Reflecting on Experiential Aspects of a Dental Service Concept

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Abstract
Digital health services today are often used with smart phones, and mobile applications related to wellness and healthcare are vast in number. In this paper, we present our design reflections on current mobile user interface (UI) designs for mobile wellness apps, and a concept design on a future dentist service utilizing user data and ubiquitous computing technologies.

Author Keywords
Mobile user interfaces; digital health services; service design; UI design.

ACM Classification Keywords
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction
The digital age provides enormous possibilities for new, ubiquitous consumer services. Data related to individuals is no longer collected (only) through centralized services, but as a byproduct of the numerous interactions we have through, e.g. smart phones, Internet use and credit cards. Our digital footprint consists of a vast amount of data from different sectors of our lives, and contains much lifestyle information that could be utilized by health and wellness related services.

Amongst mobile and ubiquitous computing research, the design of wellness applications has been quite intensively addressed. Examples of research in the area include persuasive and playful UI design [2, 3], user experiences with outdoors sport tracking [1], and enhancing the sports experience with social cues [4]. In this paper, we approach the area by presenting design reflections on current commercial mobile UI design trends, and present our approach to the design of a service concept which goes beyond the scope of current services.

UI Design Trends of in Mobile Wellness Apps

Current Mobile Wellness UIs

The UI trends in Mobile Wellness apps were studied by evaluating the mobile application offering available via the Apple app store and Google's Play store. In particular, the wellness and health categories of the app stores were studied and, based on app popularity (amount of downloads), app reviews (high review scores) and recommendations, several apps were selected for more detailed evaluation.

The selected applications were grouped based on similarities in their feature sets and similarities in the way they visually presented measurement data. For example fitness apps that included the display of heart rate in a chart format were grouped.

The salient findings were the following. Apps targeted at the adult fitness user segment generally utilized a minimalistic 'flat UI' design language. Here, measurement data was generally visualized using simplified chart style approaches. Cartoon like UIs were targeted more towards younger audiences. Generally, there was lack of apps targeted towards Seniors, and hence no clear trend could be established.

From Data Presentation to Actionable Guidance

Many of the initial implementations of health tracking devices were driven by the requirements of the Quantified Self movement. As such the focus was on the presentation of measurement data, which was then interpreted by a highly motivated, and possibly skilled, user. In a second phase applications targeting a wider user group and employing persuasive techniques appeared. Such interfaces introduced concepts such as achievements, target setting and social aspects, for example, the now ubiquitous 10000 steps daily target and applications such as mybasis.com.

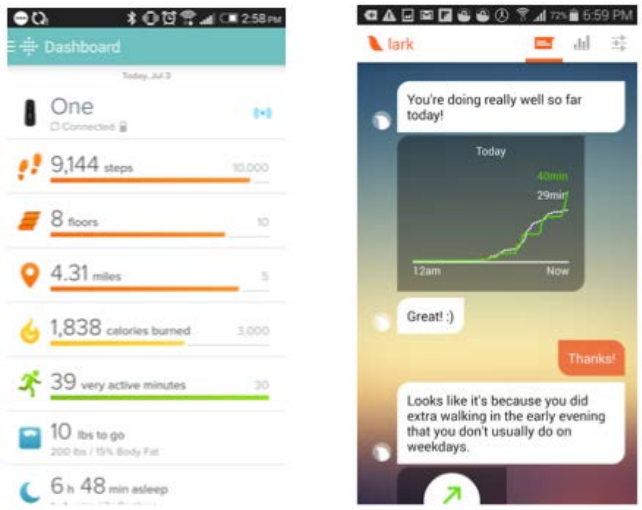

Figure 1. Examples of wellness application UI styles – Left: conventional UI presenting data (www.fitbit.com). Right: A conversational UI (www.lark.com)

Until now, the *de facto* UI design solutions for wellness applications have focused on presenting the data to the user with numbers and graphs. Recently, there has been a trend towards applications employing a conversational dialog with the user, offering interpretation and guidance rather than presenting data, as illustrated in Figure 1. In several cases this coaching style interface has been supplemented with the addition of connected human coaches as a paid service.

Whereas most of these wellness services still rely on collecting data from a focused source, e.g. a tracker device, the power in the future digital health and wellness services will be driven by the ability to combine data from broader sources. In order to explore such service concepts, we set up a service design workshop.

Service Design Concept – MyDentist

Design Process

In order to explore a new wellness service concept, we selected a domain we wanted to develop for – the dentist. We first developed a persona of a target user, a 29 year old woman with an active social media and mobile technology usage profile. We then drafted a stakeholder map related to our user persona and various wellness related parties, and created a day-in-the-life story, extended with actions that affect to the dental health care (Figure 2). After that, we brainstormed around different scenarios in the day-in-the-life story with a bodystorming method [5], and created rapid prototypes of UI design solutions related to the dentist service. Here, we wanted to move towards a solution that combined different data sources with a conversational UI design.

Figure 2. Creating a day-in-the-life story for the dental service using various media, such as Lego models.

My Dentist Concept

Here, we present the core features of the developed dentist service concept.

Figure 3 illustrates the service user brushing her teeth in her bathroom. The bathroom mirror indicates the area of teeth that need to be brushed, based on information from the user's dentist and data from an accelerometer in the toothbrush. This could form part of a virtual dentist service, so rather than visiting the dentist once a year there is some level of continuous dialog e.g. through text message reminders. At the physical dental check up, Figure 4, the dentist can refer to long-term data on the patient, based e.g. on tooth brushing data and eating behavior.

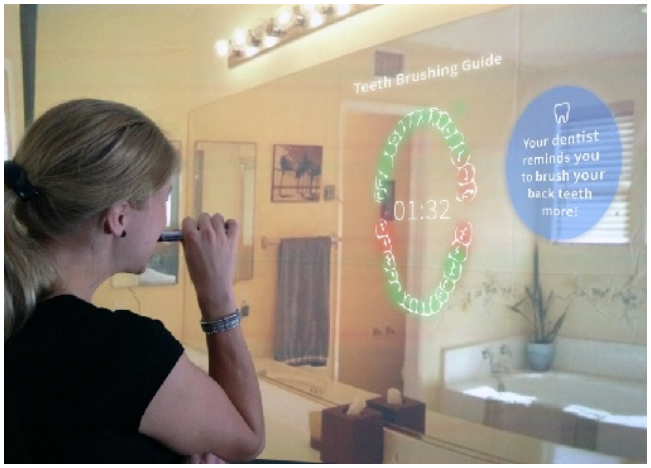

Figure 3. Concept showing the user's daily interface to the dental service.

Figure 4. Bodystorming the annual dental check-up. Here the dentist can utilize information collected from the patient's toothbrush

Discussion

By following an experience design approach we have prototyped a dental service and begun to reflect on the experiental aspects for its user. Our general design approach targeted to create a dialog between the dentist and the patient, following current design trends in the wellness space, rather than a single annual point of contact.

In the future, we seek to develop the concept further and evaluate it by following the research through design approach [6], where the phenomenon is investigated through developed design concepts and artifacts.

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