods [10]. In our study we utilise an online co-creation tool for consumers to participate in different phases of the design process.

This study is conducted iteratively in three design phases in collaboration with consumers, financial experts and students of user interface design. We hope that this iterative study approach gives us holistic insights of consumers' perspectives, and functions as a basis for developing services that help people in their everyday lives and provide excellent user experience.

2   Method

2.1   Participatory Approach: Online Co-creation

Online co-creation was conducted in VTT Open Web Laboratory (Owela) [11], which is a platform developed for user-driven innovation and co-design [12]. It supports open innovation, which is nowadays considered beneficial in service and product development [13]. Online co-creation was selected as the study method, as we wanted to reach consumers with various backgrounds in a flexible and cost-efficient way. Participants were recruited from the existing Owela community by sending them an email invitation.

Co-creation was carried out based on facilitation material which contained scenarios, descriptions and illustrations of future mobile financial service concepts. These formed discussion topics, where participants could jointly comment and further contemplate on the original ideas. Descriptions also included questions related to acceptability and perceived value of the services. The study area had a separate idea generation section where participants could freely add their own ideas and further develop others' ideas. Participants did not get specific guidance on creating ideas, except seeing the facilitation material and the conversations based on it.

2.2   Combined Expertise Approach: Contributor Groups

One of the main ideas in this study was to engage participants with different backgrounds to contribute to the co-creation process of mobile financial services. Our

study approach involved three different contributor groups: consumers, students and experts on domain.

Consumer group consisted of around 70 Finnish consumers with a wide age range, both males and females and no special knowledge about mobile financial services. Around 30 students attending Aalto University course "User Interface Construction" formed the second contributor group, and participated in the project as a part of their studies. The third group 'Experts' was formed of a dozen of professionals currently working in the area of financial services. Altogether, the concept process involved over one hundred participants.
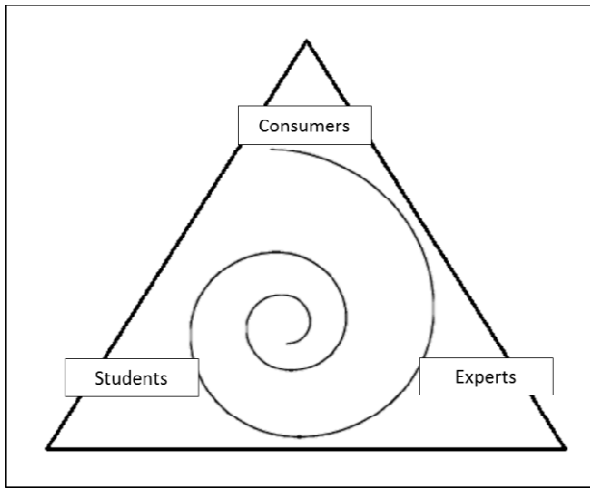
Fig. 1. Contributor groups co-creating in iterative design process

The idea in the design process was to combine the knowledge and perspectives of the three different participant groups. Each of the group brought valuable expertise to the process. Consumers represent the average of the future end-users, and thus they bring essential real life viewpoints to the design. Domain experts have the best substance knowledge, which may make it difficult for them to approach the concepts from the consumer's perspective. Students are in a way in the middle of consumers and experts: they look at the services partly as consumers, but also bring fresh viewpoints and knowledge of user interface design.

2.3   Iterative Approach: Study Phases

This study consisted of three phases. First, user feedback and user ideas were collected based on high-level service ideas developed by the domain experts. User comments and ideas were used as an input for developing more concrete concepts, which formed the second phase of the study: a concept hatchery. In the third phase of the study, more specific and refined concepts were evaluated again by consumers.

In the first phase, consumers were invited to give their feedback and ideas on high-level scenarios, which gave them a possibility to have an impact on service innovation when concepts were still evolving and new concept ideas were looked for. As facilitating material, we used five different scenarios which illustrated selected concept ideas. Owela research area was open for comments and ideas for two weeks.

The second phase started when ideas and feedback from consumers were handed over to the domain experts and students, who started developing them further. These groups conducted their design work in parallel and independently. After this concept hatchery phase, the stakeholders selected together the concepts most relevant for the study, and modified them for the third study phase.

In the third phase of the study, these modified concepts were evaluated again in Owela. Owela material included four service concepts that presented specific concept ideas in a more concrete and detailed level than in the first phase. The goal of this phase was to get user feedback on the perceived value of the iteratively designed concepts, their usefulness and the possible drivers and barriers for their adoption. New consumers were invited in addition to the participants of the first phase to take part in this third phase. Similarly to the first phase, this Owela research area was open for two weeks.

3   Experiences of the Design Process

3.1   Consumer Involvement in Two Design Phases

As this project focused on developing new mobile services for everyday use, it was crucial to involve consumers already in an early phase of the design process. In this study consumers participated in the design process both in the early concepting phase as well as later on when the concepts had been developed further.

Altogether 29 consumers participated in the conversations and ideation in the first Owela study, 51 consumers in the second. Thirteen participants from the first phase also took part in the second phase. The first Owela study produced 129 comments and 16 new ideas and the second 217 comments and 6 new ideas. These numbers reflect our idea of the design process: as the design evolves commenting the concepts gets easier but presenting new ideas might become harder.

Discussions in the first Owela study revealed that participants perceived mobile services to be quicker and easier to use than corresponding desktop services. In general, consumers were most interested in services which do not require heavy protection of the data, but still enable quick checking of one's finances or payment data. The initial design concepts in the first phase also raised worries and criticism among consumers. Main concerns were related to data security, which is in line with our earlier studies. Also increasing the costs of services and possibilities to get consumption credit too easily worried the participants. Discussions and participants' new ideas also revealed consumers' wider attitudes and values towards banks, individual rights and responsibilities as well as personal ways of managing one's finances.

In the second Owela study, design concepts were more detailed and specified. Thereby, also the participants' feedback and new ideas were more focused on the presented concepts and their usefulness. In general, the number of worries presented was clearly decreased from the first study. The design concepts were considered as useful to everyday life and they mainly gained positive feedback. The findings from this second study showed that consumers seem to be willing to adopt some new mobile financial services, if they suit their lives, bring concrete value and are well designed.

3.2   Co-designing Better Services

During the design process, the initial raw concepts evolved into more detailed and implementable services. The overall themes and concerns brought up by the consumers in the first study phase helped the development team to focus on the essential. In addition, some of the participants' own ideas created a basis for new concepts or supported the selection of ideas to be developed further. In the next chapters, we present two examples of service concepts that evolved during the co-design process.

Security was seen as one of the main factors in the first study phase and it also served as a starting point for several user ideas. In a few idea threads, participants ideated new ways to control one's financial matters in different use contexts, especially when abroad. As the project group had previously been innovating novel ways to enhance the security of using credit cards abroad, this topic was easy to select to be concepted further. The topic was given to the students in Aalto to be worked on in the design hatchery. This approach led to alternative designs on different user interface platforms, and one of these designs was selected for further consumer evaluation in the third study phase. In Owela, the concept was rated as practical and useful, and it gained overall positive feedback, which strengthens our decision to continue working on this service.

Other themes which raised new ideas in the first study phase were related to the proactive management of one's finances, cost savings in banking services and the bank's role in supporting these. In the design hatchery phase, the domain experts combined these different ideas into one concept that could help bank customers to notice sudden financial changes and proactively react to upcoming invoices. This concept was then taken into Owela for validating its suitability and value for consumers. The concept raised mixed reactions in Owela; some liked its practicality, but some found it too intrusive. Based on these findings, the concept will be further designed and tailored for different kinds of user preferences.

4   Conclusions

In this study, we aimed at designing interesting and relevant mobile financial services together with different stakeholders via three-phased design process. In order to enhance the quality and innovativeness of the service concepts, we wanted to empower consumers to participate in the design process right from the beginning. Combining different levels of expertise in iterative design phases enriched and validated the concepts, and created welcomed buzz around the topic.

Based on our experiences, the selected approach brought clear benefits. By involving the consumers already in the early phase of the design, we could identify the critical and essential factors affecting the concepts in hand. This process revealed the key concerns to be tackled in the design, brought fresh new ideas and helped in eliminating ideas irrelevant or uninteresting to users. Consequently, this approach brought us cost effectiveness as well as enhanced the quality of the developed service concepts.

This study is a part of a larger research entity, in which we will continue utilizing and further developing this study approach. The development of service concepts will continue as well, when students and consumers receive the modified concepts and testable prototypes for further evaluation and development.

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