CAMBRIDGE

Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

INSTALLATION THEORY

Installation Theory: The Societal Construction and Regulation of Behaviour provides researchers and practitioners a simple and powerful framework to analyse and change behaviour. Informed by a wide range of empirical evidence, it includes an accessible synthesis of former theories (ecological psychology, activity theory, situated action, distributed cognition, social constructionism, actor-network theory and social representations).

'Installations' are the familiar, socially constructed, apparatuses which elicit, enable, scaffold and control – and make predictable most of our 'normal' behaviour; from shower-cabins or airport check-ins to family dinners, classes or hospitals. The book describes their three-fold structure with a new model enabling systematic and practical analysis of their components.

It details the mechanisms of their construction, resilience and evolution, illustrated with dozens of examples, from restaurants to nuclear plant operation. The book also provides a detailed analysis of the processes of creation and selection of innovations, proposing a model for the maintenance and evolution of social systems.

SAADI LAHLOU is Chair in Social Psychology at the London School of Economics and Political Science, in the department of Psychological and Behavioural Science, of which he was formerly Head. Trained initially as a statistician and economist, then a student of Serge Moscovici, he developed methods in large surveys, text mining, participative design and digital ethnography. Lahlou directed the Consumer Research Department of the Centre for Lifestyles and Social Policies (Crédoc, Paris), the Laboratory of Design for Cognition at EDF R&D (a whole building instrumented as a living lab), and was a member of the board of the Commissariat Général du Plan (French Prime Minister's office). He has written more than 150 papers, books and published reports.

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

INSTALLATION THEORY

The Societal Construction and Regulation of Behaviour

SAADI LAHLOU

London School of Economics and Political Science

CAMBRIDGE
UNIVERSITY PRESS

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

CAMBRIDGE
UNIVERSITY PRESS

University Printing House, Cambridge CB2 8BS, United Kingdom

One Liberty Plaza, 20th Floor, New York, NY 10006, USA

477 Williamstown Road, Port Melbourne, VIC 3207, Australia

314–321, 3rd Floor, Plot 3, Splendor Forum, Jasola District Centre, New Delhi – 110025, India

79 Anson Road, #06-04/06, Singapore 079906

Cambridge University Press is part of the University of Cambridge.

It furthers the University's mission by disseminating knowledge in the pursuit of education, learning, and research at the highest international levels of excellence.

www.cambridge.org
Information on this title: www.cambridge.org/9781107137592
DOI: 10.1017/9781316480922

© Saadi Lahlou 2017

This publication is in copyright. Subject to statutory exception and to the provisions of relevant collective licensing agreements, no reproduction of any part may take place without the written permission of Cambridge University Press.

First published 2017

Printed in the United Kingdom by Clays, St Ives plc

A catalogue record for this publication is available from the British Library.

Library of Congress Cataloging-in-Publication Data
Names: Lahlou, Saadi, author.
Title: Installation theory : the societal construction and regulation of behaviour / Saadi Lahlou.
Description: New York: Cambridge University Press, 2017. | Includes bibliographical references and index.
Identifiers: LCCN 2017034651 | ISBN 9781107137592 (hardback)
Subjects: LCSH: Behavioral assessment. | Psychology, Applied. |
BISAC: PSYCHOLOGY / Applied Psychology.
Classification: LCC BF176.5.L35 2017 | DDC 303.3/7–dc23
LC record available at https://lccn.loc.gov/2017034651

ISBN 978-1-107-13759-2 Hardback

Cambridge University Press has no responsibility for the persistence or accuracy of URLs for external or third-party internet websites referred to in this publication and does not guarantee that any content on such websites is, or will remain, accurate or appropriate.

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

To Aaron Cicourel

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

Contents

List of Figures *page* ix
List of Plates xii
Foreword xiii
Acknowledgements xxi
Introduction xxiii

1 Installation: A Synthetic Theory to Explain How Humans Construct Systems That Support and Format Individual Behaviour 1
1.1 In Society, Individual Behaviour Appears Standardized and Predictable in Many Situations 11
1.2 An Example: Road Traffic, Showing How the Three Layers of Behavioural Determination Operate as a Single Regulation System 14
1.3 The Research Questions: How Do Individuals Choose Their Behavioural Path in a Situation? How Does Society Regulate the Behaviour of Its Members? 17
1.4 This Book's Structure 19

2 The Problem of Human Action and the Problem of Social Regulation: Two Sides of the Same Coin 21
2.1 The Three Layers of Determination of Human Behaviour 25
2.2 Our Microscope: Subjective Evidence-Based Ethnography 32

3 Theoretical Frameworks Grounding Installation Theory 44
3.1 Ecological Psychology 45
3.2 Activity Theory and Scripts 57
3.3 Social Constructionism 63
3.4 Distributed Cognition, Actants 70
3.5 Social Representations 76
3.6 Takeaway on the Theories and Some Comments 84

4 The Structure of Installations 93
4.1 Components of Installations Are Distributed over Three Layers 95
4.2 Layer 1: Objective Material Environment 97

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

4.3 Layer 2: Embodied Interpretive Systems 108
4.4 Layer 3: Social Regulation 123
4.5 The Three Layers Combine as a Single Functional System and Their Redundancy Makes Installations Resilient 159
4.6 Takeaway: The Resilient Power of Installations and Its Limits 169

5 Endurance of Installations: The Reconstructive Cycle of Practice 175
5.1 An Overview of the Standard Reproduction Cycle 178
5.2 Reproduction Cycle of Embodied Competences 181
5.3 Reproduction Cycle of Material Components of the Installation 262
5.4 The Role of Communities and Institutions in the Installations' Reproduction Cycle 267
5.5 Takeaway: Distributed Control, Distributed Reproduction 281

6 Selection Mechanisms in Societal Evolution: Two Cases: Science and Industry 290
6.1 Science 293
6.2 Innovation Processes in Industry 303
6.3 Takeaway: Some Common Features of the Societal Selection Mechanisms 314

7 The Evolution of Installations 321
7.1 The Darwinian Principles of Evolution: Do They Apply to Installations? 322
7.2 Overview of the Model 328
7.3 The Evolution of the Symbolic Layer, Embodied or Embedded 341
7.4 Genesis and Evolution of Objects 357
7.5 The Regulation of Installations and the Evolution of Institutions 362
7.6 A Synthetic Schema of the Evolution of Installations 368

8 Redesigning Installations to Change Behaviour 373
8.1 Intervention and Change in Organizations 376
8.2 Micro-level: An Academic Department 378
8.3 Micro-level on a Large Scale: Changing the Drinking Behaviour 380
8.4 Meso-level: Experimental Reality and the LDC Case 385
8.5 Examples of Interventions Using Social Norms in Colombia 396
8.6 A General Practical Approach to Apply Installation Theory for Interventions 399

9 Conclusion 403
9.1 An Abstract of Installation Theory 403
9.2 Considerations on Trees and Forests 415

Glossary 425
References 433
Index 475

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

Figures

2.1	Sustainable behaviours represented by three ovals	*page* 23
2.2	Subcams worn by research participants	33
2.3	Screenshot from a subcam film of a power plant technician centring a gasket during the maintenance of a pump valve	35
2.4	Doctor describing what she thought during an episode of trying to intubate a patient in a difficult airway scenario	37
2.5	The reception installation	39
2.6	The replay interview	41
3.1	Uexküll's functional loop	49
3.2	Geologist's hammer and mace and chisel	53
3.3	The intensive care unit simulation room layout with labelled equipment	56
3.4	Average number of cognitive tasks per subject and per location in the room during a scenario involving difficult intubation	56
3.5	A simplified version of activity theory	59
3.6	The empirical process of describing social representations from empirical data	78
3.7	The theory of planned behaviour	86
4.1	A halftone printed image at increasing levels of magnification	94
4.2	Changing a flat tyre (extracts from a subcam film)	99
4.3	Changing a flat tyre: Taking the vest from the car boot and placing the triangle	100
4.4	Changing a flat tyre: Bringing in the replacement wheel	101
4.5	Changing a flat tyre: Finding an affordance for the jack and cranking	101
4.6	Changing a flat tyre: Replacing tyre, tightening bolts	102
4.7	Changing a flat tyre: Finishing tightening bolts with foot, storing flat tyre and tools	102

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE
Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

4.8	Changing a flat tyre: Back in the car	102
4.9	The technician sets the value of the torque on the torque wrench	103
4.10	Following the dishes orders in the kitchen with a system of rules and notecards in a gastronomic restaurant	105
4.11	Uexküll's functional loop	112
4.12	Nurse tries to scan the barcode of a drug	114
4.13	Preparation of medication for dispensing seen from the nurse's perspective	148
4.14	Medication dispensing seen from the nurse's perspective	149
4.15	Equipment sterilization	150
4.16	The nurse nudges the patient into learning the procedure	151
4.17	The psychosocial triangle	154
4.18	Procedures and rules displayed in the environment	157
4.19	Halftone printing	159
4.20	Sources of error in managing a 'difficult airway' scenario by the medical team in an ICU	164
4.21	The Swiss cheese model of how defences, barriers and safeguards can be penetrated by an accident trajectory	166
5.1	*Drawing Hands*, Maurits Cornelis Escher, and the chicken-and-egg cycle	179
5.2	General setting in the operating room	197
5.3	Chef Frederic Martin adapts his technique to fill the bowls with soup from one day to the next and uses the 'piston' instead of a ladle	199
5.4	The apprentices volunteer to help and try to reproduce what they saw the chef do the day before	200
5.5	Uexküll's functional loop	223
5.6	Embodiment and the functional loop	225
5.7	Interpretation and the functional loop	226
5.8	The paradigm effect: Example of the French meal as described in free associations by French adults	237
5.9	Paradigm of situation and paradigm of action	239
5.10	Six stages in the one-handed catching skill	257
5.11	The design cycle	265
5.12	Example of a litho print	284
6.1	Function of the sections of classic academic document structure	298
6.2	Constraints observed in innovation processes	317

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE
Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

7.1 Crossroads vs roundabouts: vehicle conflict point comparison for intersections with single-lane approaches 326
7.2 Selection mechanisms in the evolution of installations 331
7.3 Composition of reified representations 353
7.4 The documents processing cycle 354
7.5 Genesis and construction of material objects 358
7.6 'Universal industrial success curve' illustrating the number of 'substantially new product ideas' surviving between stages of the new product development process 360
7.7 The long-term betterment loop of installations 370
7.8 Short-term betterment loop of installations 371
8.1 Evolution of plain water (tap water and bottled still water) in the various groups' intake during and after interventions 384
8.2 A view of the open space offices in the K1 building. The RAO meeting room, with the Tabec screen during a videoconference 388
8.3 First draft of the Tabec 390
8.4 New blueprint of Tabec, with back projection, and the architectural drawing of the K1 ground floor 391
8.5 Tabec V-02 392
8.6 Prototype V-02 of the Tabec in use, seen from the RAO meeting room 392
8.7 Broadening the Tabec 394
8.8 Double projection from a single source (V-03) 394
8.9 Tabec V-04: Double projection from two independent sources 395
9.1 A loblolly pine (*Pinus taeda*) plantation in the southern United States, seen from a perspective that reveals the alignment 416

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE

Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

Plates

Color plates are to be found between pp. 92 and 93

1 Subcams worn by research participants
2 Screenshot from a subcam film of a power plant technician centring a gasket during the maintenance of a pump valve
3 Doctor describing what she thought during an episode of trying to intubate a patient in a difficult airway scenario
4 The reception installation
5 The replay interview
6 A halftone printed image at increasing levels of magnification
7 Changing a flat tyre: Finding an affordance for the jack and cranking
8 The technician sets the value of the torque on the torque wrench
9 Nurse tries to scan the barcode of a drug
10 Equipment sterilization
11 The nurse nudges the patient into learning the procedure
12 Halftone printing
13 Chef Frederic Martin adapts his technique to fill the bowls with soup from one day to the next and uses the 'piston' instead of a ladle
14 The apprentices volunteer to help and try to reproduce what they saw the chef do the day before
15 Example of a litho print
16 A view of the open space offices in the K1 building. The RAO meeting room, with the Tabec screen during a videoconference
17 First draft of the Tabec
18 Broadening the Tabec
19 Double projection from a single source (V-03)
20 Tabec V-04: Double projection from two independent sources

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE
Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

Foreword

I awake at 5 AM, sparked by birdsong, when, with weathered familiarity, I arch my right hand over my head to my bedside table where, on a pile of books I read nightly, I grasp my glasses, lifting them up and onto my face. I tiptoe from the bedroom so as not to disturb my partner's sleep and make for the kitchen, where I run water into a kettle and press its button to boil. Today is Friday, April 28, 2017.

A priority on my to-do list is writing the Foreword to this fiftieth and last book to appear in the thirty years of our Cambridge University *Learning in Doing* book series. LSE Professor Saadi Lahlou's *Installation Theory* brings a fresh framework to analyse behaviour, and a theory of societal evolution; it connects the minute gestures of action as-we-live-it to aggregate historical change.

Installation theory (IT) is a synthetic theory explaining how humans construct systems that support and format behaviour. 'How is it', he asks, 'that we creatures of free will, despite our differences, despite our biographic differences, all comply to "behave" in society as expected? And how is it that we manage so easily to behave adequately even in new contexts?' To provide detailed answers to these perennial questions, he has 'installations' serve as our unit of analysis for the nexus of societies, cultures and individuals. This focus on installations then enables coordinated answers to the two classical research questions for human development at the heart of the social sciences: How does society regulate the behaviour of its members? How do individuals choose their behavioural path in a situation? Answering each, the reader finds, enlightens the other.

Because focus on detail is essential to understand the determinants of behaviour, which is a sum of details, because understanding what an installation is requires getting into the nitty-gritty of everyday actions, let me describe what I do while the kettle heats the water. Please bear with me.

I interweave other activities as the water is boiling; I grab a blood pressure cuff, collect my smartphone, turn on Bluetooth as I sit, mounting the

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE
Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

cuff; I press the Start button on my iHealth app, which channels my take-blood-pressure activity. After the cuff inflates and the reading is produced, I take it off and return it to its charger. The water is boiling now.

I place three tablespoons of coffee into a filter (from a nearby jar in which I keep a tablespoon), pouring the boiling water languorously into a Japanese coffee-dripping device, savouring each burst of its dark-roasted scent. I flip over a five-minute sand clock I installed on the kitchen counter the night before in anticipation of this morning's caffeination ritual. There is then time to walk across the kitchen, don my slippers, walk down the twelve steps to the front door, unlock and open it and walk the sixty steps to the street curb of my home, where the morning papers have arrived. I collect them and return to the house, bounding up the steps. Ready to enable the coffee now brewed to drip, I lift the clear plastic device and sit it upon my cup. As the bottom rim of the device touches the coffee cup's rim, the cleverly engineered bottom of the coffee dripper rises, and the coffee fills my cup. I dump the grounds for recycling and rinse and reset the coffee-filtering device into a sink-side draining rack. I open the fridge, the filled coffee cup in my other hand, pour a dollop of cream from the fridge, and now the calm I have been seeking to launch the morning can begin.

In all that just happened, my home and kitchen installations, including me as a key component, have performed several activities cooperatively; I was acting, but I was also guided and scaffolded by the rest of the installation's components.

Now I settle myself into my habitual right corner of the black couch, turning on my nearby lamp, and my day can start. I pull a bound leather journal from my side table. I sketch the day's arc in a list: it must set out my priorities and primary time chunks of the day and estimate where I will devote my energies. I check the weather forecast hour by hour by launching my iPhone's Accuweather app. It tells me it will get quite warm today, 78 F, by 2 PM. This will affect my schedule planning, as I expect to run to the gym I use 1.5 miles away, do a weight workout, and then run home, where I will continue writing.

I have learned to avoid the pull of checking email before setting priorities, so I've placed my phone facedown so I will not be tempted to open it up before I have completed my list-making. In the journal itself I create an installation (keep reading …); I sketch a list of what I hope to achieve in the day. I estimate the hours I wish to spend on each task. For each I envision the percentage of my energy expenditures for the day which I imagine it will consume. This is a new habit, begun in 2013 after I suffered a massive stroke which reduced my available mental energies each

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE
Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

day and impaired my left inferior peripheral vision so that I can no longer drive or ride bicycles for safety's sake. Otherwise fine, I walk everywhere for exercise and for contemplation. The need for energy estimates for the day is so I'll avoid my prestroke tendencies to be captured in each of the things I begin doing each day, running my clock out by making progress toward all of them that I pursue. With less overall energy to expend, I must be more strategic, so tranching my energies, guided by a priority queue and scribed time estimates, is key. Because of this increased awareness of detail, I am especially sensitive to Lahlou's description of how the context scaffolds and constrains behaviour, and how I create as well as use the installations I live in.

To begin, I look around the table and the floor for cues I have left myself to the things I'll need to do today. Last night I sketched a few words on each of several coloured sticky notes about things to do, and I have four different stacks of papers on the floor by the couch, each representing a major cluster of tasks: materials for a course I'm teaching on media multitasking, learning and the brain, the IT book manuscript, Stanford University long-range-planning documents, student papers and journal manuscripts needing attention. These assets I scan, filtered by my emerging priorities from the knowledge integrations and values-sifting my brain engages in during the prerising times of consciousness. The items that still matter make it onto my evolving list of today's to-dos. Any items needing calendaring I render on my smartphone calendar app, which synchs to my desktop calendar.

What exactly is an installation as Lahlou defines them? Installations are smaller units than society is; they are specific, local, societal settings in which humans are funnelled to and expected to behave in a predictable way (such as the aforementioned bedroom, kitchen, roadways, gym and, shortly, the restaurant). Installations are ubiquitous; collectively, they are the main loci and devices through which the continuous reproduction of society and culture occurs at a micro-level through daily practice. But installations are not reducible to or to be confused with physical settings. Those in a culture spontaneously identify them and, because they have been socialized to do so, know what to do in them. Installations, you see, have three component layers – distributed at physical, psychological and social levels – that are linked into a single functional bundle. Lahlou explains that although installations have a functional coherence and are a deliberate production of societies, they are distributed in their nature and assemble only at the moment and point of delivery of activity, just as ingredients assemble and transform as expected in a chemical reaction.

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE
Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

For envisioning the redundancy of installations, consider the customs installation of an airport, an assemblage of our embodied competences in queueing behaviours upon arrival, the material physical barrier channels and the customs agents and associated authority and regulatory apparatus. I presume your competency in airport customs using this example. Yet installations, although channelling, are nonetheless nondeterministic – variabilities in behaviours occur with the leeway of caprice. An agent's free will make its way into installations through selecting goals, in choosing which installation one will participate in and in performing the details of action inside socially allowable limits for the installation (e.g., which dish I order in a restaurant). Furthermore, agents do not only use standard installations; they also create their own and use them to frame their own behaviour, as I do in my home or with my arrangements to sort out priorities and organize my day, as I have described earlier.

Continuing my saga, after writing the first part of this introduction, weightlifting at the gym and musing over the morning's ethnographic notes, I walk to a fish market to order a dish. While waiting, I use my phone's Notes app to draft a series of reflections on how my morning's observations relate to IT. The three layers of Lahlou's IT framework are affordances, embodied competences and social regulation. Layer 1 deals with the *Objective Material Environment*, made up of affordances in the material environment (which scaffold behaviour); Layer 2 is *Embodied Interpretive Systems*, the competences expressing the embarked agency of the subject, who is part and parcel of the installation (which produces behaviour); and Layer 3, *Social Regulation,* is made up of institutions and formal and informal rules (which regulate behaviour).

A first observation on the beginning of my day is how intertwined in the behaviours of my account are the first two layers: getting and donning my glasses from the bedside, preparing the coffee with its multiple steps and devices, taking a trip outside to collect a morning paper, rummaging my stacks, establishing my priorities for the day in my work journal, writing these very words on my computer. Less obvious but no less channelling my behaviours were five different instances of social regulation in this brief, dramaless morning: my tiptoeing out of the bedroom – so as not to wake my partner; my putting away both the blood pressure cuff and the coffee filter system – to avoid clutter; adhering to the social norm of recycling my coffee grounds – to provide biodegradable waste; and my calendar synching – which is socially regulated in how I am making accessible to others I need to be coordinating with when it is that I am occupied and when I might be available. The combination of these three layers of components,

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE
Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

at the point of delivery of action, naturally channels my behaviour. And I could be sharing scores of other event sequences that unfolded in my running, road crossings with traffic lights, gym entry, workout and locker room procedures, restaurant ordering and eating scripts; all analysable and redesignable with the guidance provided in this IT book.

In Lahlou's book, indeed, the three layers shaping human behaviour and their operationalization in research and practice are used for analysing installations to understand, manage or redesign them. That these three layers of installations coalesce to function with momentum as a single system provides redundancies and produces their resilience.

With installations at the centre of the theory for understanding and intervening in how humans construct systems to support and format behaviour, how do installations work as what Lahlou calls 'a behavioural backbone architecture for society'? They 'channel' behaviour by offering users a restricted choice of alternatives, limited by three distributed layers of determinants at material, embodied interpretive and social levels, which provide behavioural feedforward and feedback. Each installation layer induces or allows specific behaviours and provides limited degrees of freedom to act. The guiding path is continuously produced as action unfolds. Thus, installations operate as a behavioural attractor where choices left to the person are often minor. The combination of the three layers makes this channelling system resilient and enduring. If we can understand how installations have their effects, we should be enabled to modify behaviour, collectively and individually. We could then intervene by reframing components singly or in combination: redesigning material contexts, educating participants, modifying institutional or regulatory systems.

The reader will find upon inquiry into the text that IT uniquely integrates a phenomenal range of theories, across the social science disciplines of psychology, sociology, anthropology and economics, and further incorporates the already interdisciplinary cognitive sciences. IT has been informed and iteratively developed through its grounding in extensive analyses of video-recorded activities produced in natural settings, of users of technology, broadly defined, and professionals in a diversity of occupations, so as to understand their decision-making and actions. At the root of this richness lay multilayered analyses of the digital ethnographic data of human activities and interactions that Lahlou and colleagues have captured in situ with the aid of 'subcams' – miniature subjective cameras worn by research participants as they conduct their everyday life, thus yielding first-person perspectives on action in situ and enabling replay interviews where participants who wore the camera comment on their own film.

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE
Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

These data on how and why people act in real-world situations have been used to provide unprecedentedly detailed and insightful accounts into the psychological states of participants as they are interacting with the physical, social and representational stuff of their environments.

Installation theory is ambitious in intent and fine-grained in execution, seeking to be nothing less than a simple and robust framework for both analysing all manner of behaviours and changing them using design and policy interventions. The framework is connected to many other current accounts of similarly vexing issues, such as activity theory, distributed cognition, ecological psychology, situated action, social constructionism, actor-network theory, social representations and the like (which are also presented in the book). Yet it provides a unique vantage point in its integrative powers and range of examples from which it has been constructed. The dozens of real-world examples encompassed in the book illustrate the value of IT. The behaviour settings studied range from shopping and family meals to cycling on the urban street, changing a flat tire, getting a dental filling, white-collar work, waiting restaurant tables, surgery, nurses dispensing medications, master chef apprenticing, and nuclear plant operations.

The pluripotent nature of IT should yield generative fruits for many disciplines and societal roles, including designers, engineers, managers, consultants, policymakers, social scientists, educators and students. Perhaps even more fundamentally, anyone concerned with the real-world contexts of cognition and action, their own and those of others, will benefit from reading this book.

IT is also an ambitious academic theory, whose delicious intricacies await the reader, of the stability yet continual evolution of societies, culture and their constitutive installations, emboldened with particularities I can say little about here. Lahlou provides a vision of the endurance and evolution of societies as reproducing piecemeal and in a distributed manner by means of installations. This academic theory of societal evolution – its spawning of variants and its selection mechanisms – is advanced by study of the examples of scientific progress and innovation processes in industry.

Such evolution combines endurance (day-to-day reproduction) and change (longer-term continuously modifying form). Lahlou argues that installations not only channel behaviour but are essential to reproducing society and culture, since they are the very devices by which culture reproduces through daily practice. The resilience of installations, coming from their redundant threefold structure, is key in socializing novices, who find themselves induced into the correct practice and therefore learn how to

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE
Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

behave while participating in installations. IT shows how installations, in practice, enable people to *learn in doing*.

Lahlou describes the reproduction cycles of embodied competences, of material objects in the physical layer and of institutional rules emerging from power struggles among stakeholders. Participants in and stakeholders of installations change them in betterment loops for improved experience and satisfaction. He shows how the construction and endurance of installations reflects power struggles and compromises of interests, how they evolve spontaneously and how their evolution can be channelled by deliberate design. He articulates several mechanisms that select from the variants which are produced, from thought experiments to reality trials to the power struggles of competition. His account provides for dual aspects of the mechanisms for the long-term evolution of installations in society – the three semiautonomous component layers of installations evolve independently with their own technical (re)production logics and constraints, but the installations also evolve conjointly, in the composite splendour of their entirety. There may also be crossed effects, where design of one layer may be influenced by what happens in another layer, since individual humans circulate between installations and their embodied competences are constructed within and for diverse installations.

Satisfyingly, the IT book itself is organized as an installation; it provides different levels of structure to align with different reading goals: browsing mode and reading mode. Takeaways and abstracts appear in bold font to capture browsing attention, much like the copasetic page summaries in the text margins popular in philosophy books in the nineteenth century.

Lahlou avers that IT has pragmatic value. He provides some examples of application for behavioural change, which is his main goal, and that will likely become a core application of IT. As a learning scientist trained in developmental psychology, philosophy and the cognitive sciences, working on the complexities of K–12 STEM education and learning with technologies for thirty-six years, I am especially keen to bring IT into close contact with the interdisciplinary learning sciences and technology design. I foresee three specific strategies for that enablement.

The first will be to employ IT for describing and analyzing the situated experiences of people learning in the many different contexts in which learning scientists investigate learning processes and outcomes, from schools and universities to museums, communities and homes. While unsurprisingly, echoes of Dewey, Piaget, Vygotsky, Bruner and Situated Learning are manifest in IT, I have legions of reasons to anticipate that

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE
Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

Lahlou's IT brings unique leverage to tackling these issues in powerfully new ways.

The second strategy is leveraging IT as a design and intervention framework for creating and researching the processes in use and consequences of learning technologies and learning environments of every kind more broadly over the life course, not only for formal education but in informal learning and for learning online.

A third approach will be analyzing the ways in which IT aligns or conflicts with extant learning theories, pedagogical frameworks, and educational policymaking for building equitable learning opportunities and adaptive capacities in educational systems for learners and teachers. I eagerly anticipate these activities with a large community of colleagues keen for such an encompassing and generative theory as Lahlou has developed.

In short, as an explanatory and intervention-ready account of how installations, in practice, enable people to learn in doing, I believe Lahlou's IT serves as a fitting crown to the Cambridge University Press's *Learning in Doing* series.

I hope you grant me forbearance for exposing in this Foreword the skins of my installations du jour when you also find resonance, as you are reading Professor Lahlou's book, with your reflections on the installations you use and build throughout your own daily living. As you will experience, IT is a handy toolkit for sharpening our awareness and understanding of the fine-grained fabric of how we act-in-the-world – and how we can design for change.

Roy Pea
Stanford University

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE
Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

Acknowledgements

I was helped for the substance of this book by friends, colleagues and students so numerous that I can only give here a warm collective acknowledgement. Friends, colleagues, students, a big thank you for your support, your intellectual and technical input and all the rest of it!

My teachers and mentors kindly supported me again for this project, especially Aaron Cicourel, who taught me field work, among other things. Aaron, this book owes a lot to our discussions, thank you also for your generous mentoring all these years. George Gaskell has been there for me in times of need. George, many thanks for your good advice. Alas Serge Moscovici, my PhD supervisor, and Jean-Claude Abric, my habilitation director, departed this world too early and only saw the first sketch of this book. Serge, Jean-Claude, I wish you were still with us.

An extra thank you to colleagues who read the book and contributed to its current form at various stages of production, from first draft to launch. Your input seriously improved the book –and especially Roy Pea's suggestions that made me completely re-write some sections: Ai Yu, Alex Gillespie, Aliénor Lahlou, Antoine Cordelois, Bonnie Heptonstall, Bradley Franks, Cathy Nicholson, Champa Heidbrink, Charles Lenay, Charles Stafford, Claude Fischler, Claudine Provencher, Denise Baron, Denise Jodelet, Elena Samoylenko, Elinor Ochs, Frédéric Basso, Gretty Mirdal, Jana Uher, Jim Hollan, Johannes Rieken, Jorge Correia Jesuino, Lucia Garcia-Lorenzo, Marina Everri, Marshall Buxton, Martin Bauer, Maximilian Heitmayer, Monica Zhang, Paulius Yamin-Slotkus, Peter Dieckmann, Philippe Fauquet-Alekhine, Pierre-Emmanuel Godet, Robin Schimmelpfennig, Roy Pea, Sandra Obradović, Simon Luck, Sophie Guéroult, Sophie Le Bellu, Terri-Ann Fairclough, Tom Reader, Valérie Beaudouin, Valery Nosulenko, Vivian Loftness, Volker Hartkopf, Zoe Jonassen –and of course C.U.P.'s anonymous reviewers and editorial team: David Repetto, Daniel Brown, Fred Goykman, James McKellar, Kanimozhi Ramamurthy. Diana Witt made the index.

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE
Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

Finally, I am grateful to several institutions:

The London School of Economics and Political Science, whose generous sabbatical policy enabled me to take a year off-teaching to write; also for a Seed Fund grant.

The European Commission EURIAS senior fellowship programme, for a year of invited residence at the Paris Institute for Advanced Studies, with the support of the French State managed by the Agence Nationale de la Recherche, programme "Investissements d'avenir" (ANR-11-LABX-0027-01 Labex RFIEA+).

The Paris Institute for Advanced Studies team led by Gretty Mirdal, who have been supportive and kind beyond imagination.

The CNRS for a DRA grant (programme CADEN, UMR 8037/8177 EHESS-CNRS).

The EDF R&D Division for solidly funding the building and operation of the Laboratory of Design for Cognition for 10 years.

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE
Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

Introduction

Most sections of this book are easy to read and illustrated with real-world examples. Nevertheless, a few sections include more technical discussions which connect this work with the literature. Their presence is necessary for the scholarly reader, but not indispensable for understanding the argument. For example, Chapter 3 provides an abstract of five important streams of theories which are relevant for this book, but its reading is not essential to those who already know them: different readers have different needs.

I encourage the reader to switch into browsing mode in the moments where the detail of the text may appear too stodgy, and then to switch back into reading mode.

The book was written precisely with this possibility in mind, with takeaways and abstracts in bold font to facilitate browsing and resumption of reading.

There are introductory overviews and a final takeaway in each chapter, and even in each major section. The conclusive chapter also includes a detailed takeaway in Section 9.1

This book provides a simple framework to analyse and change behaviour.

In lectures, bus stops, workstations, shops, dental practices, family dinners and so on, behaviour is locally *channelled* by mechanisms that induce subjects to behave in an 'appropriate' way to reach their goals, to cooperate and to minimize social confrontation. A substantial part of our activity in society takes place in such settings, 'installations', which are a natural behavioural unit. Installations are specific, local, societal settings where humans are expected to behave in a predictable way. These units are spontaneously identified as such by members of a culture, socialized from childhood, who thus 'naturally' know what to do in them. Installations channel behaviour by offering users a limited choice of alternatives, limited by three layers of determinants at material, social and embodied level. These determinants provide behavioural feedforward and feedback.

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE
Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

The book first presents a threefold ***framework*** and methods for analysing these installations to manage or redesign them. Installations have three layers: *affordances in the material environment, embodied competences in the subject and social regulation.* The subject is part and parcel of the installation, which is therefore a compound functional unit that assembles at the point of behavioural delivery, such as a chemical reaction or a cooking recipe. Entering an installation is subjectively experienced as being in a 'situation' that has a momentum of its own: one feels naturally *driven* to do what is appropriate. The components of the installation in the three layers are linked into one single functional bundle; they scaffold, produce and regulate a specific normative behavioural sequence.

Each layer of an installation induces or allows specific behaviours and gives only certain degrees of freedom to act; their threefold combination in a local situation leaves an even more limited path for action. That guiding path is continuously created as action unfolds, as for a player driving an avatar in a video game. Therefore, installations operate as a behavioural attractor where the choices left to the subject are often minor (e.g. which drink you choose from a menu). The way each layer contributes to channel behaviour will be explained in detail. Their combination makes this channelling system resilient and enduring. Understanding their effects enables us to modify behaviour.

Installations benefit from continuous, gradual, cultural improvement to provide efficient support for activities. As a result, subjects behave in a predictable and efficient way; social cooperation is possible and externalities are optimized. By structuring behaviour, installations provide a backbone for societies and organizations. Installations do not overtly regulate what people feel or think (what they *experience*), but in practice they regulate, and support, their behaviour (what they *do*) for a wide range of mundane activities by providing an envelope for 'appropriate' behaviour.

Of course, individuals do have leeway and initiative; there is more than one way to skin a cat. Every interaction or activity is unique in the way participants live it at the microscopic level: no two family dinners are exactly the same and we never step in the same shower twice. Still, in practice, the variations are usually in the details. Installations facilitate the 'paradigmatic' learning and execution of an array of such variations within a frame; they account for the similarity-with-minor-adaptive-variants that we observe in practice, and that make life in society predictable and easy. The variability of behaviours is also a source of innovation, and as a result, installations undergo change on a sociohistorical scale.

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE
Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

Although it is obvious that there are individual differences, there are also striking commonalities in the way people behave. Installations are precisely addressing that second aspect and account for how these similarities are constructed in spite of all the reasons for difference.

This simple analytic framework provides a robust tool for design and policy intervention in the real world; extant layers (and how to analyse these) are presented in detail and illustrated with dozens of real-world examples.

The framework is useful for designers, consultants, managers and policymakers, as well as for social scientists or students. Read Chapters 1, 2, 4 and 8.

The book also presents, grounded in the aforementioned framework, an ambitious ***theory*** of the endurance and evolution of societies and culture, for an academic audience. It shows how installations evolve naturally, and extracts from this evolution principles and mechanisms usable for deliberate interventions and change. It is argued that installations are the main loci and devices through which the continuous reproduction of society through daily practice occurs, and so they can be a powerful instrument for regulation and policy.

In a nutshell, installations, because of their redundant threefold structure, have enough resilience and regulatory power to channel 'appropriate' behaviour even in novice or reluctant subjects. As a consequence, novices *learn by doing*: subjects are socialized into cultural skills by being channelled into experiencing appropriate practice, within local installations. Such appropriate practice is then embodied by subjects: installations literally *inform* subjects by having channelled them. In turn, subsequently, experienced subjects become part and parcel of the societal reproduction process: they act as helpers and vigilantes who contribute to regulate other people's behaviour through the social layer.

Participants and stakeholders operate installations on a daily basis. But they are not only passive users. They also change installations for improved experience and satisfaction. Various institutional and technical selection mechanisms involving reality trials, thought experiments, external representation, competition and power struggles ensure global societal coherence of this distributed process; these are described herein.

The endurance and evolution of societies therefore emerges as a distributed process in which material culture and representations reproduce piecemeal and mostly locally, following an original mechanism of betterment loop through *monitored dual selection and modification* of installations, a

© in this web service Cambridge University Press www.cambridge.org

CAMBRIDGE
Cambridge University Press
978-1-107-13759-2 — Installation Theory
Saadi Lahlou
Frontmatter
More Information

process that is more resilient and faster than biological evolution. Its driving forces, regulation loops and operation are described therein.

As evolution is a combination of stability and change, the mechanisms producing evolution are presented separately before being combined in a single model. It appears that societal change in general and the evolution of installations is mostly constituted of control and selection loops which frame innovations. These ensure continuity of the new with the old. The bulk of innovation and change is tested in simulation trials in 'external representations' before being confronted with reality tests. This spares time and cost, compared to biological evolution. The processes of scientific progress and industrial innovation are used as detailed examples, among many others.

The power of the demonstration of the theory resides in a detailed explication of the full chain of genesis, reproduction and selection of installations' components, from the macro societal level of institutions to the micro-level of local interaction and neurons. It is illustrated by many empirical cases.

Installation theory is a synthesis weaving together a series of other theories in psychology, sociology, anthropology, economics and cognitive science. This integration has been made possible by the use of powerful data collection techniques, including digital ethnography, to capture activity data from the very perspective of the actors (with wearable video cameras). These techniques enable unprecedented in-depth analysis of the psychological states of subjects as they interact with their natural environment. The empirical material comes from very diverse real-world situations, from family dinners and shopping to emergency medicine and nuclear plant operation, as well as from ten years of experimentation in the largest industry living lab in Europe.

This theory is proposed as one more step in the long series of scientific efforts to account for the endurance and evolution of societies. It is presented in Chapters 4, 5, 7 and 9.

Chapter 3 presents some important theories used in building the framework, especially ecological psychology, activity theory, situated action, distributed cognition, social constructionism, actor-network theory and social representations. The informed reader can skip it.

Section 6.1 presents a perspective on scientific publication that may be of specific interest for PhD students and their supervisors.

© in this web service Cambridge University Press www.cambridge.org