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Sara Colombo

Dynamic Products Shaping Information to Engage and Persuade



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 Springer

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ISSN 2191-530X ISSN 2191-5318 (electronic)
SpringerBriefs in Applied Sciences and Technology
ISSN 2282-2577 ISSN 2282-2585 (electronic)
Polimi SpringerBriefs
ISBN 978-3-319-33116-4 ISBN 978-3-319-33117-1 (eBook)
DOI 10.1007/978-3-319-33117-1

Library of Congress Control Number: 2016941083

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Printed on acid-free paper

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To Francesco

Preface

This book explores new languages for the communication of digital information from products to users. It identifies and analyses a new area of Product Design research and practice, that of *dynamic products*, which straddles the virtual and the tangible worlds.

The need of conveying information to users is always more compelling in our society, as ICT, sensors and electronics generate a huge amount of data of any sort (from the temperature of a room, to user-generated contents), which have to be communicated to final users. Products often are intermediates between the immaterial data generated by smart systems and the information displayed to users; in most cases, they rely on screens and displays and adopt the verbal or graphical language. In these conventional digital interfaces, the communication is based on visual and auditory media. As a consequence, while interacting with digital data, the sensory richness of the real world is lost and the user experience is weakened. For this reason, some research strands are trying to reconnect the digital to the physical and tangible reality, and to look for more engaging forms of interaction. However, none of them specifically focuses on the use of tangible products as communication means.

To overcome this gap between virtual and real in favour of enhanced experiences, the study identifies and explores an emerging category of products, *dynamic products*, which are artefacts showing sensory features (visual, tactile, auditory and olfactory) that change in a proactive and reversible way over time, addressing one or more user's sensory modalities. The book investigates how dynamic products can directly display information to users by changes in their sensory features (shape, smell, colour, temperature or sound), instead of relying on "added" digital interfaces. For instance, a change in the surface texture of a product might indicate that the air quality in a room has improved or worsened, or different smells released by an object may convey the emotions of a distant person. The increasing number of concepts and prototypes developed in this direction demonstrates that there is a growing interest towards communication media alternative to verbal language. As this trend is developing, product design should be prepared to face this new

scenario, especially because technological developments are making technical solutions more available, affordable and easily implementable into objects. The book investigates if this type of communication is viable and effective and how dynamic products can be best designed to convey information to users to an effective and engaging extent.

Results suggest that dynamic products can be designed as alternatives to interfaces in conveying digital information, although with some restrictions. Potentials and limitations of this approach are identified and some design tools are proposed to support the design activity. This book opens up a new scenario for the integration of product design with digital and smart technologies, by triggering the design community to reflect upon the always more compelling need of merging virtual and material in the information society, by exploiting technological possibilities to create more meaningful and engaging experiences.

Conflict of interest The author reports no conflict of interest.

Acknowledgments

I wish to personally thank the following people for their contributions to my inspiration and knowledge and other help in creating this book. Thanks to the Energy Design studio of Interactive Institute Swedish ICT for giving me permission to describe the concepts we developed together for the purpose of this study. Special thanks to Cecilia Katzeff, who supervised the FlexibEl project, and Stina Wessman, who provided inspiration and a lot of brilliant ideas and constructive discussions during our close collaboration. Thanks to the whole Energy Design studio and to the users we involved in the project for their valuable feedback on ideas and concepts. Thanks to the users who took part in the interviews on dynamic products, for their insights and for their time.

I am grateful to Tom Djajadiningrat for his valuable comments and suggestions, which really helped me to improve the structure and the quality of this work. Very special thanks go to Lucia Rampino, for her constant advice and encouragement. She always has the best answers to my doubts.

Thanks to the companies, designers and artists who gave me permission to reuse images of their products or concepts in this book: Cambridge Consultants, Design-people, Interactive Institute, Maarten Baas, Marco Paolucci, Susanne Happle, Seçil Uğur, Vessel and Zieta Prozessdesign.

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Chapter 1

Communicating by Products: From Sensory Features to Digital Interfaces

Abstract This chapter presents a critical literature review of the types of communication performed by products. This is indeed an interesting area to explore, for communication can occur at different levels, with different aims, and can rely on diverse media. The aim of this chapter is to highlight and analyse how objects can act as communicative means able to transmit various types of information. Artefacts' ability to convey bits of information to users is an issue product design has widely investigated in the last decades. Products can be understood as communication media by different points of view. On the one hand, they are able to convey implicit messages through their mere sensory appearance (shape, colour, texture, weight, etc.). On the other hand, they have acquired the ability to transmit digital information to users thanks to displays or visual interfaces. This chapter focuses on the analysis of products as media, by exploring and describing the ways products convey voluntary or involuntary messages by their physical or digital features. The different levels of product-based communication will be analysed, with a particular attention to their features and their effects on the overall user experience.

Keywords Product communication • Sensory communication • Digital communication • User experience

Communicating by Products: An Overview

The concept of “communication” in the product design context can assume many different meanings. In this book, by communication I mean the process of transferring bits of information from a source to a receiver, by a medium (Shannon 1949; Crilly et al. 2004). While the source and the information can vary, in the communication I deal with in this work, the medium (or transmitter) of the message is always the product, and the receiver is a person, i.e. the user. For this reason, I talk about *product-based communication*.

As we will see in the following paragraphs, the information or messages a product transmits may be of different kinds and may refer to a variety of elements. For