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Developing UX for collaborative mobile Prototyping

Sascha Krause, Isabella Hastreiter, Tim Schneidermeier
Media Informatics Group, University of Regensburg

Introduction and objectives

Prototyping is an essential part of the User-Centered design process. Since the emergence of touch based mobile devices in recent years, a broad range of efforts have been taken to adapting professional prototyping tools to the mobile context. However none of the mobile prototyping solutions available completely adapts to the needs of a multidisciplinary team or considers the experience of the users' working environment. Our goal was to develop a mobile prototyping tool[1] that ideally supports the users in their tasks with special attention being paid on the context of use and the overall (user) experience.

Identifying factors for a holistic User Experience (UX)

To provide a holistic user experience we had to identify all factors influencing the experience of the design process [1]. According to Hassenzahl and Tractinsky UX is influenced by the "user's internal state (predispositions, needs, motivation, etc.), the characteristics of the designed system (complexity, usability, functionality, etc.) and the context within which the interaction occurs (social setting, meaningfulness etc.)." [2] Our work begins with the idea of taking all these aspects in consideration in order to develop a solution to support the process of developing user interface (UI) prototypes. Our aim is to create a tool, which considers all tasks related to the human-centered design process and to improve the hedonic qualities[2] to support action mode usage for leveraging creative potentials. Our approach of requirements engineering focused on UX methods to get a deep insight not only on pragmatic features but emotional demands (i.e. hedonic qualities). We'd like to reveal whether and to what extent a detailed look on UX can improve the working progress, efficiency and motivation of a multidisciplinary software engineering team practicing agile methods.

[1] The tool is optimized for using on a tablet computer.

[2] Hedonic qualities will be addressed in detail in the full version of the paper.

Pragmatic and hedonic qualities

While there are many tools for mobile prototyping available, offering a large scale of functions, a poll taken within usability professionals identified that these applications are rarely used. As a first step, we took a closer look on the existing products in a competitive analysis to get a deeper understanding of the underlying problem of acceptance. Our observation identified that the functions needed for designing prototypes are readily available, though lacking features to support the iterative paradigm specified by human-centered approaches. As functional (i.e. pragmatic) qualities were already met by existing solutions, we started to think about the missing element and concluded that the hedonic needs might be the casting vote. As Roto [3] notices, hedonic features are beyond usability and utility, key aspects of a positive long term product experience[3]. We took this approach and focused on the question: *How can we develop a tool that supports the mobile workflow by especially taking hedonic factors in consideration?*

Hedonic qualities as a key factor for long term UX

We were applying a wide range of UX methods, starting with SHIRA [5], a qualitative analysis in which the peer user is being included to get a deeper understanding of his needs by associating adjectives and justifying this choice. Even there, most participants focused on pragmatic parameters. Subsequently, we combined the methods of a focus group with SHIRA and explicitly drew the attention on hedonic values. Targeting the socio-layer emerged as an approach to our concern. The suggestion of Holt and Lock to further deconstruct the four layers of pleasure [6], proposed by Jordan [7], in a more fine-grained hierarchy of pleasures, which an application is able to address, became essential to categorize the determined hedonic requirements and build the bigger picture of the products' experience (see figure 1).

[3] Hedonic qualities can be defined by stimulation (i.e. personal growth, an increase of knowledge and skills), identification (i.e. self-expression, interaction with relevant others) and evocation (i.e. self-maintenance, memories) [2].

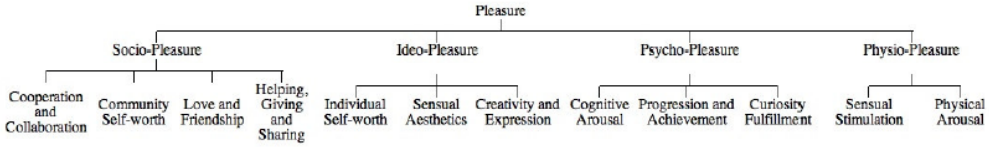

Figure 1: Pleasure Hierarchy [6].

We iteratively evaluated and improved the UX of our mobile prototyping tool using the AttrakDiff questionnaire [4] as a validated tool for measuring the perceived UX (divided into pragmatic and hedonic qualities).

Conclusion

If we get the chance to contribute a full paper we will be giving further insight into the methods we used and a critical view on their fit during a human-centered design process by an analysis of current UX models. We will illustrate this by presenting the development process of our mobile prototyping tool *Prime*[4] (see figure 2), especially concerning new perspectives of a design process that focuses on hedonic parameters.

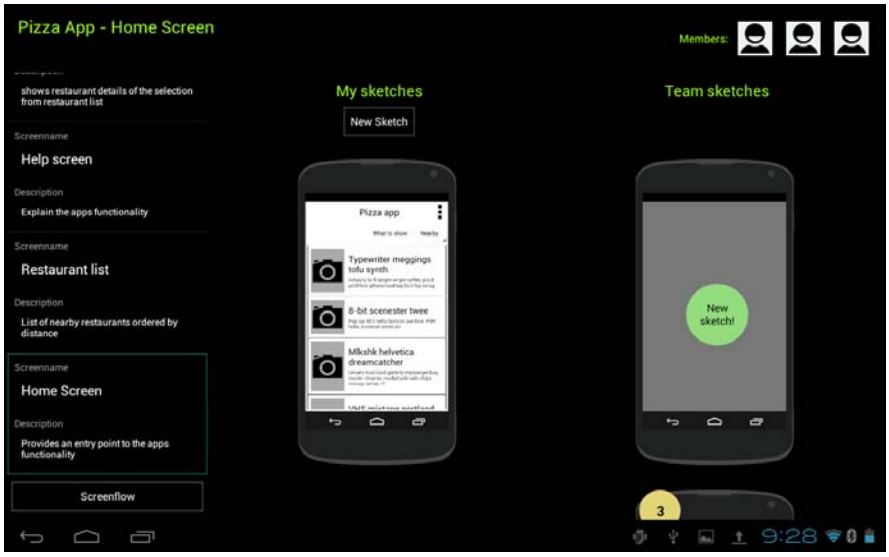

Figure 2: Snapshot of a first prototype of our mobile prototyping tool *Prime* (*project view*).[5]

[4] The tool itself will also be presented as part of the results of the engineering process.

[5] The tool will be described in detail in the full version of the paper.

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