This project is developing a framework of tools, techniques, and methods to improve the conceptualisation and communication between all those involved in designing PSSs.

In the coming years, the workforce will be fed by a new generation which has grown up surrounded by highly interactive tools and applications. **This first generation of digital natives is accustomed to new, more expressive and natural ways of digital interaction, available everywhere, including in their office.**

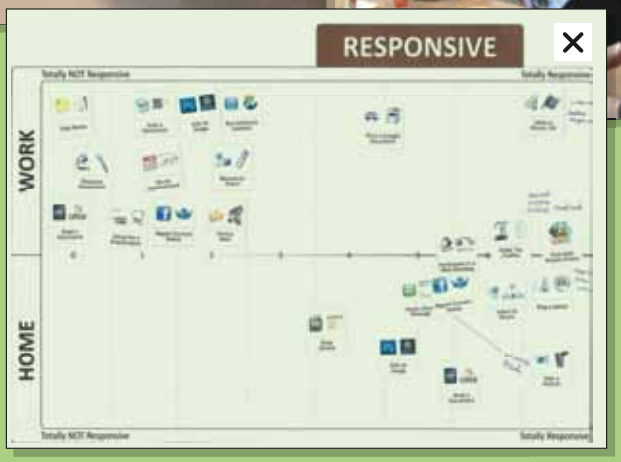
DIGITAL NATIVES INVADE THE OFFICE

PROTOTYPING GENERATION Y INTERACTIONS

Wei Liu, Gert Pasman & Jenneke Taal-Fokker

Exact is a leading software company that makes business software solutions for small and medium-sized enterprises (SMEs). The company has a good track record of serving entrepreneurs in managing and administrating their business for almost 30 years. Exact has noticed that a new generation of start-ups is quickly emerging as a new group of customers. Eight years ago, ExactOnline was launched as business software in the Cloud, anticipating new start-ups desire to use the Internet to manage their business. However, in determining their new development strategy, they noticed that people's experience with digital equipment has changed rapidly, but that the interactions offered by business software have not. Office solutions, even accessible via the Internet, are still dominated by text or point-and-click input, even though new styles of interaction are visibly emerging in smartphones, tablets, and games devices.

Exact is aware that in the coming years, the workforce will be fed by a new generation which has been surrounded with highly interactive tools, applications and technologies, such as smart phones, multi-touch tablets, and more recently, with smart watches and interactive glasses. This first generation of digital natives, or 'Generation Y', was born somewhere between 1980 and 2000, and is accustomed to new, more expressive, and natural ways of interacting with their tools. This is especially clear to see in the games they play, using gestures on the Nintendo Wii and the Microsoft Kinect. They are used to these new styles of interaction, use them intensively in their home lives, and expect them to be available in their office. Exact recognised that the



next generation of office software should fit this next generation of office workers, and started the 'Generation Y interactions' research project, on which Wei Liu conducted his PhD research.

Making the Office Catch Up

New ways of interacting have already found wide adoption in our home and social lives, but not so much at the office. Although many office applications have seen a sometimes dramatic increase in functionality, how we interact with these functionalities has evolved much more slowly. This is why most office work is still performed with the ubiquitous, almost 40-year old, set-up of keyboard, display and mouse. This set-up —often referred to as WIMP: windows, icons, menus and pointer— only supports limited actions, such as keyboard tapping and mouse clicking. Integration of highly engaging interactions such as in games, smart phones, and tablets in office situations is much slower than in home situations.

As a partner in the PSS 101 project, Exact tries to understand these new styles of interaction, to be able to design and develop new product service systems. They want to innovate and are looking for answers on how office workers can do business using new ways of working, both in an office and in a home environment. Any interaction with Exact products and services should be intuitive and engaging: "bookkeeping, but not in the bookkeeping way."

Interaction Qualities and Interactive Prototyping

In a series of contextual interviews with office workers, six key interaction qualities (instant, expressive, playful, collaborative, responsive and flexible) were identified as embodying a style of interaction labelled as 'Generation Y'. In follow-up interviews, we explored how office workers experienced and judged these key interaction qualities in their home and the office situations, in order to develop interaction design guidelines for designers. In the interviews, participants were given a set of typical activities, such as making an appointment or sending a short message on a scale-response board, for both the home and work situations. The figures show an example of a board for the quality 'responsive'. After these were placed, participants explained why they placed some activities at higher and others at lower values in the two situations. These explanations provided a basis for further refining our definition of the qualities. Interactive prototypes were then made to explore the forms of the interaction qualities. We developed the YPhone prototype to demonstrate the interaction qualities with new ways of working, e.g., pushing down hard on a contact to convey an urgent mood while calling.

The prototype was demonstrated, evaluated, and discussed at a series of venues, with respondents trying out scenarios such as placing an urgent call, or relaying an incoming message. Our findings, and those in a parallel series of student exercises, indicate that the interaction qualities can provide guidance when designing interactions that fit in well with the Generation Y type of interactions from home. Building interactive prototypes played an important part in the exploration. Considering all the techniques used in design process, ranging from sketching, storyboarding to play-acting, the most important technique is the completion of a working prototype in which all the 'finesses' are worked out. In prototypes, designers integrate different aspects from theory and practice. Moreover, when users touch and operate the interactive prototypes and become immersed in the experience, they do not only imagine an envisioned experience but react to a more complete, embodied, experience.

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