YPhone: Applying Generation Y Interactions into an Office Context

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Abstract

Taking the knowledge and experience from our previous studies on identifying Generation Y interaction qualities and design guidelines, we focus on bringing the richness of the interactions that are experienced in the home context into the more formal and public office context. A novel office phone, YPhone, is conceptually designed to present new ways of interacting in office work.

Author Keywords

Generation Y; interaction qualities; office context; concept design

ACM Classification Keywords

H.5.2. User interfaces: Prototyping.

General Terms

Human Factors and Design

Introduction

The rapid development of information technology in the past decade has introduced new, highly engaging ways of interacting, enabling people to create, retrieve and broadcast a great amounts of digital information, using a large variety of devices, techniques and media. As a result, people are more socially active by quickly exchanging information and are more capable and

ready to integrate their virtual world with their physical world [8], using highly interactive devices, such as mobile phones, laptops and multi-touch tablets. So far, however, this typical behavior has mainly manifested itself in people's private context, while in the office context the rich interactions that these new technologies are offering do not seem to be supported to a great extent yet [3,8].

An interesting challenge presents itself to developers, designers and researchers: what are the design opportunities to bring the richness of the interactions that people currently experience in the private context of their homes into the more formal context of their offices and colleagues? This paper faces this challenge by means of a concept design of an office phone, YPhone, for improving the fit.

Design Criteria
In our previous work of studying user interactions in the home and office contexts [3], we identified six key interaction qualities and corresponding design guidelines (Table 1). Interaction qualities are also called experiential qualities [1,7], they only come about through actively engaging with a product, system or service [4,6]. Together these six qualities embody an interaction style that we have labeled as 'Generation Y', referring loosely to the first generation of people (roughly born between 1980 and 2000) that have grown up as digital natives and that is currently starting to dominate the workplace [3,8].

Qualities	Design Guidelines
Instant	Use instant interactions to convey meaning
Playful	Integrate playful interactions in low-attention office tasks
Collaborative	Integrate collaborative interactions to strengthen the connectedness
Expressive	Integrate expressive interactions into regular office tasks
Responsive	Make work tools and systems more (emotionally) responsive
Flexible	Allow for flexibility to overcome physical limitation of workspace

Table 1. The six Generation Y interaction qualities and corresponding design guidelines.

Interaction qualities as design criteria have been discussed in some research projects. For example, feather was designed for the context of one person who is travelling while another is at home [9]. The travelling person manipulates a picture frame, which causes a breeze that moves an encased feather at home. There are several other projects in the domain of CSCW, such as Cabinet, an interactive tabletop interface that helps designers collect and organize their visual material for inspiration [2] and Knock-Knock, a shape-changing communication device that facilitates expressive communications [5]. The above examples seek, as an outcome, to design and enhance quality in user product interaction. However, the designs do not enable users to convey more specific messages, which are needed in applications that should function in an office context. We envisage that the potential to associate a specific group of office workers and interaction qualities with new ways of interacting, leading to future work tools and applications to develop.
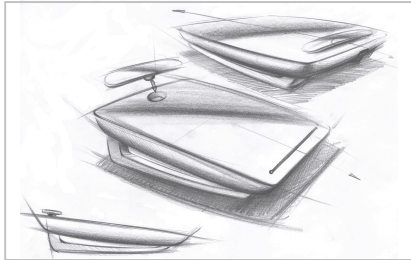
Figure 1. Concept design of YPhone.

Figure 2. Play-acting user-phone interactions with the paper prototype and the foam mockups.

Concept Design of YPhone

An office phone was chosen as a vehicle to apply our design guidelines. Phones are widely and frequently used in office work and often have a complex user interface, so broad explorations on user interactions are possible. The concept design has to elicit specific interaction qualities and to demonstrate how a Generation Y interaction style can support and improve future office work.

User Scenario

User scenarios were created to envision how the interaction qualities and design guidelines could have implications for designing future office phones. One scenario is as follows: Y1 is a 25-year old female office manager. In the dialing process, Y1 is presented an availability overview. Y1 is about to use her office phone to make a call to her colleague Y2. Y1 activates the phone by picking up the earphone. She gestures to browse her phonebook to find Y2. Y1 finds Y2 available at the moment. She initiates the call and sends an urgent mood during the ringtone. Y2 receives an urgent visual indication and an urgent ringtone. Y2 understands Y1's mood and picks up the call quickly.

Concept Design

YPhone is a concept design that employs a clean, neutral and inviting style of industrial design (Figure 1). It has a smooth body. Digital information is displayed on its flat surface. A magnetic sliding ball is embedded in a slot in front of the phone. An earphone magnetic stands on the top of the phone. When receiving an urgent mood (call), the phone shows the caller's name, glows and plays a ringtone intensely. Table 2 shows the six interaction qualities and corresponding user interactions.

Qualities	User Interactions
Instant	Pick up the wireless earphone to activate dial pad interface
Playful	Swipe in the air above the phone to flip phonebook horizontally
Collaborative	Put the earphone on a contact in the phonebook to forward the call
Expressive	Push down hard on a contact in the phonebook to send an urgent mood
Responsive	Slide the ball to switch between dial pad and phonebook interfaces
Flexible	Wear the earphone to free hands and to keep the call connected

Table 2. User interactions and corresponding interaction qualities in the concept design of YPhone.

A paper prototype was made by a stack of interfaces on printed papers and Lego bricks. A number of foam mockups were made by a CNC milling machine. These quickly created artefacts helped the researchers explore alternate interactions and think about how to act out the user scenarios.

Field Trial

A field trial was performed with eight participants (Figure 2). We explained our concept design to them and asked them to play-act user-phone interactions with the paper prototype and the foam mockups. We also discussed and reflected on the opportunities to improve the user-phone interactions. New ideas kept emerging on detailed interactions while acting out, such as shaking the earphone to shuffle phonebook and covering the phone by both hands to hang up a call. Important decisions made in these play-acting sessions were a focus of the most experiential user interactions described in table 2. For example, swiping in the air to flip phonebook is preferred because it is experienced as

more playful and expressive. These interactions will be prioritized for development.

Ongoing Development

YPhone is currently being implemented using Max/MSP, Phidgets sensors and Arduino as development environments. A pair of prototypes will be built to demonstrate and evaluate cooperative working. Pressure sensors will be mounted to detect the degree of pressure when sending an urgent mood expressively. Proximity sensors will be embedded to detect the playful hand swiping gesture. Magnet and reed switches will be coupled to activate the dial pad interface instantly, to switch between interfaces responsively and to forward a call collaboratively. Color LEDs will be programmed to animate information (e.g. phonebook) flexibly.

Conclusion

We build on knowledge and experience gained from identifying Generation Y interaction qualities and design guidelines to conduct a concept design of YPhone. Our design challenge lies in designing a Generation Y interaction style within the context of office work. We have a strong focus on studying our target users and meeting their wishes in the early phase of design. Our findings implicate that design of future work tools should utilize the power and advantages of the six Generation Y interaction qualities, yet integrate the rich interaction qualities from the home context to the office context. In the future, we envision going further by completing YPhone development and conducting user evaluations. The six interaction qualities will continue serving as criteria to assess the final design and development of YPhone.

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