

Gaming Media and Social Effects

Editor-in-chief

Henry Been-Lirn Duh, Hobart, Australia

Series editor

Anton Nijholt, Enschede, The Netherlands

More information about this series at <http://www.springer.com/series/11864>

Anton Nijholt
Editor

Playable Cities

The City as a Digital Playground

 Springer

Editor

Anton Nijholt
Imagineering Institute
Iskandar Puteri, Johor
Malaysia

and

Faculty of EEMCS, Human Media
Interaction
Universiteit Twente
Enschede, Overijssel
The Netherlands

ISSN 2197-9685

Gaming Media and Social Effects

ISBN 978-981-10-1961-6

DOI 10.1007/978-981-10-1962-3

ISSN 2197-9693 (electronic)

ISBN 978-981-10-1962-3 (eBook)

Library of Congress Control Number: 2016952883

© Springer Science+Business Media Singapore 2017

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, express or implied, with respect to the material contained herein or for any errors or omissions that may have been made.

Printed on acid-free paper

This Springer imprint is published by Springer Nature

The registered company is Springer Nature Singapore Pte Ltd.

The registered company address is: 152 Beach Road, #22-06/08 Gateway East, Singapore 189721, Singapore

Foreword

There are many songs of cities: how they are anthropogenic environments; how each is different from the other and produces a certain kind of mindset; how we have built them around water, foodstuffs, shelter, and less frequently but admirably, even around the idea of togetherness; how they have originated as places of trading, knowledge, and healing; how we have made them fortresses and war devices and as symbols that we can build them (and how as such, we cherish them as assets); how we have erected them around places and spaces of religious belief, including, fascinatingly, spaces of commemoration; how each and all spatialize societies and their governing rules and policies, both current, former and future; how citizens and city dwellers have challenged and overcome such policies and rules, place making; how cities, in the everyday, demonstrate an ever-changing, ever-evolving dynamic around what is public, private, harmonious, contradicting, participatory; how each city expresses notions of design, art, technology, and in the past couple of years, increasingly so, digital technology and media, and how all urbanities are, inversely, an expression of each of these; how most of us live in cities today, creating ongoing challenges for planners and citizens alike of how to handle growth, density, diversity, and so forth; and last but not least, how our cities are, and could be, playful and playable, beyond providing sufficient infrastructure, or ample green space.

Oh my, which was a built-up, labyrinthine first sentence, was not it? One that, I would hope, underlines some of the complexities that arise when addressing the research topic of Playful Cities before the possibilities brought forth by digital transformation, such as does this book contribution. Which is why it should be most useful to researchers and educators from a variety of fields, including Urban Design & Planning, Urbanism and Architecture; Human-Computer Interaction and Urban (and other types of) Computing; and, last but not least, (Serious) Game Design and other domains of behavioral design.

But what if you are now tired of reading on, and need a break? Speaking of play, why not be playful with this book instead?

We could, for example, replace a portion of the title with something silly. Or else, which leads us back to my first sentence, by replicating Dwight Garner's Paperback Game outlined in a New York Times article from 2011, we could read aloud the—hopefully—commending blurbs on this book's back cover, and let a peer come up with a first sentence that could be plausibly ascribed to this book. To live up to the book's title, we could take the edition out into your city of choice, and see if it could be used there, playfully. For example, you could hide or leave the book somewhere, for it could be the objective to find it, or to lose it, or you intend for someone unsuspecting to pick it up—perhaps a student? The book might be handy to sit on, too, for example if you're out on a plaza on a chilly, yet sunny day, observing how fellow city-dwellers play, and how your city plays back—please do not stop experimenting with how this book could be used out in the playground that is the city, I urge you!

If you are not tired of reading on, or somewhat curious, then delve into this book's many valuable approaches and examples of how cities can become playful and playable with the help of ICT, in order. e.g., to let citizens explore an urbanity; or to engage communities and to foster citizen participation; or to let citizens make, hack, be mischievous—really, to allow for us to playfully connect with our environments, and with one another, by way of our environments.

I cannot wait for you, dear reader, to smartly and responsibly build on the research presented herein. And now I'm off with my copy of this book, heading into the city, to play.

July 2016

Steffen Walz
RMIT University
Melbourne, Australia

Preface

Decades ago, the mention of ‘digital cities’ made us think of visually simple and relatively primitive early Internet and Worldwide Web representations of aspects of real cities, particularly in terms of culture and community. Currently, we have divergent views and expectations of digital or information and communication technology (ICT) when looking at the role that this technology can play in our ideas about our future, digitally enhanced cities. Broadband information highways have been introduced to connect countries, regions, cities, and their infrastructures worldwide. These infrastructures include governmental, business, transportation and mobility, and safety and security services. Underlying the development of these infrastructures, we have research and development on information and communication technology, research on information systems, software engineering, network technology, security and privacy, and human–computer interactions. Of course, it is possible to go into more detail and mention signal processing, nanotechnology, smart materials, machine learning, artificial intelligence, and many subareas of behavioral sciences.

In recent years, ICT has made it possible to talk about intelligent and smart cities. The focus of intelligent and smart cities can be on providing such cities with a competitive advantage over other cities. This advantage needs to come from an awareness that the comprehensive employment of advanced ICT can help to solve problems related to transportation, mobility, energy distribution, and safety and security as well as help in urban development, crucial decision-making, and stimulating innovation and economic development. Having these issues taken care of in the most efficient way is something we expect of those who develop and offer employment of smart technology.

Citizens of intelligent and smart cities may be satisfied with having an efficient home, office, and city environment. However, they usually want more, which is where issues, such as social and intimate relations, affect and emotions, playful and social interactions, entertainment, leisure and health-related needs, and playful, entertaining, recreational, and humorous activities emerge. When we discuss developments in research on intelligent and smart cities, can we also distinguish

developments that address these affective, social, and playful aspects of our daily lives?

In this book, we address the issue of playfulness and playability in intelligent and smart cities. Playful technology can be introduced and authorized by city authorities. This can be compared and is similar to the introduction of smart technology in theme and recreational parks. However, smart technology becomes embedded in real-life city situations and allows real-time use by city dwellers. Thus, we can investigate how embedded smart technology can play a role in the generation and understanding of affective, playful, and humorous activities and events. Moreover, we can study how smart city technology can be used in playful, participatory design of changes in an urban environment or allow those changes to be implemented by city communities themselves.

Chapters in this book address pervasive games, urban games that change a city into a ‘gameful city,’ urban experiences and how to involve residents in urban city design and development. Chapters also address the playful hacking of smart city technology, mischief in smart cities, and the use of smart technology to introduce playful interactions between citizens and smart city technology in public spaces. Civic hacking that introduces playful community applications is also a topic addressed in this book. Publicly available data and infrastructure and accessible or hackable sensors and actuators can all help introduce playful applications and interactions and make an environment or city more playful and playable.

I’m grateful to the many authors who contributed to this book. They not only contributed with chapters but also acted as reviewers for two or more chapters. In addition, Dhaval Vyas and Chamari Edirisinghe helped with reviewing chapters. My thanks also go to Steffen Walz for his willingness to write a Foreword for this book. As usual, the Springer staff was very friendly and helpful, making it a pleasure to realize this publication.

Iskandar Puteri, Malaysia
July 2016

Anton Nijholt

Contents

Towards Playful and Playable Cities	1
Anton Nijholt	
Part I Games for Playful Urban Design	
Games as Strong Concepts for City-Making	23
Ben Schouten, Gabriele Ferri, Michiel de Lange and Karel Millenaar	
Engaging with the Smart City Through Urban Data Games	47
Annika Wolff, Alan-Miguel Valdez, Matthew Barker, Stephen Potter, Daniel Gooch, Emilie Giles and John Miles	
Size and Shape of the Playing Field: Research Through Game Design Approach	67
Viktor Bedö	
Game Engines for Urban Exploration: Bridging Science Narrative for Broader Participants	87
Verina Cristie and Matthias Berger	
Part II Design of Urban and Pervasive Games	
Squaring the (Magic) Circle: A Brief Definition and History of Pervasive Games	111
Eddie Duggan	
Mapping the Beach Beneath the Street: Digital Cartography for the Playable City	137
Paul Coulton, Jonny Huck, Adrian Gradinar and Lara Salinas	
Creating Shared Encounters Through Fixed and Movable Interfaces	163
Patrick Tobias Fischer and Eva Hornecker	

Part III Design for Playful Public Spaces

**The City as Canvas for Change: Grassroots Organisations’
Creative Playing with Bogota** 189
Leonardo Parra-Agudelo, Jaz Hee-jeong Choi and Marcus Foth

Designing ICT for Thirdplaceness 211
Vinicius Ferreira, Junia Anacleto and Andre Bueno

Mischief Humor in Smart and Playable Cities 235
Anton Nijholt