Demonstrating Generation Y Interactions through Interactive Prototyping

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ABSTRACT
With Generation Y entering the workforce, for the first time IT tools at home are richer in interaction than tools at work. This study aims to demonstrate novel Generation Y interactions by mapping three interaction qualities identified in private and work contexts. In an interactive prototyping course three prototypes were built in which these qualities are demonstrated. From these prototypes, guidelines for supporting Generation Y interactions in future office contexts, were subsequently deducted.

Author Keywords Generation Y, Interaction Design, Interactive Prototyping.

ACM Classification Keywords H.5.2 [User Interfaces]: Prototyping

General Terms Design

INTRODUCTION
Being the first generation of digital natives, Generation Y (born between 1978-1994) grew up with hi-tech equipment, such as mobile phones and wireless Internet, in their private domains [2]. In their office work, however, the rich interactions that these new technologies offer seem to be hardly supported. The study goal is to improve the fit by developing interactive prototypes to demonstrate and support Generation Y interactions.

RESEARCH APPROACH
In our previous research [1], we concluded that future business tools and services should fit in with richer ways of interaction to successfully support the new generation of office workers. Therefore, this study was aimed at developing new tools that support these interactions, and to study how they could affect future ways of working within the context of office work and ubiquitous computing. Three interaction qualities (instant, expressive, playful), that were identified in our previous research [1], were mapped into the development of a number of interactive prototypes. These prototypes were then evaluated on how well they represent those specific interaction qualities.

INTERACTIVE TECHNOLOGY DESIGN
Interactive Technology Design is a course in the Design for Interaction master program at the Faculty of Industrial Design Engineering at the Delft University of Technology [3]. The course aims to equip students with design theory while gaining practical experience in the development of products, which utilize potentials of embedded ubiquitous technology in products in terms of enriching user experience. In the spring semester of 2011, we mentored and worked with 15 students, who worked in teams of five on a design brief concerning Generation Y interactions.

Design Brief
The design brief stated that each team should focus on two interaction qualities (instant, expressive, or playful), to create a specific scenario in a work context, and explore how these qualities could stimulate or facilitate new ways of working. To do so, they had to build experiential prototypes, going through several rounds of conceptualizing and improvement.

Iterations
A total of five iterations of concept and prototype development were made. The first two iterations focused on exploring conceptual possibilities and building initial prototypes by hacking existing products. The third iteration aimed to nut-crack the hardest technological problems and further develop the concept to a mature level. The fourth iteration involved users, while the last iteration targeted on integrating user comments to finalize the prototypes.

DEMONSTRATING GENERATION Y INTERACTIONS
Thus three experiential demonstrators were built for demonstrating Generation Y interactions (Video scenarios be found at http://generationyinteractions.blogspot.com/). Table 1 shows how the three interaction qualities were distributed over the three demonstrators, in which work context they were applied and which novel user interaction was used to express them.

Demonstrator	Interaction Quality	Work Context	Novel User Interaction
DropBall	Expressive Playful	File Sharing	Squeeze Throw
Lamp	Expressive Playful	Receive/Respond Meeting Request	Stroke Pet
Hermès	Instant Playful	Send/Receive Compliment	Blow Pulsate

Table 1. Distribution of Interaction Qualities, Work Context, and Novel User Interactions over the Three Demonstrators.

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DropBall

DropBall is an explorative concept for fun and easy file transfer (see Figure 1). With DropBall users can transfer files by throwing a physical and familiar object: a stress ball. Colleagues are enabled to share digital files and links on this ball through an easy user interface. A squeeze in the ball triggers a desktop application to pop up, and while squeezing the ball the user can drag and drop files into the digital representation of the ball. Now the fun starts. Pick out a colleague you would like to share the information with, and throw the ball towards him/her. Once received, the colleague only needs to squeeze the ball to make the files appear on screen, and clear the data ready for next use.

Figure 1. Workflow of DropBall.

Permission Lamp

Permission Lamp is a desk lamp that assists colleagues to receive and respond to meeting requests (see Figure 2). When a request is received, a green light shines towards the user to notify him/her. The lamp provides the user with three ways to respond: 1) Postponing the request by pushing the shade (head) of the lamp away, making the light dim less green. After a while the shade turns back towards the user, indicating that it still needs attention. 2) Rejecting the request by pushing the shade of the lamp down to the table, making the light turn red first, then turn off. The lamp finally turns back to its neutral position with the green color. 3) Accepting the request by stroking/petting the shade of the lamp. The light turns green and drops the shade submissively, followed by the lamp turning back to its neutral position with the green color.

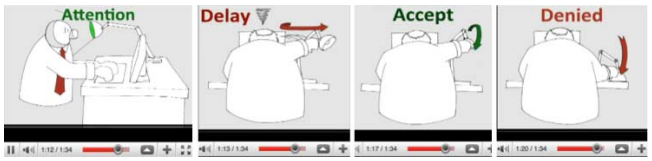

Figure 2. Workflow of Permission Lamp.

Hermès

Hermès is a communication tool for physically sending compliment messages and showing appreciation to each other (see Figure 3). By blowing against the tool, a fan inside starts inflating the tube, which will rise up. By blowing a longer time, the height of the tube increases. The higher the tube rises, the bigger the compliment expressed. By pushing the tube down, a compliment message is sent back to the message sender, who will receive a small notification by the tube gently pulsating up and down once the message has been received.

Figure 3. Workflow of Hermès.

INFORMAL USER TESTING

Besides prototyping, user tests with Generation Y workers in a real company context have taken place throughout the last two iterations. They agreed that the concepts were more experiential to interact with compared with the existing tools in office work. They also indicated that one easy and engaging user interaction would be more powerful than different combined interactions. Following the user testing some final modifications were made to the prototypes. For example, the DropBall group focused on personal files sharing instead of more generic file sharing, because the throwing action is considered as a more personal and playful way for sharing by the users.

Based on the evaluation of the demonstrators, a number of preliminary guidelines can be foreseen to drive the development of future office applications, like for example:

- Future office applications should reflect frequently reoccurred use scenarios in work, e.g., transfering a file.
- Future ways of working should enable and support richer ways of user input interaction, such as squeeze, blow, and stroke.
- Any novel user interaction should express a playful interaction quality, and should be easily recognized and performed.

CONCLUSION

In this paper, we have argued that mapping interaction qualities (instant, expressive, playful) to develop future office tools can support richer ways of interactions. Three prototypes were built, each demonstrating novel user input interactions, which could enable, support, and affect new ways of working. Through evaluating the demonstrators, some preliminary design guidelines have been formulated. The next step of our research is to conduct more prototyping studies and formal user testing, in which design guidelines are specified and implemented.

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