

Human–Computer Interaction Series

Editors-in-Chief

Desney Tan

Microsoft Research, Redmond, WA, USA

Jean Vanderdonckt

Louvain School of Management, Université catholique de Louvain,
Louvain-La-Neuve, Belgium

The Human–Computer Interaction Series, launched in 2004, publishes books that advance the science and technology of developing systems which are effective and satisfying for people in a wide variety of contexts. Titles focus on theoretical perspectives (such as formal approaches drawn from a variety of behavioural sciences), practical approaches (such as techniques for effectively integrating user needs in system development), and social issues (such as the determinants of utility, usability and acceptability).

HCI is a multidisciplinary field and focuses on the human aspects in the development of computer technology. As technology becomes increasingly more pervasive the need to take a human-centred approach in the design and development of computer-based systems becomes ever more important.

Titles published within the Human–Computer Interaction Series are included in Thomson Reuters’ Book Citation Index, The DBLP Computer Science Bibliography and The HCI Bibliography.

More information about this series at <http://www.springer.com/series/6033>

Kei Hoshi · John Waterworth

Primitive Interaction Design

Kei Hoshi
Auckland, New Zealand

John Waterworth
Umeå, Västerbottens Län, Sweden

ISSN 1571-5035 ISSN 2524-4477 (electronic)
Human–Computer Interaction Series
ISBN 978-3-030-42953-9 ISBN 978-3-030-42954-6 (eBook)
<https://doi.org/10.1007/978-3-030-42954-6>

© Springer Nature Switzerland AG 2020

This work is subject to copyright. All rights are reserved by the Publisher, whether the whole or part of the material is concerned, specifically the rights of translation, reprinting, reuse of illustrations, recitation, broadcasting, reproduction on microfilms or in any other physical way, and transmission or information storage and retrieval, electronic adaptation, computer software, or by similar or dissimilar methodology now known or hereafter developed.

The use of general descriptive names, registered names, trademarks, service marks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant protective laws and regulations and therefore free for general use.

The publisher, the authors and the editors are safe to assume that the advice and information in this book are believed to be true and accurate at the date of publication. Neither the publisher nor the authors or the editors give a warranty, expressed or implied, with respect to the material contained herein or for any errors or omissions that may have been made. The publisher remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.

This Springer imprint is published by the registered company Springer Nature Switzerland AG
The registered company address is: Gewerbestrasse 11, 6330 Cham, Switzerland

The first author dedicates this book to all those who go along the middle of the road, who are seen on the left when viewed from the right, and on the right when viewed from the left. Walk with your head held high on the road.

The second author dedicates this book to all those who appreciate the beauty of a freshly ploughed field.

Preface

This book has its origins in issues raised by our earlier text *Human-Experiential Design of Presence in Everyday Blended Reality: Living in the Here and Now* (Waterworth and Hoshi 2016). In that first book, we explored the possibilities for designing “blended spaces” to overcome the fragmented sense of psychological presence we all feel in the mixed digital and physical realities we inhabit. We presented a first version of what we called “Human-Experiential Design”, a theme we take up in more detail here. In the course of motivating that approach to design, we touched on certain untapped sources for design insights, including a consideration of myth, and the importance of the unconscious.

In the present book, we expand and develop these and other insights into a more fully fledged approach to interaction design. We are motivated by the belief that—despite or, to some extent, because of—the influential role design plays in the creation and marketing of interactive artefacts, interaction design has lost its way. We need to step back and open up to the changes that technology has brought to our lives, not all of them beneficial, and to open up to fundamental aspects of the human condition. Primitive interaction design attempts to do both and suggests a way forward.

Recently, designers have had serious doubts about their own job, the responsibility of a designer. Even if they fulfil the responsibility with the best intentions to make good products that improve daily life, they are in a way just glamourizing the ownership of things. It is maybe a romantic and nostalgic idea to imagine that designing for the essential true nature of our aesthetic life can survive recent rapid commercial development of our globe, what people are calling *globalism*. Designers have the responsibility to ensure that human beings remain in the world of things, so people will buy and use things for better reasons than simply to possess them.

Contemporary society produces and consumes in vast quantities. We then discard vast amounts of garbage. Our apprehension about the amount perhaps needs to be displaced with apprehension about the speed of consumption. Everyone thinks that production has no meaning without speed. We panic because of unseen competitors. The speed of our creation of amounts of products has the immediacy to shock and surprise especially when we encounter and recognize aesthetic value as well.

People should no longer have to tolerate the pain that much current design of technology brings. The quest for speed in our contemporary society continues to destroy the environment, as well as a measured and reflective way of living. Perhaps speed is not our inevitable evolution but only a reflection of recent rapid changes in our society. Although we think that we really should slow down, that would be difficult to accomplish. That is because of the fear of doing something akin to stopping in the path of a rush-hour crowd. People have certainly taken speed to be a value, and in the flow of time we can no longer experience the benefits and pleasures of living that had been part of our former way of life, which the older generation probably enjoyed to a greater extent. Essentially, slow is the true nature of our aesthetic life, and perhaps especially for the vulnerable, the elderly and the socially handicapped, who have become increasingly marginalized with increases in the speed of change of our society. But industries cannot slow down their production. Designers optimistically think that simple shapes create a simple society.

In our current reckless industrial era, the market desires strong impressions of owning products—sometimes visually, sometimes functionally. The market becomes timid in the face of design that does not draw customers' consciousness, because design should be a tool to encourage customers to buy. There is a fundamental marketing assumption that design draws customers' consciousnesses with attractive products and interfaces. Yet, this same consciousness breaks the human's natural flow of action, sometimes perceptually, sometimes physically.

It should not be the case that we are aware, in the here and now, and then pick up a product and act. This is generally quite unnatural and implies explicit knowledge and conscious effort. Rather, when functioning smoothly, we act without conscious awareness and then find later that we have been using a tool (usually when something goes wrong). Tangible interaction, unconsciously executed and informed by peripheral information, restores the primacy of action and re-integrates the mind and the body. The technology then disappears from perception in use. That means that products/artefacts have to be designed for human beings, not users or customers.

People end up grabbing a handrail for balance or warming hands on a hot mug without any conscious thought. There is no conscious effort in the behaviours, because the experience that has already made possible the series of actions, but unconsciously. It is the implicit memory that our bodies know, rather than the explicit and abstract knowledge that we are conscious of and can talk about. The designer needs not to create a body warmer that draws consciousness, but a hot mug becomes a body warmer without thought, because it already exists in our unconscious memory.

Everyone says that design should be simple and inconspicuous, so that people are not aware of the design. But design is actually inseparable from the background environment composed of everything that exists around the design, such as human experiences and memories; customs and behaviours; history and culture; technology and trends; time and circumstance; and atmosphere, sound/noise and air. If one of the elements even slightly changes, the design impression changes too. Human

beings share the whole. These days, many people in industry and academia say that they want to design products/artefacts that touch peoples' heartstrings. But if it is about drawing out human consciousness, we would say: please don't touch our hearts (our consciousness) so easily. To be pleasant and invigorating, human life should be free of the need to always be conscious of the environment in which it exists. We should be like the fish coming free into a clear stream from a mudflow, by struggling to swim.

Society has become more savage and less cultured, despite—or because of—the interactive devices that permeate our lives. In this book, we try to shed light on how our thinking of design and information-based society should adapt by using more a more universal approach and aspects of human consciousness/unconsciousness in a new, “primitive” coexistence with modern information technology.

Auckland, New Zealand
Umeå, Sweden

Kei Hoshi
John Waterworth

Contents

Part I Motivations and Inspirations

1 Why Primitive Interaction Design?	3
1.1 Introduction	3
1.2 Interaction Design in Context	4
1.3 Subjective Versus Objective Views	4
1.4 Arts and Crafts	6
1.5 Industrialization and the Bauhaus	8
1.6 Design as Marketing Tool	9
1.7 Design as Integrated Knowledge and Skill	11
1.8 Interaction Design: Designing Computer-Based Artefacts	12
1.9 Primitive Interaction Design	15
1.10 Outline of the Book	17
1.10.1 Part 1—Motivations and Inspirations	17
1.10.2 Part 2—Theories and Foundations	17
1.10.3 Part 3—Design Untamed	21
References	23
2 Being Through Interaction	27
2.1 Being and Time	27
2.1.1 Towards the Tangible	28
2.1.2 The Interactive Experience of Time	30
2.2 A Circular History of Being (and Interacting)	32
2.3 Being Through Interaction	34
2.3.1 Interaction, the Conscious and the Unconscious	37
2.4 The Challenges of Primitive Design	38
2.4.1 Designing for Emotion	39
2.4.2 Designing Embodiment	41
2.5 Conclusions	42
References	43

Part II Theories and Foundations

3	Savage and Trickster	49
3.1	Introduction: Before and After Design	49
3.2	The Logic of Myth	50
3.3	“Primitive” Peoples	51
3.4	The Trickster	53
3.5	Centre and Periphery	55
3.6	Concluding Comments	57
	References	59
4	Emptiness, Nothingness and the Interval in Between	61
4.1	Introduction	61
4.2	Emptiness, Nothingness and the Interval in Between	62
4.3	Deficiency and Impermanence	63
4.3.1	Nietzsche’s Nihilism	64
4.3.2	The Ordinarity, Logic and Structure of “Ma”	64
4.4	“i” for Art	66
4.4.1	The Root of Creativity	67
4.4.2	Seasonal Feeling	67
4.4.3	Topography	68
4.5	Decorative Space and Lyrical Space	68
4.5.1	Tearoom, Tea Garden and “Ma”	69
4.5.2	Dance	69
4.6	Mind and Communication	70
4.7	“Ma” in Design	71
4.8	Concluding Comments	72
	References	73
5	Unconscious Interaction and Design	75
5.1	Introduction	75
5.1.1	Everything is Already There	76
5.1.2	Jungian Collective Unconsciousness	77
5.2	Concepts of the Conscious and the Unconscious	78
5.2.1	The Function of Consciousness	78
5.2.2	Existence of the Mind	79
5.3	Design and the Structure of Consciousness	80
5.4	The Ecological Approach to Design	81
5.4.1	The Position of Primitive Design	82
5.4.2	Natural Flow of Action	83
5.5	Conclusion: Consciousness as Where the Self and the World Blend	84
	References	85

Part III Design Untamed

6 The Designer as Savage	89
6.1 Introduction	89
6.2 Primitive Interaction Design as an Attitude	91
6.2.1 Designer as Handyman	92
6.2.2 The Trickster-Like Nature of Playing with Design	93
6.3 Designer Interaction (Effective Use of Emptiness)	95
6.4 Understanding the World and Designing Man-Made Objects	97
6.4.1 Tools that Embody Collective Unconsciousness	97
6.4.2 Structuring the Subjective World Through Design	98
6.5 Drawing the Strands Together	100
References	102
7 Primitive Interaction Design: Methods	103
7.1 Introduction	103
7.2 Capturing Experiences by Applying Interpretive Phenomenological Analysis	104
7.3 Techniques for Maintaining Necessary Emptiness	106
7.4 Actively Promoting Doing as Being, Unconscious Design and Interaction Consequences	108
7.5 Approaching Design as Bricolage in Blended Reality Space	110
References	111
8 Primitive Interaction Design Examples	113
8.1 Primitive Interaction Design in Practice	113
8.2 The Exploratorium: An Environment for Emotional Self-discovery	114
8.2.1 Designing a Mythological World	114
8.2.2 Unconscious Interaction	115
8.2.3 Designing for Emotion	116
8.2.4 Emptiness and Curiosity	118
8.3 Morphogenetic Prototyping in Blended Reality Space	119
8.3.1 Mapping Gestures for Blended Reality Space	120
8.3.2 System Configuration	123
8.3.3 Motion Tracking in Blended Reality Space	125
8.4 Discussion	126
References	127
9 Towards a New Culture of Interaction Design	129
9.1 Where Have We Been?	129
9.2 Where Are We Going?	131
9.3 Concluding Comments	132
Reference	133

List of Figures

Fig. 1.1	Subjective–objective dichotomy	5
Fig. 1.2	Human-centredness	16
Fig. 2.1	History as linear progression.	28
Fig. 2.2	Circular view of history and the way we interact(ed)	32
Fig. 2.3	Dimensions of interactive behaviour.	35
Fig. 2.4	Dimensions of mind and of (inter)action.	37
Fig. 4.1	The structure of “ma”	64
Fig. 4.2	Conditions for connection in natural science.	65
Fig. 4.3	An invisible connection between two entities	66
Fig. 5.1	Freudian and Jungian perspectives on the unconscious.	77
Fig. 5.2	Yuishiki/Vijñapti-mātratā view of the conscious and the unconscious	78
Fig. 5.3	Consciousness/unconsciousness in relation to design and groups	81
Fig. 6.1	Bricolage, science and design	90
Fig. 6.2	Attitude, understanding and interaction.	91
Fig. 6.3	Dimensions of play.	94
Fig. 6.4	Primitive design in relation to consciousness and the collective unconscious	99
Fig. 6.5	From order to chaos, from civilisation back to being	100
Fig. 7.1	Increase in boundary issues with bodily distancing.	110
Fig. 7.2	Optimal design with no added boundary issues	110
Fig. 8.1	Using an interactive experience to explore mood	114
Fig. 8.2	Valence and arousal space divided into five mood states	117
Fig. 8.3	Image from Paradiso.	118
Fig. 8.4	Inferno	119
Fig. 8.5	Purgatorio.	120
Fig. 8.6	Emotional experiences in the three zones of the Exploratorium.	121
Fig. 8.7	The axe prototype interaction tool	121
Fig. 8.8	Techniques and gestures of traditional axe use	122

Fig. 8.9	Conceptual spaces for a blended morphogenic prototyping environment	123
Fig. 8.10	The structure of a blend	124
Fig. 8.11	Movement tracking of axe actions	124
Fig. 8.12	Flow diagram of interaction scheme	125
Fig. 8.13	Dynamic modifications to the world	126