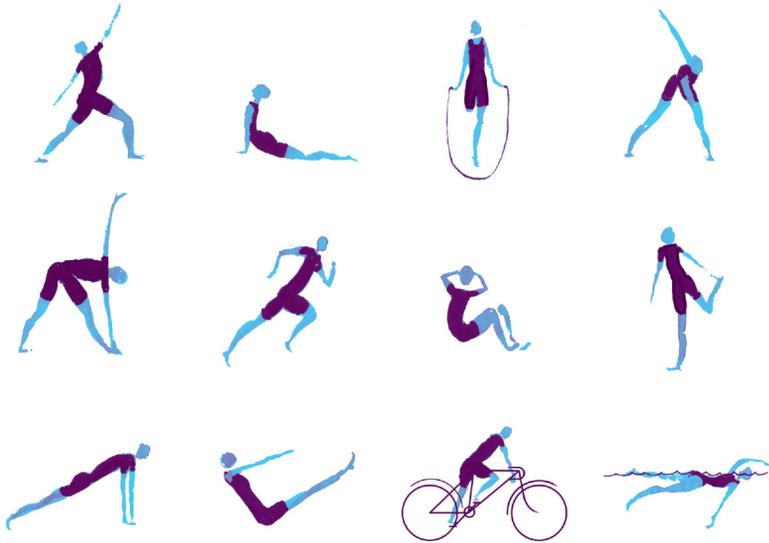


*Antonio Maturò
Veronica Moretti*



DIGITAL HEALTH AND THE GAMIFICATION OF LIFE

*How Apps Can Promote
a Positive Medicalization*

DIGITAL HEALTH AND THE GAMIFICATION OF LIFE

This page intentionally left blank

DIGITAL HEALTH AND THE GAMIFICATION OF LIFE: HOW APPS CAN PROMOTE A POSITIVE MEDICALIZATION

**ANTONIO FRANCESCO MATURO
VERONICA MORETTI**

University of Bologna, Italy



United Kingdom – North America – Japan – India – Malaysia – China

Emerald Publishing Limited
Howard House, Wagon Lane, Bingley BD16 1WA, UK

First edition 2018

Copyright © 2018 Emerald Publishing Limited

Reprints and permissions service

Contact: permissions@emeraldinsight.com

No part of this book may be reproduced, stored in a retrieval system, transmitted in any form or by any means electronic, mechanical, photocopying, recording or otherwise without either the prior written permission of the publisher or a licence permitting restricted copying issued in the UK by The Copyright Licensing Agency and in the USA by The Copyright Clearance Center. Any opinions expressed in the chapters are those of the authors. Whilst Emerald makes every effort to ensure the quality and accuracy of its content, Emerald makes no representation implied or otherwise, as to the chapters' suitability and application and disclaims any warranties, express or implied, to their use.

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

ISBN: 978-1-78754-366-9 (Print)

ISBN: 978-1-78754-365-2 (Online)

ISBN: 978-1-78754-367-6 (Epub)



ISOQAR certified
Management System,
awarded to Emerald
for adherence to
Environmental
standard
ISO 14001:2004.

Certificate Number 1985
ISO 14001



INVESTOR IN PEOPLE

Contents

About the Authors	<i>vii</i>
List of Figures and Tables	<i>ix</i>
Introduction	<i>1</i>
Chapter 1 Self-Tracking and the Quantification of Everyday Life	<i>9</i>
Chapter 2 Getting Things Done: Gaming and Framing	<i>29</i>
Chapter 3 How Apps Foster Medicalization	<i>47</i>
Chapter 4 The Self of the Quantified Self	<i>71</i>
Chapter 5 The Dark Side of Digital Health	<i>85</i>
Chapter 6 The Positive Medicalization: Digital Meditation	<i>105</i>
Chapter 7 Exercise is (also) Medicine	<i>133</i>
Chapter 8 Conclusion	<i>151</i>
Appendix: Questionnaire Digital Meditation	<i>153</i>
References	<i>157</i>
Index	<i>169</i>

This page intentionally left blank

About the Authors

Antonio Francesco Maturo is an Associate Professor in the Department of Sociology and Business Law at the University of Bologna, Italy. He taught Sociology of Medicine at Brown University for several years. His research interests are connected to the sociology of health. He has written several articles about the phenomenon of medicalization and digital sociology.

Veronica Moretti is a Research Fellow in the Department of Political and Social Sciences at the University of Bologna, Italy. Her research interests focus on the intersections between technologies and human activities, with specific emphasis on the sociology of health, surveillance studies and science, technology, and societal approach.

This page intentionally left blank

List of Figures and Tables

Figures

3.1: The DIS Combinatory	61
6.1: Headspace Followers	111
6.2: Features of Gamification (a)	112
6.3: Features of Gamification (b)	113
6.4: Productivity	113

Tables

4.1: Use of Cognitive Improvements: Pros and Cons	77
6.1: Did You Complete the Meditation?	115
6.2: During the Experimentation Period	115
6.3: During the Meditation Program	115
6.4: Discussing the Meditation Experience	116
6.5: Preferences of Meditation	116
6.6: Opinion of Meditation	117

This page intentionally left blank

Introduction

Nowadays, gamification, simply defined as the use of game elements in a non-game context, seems to be a winning strategy in multiple dimensions of human life. Through games or playful elements, people's motivations are strengthened. Therefore, it becomes easier to carry out heavy and difficult activities.

When we type the word "gamification" into the Google search engine, approximately 8,050,000 results come up. In the first three months of 2018 about 1,860 articles mentioning the word gamification were published.

In March 2018, the University of Copenhagen posted a position for Associate Professor in Game Development. According to the job posting the candidates must have good qualifications in several aspects such as existing competence in games research and teaching, along with knowledge about technical aspects of playful experiences and games.

Gamification has been presented in the education sector for a long time; however, in recent times, it seems to be booming. As stated in the report drafted by Cambridge Analytica (2016), "*Gamification and the future of education*" it can be conceived as:

a new mode of teaching and learning, the principal appeal of gamification is the liberty that it provides pupils and teachers, as encapsulated by the four freedoms: the freedom to fail, the freedom to experiment, the freedom to fail and the freedom to self-express. These freedoms represent a welcome pedagogical shift for those students whose educational potential is being hampered by conventional teaching methods. (p. 3)

Using game elements can also be seen as an efficient strategy in the sphere of work. For example, "many employees compete for various positions and promotions in organizations; organizational rule structures serve to construct, constrain, and evaluate their activities, thus establishing a kind of game" (Oravec, 2015, p. 1). The organization of races and quizzes might increase the productivity of the employees by keeping their motivation up. Despite the real purposes (increasing the worker's efficiency), this practice is powerful because it does not seem too invasive. To provide an example, Lopez (2011) reported the experience of hotel workers at Disneyland. The workers themselves defined this practice as an electronic whip (Lopez, 2011).

Employees in the Anaheim hotels are required to key in their ID when they arrive, and from then on, their production speed is displayed for all to see. For instance, the monitor might show that S. Lopez is working at an efficiency rate of 37% of expected production. The screen displays the names of several coworkers at

2 *Digital Health and the Gamification of Life*

once, with “efficiency” numbers in green for those near or above 100% of the expected pace, and red numbers for those who aren’t as fast. (Lopez, 2011, para. 6)

Another fertile ground, in which gamification practices spread more rapidly and intensively, is health. On the one hand, this circumstance is mainly due to the changes that have occurred, at least in Western societies, in last decades concerning main health risks. Chronic diseases are the main cause of death. Unhealthy habits and lifestyles (a sedentary lifestyle and excessive consumption of alcohol and tobacco) are considered important risk factors. In this context, stimulating the subjects to acquire healthy habits can be considered a strategy: “health and well-being strongly depend on the individual’s health behaviors, motivation is a major factor of health behavior change, and intrinsically motivated behavior change is desirable as it is both sustained and directly contributes to well-being” (Johnson et al., 2016, p. 89). Within digital health studies, there are two opposite currents, generally divided into technoenthusiasts and critical thinkers. There is no doubt that some aspects of digital health are beneficial to patients and their families. On the other hand, it is clear that digital health can lead toward new forms of social exclusion. In this book, we give ample space to both positions. Using a paradoxical expression, it is our opinion that both are 100% right. Analytically, the book is organized into seven chapters.¹

In the first chapter, “Self-tracking and the quantification of everyday life,” we analyze the alluring rise of quantification in contemporary society. Digitization, new public management, and other factors related to neoliberalism have fueled and nurtured the incessant collection, production, and processing of numbers. The growth of the “indicator culture” (Merry, 2016) closely connects the governance of any organization to numerical data and parameters. As pointed out by Espeland and Stevens (2009), “quantification has never been so intensively central in our society as it is today. Perhaps it is so important that we take it for granted” (p. 406). The transformation of information of various types into numerical data, the quantification of society is also spurred by the huge amount of data that are produced today through computers and technological devices (big data and data-deluge). Clearly, self-tracking is a powerful engine of quantification. Self-tracking can serve as a tool to virtually quantify all aspects of our life: physiology, emotions, and behaviors. Several authors, mainly following the Science, Technology, and Society perspectives, have shown that objectivity and neutrality of numbers are the result of social practices, micro-negotiations, and political choices. Numbers have such huge authority because we consider them objective, but they are not. This characteristic of apparent objectivity is also shared by standardization, a social phenomenon closely related to quantification. Standards, indicators, and parameters are at the base of what Rose (1990) called “distant government.” Often, individuals and organizations must modulate their actions to respect

¹While the book is the result of several discussions between the authors, Antonio Maturo wrote chapters 1, 2, 3, 6, and the Conclusions; whereas, Veronica Moretti wrote chapters 4, 5, 7, and the Introduction.

the (apparently) aseptic and neutral numerical values. Consider the importance of the gross domestic product or credit score. Moreover, the authority of numbers is hardly questionable: “The community of believers gives added credit to the indicators and renders the skeptic more isolated” (Merry, 2016, p. 31). Additionally, we aim to show how quantification and gamification can become tools to build individual scores that, at a later stage, can produce social-exclusion effects. According to Fourcade and Healy (2013), society is becoming structured as a “world of scores rather than classes” (p. 568). We believe that this “dry” sentence is becoming increasingly true.

In the second chapter, “Getting things done: Gaming and framing,” we focus on the new phenomenon of gamification. Gamification can be defined as the use of game design elements in non-game contexts (Groh, 2012). It is hard to deny that games play a cognitive function. Games and play allow people, not only children but also adults, to learn important aspects of the world (Erikson, 1963; Freud, 1920; Mead, 1934). However, gamification also plays a performative function: it allows us to not only to know things, but to do them. In apps, gamification serves to support people in pursuing goals and improve performances: running faster, eating healthier, and quitting smoking. The apps involve a high level of self-surveillance with incentivization and pleasure rather than risk and fear shaping desired behaviors (Whitson, 2013). Strengthening our motivations, gamified apps help us to modify harmful habits, for example. According to McGonigal (2011), one of the most enthusiastic supporters of gamification, through gamification we could solve some of the world’s problems like cancer and climate change. The transition to a post-Fordistic economy probably created the right context for the rise of gamification. The dimension of weisure (work and leisure together) characterizes post-Fordism (Conley, 2009). That is a transition from an economy and a social context mainly based on the imperatives of production, asceticism, and hierarchy – to a post-Fordist economy based on consumption, leisure, and flexibility. Under a more radical stance: “gamification is one mechanism through which post-Fordism capitalism appropriates such non-alienated activity [leisure] and renders it useful to the capitalist goal of wealth accumulation” (Rey, 2014, p. 280). We conclude the chapter by the proposal of the concept of endoptikon. The endoptikon can be defined as a specific form of surveillance of self-tracking data. These data can be related to all the dimensions of the subject: behavior, body, psyche, soma, and bios. The subject of surveillance can be an organization, an algorithm, or even the quantified self “herself.” The aim is often to become more productive and to optimize one’s performance – gamification acting as nudging.

In the third chapter, “How apps foster medicalization,” we analyze the phenomenon of medicalization in the digital society. Medicalization can be defined as the process by which some aspects of human life come to be considered as medical problems, whereas before they were not considered pathological (Conrad, 2007). We also find this unconventional definition to be sharp:

Once upon a time, plenty of children were unruly, some adults were shy, and bald men wore hats. Now all of these descriptions might be attributed to diseases – entities with names, diagnostic criteria, and an increasing array of therapeutic options. (McLellan, 2007, p. 627)

4 *Digital Health and the Gamification of Life*

Medicalization occurs in several spheres of health: mental health, pregnancy, and cosmetic surgery are the most common. Yet, a new dimension is becoming increasingly central in our times: risk. Being at risk is a new turf of medicalization. Therefore, the medicalization of prevention is also booming, fostered in part by genetic tests. However, probably, the most appropriate example is the lowering of the level above which one can be considered “at risk” in the case of cholesterol and blood pressure. When a medical committee did it with the level of cholesterol, over the course of one night millions of people were transformed into patients and, most of all, into consumers of pills. This mechanism is also called disease mongering. Hofmann (2016) makes a distinction between medicalization and overdiagnosis. Medicalization occurs when something non-medical is transformed into a disorder (like shyness becoming social phobia); overdiagnosis is a biomedical condition that in the absence of testing would not cause symptoms or death in the person’s lifetime (like high blood pressure). In the chapter, we show how digital health can be seen as an engine of medicalization. We try to demonstrate it by analyzing some apps from a sociocultural perspective (Lupton, 2014). For example, the app What’sMyM3 perfectly represents the quantified diagnoses promoted by the last versions of the *Diagnostic and Statistical Manual of Mental Disorders*, based only on symptoms without any reference to external events that may affect mood. The functions and the design of the app results in a high pathologization of normal mood shifts. In addition, the ease of use of the app stimulates a continuous self-scrutiny and therefore amplifies the process of the pathologization of sadness. The features of gamification of a diet app promotes medicalization by fostering an idea of obesity totally defined by the parameter of the body-mass index. Therefore, apps can give rise to an individualistic conception of health totally separated from social factors.

In the fourth chapter, “The self of the quantified self,” we discuss the role of the subject of self-tracking. What are the features and the connotations of the self-tracker? What are the connections between self-tracking and economic actions? We start our analysis by describing the idea of acceleration proposed by Rosa (2010). According to Rosa, contemporary society is characterized by extreme acceleration. Time has become a scarce resource and individuals are forced to adhere to the demands of speediness. This condition is connected to the increased performance now required in many areas of daily life. Therefore, the subject of the accelerated society looks like a self-entrepreneur, who acts on the basis of the data he or she collects by self-tracking. In order to act as entrepreneurs, the subjects need a large input of useful information to allow them to plan the “investments” and attain the expected development of profits. As far as the individual is concerned, this basically translates as a strong accentuation of introspective tendencies. The principal characteristic of the neoliberal subjects is a marked form of reflexivity aimed at exploring their own desires and aspirations, revealing their potential, weaknesses, and margins for improvement, and, lastly, assessing the results of their performances (Maturò, Moretti, & Mori, 2016). Therefore, the self of self-tracking is pursuing the optimization of her performances as if she were an enterprise or a Research & Development (R&D) unit. Self-tracking is a building block for human (economic) enhancement.

In the fifth chapter, we explore “The dark side of digital health.” The chapter starts with a critical analysis of the concept and the practices of surveillance in modern and postmodern societies. We show the changes in the systems used to monitor individuals and emphasize the transition toward soft surveillance systems, probably stimulated by digital technologies. This switch from top-down control to “lateral” monitoring systems enclose surveillance practices with suggestive names like *interveillance*, *synopticon*, and *dataveillance*. The dark side of digital health has a bright start. According to Topol’s vision of the future, we will soon be the “consumers,” the real protagonists, of the management of our health, thanks in large part to the practically endless data about our bodies, behaviors, and lifestyles, we will be able to collect and analyze. Laboratory tests, digital X-Rays, biomarkers, genetic, and lifestyle data will all converge (and remain) in the memory of our mobile phones, available to us upon a mere touch. We will share our health information in real time with the doctors whom we will choose based on their score in clinical rankings (here, too, quantification rears its head). In turn, these doctors – thanks to evidence-based medicine and sophisticated algorithms – will be able to process our data and intervene in a precise, accurately predictive, and personalized way. Unfortunately, this one-dimensional representation of health (the biological or behavioral data evident from self-tracking) breathes life into the practice of “technological solutionism” (Morozov, 2013). Therefore, this simplified version of health makes it seem that the algorithm always can supply some solutions so long as it has enough information. Moreover, in the United States some health-insurance companies have started to offer a discount on premiums to members who agree to collect and share self-tracking data with them. Clearly, the discount is given only to the workers who have healthy habits. At first sight, this can seem like a win–win trade off. Yet, what is presented today like an individual option can easily become a requirement tomorrow.

In the sixth chapter, “The positive medicalization: Digital meditation,” we discuss the results of a study carried out on a large sample of students of an elite university in the northeast of the United States. The focus of the research was the interpretations students gave to a period of digital meditation. Meditation, yoga, and mindfulness are booming in recent years. Probably, we all need to unwind. Several factors are responsible for our “age of anxiety.” The de-standardization of life trajectories makes people freer (at least apparently) but requires more choices, and thus reduces the sense of security. According to Rosa (2010), anxiety has intensified due to social acceleration. Therefore, it is not surprising that we sleep less than before. However, sleep loss is not just due to stress. According to Crary (2013), capitalism produces a consumer who should be able to buy “7/24,” consequently, chances to consume should not have temporal boundaries. In short, it is not surprising that there are numerous apps to cope with anxiety. Going back to the study, one result should be mentioned: several students have used biomedical jargon to talk about the effects of meditation. Someone spoke of “digital therapy” when referring to meditation. Moreover, some affirmed that the perception that they had of their own body had changed and they were more keen on the quantifiable aspects of bodily

6 *Digital Health and the Gamification of Life*

health. In general, students found meditation to be a very useful “therapy” for having a quick fix for the many stresses of college. This is why we called it “positive” medicalization.

In the seventh chapter, “Exercise is (also) medicine,” we present two projects aimed at increasing physical activity among individuals. Some epidemiological and behavioral trends are not exciting. We are living increasingly in an aging society. We are becoming fatter (globesity). Moreover, we are facing an alarming decline in physical activity worldwide. In this context, chronic diseases are booming, as are health expenditures. It is necessary to move more, in order to slow down this escalation. Stimulating physical activity is the best way to reduce the burden of disease and increase the social, psychological, and economic well-being of a community. The key point of the two projects is that they medicalize physical activity. The first project was carried out in Italy. A series of doctors started to “prescribe” physical activity as if it were a medicine. Therefore, physical activity is presented as a real cure to treat diseases and pathologies. The other project was supported by a private enterprise. The “concept” of the project is summarized as follows:

the quantity and quality of the physical activity carried out by the patient should be considered by the general practitioner as a clinical parameter as well as other parameters, such as blood pressure, weight and glycemia.

It is possible that the success of these two initiatives stems from the fact that the biomedical complex has a strong influence on part of the population. It is an expert system and a trusted way of communicating, not only about diseases, but also about good habits (Sztompka, 2000). It is very effective to use a reliable source to spread a health promotion message. It becomes medicalization without pathologization and a form of medicalization without pharmacologicalization. In Conrad’s (2007) words, it becomes a conceptual medicalization.

In the concluding chapter, we try to show how medicalization – partly promoted by apps – can in some cases be seen as a positive phenomenon. As stated, in summary, there may be conceptual medicalization without clinical aspects.

In our opinion, the challenging aspect in the study of digital health developments is to avoid the total adhesion to very optimistic or very critical visions. They both present perfectly developed formats, and the arguments of one and the other follow precise and quite predictable thinking patterns. In short, bringing critical thought to an extreme level can produce inertia or Neo-Luddism, while adhering fideistically to the rhetoric of progress, implies moving toward certain phenomena of social exclusion such as the denial of the role that inequalities play within the social context. This becomes more dramatic if we consider the realm of health. The two positions cannot be easily integrated. Probably, the result will leave both of them dissatisfied. Unfortunately, there is not yet an algorithm that predicts our intermediate position

Writing this volume has been very demanding.

For Antonio Maturo, it has meant many days away from Francesca and little Anna. Serendipitously, this has made it possible to see that families are resilient and patience and understanding make divorce more unlikely.

For Veronica, major support came from three people who in these years have always supported her: two of them (Andrea and Stefania), with a good app for translations, will better understand the content of this book. The third person I thank has a natural predisposition in judging my work. Thanks, Andrea.

This page intentionally left blank

Chapter 1

Self-Tracking and the Quantification of Everyday Life

Abstract

In a world dominated by scores, ratings, and rankings, near-constant measurement can make one think, and in turn act, differently. Quantification is felt to be necessary. On a social level, the manufacturing of numbers paves the way for the politicization of numbers, which then allows the regulation of a person's activities. The setting of seemingly unobjectionable thresholds and limits in fact contributes to the creation of government strategies that conceive of every citizen as a calculable thing. Further, assuming that these numbers are socially constructed elements, a numerical hegemony may develop in which those who do not possess the desired scores suffer social exclusion. The quantification of life has many implications in the realm of social justice. It is conceivable that, in the future, society could acquire some of the characteristics imagined by the writers of dystopian literature. Fourcade and Healy (2013) write that our society is experiencing a transition from distinct social classes to classification based on personal scores and ratings. Indeed, in the United States, the "credit score" is a number which is as important for the modern individual as titles were to medieval nobility because they determine one's access to credit. Personal scores and ratings – which could be not only financial but also social or political – could therefore exclude some sectors of society. In this case, too, a numerical indicator holds immense power, making this form of political violence appear as objective and even natural.

Keywords: Quantification; numbers; algorithms; personal scores; rankings; calculating power

1. The Rise of Quantification and the Power of Numbers

In the Seventeenth Century, philosopher Leibniz claimed that:

if controversies were to arise, there would be no more need of disputation between two philosophers than between two calculators. For it would suffice for them to take their pencils in their hands and to sit down at the abacus, and say to each other (and if they so wish also to a friend called to help): let us calculate.

10 *Digital Health and the Gamification of Life*

In the same century, Galileo stated that mathematics was the “alphabet” with which God had written the world.

However, quantification has never been as intensively central to our society as it is today. As Espeland and Stevens (2008) claim, it is so important that we take it for granted – while Leibniz and Galileo were well aware of the strength of numbers. Access to credit, funding public policies and even the way in which financial algorithms “make decisions” to sell or buy shares are based on indicators, rankings, and numerical thresholds. Furthermore, because of digitization, the quantification of life now covers all aspects of our life, including the public, economic, medical, and even the intimate side of it. The numerous forms of quantification, from probabilistic calculation to accounting “transform the world, through their very existence, through their dissemination and its uses of an argumentative, scientific, political or journalistic type” (Desrosiers, 2011, p. 378). Furthermore, classifications, cost-benefit analyses, and audits are currently considered necessary to administer public policies.

The term quantification mainly refers to two different – although intertwined – phenomena:

1. The transformation of information of various types into numerical data.
2. The huge amount of data that are produced today through technological devices (big data and data-deluge).

Therefore, if we read these two features sequentially, we will draw the conclusion that today we have a huge amount of numeric data related to multiple dimensions of human life and the life of organizations and that these data were not previously expressed in numerical form.

Both these two aspects occur in self-tracking. Self-tracking can serve as a tool to virtually quantify all aspects of our life. From physiology – menstrual cycle, heartbeats, and blood glucose level – to internal states of being (mood tracking). Obviously, we can also quantify our behaviors (steps and coffee taken, money spent, etc.). A few years ago, quantification was limited to organizations only, whereas, today, it is a possibility for individuals as well. Gary Wolf (2010), founder of the “Quantified Self” movement and website, wrote an article in the *New York Times* titled “The data-driven life.” In that article, Wolf explains how the quantification of daily life through self-tracking can help us make better decisions and make us happier. Relying on concepts of cognitive psychology and behavioral economics, Wolf argues that we make decisions based on irrational aspects or at best on suboptimal rationalities. A reliable database has always been missing. Yet, smartphones, biosensors, and wearables are altering this limit. We are realizing that quantification can offer us enormous and even existential possibilities.

We tolerate the pathologies of quantification – a dry, abstract, and mechanical type of knowledge – because the results are so powerful. Numbering things allows tests, comparisons, and experiments. Numbers make problems less resonant emotionally but more tractable intellectually. In science, business, and the more reasonable sectors of government, numbers have won fair and square.

For a long time, only one area of human activity appears to be immune. In the cozy confines of personal life, we rarely used the power of numbers. The techniques of analysis that had proved so effective were left behind at the office at the end of the day and picked up again the next morning. The imposition, on oneself or one's family, of a regime of objective record keeping seemed ridiculous. A journal was respectable. A spreadsheet was creepy. Yet, almost imperceptibly, numbers are infiltrating the last redoubts of the personal. Sleep, exercise, sex, food, mood, location, alertness, productivity, and even spiritual well-being are being tracked and measured, shared, and displayed. (Wolf, 2010, p. 38)

Clearly, self-tracking is not the only engine that has powered quantification. Increasingly autonomous software and increasingly powerful computers have contributed to filling databases with numbers from all areas of finance, medicine, and business. The evidence-based governance or new public management of the public sector plays a central role in the production of numbers and in the legitimization of knowledge based on numbers. This represents a shift from a hierarchical and command-and-control government model to a type of results-based management, which builds on social involvement, consensus, and improvement. It is a profound change in the provision of public services and, as a consequence, in their organization too. Since the nineties, when the new public management was established, there has been a huge increase in measurement activity. This form of governance, where the public sector is assimilated to a private company, emphasizes aspects like competition and efficiency. As a result, this approach led to the development of indicators, rankings, and audits based on numbers and quantities:

in contrast with earlier systems, which relied on rules and punishments for violations, this mode of governance works through the collaborative production of standards and the evaluations of outcomes, including the use of self-assessment and ranking techniques. (Merry, 2016, p. 11)

Paradoxically, over the course of three decades, this efficiency-driven tendency has given rise to an intense “neoliberal bureaucratization of the world” (Hibou, 2015). The informational structure of the neoliberal capitalism, which is its cognitive basis, has indeed undergone a deep (and fast) transformation. These informational bases are increasingly becoming abstract, presenting themselves as procedures, standards, certification models, online platforms, and, even more visible, numbers, index, quantitative targets, and scores (Borghgi & Giullari, 2015). This technicization of public governance activates a radical de-politicization of the issues at stake, as extremely standardized and formalized thoughts translate politically related issues into mere technical debate. This de-politicization is produced by blurring and neutralizing social and economic dimensions. This is essentially realized “through the creation of knowledge tools and devices that are needed for the management and technocratic control of individuals’,

institutions' and organizations' actions" (Borghi & Giullari, 2015, p. 396). An example might be the redefinition of policies for managing chronic diseases on a purely individual basis and emphasizing personal responsibility. This quantitative approach toward standardization, technicization, and abstraction tends to disregard and reduce creativity and "other" types of rationality. Using the words by Luhmann (1993), one could say that the system will only see the things it can see and does not see the things it cannot. This somewhat cryptic quote means that the frame – which in this case refers to the quantitative and standardizing frame of neoliberalism – defines each situation according to its cognitive patterns. In our case, patterns tend to neutralize any qualitative differences by making them more abstract and opaque. In ethical terms, the bureaucratization of the world is characterized by a growing production of indifference (Herzfeld, 1992).

This neoliberal tendency is evident in universities as well, where both individuals and the organization themselves are constantly exposed to assessment. The outcomes of these assessments – carried out through indicators and rankings – affect the extent of public funding and individual careers. Driven by this neoliberal frame, we think more and more in terms of academic productivity. In another context, Espeland and Stevens (2008) provide reliable examples of the role played by census data in order "to inform social policy, assess business opportunities, report news, measure progress" (p. 406). Another example showing the power of numbers comes from the realm of health: the *Diagnostic and Statistical Manual*, or *DSM*. The *DSM of Mental Disorders* is the basis of any mental disorder diagnosis. Whereas the first two editions of the *DSM* were characterized by a strong theoretical view, mainly based on psychoanalysis, the *DSM-III* and, even more, the *DSM-IV* and the *DSM-V* try to be atheoretical and symptom based (Horwitz, 2010). Indeed, the "syndromization" present in the last version of the *DSM* is a good example of quantification "in action" because the diagnoses are based on the observation of a minimum number of symptoms over a set period. To define a mental disorder, the emphasis is put on the numbers and length of symptoms, while causes are neglected. The focus has therefore shifted from illnesses to disorders and syndromes – the latter being a specific *number* of symptoms occurred for specific *numbers* of weeks. The key assumption of diagnostic psychiatry is that overt symptoms indicate discrete underlying diseases. Whenever *enough* symptoms are present to meet the criteria for a diagnosis, a particular mental disorder exists (Horwitz, 2010). There are no explanatory aims in the last versions of the *DSM*: symptomatology (i.e., the number of symptoms) replaces etiology.¹

Moreover, the quantification of daily life – including physiological, molecular (Rose, 2007) and intimate dimensions of people – is both the cause and the effect of the so-called society of algorithms (Pasquale, 2015). In order for the social environment to be captured, processed, and modified in an algorithmic context, it needs to be made numeric. As Neyland (2015) writes, in order to become part of the social world of the algorithmic system, the external world must be mathematically modeled. The external world is recognized and therefore "accepted" in the

¹The DSM in its quantification and medicalization aspects is discussed more thoroughly in Chapter 3.

algorithmic system only if communication occurs through numbers. The external world is gradually re-codified and reconstructed in the algorithmic reality, until it becomes the only actual reality. As Beer (2009) writes, “algorithms are integrated into everyday social processes and become an organic part that can reinforce, maintain or even reshape our social world, knowledge and relationships with information” (p. 81). Algorithms are not just the products of specific economic, social, and cultural processes but, in turn, they produce specific effects on the economy, social organization, and cultural dimensions (Kitchin & Dodge, 2011).

1.1. How Do to Things with Numbers

At this point, it should be noted that numbers not only enable individuals to understand or be socialized to new situations, but also provide a way for us to alter reality. Quantification has a performative aspect. This performative aspect can be connected to the so-called “linguistic turn” that occurred in the twentieth century. To do so, we need to conceive quantification as a kind of language, in which numbers are words. On the basis of Wittgenstein’s theory of linguistic games, Austin (1962) stresses the importance of the performative aspect of linguistic acts, along with the semantic aspect. That is, linguistic acts not only say something, but also they do something. Linguistic acts have real effects. Through linguistic acts, we can make promises, declare two persons husband and wife, or give a name to a boat. Not only does the (linguistic) game enable us to represent and understand new aspects of the world, but it also makes it possible to do things. It is not by chance that Austin’s book, in which he proposes this theory, was titled *How to Do Things with Words*, and Desrosiers (2011) suggests a change in title from “How to do things with words” to “How to do things with numbers.” Numbers therefore build reality and these constructions appear solid and “objective.” Yet, as we have already mentioned, numbers are tied to underlying social processes.

Research carried out within the sociology of science, and further refined following the Science, Technology, and Society (STS) studies, has showed that objectivity and neutrality of numbers are the results of social practices, micro-negotiations, and political choices. Intuitively, numbers are neutral because they are (apparently) objective. The “naturalization” of numbers consists precisely in overlooking their social and inter-subjective genesis. Hence, an “artifact” becomes a “fact” (Latour & Woolgar, 1979). In a world governed by scores, grades, and rankings, quantification lead individuals to think and, consequently, act differently. From the STS perspective again, we can note how numbers:

turn from evidence for supporting scientific facts into “ready-to-use” scientific facts, which appear as objective entities, that is, they become independent from their process of construction and the more they are used the more they strengthen as such. (Neresini, 2015, pp. 406–407)

In other words, numbers come with *agency* (Latour, 1987; Neresini, 2015) because, at the same time, they produce and make us produce facts. To use the words by Tesnière (1959), numbers work as “actants” of the system in which they

operate; they are not limited to describing the world but they contribute to its modeling. Desrosiers also notes an initial bias. The issue relates to the semantic connection between measurement and quantification. Though the former implies the existence of measurable differences, for example, physical quantities, the latter implies that measured objects are produced by conventions. However, if in the public language – including institutional language – these two terms are widely used as synonyms, conventions that are at the origin of enumerations in quantitative processes can get lost. Rather, conventions are replaced by objective and natural descriptions of reality. For instance, there is quite a difference between measuring one's height and quantifying their coolness index or their rate of inflation. Not only do numbers naturalize conventional aspects, but on a pragmatic level also these fictions become even more real when they are internalized as explanatory criteria and guidelines for action. As Desrosiers (2011) writes, categories can at first sight simplify our world and make it more intelligible, but they actually modify it and make it a different world. The actors, by changing their reference systems, are no longer the same, because these indicators and classifications address their actions, which become criteria for action and evaluation. According to Bowker and Leigh (1999), statistical measures create new categories of meaning that shape the way we experience the world. Therefore, numbers not only play a semantic function in making the context more intelligible, but they also fulfill a meta-cognitive function as well in establishing the context itself. Moreover, they also perform a pragmatic function because they make actions work within their context. Such actions may not reach the required standards, but they do not falsify the context – namely, the standards and measurement methodology – because they “exist” because of it. Rather, the quantification activities that occur within the numerical frame constantly confirm and legitimize it, thus reaffirming an appearance of objectivity of measurement instruments, as well as forgetting about any conventionality at the base of their construction. On the other hand, doubting too much about indicators would be rather paralyzing. Similar properties can be found in natural language, too: communication goes on smoothly just because participants do not spend their time explaining the meaning and content of words (Desrosiers, 2011). Another important feature of numbers is that they are *immutable mobiles* – as Latour (1987) defines them – or “standardized and de-contextualized measurements and data which can be durably transported from site to site” (Duncker & Disco, 1998, p. 280). Furthermore, it is quite hard to contradict numbers. To do that, one may have to carry out the same experiments, and create the same lab conditions, have expensive equipment available, and the like. The more numbers are used, the more their users' network grows, the more they become “true.” Merry (2016), on the basis of Porter's study (1995), points out although the categories of enumeration may be highly contingent at first, “once they are in place, they become extremely resilient and come to take on permanent existence as a form of knowledge” (p. 28).

For this reason, ourself is measured, evaluated, and quantified – “self-tracking” – so as to “express and make real under a numerical form what was previously delivered through words and not through numbers” (Desrosiers, 2011, p. 377). Moreover, we are given the change of visualizing our personal data through colored charts and images, which proves to be a very persuasive and appealing

feature, because it offers an (apparently) accurate and impartial evaluation of reality itself (Schäfer & van Es, 2017). In this sense, numbers do not establish a regime of truth exclusively through their property of being a cognitive basis but through their ability to provoke emotions, when expressed in evocative forms.

2. Deconstructing Standardization

Espeland and Stevens's (2008) article is rich with insights about the aesthetic value of numbers, their authority, and therefore the ability to persuade. In other words, they tell us that numbers make the world more real: what is real is measurable and what is measurable is real. Moreover, "commensuration creates a specific type of relationship among objects. It transforms all difference into quantity. In doing so it unites objects by encompassing them under a shared cognitive system" (Espeland & Stevens, 2008, p. 408). Therefore, quantification stands as a basis for standardization. It is not surprising then that Timmermans and Epstein (2010) call for a sociology of standard and standardization. According to them, standardization is "a process of constructing uniformities across time and space, through the generation of agreed-upon rules" (Timmermans & Epstein, 2010, p. 71). The spread of standards and standardization has occurred with globalization, especially the commercial one. A consumer has the right to expect that a McDonald's hamburger is tasty regardless of the country in which he or she buys it. Most often, standardization is associated with negative connotations. Tendencies toward uniformity, removal of differences and uniqueness, homologation and "gray sameness" are revealed. It is no coincidence that the phrase "McDonaldization of the world" (Ritzer, 1997) luckily entered the academic field and media. On the other hand, standardization establishes a common language and therefore allows the creation and strengthening of forms of collaboration. In addition, the standards highlight what we can reasonably expect when we buy a product or use a service. Therefore, they perform an informative function.

In many cases, quantification is a prerequisite for standardization. For example, establishing that the scientific productivity standard of an assistant professor should not be less than the publication of two scientific articles per year requires that there be a possibility to count written articles. At the same time, in many cases, standardization is a prerequisite for quantification. The standardization of weights and measures allowed quantification. At first, we may think that standards are tied to quantity, but standardization is actually a premise to open up the possibility of quantifying. However, there are numerous exceptions to this, because there are at least four types of standards (and therefore standardization processes). Depending on the specific standard, which we are referring to, quantification will be more or less involved. Taking up the proposal by Timmermans and Epstein (2010), the four types of standards are:

- design standards,
- terminological standards,
- performance standards,
- procedural standards.

Design standards specify features and functions of tools and products. They are established to ensure uniformity to sociological and/or technical systems. Terminological standards establish semantic equivalence, that is, the creation of a common communicative code, usually between professionals. Examples include the *International Classification of Diseases* and the *DSM of Mental Disorders*. Performance standards set outcome specifications. For example, the maximum amount of time you can be kept on a waiting list to do a surgical operation. The procedural standard is the fourth type of standard. It is essentially an algorithm because it specifies how processes should be implemented.

From this classification, it appears that the performance standard is the one most related to quantification, although the others are also partially involved. At a theoretical level, standard design is easier to follow, because it is a matter of either meeting or not meeting technical requirements. Procedural standards are more difficult to implement because in many cases, they involve behaviors and action rules that in practice can be partially disregarded. Examples include health protocols and, to a certain extent, evidence-based medicine. Another point to add is that, in practice, standards are often nested within other standards. Many scholars have shown how standards are part of contexts made of norms, objects, technologies, which can be more or less accommodating toward the prescriptiveness of standards themselves (Latour & Woolgar, 1979).

Some standards have suffered severe criticism in the political sphere; in some cases, real social movements were created against the establishment of certain standards. Conflicts on standardization have been particularly active in the biomedical field, especially in relation to the “human standard.” By the 1980s, in the United States, social activists and health advocates were concerned that the “standard biomedical human” was imagined as a white, middle-aged male and therefore other groups were underrepresented as subjects in clinical trials or other biomedical experiments. Protests led to the realization of the so-called “niche standardization” (Epstein, 2007). That is, one standard for women, another for men; one for Asians, one for white, one for Black; and so on. In sum, in place of a standard human, “niche standardization substitutes an intersecting set of standard human subtype” (Timmermans & Epstein, 2010, p. 78). Still in the health sector, the spill-over effects of the standards can be noted:

the creation of the *DSM-III* not only changed the classification of psychiatric disorders but also standardized international drug development, third party reimbursement, clinical research, and patient identity across the globe. (Timmermans & Epstein, 2010, p. 78)

In this case, the standardization of mental disorders has heavily influenced epistemological explanations (sanctioning the dominance of biological aspects), financial circuits, clinical practices, and, as mentioned, the identity of people and therefore their place in society. On this point, we can see how standards too can be included into the idea of a “distant governance” (Rose, 1990) which is promoted

by numbers, often in the form of indicators – considering that in many cases standards are numerical indicators. Organizations and individuals are “invited” to follow and adapt to numerical values related to parameters that are politically selected or economically determined. An example is the credit score for individuals in the United States or the spread value for the member states of the European Union. There is no coercion in this power relationship; we rely on the “responsibility” of subjects or organizations and on their capacity for “self-management.” More specifically,

The turn to indicators is also a form of governance that engages a person in governing himself or herself in terms of standards set by others. Indicators promote self-governance among the governed by establishing standards according to which individuals, organizations, or nations should behave. (Merry, 2016, p. 33)

An interesting chiasm should be noted, that is, the combination of a human characteristic – responsibility – with the organization, and the combination of an organizational characteristic – management – with people. In other words, organizations are anthropomorphized (a practice that is not rare, to be honest) and individuals are read as if they were companies (a rare practice, but which is now booming). In sum, numbers, indicators, standards are technologies “for producing knowledge that work within a regime of power” (Merry, 2016, p. 33). Moreover, standards also have a level of sinking “below the level of social visibility, eventually becoming part of the taken for granted technical and moral infrastructure of modern life” (Timmermans & Epstein, 2010, p. 71). They are internalized and experienced as if they were unquestionable entities. Using a famous quote in a hyperbolic way, we could say that standards become “the moral law within me.”

The power dimension related to standards can also become apparent on a less abstract level. Once standardization becomes a fundamental requirement for the life of organizations, we witness their exponential growth:

A sponsoring organization can thus call for the creation of a standard, invite partners to collaborate on the standard, and then depend on the standardizing organization to distribute the standard. The presence of such a standard setting infrastructure leads to the proliferation of standards. (Timmermans & Epstein, 2010, p. 77)

Creating dependency conditions related to standardization is a way to exercise power. However, in this context, it is not the only manifestation of power, as “being part of the team that sets standards can be a tremendous advantage” (Timmermans & Epstein, 2010, p. 79).

As for standardization, we can make three possibly unexpected considerations if we think of the most common connotations of the term – homogeneity, uniformity, and “sameness.”

1. As Kelty (2008) writes, “The nice thing about standards is that there are so many to choose from” (p. 143).
2. There is often an aura of informality in the application of standards.
3. Standards are flexible (but only for experts).

The quote by Kelty may seem paradoxical, but it is a paradox that can be easily explained. “Niche standardization” is an example of the multiplicity of standards: a standard can be broken down into more specific standards or it can be expanded. Moreover, as we have seen, standards can be of different types; however, above all, there is a difference between what they prescribe and the way they are concretely implemented: “the power of standardization depends on whether standards are actually implemented” (Timmermans & Epstein, 2010, p. 79).

It is indeed remarkable that, and we now turn to our second point, in some organizational cultures, the formal implementation of standards may need some degree of informality. In other words, informality may be necessary for the respect of forms. We know from the work by Schein (2010) that organizations have informal aspects such as unwritten values and norms that in fact direct the actions of individuals in an almost prescriptive way. Organizational culture is like an iceberg in which the visible tip is represented by an organization chart, as well as rules and formal procedures – and of course, standards. The second part below the sea’s surface, much larger than the visible one, coincides with hidden aspects. This inverted mountain is made of attitudes, values, basic assumptions that – informally but intensely – direct the members of an organization in their life within the organization itself. Organizational culture says – silently but peremptorily – how things are actually done and how problems are solved in social practices. In addition, we know from Latour (1987) that in organizations, actions are implemented by non-human elements as well, such as technologies, physical environments, or even standards. An example of the informality needed to implement formality can be taken from the Italian university context. In Italy, PhD programs have to be accredited every year through an online platform. To obtain an accredited program, there are many standards to meet. For instance, each professor in the board has to maintain a certain scientific productivity index and there is a minimum number of scholarships to offer.² The PhD program board also includes professors from universities other than the one in which the program is based. In the application for accreditation made to the Ministry of Universities, it is necessary to enclose a PDF file, which authorizes members from other universities to be part of the board and which members receive from their own universities – it is a procedural standard. Suppose, that there are five members of board coming from a university other than the one in which the PhD program is based. There is no

²Furthermore, PhD program coordinators have to possess some requirements such as being part of journals’ scientific committees or winning European funding, or being above the thresholds of indicators that allow being part of national recruitment committees of other professors. Note in this last requirement, the entanglement of indicators and measures, as well as the dense network of relationships between them.

way to upload a single PDF file that contains five different authorizations. The platform will not accept it. There have to be five different PDF documents. The problem here is that professors may not be able to obtain an authorization from their faculty meeting of their respective universities in time (or, quite fairly, they might be tired of requesting it every year). So, what shall we do? Officers agree to create five fake PDF documents, each of them named “Authorization Professor One,” “Authorization Professor Two,” and so on. Each of these PDF files will include a professor’s name and a few lines stating that he or she has requested the authorization and is waiting for it. The platform is “happy” to receive these uploads and does not prevent the procedure from going on. Therefore, forms have been respected through a complex network of underground negotiations (or underwater if we want to keep the iceberg metaphor).

We are thus turning to the third point, that is, the link between implementation of standards and expertization of knowledge. There are at least two issues in this regard. First, a decision has to be taken as to whether an expert can use standards, whenever possible:

Even if nationally authoritative protocols are available and if clinicians are familiar with those protocols, the key issue is whether the clinician decides that the guideline applies to their patient. (Timmermans & Almeling, 2009, p. 25)

In studies of clinicians’ decision-making, it has been observed:

how evidence-based medicine was still filtered through peer recommendations (rather than replacing peer opinion), how clinicians used EBM strategically to resist or implement changes they already favoured, and how EBM lost credibility when it was associated with cost-control measures. (Timmermans & Almeling, 2009, p. 25)

Once again, we will note that there is a certain flexibility in the proceduralization of formal standards. The second question is an interesting and a sad case of heterogenesis of ends. During a research carried out on the Italian workplace (Borghi & Giullari, 2015, p. 2), a professional was interviewed by a company that issues safety certifications for the working environment.

As a certifying body, we had three deaths at the company and client of ours, it was certified through accreditation. We were alright, we were within the rules of accreditation; investigations are still ongoing ... but we came out well, and also our customer.

From what this professional thinks, it is easy to understand how his attention was centered on the company’s compliance with the prescribed standards in relation to safety in the workplace. In fact, real safety remains a background issue. Paradoxically, the “real” safety is conceived as the adherence to the standards. Other cases are deviations.

3. From Social Classes to Personal Scores

3.1. *Big Brother is Rating You*

It should now be clear as to how numbers, in the form of indicators, rankings, and other forms of sorting and quantification, have various powers: they are apparently objective, they are endowed with agency, and they can elicit “obedience” with no coercion at all. Foucault had already identified the power of knowledge and science. Foucault had shown how power had become increasingly impersonal and widespread over the centuries, and how it was losing its hierarchical, violent, and punitive character. Power and knowledge actually arise and develop together:

we should admit rather that power produces knowledge (and not simply by encouraging it because it serves power or by applying it because it is useful); that power and knowledge directly imply one another; that there is no power relation without the correlative constitution of a field of knowledge, nor any knowledge that does not presupposes and constitutes at the same time power relations. (Foucault, 1977, p. 27)

We therefore try to deconstruct the practices of power that are created and connected to quantification processes. China can serve as a key example.

If one reads the headlines of many newspapers and information sites, 2020 looks like a very uncanny year for the Chinese: “Big Brother is rating you” (...); “Big Data meets Big Brother as China moves to rate his citizens” (*Wired*); “China has made obedience to the State a game” (*The Independent*); “A new 1984? China has gamified how good a citizen you are” (*Metro*). It seems that in 2020, the social credit system (SCS) will become mandatory in China. It will be a system that will collect data from a multiplicity of sources (social networks, purchases, school marks, etc.) and build an index of political and economic reliability of every citizen. In other words,

Where you go, what you buy, who you know, how many points are on your driving licence: these are just a few of the details that the Chinese government will track – to give scores to all its citizens. China’s SCS will come up with these ratings by linking up personal data held by banks, e-commerce sites and social networks. The scores will serve not just to indicate an individual’s credit risk, for example, but could be used by potential landlords, employers and even romantic partners to gauge an individual’s character.³

Specifically, the SCS uses online and offline data to generate the Sesame Credit Score organized around five categories:⁴

³Inside China’s plan to give every citizen a character score, *The New Scientist*, October 14, 2015, by Hal Hodson.

⁴We summarize from the article: *Gamification per la vita dei cinesi*, by Fabio Viola, retrieved from <http://www.gameifications.com/autore/>.

1. *Consumption habits*: Through personal accounts on Alipay, the system will analyze the purchase rate and the value of purchased goods.
2. *Personal information*: In order to give a score, the app analyzes information such as work, geographical location, our house, and much more.
3. *Bills*: If the payments of various bills (many of which are paid via mobile Alipay systems) are made in time, the score will go up. On the other hand, if a bill is not paid or paid later, the score will go down.
4. *Credit cards*: Similarly, the system analyzes the virtuosity of using a credit card.
5. *Social engagement*: To assign a score, the platform analyzes our personal social network through social network apps, for instance, groups to which we have registered and in general the amount of friends present in the app.

Virtuous or less virtuous behaviors will be then summed up and you will get a unitary score appearing within a semicircle, which looks just like a car speedometer. Minimum and maximum attainable scores range from 350 to 950 with a positive threshold starting from 600. There are score rewards, such as purchases without deposit, the possibility of leaving China to visit “forbidden” countries, and advantages in train and air bookings. On the other hand, according to many articles, punishment seems to include financial restrictions and even slowdowns in the internet connection.⁵ The sensationalism of some news articles might be due to a video created by some game designers – Propaganda Games: Sesame Credit – The True Danger of Gamification.⁶ The video very soon became viral and was taken quite seriously, although it does contain some exaggerations. The part concerning social ratings and sanctions has also been denied by the project directors. Yet, and although some parts are still undefined and probably exaggerated in the dystopian descriptions given by media, the project seems to be plausible and this makes it a very educational sociological case study. We therefore continue in this analysis conducted through the stimulus of the “what if.”

In addition to the reasons mentioned earlier, a score would decrease if people buy goods that do not promote Chinese economy, such as Japanese products. The same would occur with “political” posts, like the Tiananmen Square picture, that would be punished with a point loss. On the other hand, it would be possible to win points not only for financial reliability, but also for patriotic choices of consumption and for politically orthodox posts, in line with the Chinese government. However, the most frightening thing of all is that the score is also a consequence of friends in social networks. According to some articles again, the score – which will be public – would decrease if we had contacts with low-scoring people in social networks. Whereas, it would go up, if we had many friends scoring high and supported their conservative posts (for instance by liking them). In this way, politically unpleasant people would be isolated because no one would like to have them as friends. The

⁵According to the Finnish Government, the access to the broadband is a human right.

⁶Retrieved from <https://www.youtube.com/watch?v=IHcTKWiZ8sI>.

algorithm encourages orthodoxy through gamification. This possibility of surveillance clearly sounds like Foucault's theory. The management of power becomes indeed neutral and impersonal, based on rewards and loss of points. There is no ruler who punishes or jeopardizes dissidents or even uses forms of explicit violence. In a perfectly neoliberal perspective⁷ (in China!), power is presented as "governance at a distance" (Rose, 1990). It is not because of bad or ruthless people that we are losing opportunities, but it is because of numbers, just like in a videogame. It is not because of unfair laws either. Even worse, we can only blame ourselves if we do not reach a certain score. Therefore, this gamification of daily life – even in its political implications – acts as "technology of the self." It imposes, or even proposes, the right direction, and it does it through nudging and in a mild way. Power therefore presents itself as an effect of our choices within an ecosystem made of consumption, likes, respected deadlines. We are the ones who educate ourselves to docility in a reflexive way, through the continuous counting of points. The citizen score is a perfect example of agency of numbers. Our score shapes our life-trajectories, our score decides on our ability to get a mortgage on the house, to let our children study, even our marriage possibilities, because the score is the first thing anyone will look at when meeting people on dating sites. Again, the citizen score is an extraordinary example of "naturalization" of numbers. It appears objective and neutral; however, in fact, it is the outcome of political choices. In addition, day by day, it will no longer be questioned, just as the Gross Domestic Product (GDP), the Intelligence Quotient (IQ), the inflation, or other measures are no longer questioned.

In an article that became a "classic" through time, "Governing by numbers," published in 1990, Nicholas Rose identified four types of *political numbers* in advanced, liberal, democratic, capitalist societies: votes, polls results, indexes, and indicators (like the GDP, inflation) and more complex measures (statistical elaborations on health data, on fiscal ones and other). Moreover, Rose (1990) argued that there was a constitutive interrelationship between quantification and democratic government, at the following three levels:

- Democratic power as *calculated power*: "numbers are intrinsic to the forms of justification that give legitimacy to political power in democracies."
- Democratic power as *calculating power*: "numbers are integral to the technologies that seek to give effect to democracy as a particular set of mechanisms of rule."
- Democratic power "requires citizens who *calculate about power*, and numeracy and a numericized space of public discourse are essential for making up self-controlling democratic citizens" (p. 675).

Today, both types should be rethought. Remaining within the gamification frame of the obedient citizen, we should add scoring to the first type of power because it is certainly a matter of political numbers. In the second type, we should also add another interrelationship between quantification and democratic

⁷On this point, market institutions themselves have fostered quantification: they count, rank, measure, tag, and score on various metrics of varying degrees of sophistication, automation, and – as seen – opacity (Fourcade & Healy, 2013).

government, that is, the “calculating selves.” Today, even in everyday life, we are asked to know how to calculate the risks of our choices, actions, and behaviors. This is linked to the idea of society as structured as “world of scores rather than classes” (Fourcade & Healy, 2013, p. 568). Individual scores open and close social gates and strongly affect economic opportunities and life-trajectories. In the neoliberal economy, “market institutions increasingly use actuarial techniques to split and sort individuals into *classification situations* that shape life-chances” (Fourcade & Healy, 2013, p. 559). Long before the Chinese scoring system, in the United States, scoring technologies quantify credit risk: a number that is as important for the destiny of an individual as titles of nobility were during the medieval period because they determine one’s access to credit. Such a system invites individuals to become “calculating selves” (Miller, 1992) capable of modifying and controlling the parameters determining their score through continuous and rigorous self-surveillance. This type of self-measurement requires very specific competencies, which not all people possess, so “an advice industry (...) teaches how to manage (or game) one’s credit score, or how to keep fees and premiums low” (Fourcade & Healy, 2013, p. 565). Thus, we could add, as a fourth interrelation, that the democratic power requires citizens to calculate multiple aspects of their actions within their consumption choices, in the financial management of their life and in their contacts on social networks. This is a 2.0 development of the capability of *reasoning* theorized by Martha Nussbaum (1995). However, in Nussbaum’s approach, this capability was seen as a necessary requirement of social justice that the state should guarantee; in the (not so distant) dystopian future of scoring, it is a necessity that individuals must develop not to contradict their government. One wonders how “democratic” is such a government.

3.2. Algorithms and Data-Driven Research

On January 13 (Saturday) and 14 (Sunday), 2018, the BASE factory in Milan, which promotes a project of innovation and cultural contamination between Art, Creativity, Enterprise, Technology and Welfare, promoted an event called *Black Future Social Club (BFSC)* – inspired by the well-known Netflix series *Black Mirror*. The event was a sophisticated dinner in which the most appetizing dishes could not be bought by cash or wallet cards, but rather through the diner popularity. Depending on the number of followers and likes obtained, hosts could get access to the event, order specific dishes during the dinner, and even stay there overnight. Only those who had more than a thousand fans on Instagram could enter. Hosts had to show their Instagram profile at the entrance – as if it were an ID – to check the number of followers. Then, they were divided into three classes, based on the number of fans (if they had 1,000 fans, they were assigned to the lowest class; if they reached 30,000 fans, they had the highest prestige), and this determined how the dinner was managed: better the ranking, better the food on your plate. The staff was not only in charge of serving dinner, but they also had to motivate guests to post photos and comments of dishes. A notice board on the wall, called Social Wall, was showing post analytics. Those who had only a few likes were invited to find a place at the snack food-vending machines.

However, as occurs at the best social events, there was a “crash-the-party” option. Even if you did not reach the number of followers required to access, admission was allowed as long as the subject became a #influencer in the few hours of dinner. How? To get followers you had to follow the instructions, for example, to post a photo of the event on your account commenting with the hashtag #BFSC. Moreover, organizers had prepared boards with letters that expressed the request for “help” – for instance, “I’m poor with followers.” Rules were simple: no retouched selfies and no advertising for products. #Igers customers (a shortner for “Instagrammers”) were asked to post the #fashion atmosphere and #foodporn dishes in their profiles. What for? The possibility of sitting at the table and ordering a second dish was based on the likes achieved by the dish photo posted on social media.

This Milan dinner is another example of how quantification can affect the use of services and resources. In this case, it affected access to the most important resource of our life, namely food, together with sleeping. Quantification creates an order, and is one of its key features. It is a numerical order that culture can transform into a hierarchy. Taking a step back to the Milan dinner, hierarchy was determined by the number of followers, which in turn was determined by individual “net-skills” such as guessing the right picture and combining a comment that will be appreciated. It is a question of knowing how to interpret tastes of the portion of network involved and convince those users to formalize the appreciation through the like button. On the one hand, social mobility within the hierarchy is emancipated from ascribing privileges to become apparently more democratic, though perhaps based on rather evanescent abilities. Alternatively, maybe not yet understood.

The *Black Mirror* series offers many ideas to reflect on the role of big data, quantification, and algorithms in contemporary society. In the episode, “Hang the DJ,” a dystopian world is described in which the “system” decides the duration of love relationships. It is a kind of app that makes two people meet and establishes the duration of their relationship. Depending on how we behave during each relationship (which can last 12 hours or many years), we are provided with the next partner. Based on our history of love relationships collected through the app, the “system,” through a *machine-learning* approach and after storing enough information, will provide us our ideal and final partner, with no deadlines.⁸

One of the “take home messages” that can be drawn from this frightening episode is that even love can be predicted, building on huge amounts of data that relate personalities, socio-economic characteristics, and face and body forms. The important thing is to have big data and an algorithm that learns from our past mistakes and refines its matches faster and faster. This episode may be connected to a very heated debate on the change in the nature of scientific research that would be caused by big data. The article that triggered the debate was published in 2008 on *Wired* by one of the editors, Chris Anderson, and was titled

⁸The problem arises when a couple discovers they love each other, but they have a deadline. Obviously, the algorithm has foreseen this possibility

“The end of theory: The data deluge makes the scientific method obsolete.” In this article, Anderson argues that we have come to an epistemological turning point. For centuries, science has proceeded in a deductive way, or by formulating theoretical hypotheses that were then proved through empirical tests. On the contrary, Anderson claims that the theoretical hypotheses are now obsolete, they are a waste of time; however, above all, they are useless. In addition, this because we have data.

This is a world where massive amounts of data and applied mathematics replace every other tool that might be brought to bear out with every theory of human behavior, from linguistics to sociology – forget taxonomy, ontology, and psychology. Who knows why people do what they do? The point is they do it, and we can track and measure it with unprecedented fidelity. With enough data, the numbers speak for themselves (Anderson, 2008).⁹

As collecting and processing data is extremely easy today, thanks to digital technology, we are at a point where data themselves can generate our hypotheses. Moreover, statistics enables us to grasp any possible correlation between data and “overcome,” so to speak, our search for causes. The technology-based empiricism of Anderson is certainly veined by optimism. We entered Petabytes Age and here:

Petabytes allow us to say: “Correlation is enough.” We can stop looking for models. We can analyze the data without hypotheses about what it might show. We can throw the numbers into the biggest computing clusters the world has ever seen and let statistical algorithms find patterns where science cannot.

Taking the intellectual provocation of Anderson to extreme consequences, we may think that in addition to the hypotheses, from the scientific methodology, we could one day dismiss those who formulate hypotheses, that is, individuals themselves. In fact, the start-up Ayasdi has raised \$10 million among investors for data-visualization software that promises the customer to save time in processing search queries to extract useful information from datasets. The challenge is to remove all traces of human elements from the analysis and automatically provide, thanks to the algebraic topology, the most interesting paths and correlations, giving life to a *digital serendipity* (Di Chio, 2015). Moreover, in Hong Kong, the *Deep Knowledge Ventures*, a *venture capital* firm in the biotechnology field, has chosen to name the Vital algorithm (Validating Investment Tool for Advancing Life Sciences) as a board member, relying on an unequalled ability to predict the success of an investment.¹⁰

Anderson’s article received several criticisms. To begin with, the inductive approach on which he insists is not new. The hypotheses from which experiments and tests start very often are derived from previous observations. In the social sciences, there have long been approaches – such as grounded theory – that attempt

⁹Retrieved from <https://www.wired.com/2008/06/pb-theory/>.

¹⁰The two examples are critically discussed in De Chio (2015).

to produce knowledge by putting theories and hypotheses between brackets, so to leave the “data speak for themselves.” Or rather, theory and empiricism are in a relationship of circularity in which the data “triggers” hypotheses that give rise to further empirical research. However, above all, precisely when we are overwhelmed by the deluge date, theories are needed to interpret data and their infinite possible elaborations. The big-data-simplification models acquire even more importance: there are no big data without “small patterns” (Di Chio, 2015; Floridi, 2012).

Likewise, as we have seen, we must forget that data, indicators, and standards, which are apparently real and objective entities, are the results, at least in part, of “political” choices, negotiations, and social practices. For example, inflation and GDP are undisputed realities, but we know they could be calculated differently. Comaroff and Comaroff (2006) coined the aptitude “quantifact” neologism for these fictional numbers: “statistical representations that make the world ‘factual’ in public discourses” (p. 211).

The problem is that fictional numbers may have factual consequences.

4. Take Home Message-1

Espeland and Stevens (2008) wrote that quantification and the creation of numerical data require structures, investments, and “political muscle,” but the last decade has brought unanticipated technological changes. The advent of smart-phones has allowed people – through self-tracking – to collect immense amounts of data on a potentially infinite number of human activities: steps taken, hours slept, moods felt, and cups of coffee drunk. We can enter our data (e.g., the number of beers drunk) or have the data collected automatically (e.g., the heartbeat). According to the founders of the “Quantitative Self” group (Wolf, 2010), self-tracking opens up new possibilities in the field of human actions and behaviors. We can today live a “data-driven life.” Data allow us to make rational decisions and not repeat errors due to poor memory. In fact, without any effort, we are offered statistical processing of our personal graphs and histograms, making it much easier to understand our own activities and performance. Furthermore, gamification strategies make it easy to implement otherwise boring activities into our daily lives.

However, quantification is not just about self-tracking. Quantification can take two forms: the transformation of various types of qualitative information into numerical data and the production of numerical data through digital devices (of which self-tracking is one among many examples). Organizations base much of their management on numbers: parameters, thresholds, and indices. Furthermore, formal decision-making procedures – that is, algorithms – only work when numbers are input. One speaks, therefore, of the “technicalization of knowledge.” Rose (1990) wrote of governing by numbers and Latour (1987) of the prerogative of numbers to “govern at a distance.” For example, in the workplace, it is sufficient to set thresholds, standards, and quantified objectives so that it is no longer necessary for someone to give orders or directives. Workers will simply adapt their actions to meet pre-established parameters and standard operating procedures.

However, the power of numbers is peculiar: after they have been established or created, we tend to think that they are objective, and therefore “true.” We do not question the existence and reality of inflation or a country’s GDP. The numbers not only play a semantic function in making the context more intelligible, but also fulfill a meta-cognitive role in establishing the context itself. Moreover, numbers perform a pragmatic function because they dictate the activities that occur within the context they have created. Such actions may not meet established parameters, but they do not nullify the context – that is, measurement standards and methodology – because the actions can only “exist” within the context that the numbers have created. On the contrary, the quantification activities, which are constantly affirmed and legitimized by the numerical framework, occur within it, contributing to solidify the perceived objectivity of the measuring instruments and obscuring their underlying conventions. This also applies to standardization, an impressive contemporary social dynamic which implies objectivity. However, there may be more flexibility than expected in practice – there can, surprisingly, be more than one standard.

The quantification of life has many implications in the realm of social justice. It is conceivable that, in the future, society could acquire many of the characteristics imagined by the writers of dystopian literature. Fourcade and Healy (2013) write that our society is experiencing a transition from distinct social classes to classification based on personal scores and ratings. Indeed, in the United States, we quantify credit risk: the “credit score” is a number, which is as important for the modern individual as titles were to medieval nobility because they determine one’s access to credit. Personal scores and ratings – which could be not only financial, but also social or political – could therefore exclude some sectors of society. In this case, too, a numerical indicator holds immense power, making this form of political violence appear as objective and even natural.

This page intentionally left blank

Chapter 2

Getting Things Done: Gaming and Framing

Abstract

According to Barber (2007), the consumer society fosters the growth of an infantile ethos. This happens because infantilization of the consumer is the best way to create new needs that the market can then answer with new goods and services. Given that neoliberalism encourages individual consumers to remain, at least partially, infantile, what position can boring, difficult, “adult” activities occupy in a neoliberal society? Exertion and hard work are in fundamental opposition to infantilization. In a neoliberal culture, then, “serious” activities – like labor, hard work, and other boring things – must be dressed up as pleasant pastimes. Today, thanks to apps, it is possible to work, practice self-care, or study under the guise of playing a game. Clearly, then, gamification – the transformation of boring tasks into pleasurable activities – is consistent with and symptomatic of the broader infantilization promoted by consumeristic capitalism.

Gamification is a fundamental feature of several health apps. When using these apps, we earn rewards and points (depending on what we do). We thus engage in a pleasurable self-governance driven by our own aspirations and capacities. Gamified self-tracking is, then, the opposite of work and work activities. It increases our productivity without oppressing us – at least at first glance. This (apparent) self-governance is a funny and pleasurable taylorism of everyday life.

Keywords: Weisure; gamification; infantilization; endoptikon; quantifact; superbetter

1. The Infant Ethos of Capitalism: The Rise of Weisure

Dalton Conley’s grandparents lived in Carbondale, Pennsylvania. Dalton was born in 1969 and his relatives belonged to the upper class – his grandfather was a dentist – in a working class, coal-mining community. Basically, they had a rich social life: “They played bridge on the weekends, going so far as to compete in the statewide circuits of tournaments. They also played golf a couple of times a week” (Conley, 2009, p. ix).

Conley's (2009) parents had a different way of enjoying their free time:

They never learned to play golf or bridge. For them, leisure meant throwing or attending a dinner party with their group of bohemian friends. Or perhaps going to an art opening. (p. xi)

Instead, Dalton can be considered a victim of a “generational misfortune.”

Leisure? The “good life”? What are those? Work is in the central aspect of our lives. We are lucky it is fulfilling work – work that will probably continue to do until we are no longer capable – but it is, unlike that of my parents, all-consuming work (...). Success in today's professional world doesn't mean retiring at fifty to play golf in Florida, it means working more and more hours as you move up a towering ladder of economic opportunity (and inequality). (Conley, 2009, p. xiii)

To put it differently, if we work almost 24/7 and if our leisure time is also occupied by work-related activities – such as answering emails, reading news, or making new contacts – the boundary between work and leisure gets thinner and eventually it gets lost. The once separated spheres have now collided and interpenetrated each other “creating a sense of *elsewhere* at all times” (Conley, 2009, p. 33). Nowadays, Conley states, “leisure is work and work is leisure.” Welcome to the “weisure” lifestyle.

In a society where the economy is increasingly polarized and uncertainty is a common feeling among people, a new dynamic has taken shape.

For the first time in history, the more we are paid, the more hours we work (...) among the luckiest of us the rewards for working are so great, to the make the opportunity cost of not working all the greater. (Conley, 2009, p. 15)

As a result, concludes Conley (2009), we no longer have leisure-class elite, and as a consequence, “the rich are working harder than ever (...). Rather, leisure is something for the poor” (p. 15). However, leisure time does not disappear. It becomes an “interstitial” activity (Dorfles, 1988) within the work sphere and vice versa. Recently, another term appeared, as a subcategory of weisure: *bleisure*, the lucky combination of business and leisure. Bleisure can be defined as the tendency to enrich business trips with some leisure activities such as small tourism visits or explorations or simply to go jogging before the business meeting.

Coming back to weisure, it should be noticed how, according to one study,

The average office employee is spending about five hours a week on his or her cellphone on things that have nothing to do with the job, such as answering personal e-mail.¹

¹The news appeared in one article of *The New York Post*, July 29, 2017, This is how much time employees spend slacking off. Retrieved from <https://nypost.com/2017/07/29/this-is-how-much-time-employees-spend-slacking-off/>.

Additionally, on the time axis, digitalization allows people better work scheduling: working at home or working weekends. Regarding the spatial axis, anyone in a metropolis who decides to enter a Starbucks, will probably see people bent over their laptops working or studying – even late in the evening, out of the office, and out of office hours too. Conley (2009) shows how this merger between work and play also concerns kids, and he provides a brilliant and incisive protodefinition of gamification:

Even our kids have gotten into the “game,” so to speak. When we are not programming their time to develop their fine motor skills, they retreat at their Shangri-La of Club Penguin, Neopets and Webkinz. These and other online games popular with the elementary school set have begun to train children on their future. That is, much of their video game “play” entails doing jobs – such as making pizzas or unloading trucks (physical labor) – to earn “coins” or “Neopet points” in order to buy virtual objects online for their two-dimensional pets. (p. 32)

However, the peculiar trait of neoliberalism is not the early socialization of children to work (or, rather, the early socialization to consumption) – on the contrary, its peculiarity is the continuous infantilization of the adult. The Protestant ethos, which according to Weber contributed to the birth of capitalism – and which preached asceticism and work – has been replaced by the infant ethos, which preaches consumption and fun. This, at least, is the thesis proposed by the influential book of Benjamin Barber (2007) titled *Con\$umed. How Markets Corrupt Children, Infantilize Adults and Swallow Citizens Whole*.

The thesis of Barber can be summarized as follows. In a capitalistic society, young people are the best customers, because they are the ones who are more attentive to fashions and consumption and want to see their needs satisfied quickly – if not instantaneously. Therefore, and this is the stroke of genius of capitalism – if we are allowed to anthropomorphize it – everyone should be considered young. “Forever youngish.” Capitalism infantilizes consumers. This happens above all in contemporary society where, paradoxically, the distinctive feature of the world is aging. Juliet Schor (2004) stated that children had become “the epicenter of the American consumer culture. They command the attention, creativity and dollars of the advertisers. Their tastes drive market trends. Their opinions shape brand strategies” (p. 9). In addition to the “influence marketing” of products and services, Schor says marketers are guilty of “age compression” in their consumer strategies: “Age compression specifically involves taking products that were previously considered to be for adults and marketing them to kids,” she says. “It’s about marketing such things as makeup for young girls or violent toys for young boys – the idea that ‘kids are getting older at an earlier age’” (Schor, 2004). However, as noticed by Barber (2007), in affluent society, childhood becomes shorter, youth stretches out, and ageing shrinks. Indeed, we pass the time posting likes and emoticons on social network sites :-).

Moreover, thanks to Botox and Viagra, “adultescents” are able to virtually postpone the ageing process (Maturò, 2012a).

Therefore, alongside the “age compression,” due to the peculiar ability of capitalism to harmonize apparent contradictions, an “age extension” coexists: today, some components of childhood cross the whole life of the individual-consumer. The infantilization of the consumer is the most effective stimulus to create new needs – needs that the market can respond to with new goods, services, and experiences. In order to analyze causes and consequences of infantilization, Barber (2007) – taking up the famous work of Postman (1982) – uses three dichotomies: easy-difficult, simple-complex, and fast-slow. Regarding the first dichotomy, Barber underlines how consumer culture rewards what is easy. Choices of life and social activities are shaped in order to avoid sacrifices and difficulties:

Diet without physical activity, marriage without obligation, music or numbered painting without exercise or discipline, degrees taken on the internet without courses and without study, athletic success without steroids and exhibitionism. (Barber, 2007, p. 128)

Basically, this condition expresses the opposite of the ethics of asceticism, which dominated the Protestant ethos.

Regarding the second dichotomy, simple/complex, Barber notes how advertising, the lives of celebrities – today we would call them “influencers” – and the messages of the media must be instantly understandable. The complexity, the nuances, and everything that is not easily pigeonholed or requires too much intellectual effort hardly becomes usable for mass consumption. Barber (2007), commenting on some whims of sports champions, underlines how in childhood the infantile ethos functions in a deliberately contradictory way: it pushes children to grow rapidly to turn them into professional athletes who can make profits; then, it allows them to embrace the infantilism they had abandoned because of their professionalization. As an example of simplification of journalistic practice, Barber mentions the trend of *infotainment* and he additionally cites the Fox-effect as an example of infantile news.

Regarding the third dichotomy, slow/fast, it is quite easy to identify speed as a fundamental characteristic of today’s society. We live in a culture based on rapidity and technological acceleration² in which consumption must be immediate, communication instantaneous, and medical treatment quick (Rosa, 2010; Tomlinson, 2007).

Now, if neoliberalism invites and encourages individuals-consumers to never get rid of their childhood, what role will tiring activities have in such a society? Fatigue and sacrifice are the opposite traits of what characterizes childhood. Simply, “serious” actions – what we consider heavy, boring, or painful – must be disguised as *loisirs*. Today, thanks to apps, it is possible to work and study as if we were playing a game. Therefore, the gamification

²See Chapter 4.

of “everything” is totally consistent and coherent with the infantilization promoted by consumeristic capitalism.

On the opposite side of this critical position on gamification, there are the ideas proposed by Jane McGonigal.

2. Taking Gamification Seriously. But, What is Gamification?

Gaming, as many scholars have shown, has an essential function in socialization and learning practices. Erikson had already touched on a similar assumption in 1963, when he had stated that play was the infantile form of man’s ability, making him capable to face the experience of life – through the creation of model situations – and dominate reality – through experimentation and planning (Erikson, 1963). In sociology, before Erikson, George Herbert Mead (1934) had emphasized the importance of gaming for the development of child’ subjectivity. Through games, the child learns how to anticipate the actions of others; thus, he or she understands what it means to act according to social roles. The complexity of games, compared to play – which does not contain rules but is based on improvisation – allows the subject to take the perspective of society and understand what social expectations are (how he or she should behave). Freud (1920) also affirmed how the child learns to think abstractly by playing with a spool of thread, which simulates the disappearance and reappearance of the mother.

Thus, it is not surprising that, in recent years, gamification has been considered the most innovative and most followed idea in marketing strategies (Luminea, 2013) and in educational programs (Groh, 2012). Thanks to gamification, we can complete and make heavy and difficult activities fun. By enhancing motivation, apps based on gamification principles can help in changing harmful behaviors, such as apps that help us to quit smoking or reduce junk-food consumption. Even simple apps, like those for jogging (one of the most famous is Runtastic), present aspects of gamification: songs and videos that light up when we reach our goal – miles raced or calories consumed, for example – friends who can motivate us, display features that looks like a video game. Some scholars have a very optimistic perspective about the role that gamification can play on our culture. As Jagoda (2013) points out, gamification, with its features, is becoming a “cutting-edge panacea” (p. 115). According to McGonigal (2011), one of the most enthusiastic supporters of gamification, through gamification we can solve some of the world’s problems like cancer and climate change: “new participation platforms and collaboration environments are making it possible for anyone to help invent the future, just by playing a game” (p. 15). Beyond these “eschatological” scenarios,

games have been shown, in a number of contexts, to activate a wide range of learning and thought styles, promote prosocial behavior, foster both cognitive and emotional empathy, model alternate modes of action, and enable players to frame problems differently through procedural interaction. (Jagoda, 2013, p. 125)

In the realm of health care, some successes have been achieved, thanks to games played by patients in order to comply with prescriptions and therapies (Cummings, Golson, Goodman, & Nonamaker, 2013). M-Health (mobile-Health) is becoming a central way for improving self-care (European Commission [EC], 2014). As mentioned earlier, there are numerous apps that act on our motivations and, more specifically, intervene on self-care and patient compliance:

One way gamification addresses this challenge is by creating a virtual environment that encourages the user to have fun and feel a sense of empowerment: winning points, badges or status and advancing through a hierarchy of different levels (think *Angry Birds*). By creating an enjoyable gaming experience, patients are more likely to engage and improve their self-care. (Drell, 2014, p. 24)

Depending on the purpose, we can roughly distinguish between two types of gamification, often intertwined with each other: motivational gamification and co-operational gamification. In the first case, gamification appears, on an individual level, as a support or a facilitator to increase motivation and performative skills. A strenuous activity is turned into a playful experience, so that it can be completed more easily. In this sense, we can argue that the game is no longer only a mechanism of socialization to unknown realities. Additionally, the game no longer plays only a representative function of a reality that until then was unknown by the subject. The game becomes a device that allows us to act upon reality, a sort of performative mechanism. Without losing its cognitive function linked to the simulation of reality, gamification presents, therefore, an important pragmatic and performative aspect.

Co-operational gamification stimulates the participants in the game to solve a problem. Through a simulation, and of course having fun, the players resolve a real problem. Paradoxically, within the game, there can also be competition among the participants, but the outcome is not an individual victory; rather, it is a collective achievement. Or, better said, individual victory is a simulation for a wider purpose. In 2012, Boehringer launched the social game *Syrum* on Facebook. This game allows players to create and run their own virtual pharmaceutical company by placing them in a virtual lab and challenging them to create and develop simulated medicine, run clinical trials, and bring the newly formulated drugs to market in an effort to improve world health. According to John Pugh, global innovator team leader at Boehringer,

there are some other things (...) that are really exciting. Perhaps the ability to pay to get further ahead in the game or to buy certain elements in the game using real money, and then having that money go to charity (...) that would make it not just a game that helps explain some of the processes in the pharma industry, but (a game that) actually does good as well by donating money. (Drell, 2014, p. 27)

Lastly there are games in which many people participate and compete simply for individual winnings. However, in this chapter we do not deal with these games – apart from the case of apps.

3. (Super)Better Than Well: The Philosophy of Jane McGonigal

If you say gamification, you say Jane McGonigal. She is a lively and enthusiastic American author, with a PhD in performance studies taken at Berkeley; she spreads the verb of gamification around the world not only through bestseller books, but also with conferences around the most prestigious universities. She also participated in TED talks that gave life to hundreds of thousands of online views. But, that is not all. Jane McGonigal is also a future forecaster and – how could it not be? – a game designer. Among her latest creations, we should mention the SuperBetter app. This app was designed while Jane was in the hospital for a concussion. McGonigal started with a very critical premise. We can almost glimpse a hippy vein in some of her statements about reality.

The real world just doesn't offer up as easily the carefully designed pleasures, the thrilling challenges, and the powerful social bonding afforded by virtual environments. Reality doesn't motivate us as effectively. Reality isn't engineered to maximize our potential. Reality wasn't designed from the bottom up to make us happy. (McGonigal, 2011, p. 3)

However, as suggested by the title of her book, from which the quote is taken, compared to games, *Reality Is Broken*. McGonigal does not even think about taking refuge in some artificial paradise. She does not offer games to escape from reality; rather, she shows how they can affect reality. The game then serves to become more realistic. In fact, in games we give a lot – in terms of effort. We forget that we are playing and we reach amazing results. The efforts are enormous, but we do not perceive them. Our concentration focuses exclusively on a few aspects, until we find original solutions. Therefore, we must make sure that we live in reality as if we were in a game. A fun and, at the same time, very serious game. In fact, the theoretical and practical effort of McGonigal's work starts from the following question: What would happen if in reality we engage as much as we do in games? Consequently, what would happen in our job, study, research, or even on our introspection dimension, if we engage with the constancy and vigor that characterizes our life in game? The answer is easy: in all these fields, we would get astonishing results.

Thanks to games, we multiply our potential. Games do not distract us from real life. On the contrary, they fill it with positive emotions, positive activity, positive experiences, and positive forces. The great challenge for us today, and for the rest of the century, is to better integrate games into everyday life, and to develop them as a platform to collaborate together to solve the most important problems afflicting society: from cancer to the end of oil. It is not a coincidence that the

subtitle of the volume is *Why Games Make Us Better and How They Can Change the World*.

Going a bit more into the detail of McGonigal's (2011) proposal, some aspects need to be explained. First, we should list the components that define a game. There must be a *goal*, toward which the participants direct their actions. There must be *rules*, clear and shared. There must be a *feedback system* that tells

players how close they are to achieving the goal. It can take the form of points, levels, a score, or a progress bar. Or, in its most basic form, the feedback system can be as simple as the players' knowledge of an objective outcome. (McGonigal, 2011, p. 21)

It is necessary to make clear that the goal is achievable and therefore it might motivate the participants. Obviously, a game is based on the *voluntary participation* of the players. There cannot be any constraint. The only obligation is to follow the rules within the game – but this is a necessity when you decide to play; there is no pressure on the decision to participate.

McGonigal also wonders why we play. It sounds like a trivial question to which she responds following an analysis based on theories of positive psychology and wellbeing. From her research, McGonigal shows that there are four types of rewards for those who participate in games: satisfying work, experience/hope of being successful, social connections, and meanings. More precisely,

1. *Satisfying work*: In games, there is a well-defined purpose and the tools to achieve it. This is not always possible at the workplace. Often at work, the goals are confused and we do not have a clear vision of what we should do. A clear vision of tasks and objectives may fuel motivation and job satisfaction. Games bless us with blissed productivity:

Blissful productivity is the sense of being deeply immersed in work that produces immediate and obvious results. The clearer the results, and the faster we achieve them, the more blissfully productive we feel. (McGonigal, 2011, p. 67)

2. *Experience/hope of being successful*: In games, failures are seen as lost battles, not as catastrophes. Failures are learning opportunities and they can increase the possibility of subsequent winnings:

This is fun failure. Positive failure feedback reinforces our sense of control over the game's outcome. And a feeling of control in a goal-oriented environment can create a powerful drive to succeed. (McGonigal, 2011, p. 67)

3. *Social connections*: Relying on various research, McGonigal (2011) shows how games amplify the number of social connections with strangers and solidify social relationships with the people we know, especially our relatives:

Games build stronger social bonds and lead to more active social networks. The more time we spend interacting within our social networks, the more likely we are to generate a subset of positive emotions known as *prosocial emotions*. (p. 82)

The link between social connections and personal happiness has also been shown by other scholars (Fowler & Christakis, 2009). Almost 20 years ago, Robert Putnam (2000) summarized the decline of social capital in the United States with the fact that more and more people were leaving bowling associations to go “bowling alone.” It could therefore be said, assuming McGonigal’s (2011) perspective, that we had moved from bowling alone to gaming together:

Gamers, without a doubt, are reinventing what we think of as our daily community infrastructure. They’re experimenting with new ways to create social capital, and they’re developing habits that provide more social bonding and connectivity than any bowling league ever could. (p. 93)

4. *Meanings*: The sophisticated architecture of the games allows us to feel a part of something bigger than us. The reality of the games is something monumental that creates a sense of awe among the players:

When our everyday work feels trivial, or when we can’t easily be of direct service to a larger cause, games can fulfill an important need for us. As we play games at an epic scale, we’re increasing our ability to rise to the occasion, to inspire awe, and to take part in something bigger than ourselves. (McGonigal, 2011, p. 112)

Based on these four characteristics of the games, which we could almost assimilate to human needs related to the possibility of leading a full and happy life, McGonigal (2011) comes to the conclusion that, “we need to engineer alternate realities: new, more gameful ways of interacting with the real world and living our real lives” (p. 112). Playing makes us enter a frame where things really happen: collaborating in an intense, focused, and competitive way that can enrich humanity, thanks to revolutionary discoveries in medicine, education, technology, and energy. In short, gamification could be applied in any field.

While in her book *Reality Is Broken*, Jane McGonigal (2011) shows the centrality of gamification to reach collective goals. In McGonigal’s (2015) most recent book, *SuperBetter*, she focuses more on individual change. As we have already mentioned in Chapter 3, the idea of *Superbetter* came to Jane McGonigal when she was in the hospital – she was admitted because of a concussion. The symptoms were painful, her sense of reality was fading, and her self-esteem was at a minimum. Sometimes she thought about suicide. In short, she was desperate:

And then something happened. I had one crystal-clear thought that changed everything. Thirty-four days after I hit my head – and

I will never forget this moment – I said to myself. I am either going to kill myself, or I am going to turn this into a game. (McGonigal, 2015, p. 3)

Thus, McGonigal created the Superbetter app. A short time later, the volume comes out and it shows in an extensive way the general functioning of the app and the game itself. These are the following four elements of Superbetter:

- Power ups, that is, things that make you feel better and stronger in real life.
- Bad guys, that is, things that make you feel bad or weaker in real life.
- Quests, that is, challenges that improve your resilience (physical, emotional, social, and mental) and get you closer to your epic win.
- Future boosts, that is, short-term goals or milestones along your way to your epic win.

There are three characters: the hero, that is, the protagonist, who chooses a secret identity; the allies, that is, friends or family that support and encourage the hero; and the bad guys (described earlier). Players activate power ups, battle bad guys, conquer quests, get allies, and can set future boosts daily to achieve their milestone or the epic win. In other words, life's challenges can be turned into a game in the following seven steps:

1. Challenge yourself.
2. Collect and activate power-ups.
3. Find and battle the bad guys.
4. Seek out and complete quests.
5. Recruit your allies.
6. Adopt a secret identity.
7. Go for an epic win.

Playing Superbetter would increase physical, social, psychic, and emotional resilience. In support of these statements, McGonigal (2015) cites the results of a study conducted at the University of Pennsylvania, according to which Superbetter relieves the symptoms of depression and – after a period of 30 days of gaming – makes people happier and more satisfied with life. Another study conducted by the National Institutes of Health found that Superbetter reduced anxiety and strengthened family relationships. In addition, as McGonigal (2015) points out:

Data collected from more than 400,000 Superbetter players has helped me improve the method, to make it easier to learn and more fun to use in everyday life. Every single day for the five past years I have heard from someone who says that SuperBetter Method has changed their life. (p. 2)

Therefore, Jane McGonigal in these two volumes describes and – we can say – praises the virtues of gamification in a very enthusiastic way, citing a lot of data.

However, such clear and high-sounding affirmations can be criticized quite easily. Alternatively, we can view them in a sarcastic way like Nathan Heller in *The New Yorker*.³

When the bottle of shampoo lands on your metatarsals, you can turn the mishap into a game: your objective is to get from your home to your office in twenty-eight minutes, without once bending your painfully stiff foot. When your date abandons you, you might speedily identify a bad guy – in this case, the Monster of Feeling Boring and Unattractive – and spend the rest of the week battling it. You decide that this bad guy requires “adapting,” by going on dates that show your most exciting qualities (you are a swell ice-skater), and “resisting,” by buying smarter, more empowering date clothes. Boom! The monster is now in retreat.

Gamification can also be criticized in a more detailed way, as we do in Section 4. Most of all, to summarize, the gamification of life proposed by McGonigal raises at least one perplexity: framing any problem as a game, after a while can get boring, or even make you feel a little stupid. However, we believe that for some limited aspects, the assumptions of behavioral psychology that underlie gamification are not peregrines: gamification can be extremely useful for reinforcing personal motivations and commitment in many strenuous activities, as we will see this in Chapter 7.

4. Playful Governmentality and the Endoptikon. The Rise of Gamification

The ideas around gamification are ambivalent: on the one hand, gamification has several enthusiastic supporters like Jane McGonigal. However, on the other, there is a multitude of people who criticize gamification. Ian Bogost (2014), indeed, titled his article “Why gamification is bullshit.” According to Bogost (2011), gamification is merely:

a style of *consulting* that happens to take up games as its solution. Despite appearances, this adoption is not very interested in the possibilities and potential of games as such (...) [Consultants] just want the simplest, fastest route to getting customers’ sign-off and billing for services. (p. 68)

Therefore, it is not surprising that “gamification is primarily promoted and championed not by game designers, those interested in game studies, sociologists of labor/play, or even computer–human interaction researchers, but by business folk” (Rey, 2014, p. 274). As societies become affluent “and work is dematerialized

³Nathan Heller (2015).

into affective, creative, and information labor, new symbolic goods and forms of consumption have to be invented to keep production running, and new ideologies have to be fashioned to appease the public” (Walz & Deterding, 2014, p. 40). As we mentioned earlier in Section 1, part of this change can be described using the glamorous term “weisure” (Conley, 2009), which implicitly entails gamification as one of its main manifestations. Broadly speaking, weisure is one of the features that characterizes the transition from a Fordist economy – mainly based on the imperatives of production, asceticism, and hierarchy – to a post-Fordist economy based on consumption, leisure, and flexibility.

Rey (2014) goes straight to the point that “gamification is one mechanism through which post-Fordism capitalism appropriate such non-alienated activity [leisure] and renders it useful to the capitalist goal of wealth accumulation” (p. 280). The switch to a post-Fordist economy has been a transition characterized by several changes – slow but significant – in corporate culture that took place in the 1980s and 1990s:

Through informal dress code, office parties, games, humor, zany training camps, joking, and so on, organizational members are encouraged to loosen up and find more pleasure in their roles. In the 1980s, the benefits said to accrue from making work fun were flexibility, competitive advantage, and increased motivation. In the 1990s, the message was much the same but with the added emphasis on customer service, innovation, empowerment and creativity. (Fleming, 2005, p. 286)

Gamification would therefore represent the most evolved point of the post-Fordist economy – after that, a series of growth stages has been “dialectically” exceeded. Probably, in the near future, we will witness its complete flourishing: “gamification is gaining currency, in large part, because it fits well with certain ideological assumptions native to contemporary, post-industrial capitalism” (Rey, 2014, p. 277). Moreover, gamification represents a strong (infra)structure of neoliberalism because it stimulates and reinforces another capitalist tendency: quantification. As we discuss in Chapter 1, quantification is so important today that we take it for granted. Nowadays, thanks to digitalization, we are able to collect and process amazing amounts of data. Consequently, we are capable of developing indicators, percentages, and thresholds that describe and demonstrate the “truth” of every social phenomenon – forgetting how much these standards are arbitrary and politically oriented. The numbers allow us “to govern at distance” (Rose, 1990). Once established, indicators, parameters, and standards become entities to which we must “obey” and conform. They govern us without emotion and pressure. The numbers do not punish us if we do not reach the required standard; we punish ourselves, because we measure our loss. Therefore, for example, if our credit score is low, we cannot send our children to college. On the other hand, to give another example, if our impact factor does not reach a certain score, our contract will not be renewed. Consequently, in the neoliberalist era, it is not the individual who is supervised: the physical bodies, ideas, and other human aspects

are not the focus anymore. The new source of interest is the data-double: the clusters of numerical data we constantly produce. As described by Whitson (2014), “surveillance shifts from tracking individuals to monitoring behavior and consumption patterns” (p. 343). In our quantified society, there is an interest in knowing our cholesterol levels, how many cigarettes we smoke, and the steps we walk. All these physiological data become – in turn – a number that summarizes our health risk and therefore the possible financial cost that insurance (or the State) might support for our illness. In addition, it is becoming interesting to know our spending habits, the punctuality of our payments, the correspondence between our account card, and the correct Personal Identification Number (PIN). But, interestingly for whom? Who is the subject who wants to know all those numbers?

Certainly not the *Prince* of Machiavelli nor a cruel dictator and not even a gray bureaucrat. It is the algorithm.

After all, the situation seems coherent, because even the object of knowledge is not a person: “instead of individuals – irreducible and with an autonomous sense of agency – the new subject of governance is instead the individual, an artifact of data mining searches and computer profiles” (Whitson, 2014, p. 343). In practice, we are talking about two different forms of numerical life that meet each other.

4.1. Gamification and the Endoptikon

In our view, the analysis of social gamification practices can be made more precisely by using five “conceptual lenses” of varying thickness and epistemological breadth. In practice, these are very different perspectives, which highlight the aspects and consequences of gamification of life from different levels of observation. The five conceptual lenses are the following:

- intra-actions,
- human enhancement,
- quantifacts,
- extimacy,
- endoptikon.

Intra-actions. The concept of intra-action is related to the spread of algorithms in everyday life. It is not new to say that the most popular social networks create around their users a sort of “filter bubbles” that give rise to “echo chambers.” In practice, based on our digital traces, the algorithm selects the information we are most interested in and the one we value most. In this way, the algorithm strengthens our beliefs in the world. Therefore, the social relations that take place in social networks take the form of intra-actions, rather than inter-actions. In sociology, the concept of interaction is so broad that it is difficult to give a univocal definition. Depending on the authors, the concept of interaction takes on different connotations. However, it is interesting to note that the majority of the sociologists – who have placed social interaction at the base of their studies – have focused on how to make social interactions more stable and predictable. If we think of one of the most distant founders of social-interaction studies, that is, Max Weber, we note

how much he focused on the need for the predictability of social actions. Lately, just to mention some influential approaches, the focus has been on how to create a common definition of the situation (Goffman, 1974); how to neutralize communication conflict (Watzlawick, Beavin, & Jackson, 1967); and how to reach an agreement (Habermas, 1984). However, in digital society, these aspects on how stabilizing the interactions are less pressing as we interact with people or other entities that the algorithm has filtered out for us. In many cases, relationships are pre-structured by a common frame or sharing common rules. The possible communication actions are foreseen, and they cannot exceed or contradict the possibilities offered by digital infrastructure. Unexpected results and serendipity are – theoretically – excluded. Combinative possibilities and outcome of actions and reactions are pre-established, in most cases. This is why within an algorithmic frame – for example, a game – one could talk about intra-actions rather than inter-actions.

Quantifact. We concluded Chapter 1 with the warning that fictional numbers can create factual effects. In addition, we quoted the neologism “quantifact” coined by Comaroff and Comaroff (2006). Gamification, by its tight relationship – cause and effect – with quantification, is an amazing tool of numbers-creation. Gamification perfectly fits and legitimizes the rising “indicator culture” (Merry, 2016). As already seen, it seems that in science, politics, and everyday life, we cannot resist the allure – and therefore the power – of numbers. Numbers have such huge authority because we consider them to be objective (Desrosiers, 2011). Yet, their neutrality is the result of micro-interaction (or intra-actions), social practices, and political forces. In a word, saturated by scores – fostered by gamification – quantifacts make people act in accordance with pre-structured options. We make consumer choices on the basis of our credit score. We try to publish in some journals on the basis of their impact factor. Perhaps, one day, we will plan who to invite for dinner on the basis of some kind of “sociability” score. The non-invited guests will be excluded by a clean and neutral mechanism.

Therefore, life trajectories are increasingly decided by scores. Indeed, quantifacts, after some time, became facts: “When an indicator is successful, the indicator and the theory embedded in it enhance each other’s popularity” (Merry, 2016, p. 17). Once we start believing firmly in IQ, GDP, or even in the “coolness index,” it is hard to disconfirm them: “The community of believers gives added credit to the indicators and renders the skeptic more isolated” (Merry, 2016, p. 31)

Human enhancement. There is a close relationship between quantification and gamification. As affirmed by Whitson (2014), “both are rooted in the same technological affordances (...). Both are focused on data collection and feedback” (p. 353). This is made clear in a research carried out by Mauro and Setiffi (2016) on diet apps. Mauro and Setiffi (2016) analyzed app descriptions provided by developers, comments about the selected apps in online forums, and user reviews. They focused on four of these apps, because they had some special functions and found out that users’ risk management was based on a mixed method that combined quantification and gamification, that is, rationality and emotions. Quantification, which includes self-tracking, data analysis, and

graphic layout provided the rational basis for dietary regimes, whereas gamification provided the emotional support needed to maintain motivation and continue with the diet. Both “emotion-risk assemblage” theory (Lupton, 2003) and the “in-between strategy” proposed by Zinn (2008) were therefore confirmed.

On a wider perspective, Whitson claims that both quantification and gamification “emphasize and encourage values such as competition, advancement, efficiency, and accumulation. Whitson (2014) fosters a techno-liberal American Dream telling users that if they work hard enough they can achieve victory – in games and in real life.” (p. 353). Following this perspective, we can therefore say that quantification and gamification fit perfectly into the broader social phenomenon of human enhancement. For human enhancement, we mean any activity that heightens one or more of the following dimensions: psychic well-being, cognitive and physical capacities, and the extension of life (Maturo, 2012a). We can enhance our cognitive capabilities by reading or doing puzzles; we can enhance our psychophysical state by doing sport or sleeping regularly; and we can attempt to extend our lifespan by living a healthier life. These days, however, the possibility of human enhancement through biotechnological devices is emerging. There are pills for improving our mood, improving our memory, and strengthening our muscles. On extending the human lifespan, biogerontologist Aubrey de Grey’s mitochondrial-free radical theory of aging has gained popular attention. There are numerous examples of human enhancement obtained through “the use of biomedical technology to achieve goals other than the treatment or prevention of disease” (Douglas, 2007, p. 12). Thus, as the aim of human enhancement is mostly to increase the productivity and efficiency of our efforts, the gamification of the quantified self appears to fit perfectly as a tool for human enhancement.

Extimacy. Reflecting on the forms of gamification made possible by digitalization and smartphones, Whitson (2014) notes that,

Gamifying this quantified self, in turn, breaks down oppositions between private space, including the intimate details of one’s life, and public space by uploading these data to database of thousands of other users to compare and normalize. (p. 349)

This statement by Whitson can be made more fertile through the recovery of the concept of extimacy.

The concept of extimacy, proposed by psychoanalyst Lacan,

indicates the non-distinction and essential identity between the dual terms of the outside and the deepest inside, the exterior and the most interior of the psyche, the outer world and the inner world of the subject, culture and the core of personality, the social and the mental, surface and depth, behaviour and thoughts or feelings. (Pavon-Cuéllar, 2014)

This concept, despite having been conceived by Lacan (1959), can also find fertile application in the digital society.

One of the roots on which our use of the concept of extimacy rests is the Lasch (1979) culture of narcissism. For Lasch, since the 1960s, there has been an increase in the diffusion and normalization in Western society of the narcissistic personality (a rare example of decrease in medicalization). Moreover, society is invaded by ego-related discourses and, as Furedi (2006) later proposed, by the exaltation of a pseudo-knowledge of the self. We have therefore been subjected for decades to the “tyranny of intimacy” (Sennett, 1974). With the advent of the internet, first by blogs and then by social networks, this trend multiplied, taking the form of mass intimacy. Furthermore, with the spread of self-tracking on social networks and other infrastructures (e.g., the community of an app), the quality of information has changed. We do not share only our own “confessions” of success or failure, but our behavioral data. On the other hand, at a deeper level, we share inner-state data (like mood) and physiological data (biometric data). These are no more Foucauldian “confessions” – somehow mediated and interpreted by the subject – but the naked truth of the *bios*. The self is shared and presented to more and more “friends,” it is told in real-time (instantly), and through “lively data” (Lupton, 2018). The extimacy, often stimulated by gamification, takes the place of the identity of the subject. This is obviously a datified extimacy: a numerical simulacrum – made up of data on steps taken, inner feelings, shopping habits, heartbeats, and hours worked – but that acts and produces “real” effects. Based on these last considerations, it is easy to propose the concept of endoptikon.

Endoptikon. In his intriguing book, *The Burnout Society*, Byung-Chul Han (2015), building on Foucault, underlines that our times are characterized by a soft form of power that is not based on forbidding and punishing but on positive rewards, gamification for instance.⁴ According to Byung-Chul Han (2015), in the achievement society the performative-subject is more productive than the obedient-subject. Perhaps, this is why some corporations offer very good benefits to their employees.

A few years ago, there were some critics about the chance that Facebook and Apple offered the chance for their female employees to freeze their eggs in order to organize their “career management” efficiently. The critics addressed the fact that the employees who did not take advantage of this opportunity, would have been “at risk” of pregnancy and therefore they could have been discriminated against in the workplace. This example, of corporate biopower, shows how an individual option can easily fade into a social constraint. “If my colleagues do it, perhaps it is better that I follow their example” – is the typical assumption.

This logic – the switch from individual option to social constraint – can become a solid dynamic in the near future. Indeed, this form of constraint can virtually take place in the healthcare context, in the workplace, and in shopping habits, as shown in Chapter 1. As we have seen, self-tracking, fostered by gamification, allows us to measure the most intimate and private aspects of our lives. In addition, life can be interpreted as *bios*, it is no coincidence that we produce *biometric* data.

⁴Byung-Chul Han does not use the term “gamification,” though.

Therefore, the endoptikon can be defined as a specific form of surveillance of self-tracking data. These data can be related to all the dimensions of the subject: behavior, body, psyche, soma, and bios. The subject of surveillance can be an organization or an algorithm (like health insurance which monitors the lifestyle of its members); the “friends” of a social network (who share their states and make *interveillance*); or even the quantified self “herself” – that is, the subject of the self-tracking (in this case subject and object of surveillance coincides). The aim is often to become more productive and optimize one’s performance – gamification acting as nudging.

5. Take Home Message-2

Gamification is considered one of the most innovative ideas of recent years in marketing strategies and educational programs. With gamification, we may find heavy or difficult activities to be easier, or even fun. By enhancing motivation, apps based on gamification principles can help change harmful behaviors, such as smoking or junk food consumption. Even simple apps, like those for jogging (e.g., Runtastic), have aspects of gamification: songs and videos that light up when we reach our goal distance. Some scholars have very optimistic ideas about the role that the gamification of culture can play. According to McGonigal (2011), one of the most enthusiastic supporters of gamification, some of society’s toughest problems, such as cancer or climate change, can be solved through gamification.

Thus, gamification appears to be a practice perfectly in line with what Dalton Conley has called “weisure,” a portmanteau to define activities that feel like work and leisure at the same time.

Weisure is one of the features that characterizes the transition from a Fordist economy – mainly based on the imperatives of production, asceticism, and hierarchy – to a post-Fordist economy based on consumption, leisure, and flexibility. In the case of apps, thanks to gamification we are stimulated to produce huge amounts of data. Gamification is therefore a means of quantification. However, there are also critical positions with regard to gamification. Indeed, Gamification perfectly fits and legitimizes the rising “indicator culture.” Today, in science, politics, and everyday life, we cannot resist the allure – and therefore the power – of numbers. Numbers have such unquestionable authority because we consider them objective. Yet, their neutrality is the result of micro-interactions, social practices, and political forces. Scores (e.g., the credit score) increasingly decide life trajectories. Gamification fosters the collection of enormous amounts of data on ourselves. Anything can be collected and therefore surveyed: physiology, emotions, behaviors, and choices. We propose the term endoptikon to characterize the surveillance of our most intimate data. This kind of surveillance can be carried out by an organization (such as a private health-insurance company), by other members of a social network (such as an app “community” of users), or even by the subject herself (the quantified self). Often, an algorithm does the monitoring of our intimate states. The endoptikon can be seen as a form of soft power that shapes life trajectories on the basis of numbers. Therefore, the inner world of the subject becomes a visible surface; intimacy expands and becomes “extimacy.”

This kind of surveillance is made easier by the shrinking of our life-contexts: social network algorithms and digital/virtual realities increasingly construct a context that reinforces our beliefs about the world via filter bubbles and echo chambers. Therefore, the social relations that take place in social networks take the form of “intra-actions,” rather than inter-actions.

Chapter 3

How Apps Foster Medicalization

Abstract

The biomedical paradigm enjoys growing importance in our society. Biomedicine (e.g., Genetics) seems to occupy the position once held by religion and politics. In this context, every trivial problem of daily life is thought to require an appropriate remedy, and perfect health becomes a paramount value, especially within the upper class.

Medicalization is not only promoted by doctors. Today, other engines of medicalization are also available. These include pharmaceutical companies through marketing, advertising, and disease mongering; active consumers who seek a pharmacological solution – a magic bullet – to solve non-organic problems; technology, because highly sensitive diagnostic tools can now detect potential abnormalities even in very low quantities; and the culture of risk, which is connected to the evolution of diagnostic tools, because it is now always possible to be at risk of something.

The parts of life today considered pathological or quasi-pathological are ever increasing shyness, sadness, imperfect blood pressure, or glucose levels. Progressing editions of the Diagnostic and Statistical Manual (DSM) – the text from which diagnoses of mental illnesses are made – reveal a growing number of syndromes. These “diseases” are diagnosed on the grounds of certain symptoms and the number of weeks they last (quantification). Smartphones, with their tremendous capacity for data collection, contribute to a growth in self-diagnoses. For example, invited to log our every moment of sadness through a “trustworthy” avatar from our app (gamification), we can easily make too much of normal moments of discomfort, immediately seeing them – with a simple computation – transformed into something pathological in need of a cure.

Keywords: Medicalization; medicine; healthism; DSM; technology; medical apps

1. Therapy Culture and Healthism

In one of his films, Woody Allen hilariously remarked: “God is dead, Marx is dead and I don’t feel so well myself.” With this quip, the director was able to synthesize

years of philosophical reflections about the explicative limits of thought systems founded on religion or critical thought. In addition, we can read a reference to the crisis of the subject in the line “and I don’t feel so well myself”, and, as an extension, to rational actor theories and the individual’s ability to make choices upon the evaluation of the immediate consequences.

Francois Lyotard, in a more serious context, had predicted the collapse of the grand narratives (illuminism, idealism, Marxism) for explaining society (Lyotard, 1984). Postmodern society, explained Lyotard, could only be understood through partial, contingent, and contextually interlaced narrations.

In the 1980s, Luhmann added the theme of complexity to these characteristics. Society is made up of subsystems, which interrelate with their environments through their own particular code. Society is not guided by a central system; every subsystem (the economy, rights, power, etc.) is characterized by its own code, which is also its communicative filter with the “environment” (Luhmann, 1993).

With the weakening of religious doctrine, the abandonment of Marxist critical theories, and the predominance of post-structuralist theories, a frame and model of thought of biomedical derivation has reemerged as a tool for analyzing the present, situating single choices, and finding concrete points of reference. Biomedicine seems to be thriving these days. In fact, not a day passes without there being some mention in the news of the latest discoveries in neuroscience.¹

Increasingly, we tend to conceive the self as an entanglement of neuro-chemical processes. We celebrate almost every genetic achievement (though perhaps sometimes acritically); we turn to bioscientists asking for solutions to ethical and political problems. The fundamental assumption is that because thoughts and emotions are the result of neuronal processes, if we are able to act on these mechanisms, we will be able to modify our capacity to think and feel. In addition, medicine – or, better, the biomedical complex – has changed. Several diseases require endless attention from medicine, though, through modalities that imply a strong involvement of the patients and their family. Medicine is increasingly involving prevention, risk-reduction, and rehabilitation. Moreover, new aspects emerge with the big data and the new possibility of self-measurement. Patients become at the same time more autonomous and more dependent of technology.

Indeed, Rose (2007) portrays individuals as people who think “scientifically,” with biology as a main source of linguistic inspiration: “we human beings have become somatic individuals, people who increasingly come to understand ourselves, speak about ourselves, and act about ourselves – and others – as beings shaped by our biology” (p. 188). Rose (2007) underlines the shift from a psychological to a biological conception of the self in the knowledge practices of professional medicine:

While our desires, moods, and discontents might previously have mapped onto a psychological space, they are now mapped upon

¹Part of this chapter is based on Maturo (2012a, 2012b, 2014).

the body itself, or one particular organ of the body – the brain. And this brain itself is understood in a particular register. In a significant way, I suggest, we have become “neurochemical selves.” (p. 188)

In the analysis carried out by Bröer and Heerings (2013) on the role of neurobiology in the public and private discourse of adults with ADHD (Attention Deficit Hyperactivity Disorder) on Dutch media, they found that,

Neurobiological definitions of ADHD dominate the Dutch public discourse on ADHD. Different arguments, psychological and sociological, spiritual arguments and arguments about the advantages of ADHD are present but they are always related to neurobiology. (p. 60)

In addition, Clarke (2011) in analyzing the US magazine portrayal of ADHD found that, “whenever there is a discussion of cause, however, it generally authoritatively focuses on biology and genetics” (p. 628), silencing the social-causation approach. In these examples, we have passed over all those cases of geneticization that are routinely reported in the news and which see genes as the “agents” of human destiny. For example, the alcoholism gene, the lung tumor gene or, as has been written about, the political leaning gene. However, in the contemporary society, mental health is not the only condition that is analyzed without considering the role played by social factors.

At present, quite awkwardly, thinness is associated with richness and obesity with poverty. This is the trend in affluent societies. For poor people, junk food is an instant gratification. In the deprived neighborhoods of big American cities, it is practically impossible to find fresh and healthy food. Whereas at every corner, the bright sign of a fast-food outlet can be seen at a glance. In the shopping malls, glittering food courts allow individuals to stuff themselves with fried chicken, french fries, and pseudo Chinese food. In wealthy countries, people gain weight and the lower strata of society becomes fat faster (Chang & Christakis, 2002; McLaren, 2007). People with high cultural and economic capital are healthier, eat fresh food, and do more physical activity compared to the worse off. For the better off, the body is like a textbook (Turner, 2004), and therefore, must be a pleasure to look at. Thus, the underlying stereotype is that the members of the upper class are able to dominate their instincts and passions. They are virtuous and have self-control – as preached by the Founding Fathers and, before, by some philosophers of ancient Greece. In a society, which rewards the thin, the obese are considered lazy and lacking in self-discipline, and fatism produces discrimination in social life (Conley & Glauber, 2006). Discrimination based on the (presumed) lack of healthiness is entangled in a complicated pathway of causes and effects. To be more precise, causes and effects of discrimination give rise to more discrimination and more unhealthy habits in a self-fulfilling manner. Fat people are blamed and stigmatized for their incapacity to take control of their life and because their intemperance leads to higher medical expenses. This moralization

of physical appearance is made acceptable by two social trends: the hegemony of the biomedical discourse for the interpretation of numerous social phenomena and the healthization of everyday life (Furedi, 2006; Maturo, 2013). Biomedical lexicon is very attractive in order to reduce social complexity and is automatically pathologizing:

People have no inner desire to perceive themselves as ill. However, powerful cultural signals provide the public with a ready-made medicalized interpretation of their troubles. And once the diagnosis of illness is systematically offered as an interpretative guide for making sense of distress, people are far more likely to perceive themselves as ill. (Furedi, 2006, p. 17)

Consequently, healthization becomes a core value for the better off in affluent societies. With an exaggeration, it could be said that the right to pursue happiness affirmed in the American Declaration of Independence has been absorbed by the duty of being healthy: “The promotion and celebration of health as the paramount value of Western society has encouraged people to interpret a variety of human activities through the vocabulary of medicine” (Furedi, 2006, p. 14).

The grasp on healthization on society can also be verified within food advertising. Here, information about the taste appears less important than the amount of fat and calories or the effects of the food on the level of cholesterol (Lawrence & Germov, 2008). Indeed, the biomedical colonization on social and human activities has deep roots, as the World Health Organization (WHO) in 1948 defined health as “a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity.” This definition has been analyzed in many respects: usually it is underlined, as a positive fact, that the definition comprises also social aspects. Yet, this positive quality could be also turned upside down. It is possible to consider the WHO definition as ambitiously connotated by “panhealthitism.” Indeed, under such a definition, practically all aspects of human life can be related to health and, therefore, to medicine. It is not difficult to be sick or at least partially sick. Therefore, illness is not anymore an exception or a “temporary state” (Parsons, 1951). Illness is normal and can be reduced by the actions of the individual:

One of the implicit messages transmitted through campaigns against obesity and other “unhealthy” life styles is that health is not something that people have but something that can only be achieved through effort and work. From this perspective, health acquires an elusive quality and illness is transformed into a normalstate of existence. Perversely, the paramount value attached to health has the effect of normalizing illness. (Furedi, 2006, p. 17)

However, if therapy is increasingly important and is at the core of contemporary society and people are a bit sick, pre-sick, or “at risk,” it results in people having to be treated any time; that is why this therapy culture (Furedi, 2004) fosters self-tracking, self-monitoring, and self-care. Even when we are not sick at all,

we are invited to cultivate preventive habits and try to be “better than well.” Yet, 10 years ago diagnostic tools and electronic devices were external to us, stored in medical labs, nowadays these tools are in our smartphone. As if individuals were corporations, there are expert systems that can be used by any of us to measure and elaborate statistical figures on the hours we sleep, our calorie intake, and on how many steps we make in one day. We can even check if on February 19, 2018, we were happier than on February 19, 2017.

In sum, as shown by Turrini (2015), “healthism does not necessarily address medical practices and treatments, but rather focuses on lifestyles, i.e. attitudes, behaviours, and emotions regarding diseases prevention, health maintenance, and wellness promotion” (p. 17) for which the individual is held responsible. The individual responsibility entails a process of blaming, which generates a new form of “moralism.” Therefore, “healthy behaviour becomes the paradigm of the good living” as stated in the seminal article on healthism written by Crawford (1980, p. 380).

2. What is Medicalization?

Scholars of other disciplines – with some *schadenfreude*² – often criticize sociology because there are several concepts and terms that come from other areas of study; for example, forces, energy, and entropy (from physics) or function, homeostasis, adaptation, and evolution (from biology). This is not surprising given that at its origins, sociology was proposed as a “social physique” and the organicist paradigm had widespread use in social sciences. On the other hand, the diffusion of sociological concepts within common language is less emphasized. Indeed, only a few sociological terms have become popular. Among these, some can be mentioned: role, self-fulfilling prophecy, focus group, frame and, more recently, medicalization. It seems that this social phenomenon (medicalization) arouses an increasing interest, curiosity, and perhaps, concern.

2.1. Defining Medicalization

The concept of medicalization is well summarized by this winsome incipit:

Once upon a time, plenty of children were unruly, some adults were shy, and bald men wore hats. Now all of these descriptions might be attributed to diseases – entities with names, diagnostic criteria, and an increasing array of therapeutic options. (McLellan, 2007, p. 627)

In other words, medicalization can be defined as the process by which some aspects of human life come to be considered medical problems; whereas, before, they were not considered pathological (Conrad, 2007). More specifically,

²It is a German term that literally means the experience of pleasure, which comes from knowing the troubles, failures, or humiliation of another person.

“medicalization occurs when human problems or experiences become defined as medical problems, usually in terms of illnesses, diseases or syndromes” (Conrad & Barker, 2010, p. S74).

The scholar who popularized this concept is Ivan Illich. In the 1970s, Illich (1973) in his book, *Medical Nemesis*, claimed that the health complex instead of promoting health caused illness. Capitalism was making society sick, and society in turn, made individuals sick. Illich described the process of medicalization with his concept of social iatrogenesis. The word “iatrogenesis” comes from ancient Greek and means “originating from a physician/treatment.” Radical and paradoxical positions were not new to Illich: in his book, *Deschooling Society*, he claimed that education in contemporary society produced ignorance. In the same period, Foucault (1965) proposed the concept of indefinite medicalization. According to him, the multiplication of the social spheres controlled by the clinical gaze (*regard médicale*) increased the surveillance power of medicine on the population. While, according to Zola (1983),

From sex to food, from aspirins to clothes, from driving your car to riding the surf, it seems that under certain conditions or in combination with certain other substances or activities or if done too much or too little, virtually anything can lead to medical problems. (p. 49)

In the United States, Zola (1983) was analyzing the relationship between medical power and the construction of disability; Freidson (1970) was proposing the concept of medical dominance over the other health professions; and Abbott (1988) described how physicians created their own “jurisdiction” in the health system. After a meticulous analysis of the different definitions of medicalization, bioethicist Bjorn Hofmann concluded that, “the core appears to be how phenomena, authority, or rationality related to medicine becomes pervasive to areas previously not considered to belong to the realm of medicine” (Hofman, 2016, p. 254).

According to Conrad (2007), medicalization can occur at the following different levels:

- *Conceptual medicalization*: When medical lexicon is used to define non-medical entities (for example, the natural drooping of breasts after pregnancy diagnosed as “mammary ptosis”).
- *Institutional medicalization*: When physicians have the power to steer non-medical personnel – what Freidson (1970) called “professional dominance” (e.g., physicians being managers of hospitals without having any academic title in management or business administration).
- *Interactional medicalization*: When the physician, in interaction with the patient, redefines a social problem into a medical one (e.g., homosexuality was listed as a pathology in the *DSM* until 1983).

Clarke, Shim, Mamo, Fosket, and Fishman (2003) pointed out that medicalization is “the process by which aspects of life that were previously out of medical jurisdiction are constructed as medical problems – one of the most powerful

social transformations of last century” (p. 161). However, as Clarke et al. (2003) wrote, today there are many health problems out of medical jurisdiction. After all, medical dominance regarding other social segments has been greatly weakened over time due to the emergence of powerful biotech centers and the increasing importance of finance in the healthcare market. Another factor that weakens the medical jurisdiction is cost-containment and hence the greater control (surveillance) of the work of doctors carried out by health insurance companies and the state. As Rose (2007) puts it,

Nowadays, the power of doctors is constrained by the shadow of the law, the apparatus of bioethics, evidence-based medicine, and patients’ demands for autonomy to be respected, their rights to health satisfied, their injuries compensated. (p. 700)

On this basis, Clarke et al. (2003) propose a different concept: biomedicalization. Biomedicalization is characterized by an accentuation of three features of medicalization connected to the development of contemporary medicine: digital technology; the recent scientific transformations and accelerations in the fields of genetics and molecular biology; the influence of the huge financial inflow on the Health Industrial Complex, for example, the evolution of the gen-tech. In summary, “while conventional medicalization practices typically emphasize exercising *control over* medical phenomena – diseases, illnesses, injuries, bodily malfunctions – biomedicalization practices, in contrast, emphasize *transformations of* them by technoscientific means” (Clarke et al., 2003, p. 173).

2.2. Drivers of Medicalization

According to Conrad (2007) and Furedi (2006), medicalization is not promoted only by the medical class. At the very least, we should mention four other drivers of medicalization: economic forces, technology, consumers, and organization of care.

2.2.1. Economic Forces

The main modality through which the pharmaceutical industry promotes medicalization is disease mongering, that is, “the invention of pathologies.” An example of disease mongering is the lowering of the thresholds above which we considered a person to be “at risk.” Parallel to this is the creation of the labels of “pre-sick” and “proto-disease.” Specifically, in the last few decades cholesterol level and blood-pressure levels above which one is considered to be at risk have been lowered (so more people have been diagnosed as being “at risk”). Indeed, from one day to another, the new thresholds created millions of new drug users. Many authors have pointed out that some members of the committees that established the new thresholds had financial ties with pharmaceutical companies (Goldacre, 2010; Moynihan, Heath, & Henry, 2002). Pharmaceutical companies are increasingly investing in advertising and marketing and decreasing their financial efforts devoted to researching new therapies (Light & Maturo, 2015).

The role of advertising must also be mentioned. Along with New Zealand, only the United States allows advertising of prescription medicines directly to consumers. In the United States, in 1997, laws regulating pharmaceutical advertisement became less restrictive, which resulted in the expenditure for prescription drugs ads to increase four times between 1998 and 2007 (Murray, 2009). This possibility makes the drug equivalent to any other type of goods. In addition, the person who buys is increasingly seen as a consumer, rather than a patient. Much of the medicalization therefore consists of “widening the boundaries of treatable illness in order to expand markets for products” (Moynihan et al., 2002, p. 886). Pharmaceutical companies, it is claimed, are “actively involved in sponsoring the definition of diseases and promoting them to both prescribers and consumers: a process in which the social construction of illness is being replaced by the ‘corporate construction of disease’ ” (Moynihan et al., 2002, p. 886). To sum up, disease mongering involves “(i) turning ordinary ailments into medical problems; (ii) seeing mild symptoms as serious; (iii) treating personal problems as medical; (iv) seeing risks as diseases; and (v) framing prevalence estimates to maximise potential markets” (Williams, Martin, & Gabe, 2011, p. 710).

As a consequence, “direct-to-consumer advertising does not simply attempt to sell particular products but strives to reshape consumers’ understanding of their problems into conditions that should be treated by medications” (Horwitz, 2010, pp. 110–111). Often, this strategy is pursued by using suggestive and convincing metaphors in the pharmaceutical advertising. Based on a study on pharmaceutical advertising, Delbaere (2013) shows how the most used metaphors for “selling sickness” are those that compare medicines to a magic potion and illness to a theft.

2.2.2. *Consumers*

Consumers are a factor of medicalization because health is increasingly becoming, and has become, a commodity (Turner, 2004). Moreover, as the body is increasingly considered a “text” through which people may transmit signals and information (Turner, 2004), the social representations of idealized beauty are fostering the parallel “treatments” of cosmetic surgery. People are increasingly using medical terminology in order to analyze their own health influenced from watching TV and browsing the internet (Barker, 2008). As seen, advertisements encourage people to consider health needs that otherwise they would not have thought about. Indeed, Direct-To-Consumer advertising, as the word says, emphasizes the centrality of the consumer. However, it is not only advertising that promotes health consumerism. Even several health education and prevention campaigns underscore the aspect of “intentionality” in choosing healthy lifestyles. Indeed, consumerism in the health sector promotes the figure of the “expert patient” (Figert, 2011). A person equipped with the appropriate competence – or health literacy – to choose the best care for his/her health and his/her own lifestyles. This idyllic expert patient also knows how to achieve the most reliable health information and how to turn it into the best health self-management (Gottfredson, 2004).

This model is similar to the risk-factor model. According to this model, social conditions are related to health because of their influence on a host of risk factors (diet, smoking, exercise, etc.) that lie between social conditions and disease in a chain of causality (House, 2002). To reduce health inequalities, the expertise about health care of “consumers” should therefore be increased, considering that it can reduce risky behaviors.

Not surprisingly, the sociology of health is very critical within this orientation. It is based on the idea that there is a wealth of notions about what a healthy life is. Individuals will therefore know – once they have learned – how to improve their health. According to critical sociology, this is a psychologistic and reductive approach that does not take into account the social determinants of health. A model that most contrasts the consumerist paradigm is the one which considers the social conditions as fundamental causes of health inequalities. According to the Fundamental Cause Process, “social conditions powerfully shape the capacity to modify or eliminate identified risk factors, rendering less than fully effective an approach that addresses only risk-factor mechanisms” (Link & Phelan, 2010, p. 5).

2.2.3. Technology

Technology is a driving factor of medicalization for many reasons. First, new diagnostic tools mean more chances to discover illnesses. Yet, often the risk factors are considered pathological and, therefore, treated. Sometimes, the “discovery” of new diseases is done by pharmaceutical firms, which also have the “right” treatment (Moynihan & Cassels, 2005). In relation to the sophisticated early detection possibilities that medical technology allows today, Hofmann (2016) distinguishes, although there may be much overlapping, between medicalization and overdiagnosis. While medicalization involves the transformation of something non-medical into something pathological, with overdiagnosis, the original condition is already framed in medical terms and it is consequently transformed into a condition of risk. A risk that, obviously, can also fail to manifest itself as an illness. Semantically, overdiagnosis is close to other expressions such as pseudodisease, overdetection, misdiagnosis, futile diagnostics, and overtesting (Carter, Rogers, Heath, Degeling, Doust, & Barratt, 2015). In summary, overdiagnosis is “a biomedical condition that in the absence of testing would not cause symptoms or death in the person’s lifetime” (Hofmann, 2016, p. 253). Therefore, the “cause” of an overdiagnosis is the increased diagnostic accuracy, which can easily fade into disease mongering. Examples of overdiagnosis are all those risk conditions transformed into pre-sickness such as “pre-diabetes” or genetic predispositions.

Clearly, even the web, in general, and apps, in particular, are medicalization forces. Very banally, on the web we can take highly pathologizing mental health tests. A commonly used strategy in the advertisement for drugs is the overstatement of the risks of certain situations increasingly encouraged to discover some diseases through a self-diagnosis based on an online checklist. In addition, it is sufficient to attend forums of patients and people who discuss symptoms to

think that they are ill. Barker (2008) has shown how in the lay discourse the medical discourse can play a pivotal role. Through a netnography on electronic community groups for patients suffering from fibromyalgia, Barker shows how these patients encouraged the expansion of medicine's jurisdiction: "Drawing on their shared embodied expertise, participants confirm the medical character of their problem and its remedy" (Barker, 2008, p. 20). We understand ourselves as if we were determined by our biological essence. Rose proposes the charming expression "somatic individuals," that is, "beings whose individuality is, in part at least, grounded within our fleshly, corporeal existence, and who experience, articulate, judge, and act upon ourselves in part in the language of biomedicine" (Rose, 2007, pp. 25–26). The biologization of many aspects of human life – behaviors and emotions, primarily – results in reductionism: "The social is reduced to the cerebral, the cultural to the natural, the mind to the body" (Marone, 2011, p. 40). Yet, the pathologization of a part of one's own self, in some cases, helps to maintain a sense of identity. The mechanism is the *pars pro toto* trope: cancer survivors, recovering-alcoholics, and obese persons. Additionally, Hofmann carries out a further sharp observation with respect to the alliance between medicalization and technology. Indeed, he points out how in this connection "technological values such as 'push-button solution,' 'quick fix,' and 'magic bullet' beliefs are at play. Related to this there appears to be a drive to transcend human-existential limitations in terms of 'trans-' or 'post-humanism'" (Hofmann, 2016, p. 255).

2.2.4. Organization of Care

The organization of care and cost-containment is also a force of medicalization. For instance, considering depression as a condition caused by a chemical imbalance legitimates a treatment based on pills rather than on expensive psychotherapy (Barker, 2008). In the United States, according to Conrad (2007),

It seems likely that physicians prescribe pharmaceutical treatment for psychiatric disorders knowing that these are the types of medical interventions covered under managed care plans, accelerating psychotropic treatments for human problems. (p. 141)

On these bases, social problems are transformed into medical ones. If we define ADHD as a brain disease separated from social factors like competition in the classroom, or that depression has nothing to do with unemployment, divorces, or deprived neighborhoods, then the state is relieved from expensive and complex social policy actions.

2.3. Medicalization and Pharmaceuticalization

The use of pharmaceuticals and medicalization is not the same thing. Some aspects of medicalization are not directly connected to the use of drugs: conceptual and interactional medicalization, for instance. Moreover, there are situations

of medicalization which do not include the consumption of pharmaceuticals as their main feature, even if pharmaceuticals have been used in those situations. This is the case of the medicalization of death, pregnancy, and beauty. There are even pathological conditions in which the treatment is neither a pharmacological one nor a medical one, strictly speaking, but which requires the patient to comply with a specific regimen or way of life. A typical example of this is coeliac disease, which is caused by a reaction to gliadin, a prolamin (gluten protein) found in wheat. At present, the only effective treatment is a life-long gluten-free diet.

According to Kaplan (2012),

In biomedicalization, the medical community makes an argument that to prevent future illness or disorders – to maintain health – the medical community should have some authority over conditions or traits that are not yet diseases or disorders, but which may be related to future diseases and disorders. In pharmaceuticalisation, conditions or traits which may or may not fall under the authority of the medical community at all are targeted for “treatment” by pharmaceuticals. (p. 173)

Abraham defines pharmaceuticalization as “the process by which social, behavioral, or bodily conditions are treated, or deemed to be in need of treatment/intervention, with pharmaceuticals by doctors, patients or both” (Abraham, 2010, p. 290). Main examples include the treatment of mood by anxiolytics or antidepressants, treatment of ADHD with Ritalin, and treatment of erectile dysfunction with Viagra. In addition, even the treatment of heart disease risk factors with cholesterol-lowering drugs, such as statins, may be considered an example of pharmaceuticalization. It should be noted that all the conditions mentioned earlier could also be treated in non-pharmaceutical ways – as they were in the past. The treatments could be medical, such as a psychotherapy, or non-medical, such as a change in lifestyle.

Among the factors that have fostered pharmaceuticalization, Abraham proposes to consider three main causes: consumerism, the political economy of the pharmaceutical industry, and the deregulatory state ideology.

We have already discussed consumerism in this chapter, but something else should be mentioned in relation to pharmaceuticalization. As described by Horwitz and Wakefield (2009),

Family advocacy organizations, such as the National Alliance on Mental Illness are another powerful force upholding symptom-based definitions of depression. They have at the top of their agenda the destigmatization of mental illness and the achievement of insurance reimbursement parity for mental disorder. (...) In addition, advocacy groups argue that mental disorders, including depression, are biological disorders, just like physical disorders, and deserve to be treated equally with respect to reimbursement. (p. 60)

The emphasis on the biological nature of mental disorder is twofold: on the one hand, it acts as a form of de-stigmatization, but on the other hand, it legitimizes and encourages the pharmacological treatment of mental disorder. In fact, Horwitz and Wakefield (2009) stress the bonds between family advocacy organizations and pharmaceutical companies:

Nonprofit consumer groups like (...) have become strong supporters for medical treatments for the human problems for which they advocate (...) these consumer groups are often supported financially by pharmaceutical companies (...) Spokespeople from such groups often take strong stances supporting pharmaceutical research and treatment, raising the question of where consumer advocates begin and pharmaceutical promotion ends. This reflects the power of corporations in shaping and sometimes co-opting advocacy groups. (p. 60)

The political economy of the pharmaceutical industry is ethically controversial. When pharmaceutical companies say a drug is “effective” or “more” effective,” they usually mean more effective than a placebo, instead of being more effective than existing drugs (Light, 2010, p. 7). Moreover, economic forces act as “Bad Pharma” as “drugs are tested by people who manufacture them, in poorly designed trials, on hopelessly small numbers of weird, unrepresentative patients, and analysed using techniques which are flawed by design, in such a way that they exaggerate the benefits of treatments” (Goldacre, 2012, p. 11). This is possible because of the “deregulatory state ideology.”

Abraham (2010, pp. 299–301) describes “deregulatory state ideology” as the pharmaceutical legislation in the European Union, North America, and Australasia that requires manufacturers to demonstrate the quality, safety and efficacy of their products (but not their therapeutic advance) in order to have a new drug approved by regulatory agencies. Therefore, there can be pharmaceutical innovations without therapeutic advance. Moreover, in order to receive the FDA’s approval and to be launched in the profitable American market, the pharmaceutical must be patented for the cure of a specific sickness. Of course, this is also true for Europe. A drug must be used to treat a disease. The dream of all pharmaceutical CEOs is to treat healthy people. However, according to some scholars, medications should be prescribed not only to treat the disease but also to improve the self (human being) (Bostrom & Savulescu, 2009). These intellectuals, who often consider themselves belonging to the heterogeneous transhumanist approach, argue that it is hypocritical to deny that millions of people use drugs for optimization, rather than care. We know that many people use off-label drugs to improve their performance. Furthermore, it would be foolish not to take advantage of the possibilities afforded by the pharmaceutical technology.

Probably, the most typical example is the use of Ritalin – the drug generally used by those who are diagnosed with ADHD – among American college students. There are students who buy psychostimulants on the black market and other students who have been diagnosed and can therefore obtain them legally. Then, there are students

who strategically get themselves diagnosed by exaggerating their symptoms. Even if these three situations are quite distinct from one another, in all three situations the students use pharmaceuticals in order to achieve some socially defined results. Moreover, all these consumption practices show that the borders between treatment, cure, and enhancement are gray. What is seen today as a normality that can be optimized might be seen tomorrow as a pathology that must be cured. Loe and Cuttino (2012) discovered the high level of self-consciousness which characterizes the use of pharmaceuticals among college students with ADHD. They found:

that many ADHD-diagnosed students taking psychostimulants are ambivalent users, who actively construct how they are shaped by the behavioral effects of medicine. Pharmaceutical enhancement may be perceived by students as necessary in the context of a competitive academic ethic. (Loe & Cuttino, 2012, p. 105)

Indeed, a steadfast step was taken by a group of prominent scholars from the scientific journal *Nature* who “call for a presumption that mentally competent adults should be able to engage in cognitive enhancement using drugs” (Greely et al., 2008, p. 703). According to them, if some statements were made about the downsides of cognitive enhancement drugs, there would be fewer problems. Competent adults should be allowed to use cognitive enhancers if safety, freedom, and equity were guaranteed. In terms of *safety*, they mean the negation of dangerous effects in the drugs for human enhancement; in *freedom*, they mean the freedom from coercion to enhance (Greely et al., 2008, p. 703), and in *equity*, they mean the equal opportunity of access to such drugs. Together with these cautionary measures, the scientists require an evidence-based approach to evaluate the risks and benefits of cognitive enhancement. Moreover, they call for physicians, educators, and regulators to collaborate in developing policies that address the use of cognitive-enhancing drugs by healthy individuals toward positive aims. Following this path, it will be possible to improve the quality of life and extend work productivity, “as well as to stave off normal and pathological age related cognitive declines. Safe and effective cognitive enhancers will benefit both the individual and society” (Greely et al., 2008, p. 705).

Therefore, pharmaceuticalization extends out in two directions: toward the enlargement of the sphere of pathologies and the enhancement of human capacities. In some cases, these two dimensions are difficult to separate from one another. On an epistemological level, it is clear that the first dimension of pharmaceuticalization takes precedence over the second, because often what is considered normal today (and as such may be improved upon) might be considered pathological tomorrow (and as such must be treated) (Maturò, 2010).

3. The DSM and the Quantified Diagnosis

3.1. The Triad: Disease, Illness, and Sickness

The triad – disease, illness, and sickness – is one of the most frequently used heuristic tools in the sociology of health and medical anthropology (Kleinman,

Eisenberg, & Good, 1978; Twaddle, 1979; Young, 2006). It is so popular that it is now an integral part of the vocabulary of these social sciences (Maturro, 2007).

Recalling Twaddle (1994), “disease is a health problem that consists of a physiological malfunction that results in an actual or potential reduction in physical capacities and/or a reduced life expectancy” (p. 8). The disease emerges following the formulation of the diagnosis.

Illness is the way in which a person lives and interprets his or her disease or the sense of suffering. For Twaddle (1994), illness is “a subjectively interpreted undesirable state of health. It consists of subjective feeling states (e.g., pain, weakness), perceptions of the adequacy of their bodily functioning, and/or feelings of competence” (p. 10). People who come to a doctor are generally concerned about differences in how they feel. They experience pain, weakness, dizziness, tingling, or other types of symptoms. What they seek is relief from these symptoms, and they will assess the adequacy of care based on this purpose. The conversion of symptoms into a disease entity by the physician will be understood only if the connections are made intelligible (Twaddle, 1979).

Lastly, sickness concerns the way in which others (society) interpret the disease of the individual. According to Twaddle (1994), “sickness is a social identity. It is the poor health or the health problem(s) of an individual defined by others with reference to the social activity of that individual” (p. 11). Therefore, whenever a person is defined from the others as having disease or illness, we can speak of sickness, a social label that stands for non-healthy (unwell). Regardless of the validity of the real bases of the request (of medical recognition), being defined as “sick” means to have certain rights and certain obligations that the others (the healthy ones) do not have (Twaddle, 1979). Young (2006) translates sickness with “social relationships of the disease,” adding a connotation of dynamism to the concept: that process through which the disturbing behavioral and biological signs, especially those that originate from the pathology, are invested with socially recognizable meanings: they are converted into symptoms and socially significant results.

Caries is a disease (organic failure). It is an illness because it is subjectively experienced, suffered, and interpreted (Why did I eat all those candies?), and it is also a sickness because our colleagues will understand why we go home earlier from work. Regarding the pragmatic aspects of these different disease dimensions, Bjørn Hofmann (2002) emphasizes how

Disease calls for actions by the medical profession towards identifying and treating the occurrence and caring for the person. Illness changes the actions of the individual, making him or her communicate his or her personal perspective of the negative occurrence to others, for example, by calling for help. Sickness calls for a determination of the social status of the sick person, deciding who is entitled to treatment and economic rights and who is to be exempted from social duties. (p. 657)

However, we can also think of conditions that cover only two of the three pathological dimensions or even just one (disease, illness, and sickness taken singly). In short, we can see the triad as being combinatorial (Fig. 1).

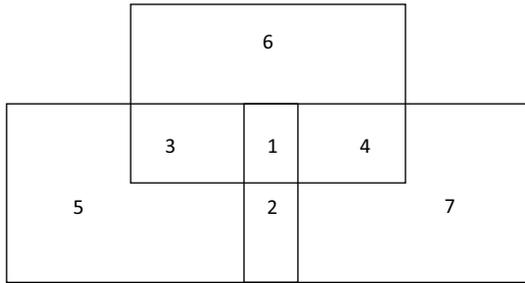


Fig. 1: The DIS Combinatory.

The combinatority is a very stimulating heuristic tool to reflect on the status of pathology. Looking closely at the various combinational possibilities of the DIS triad, we will notice some disturbing situations about the role of medicine and treatment today.

There is a certain “supremacy” of one of the three “entities” of the pathology: the disease. The medical definition of the disease expands itself and extends its boundaries over the others, especially, over the realm of illness. In fact, there are conditions that were once considered problematic and that are characterized as pathological at present. For example, we are increasingly experiencing the medicalization of sadness (Horwitz & Wakefield, 2009). We do not want to go out, or when we do it, we stay quiet, speechless when we meet new people. We suffer from social phobia. We do not feel comfortable in public situations and we blush. We are affected by generalized-anxiety disorder. We often change our mood and discover that things that once impressed us, today are not interesting anymore. We are bipolar (Maturio, 2010).

3.2. The Sociology of Diagnosis

The diagnosis is the medical label that “establishes” the disease. The name unifies a set of signs and symptoms that were previously unrelated. The diagnosis has the power to give a name to what was previously only unorganized illness. Diagnosis is the prerequisite for being treated. Without diagnosis, there is no therapy. The diagnosis allows access to the sick role. The sociology of health is fully indebted to a book that describes the characteristics of the sick role: *The social system* of Talcott Parsons. The assumption of Parsons (1951) is that the disease makes individuals incapable of effectively fulfilling social roles; more specifically, the productive role. For this reason, there is a “functional” interest in society in controlling the disease. According to Parsons, the “mechanism” that the social system uses to deal with the diseases of its members is the “medical profession.” The doctor, through the diagnosis, legitimizes the exemption of the subject, now a sick person, from his/her productive tasks. The doctor recognizes and institutionalizes the disease:

Disease is diagnosed, illness is not; rather, it is presented to a clinician as presumed disease. The transformation from illness to disease takes place via the intermediary of the doctor and the diagnosis. (Jutel, 2009, p. 287)

There is a typical time sequence between the three dimensions of the pathology. The paradigmatic case, in fact, is when an organic failure (disease) gives rise to the symptoms experienced by the subject as unpleasant (illness) and this disease is recognized socially (sickness). Furthermore, the signs refer to the disease – defined as events directly observable beyond the will of the subject: bodily changes, laboratory results, but also aggressive behavior toward others or oneself (e.g., attempted suicide). However, at the same time, illness shows the symptoms – or those events not directly observable that the subject reports to the doctor (pain, weakness, sadness, etc.) (Twaddle & Hessler, 1978, p. 127). We could therefore consider the diagnosis as a narrative form based on the application of medical categories to a specific empirical case. Narratives can be defined as logically inter-related descriptive entities with internal coherence. The diagnosis, as mentioned, is the medical recognition of the disease. The diagnosis establishes the disease and therefore can be configured as a way to explain and give meaning to the illness that is the subjective sense of malaise.

As reported by Chiong (2001), there are epistemologically different types of disease. Some diseases such as tuberculosis or a heart attack have a precise etiology. However, there are other types of diseases such as diabetes mellitus, whose etiology is more attributable to a combination of factors than to a single cause. Other types of diagnosis are involved in the case of functional disorders, or syndromes such as chronic fatigue or fibromyalgia (Barker, 2008). In this case, the etiology is uncertain and the medical narration is of little comfort to the patient, the syndromes being nothing but groupings of symptoms. The narration of the disease is, in this case, tautological, because it coincides with the description – aseptic and apparently neutral – of how the patient feels. But the etiological or symptomatic bases are not the only two patterns of diagnosis construction:

A glance through the ICD, for example, reveals diagnoses assembled on the basis of cause, description, site or symptom, syndrome, variation from statistical norm (hyper and hypo this-or-that, under-or over-weight) and even treatability. (Jutel, 2009, p. 282)

If a person works a job with irregular shifts – a hostess, for example – it is normal and natural that their sleep-cycle will suffer. Nevertheless, in order to classify this situation as a pathology, you simply need to invent and legitimate a sickness through our incredibly morally porous scientific community: shift-work sleep disorder. Such people then find themselves in the condition of having a pathology, of being “afflicted” by a sickness. In order to become normal again, the solution is a pharmaceutical treatment (and of course, the idea of caring for the health of the worker at the place of work is not considered an option). In addition, if the *International Classification of Disease – 9* then recognizes this condition, as was the case for shift-work sleep disorder, at that point the illness takes on a life of its own. The paradoxical nature of the whole situation is apparent: a normal and natural reaction to an abnormal lifestyle comes to be classified as a pathological condition (or abnormality). Through artificial intervention (pharmaceuticals), the subject is able to readapt to their unnatural life and return to being (socially) “healthy.”

Therefore, the loosening of advertising restrictions, marketing campaigns, and consumerism that foster pharmaceuticalization and medicalization, along with “science,” plays a great role in legitimizing this tendency. For example, as it is shown in Section 3.3, the *Diagnostic and Statistical Manual of Mental Disorders*, by giving the description of many mental disorders in terms of symptoms, strongly suggests pharmaceutical treatments.

3.3. The DSM and the Epidemic of Mental Disorders

In the United States and in several other parts of the world, the text providing the guidelines for the diagnosis in mental health, is the *Diagnostic and Statistical Manual of Mental Disorders (DSM)* edited by the American Psychiatric Association. Although the first two editions of the *DSM* were characterized by a strong psychoanalytical and theoretical stance, the following editions (III–V) were increasingly less scientifically grounded. Mental disorders are recognizable through symptoms, and the diagnosis is constructed by asking a set of questions about empirical events, which have occurred or not occurred to the patient (Maturo, 2009). Therefore, in mental health, the “clinical gaze” switches its focus from the discovery of the root causes of the mental pathology to the observation of a set of symptoms. A disorder defined by its symptoms is tautologically defined “syndrome.” Virtually anything can be defined as a syndrome; as a matter of fact, we have the Monday morning blues and the post-holiday syndrome. Horwitz and Wakefield (2009) have demonstrated how changes to the definition of depression in the DSM-III and in the DSM-IV paved the way to the medicalization of unhappiness, that is, the feeling of mild discomfort and dissatisfaction we all have sometimes experienced. The new edition of the *DSM*, edited in 2013, does not mitigate this trend.

The aim of this branch of medicine shifts to reducing the symptoms rather than intervening at the level of the causes of the pathology. If the disorders are easily recognizable, they automatically become an easy target for prescribing a treatment. In addition, when the task of psychiatry is to remove the symptoms, then pharmacological treatments are the most convenient ones. They are cheap (compared to the years of a psychoanalytic treatment); they have a quick effect on the patient; and they can be provided in a relatively standardized way. It can be then stated that:

one of the consequences of this focus on measurement and “objective” criteria has been a negation of the consideration of social context and personal experience (the routine concern of medical sociology), as a core part of the psychiatric research endeavour. (Rogers & Pigrim, 2011, p. 28)

The main effect of this “diagnostic psychiatry” (Horwitz & Wakefield, 2009) is that the criteria for a diagnosis of ADHD are widened, for example,

making it virtually impossible to disentangle increased identification of ADHD sufferers from increased medicalization, and

leading to concern that the threshold between normal behavior and ADHD has been set too low. (Abraham, 2010, p. 292)

The ease by which we can fill a test and checklists in order to identify if we are suffering from a mental disease has fueled the idea of the surveillance of medicine and the need for continuous screening (Rose, 2007).

To deal with the enormous perceived amount of unidentified mental illness, the screening movement has developed short screening scales for administration in school classrooms that ask students whether they have experienced a variety of distressing symptoms of sadness, anxiety, problems with substances abuse and the like. (...). Pharmaceutical companies have sponsored the development of many screening measures, which promise to open previously untapped markets of potential drug users. (Horwitz, 2010, p. 98)

The emphasis on behavioral criteria and the bracketing of social determinants of health may signal a normative North American ideology. Indeed, for Carpenter (2000), the *DSM-IV* represents “the psychiatric equivalent of the World Trade Organisation (WTO), promoting the principles of American Universalism as objective standards that are beyond reproach” (p. 615). In other words, the trend of promoting standardized categories of normality and disorder in the *DSM* can be seen as a US-inspired “MacDonaldization” of social representations of health. There are not any explanatory aims in the *DSM III–V*: symptomatology takes the place of etiology. The main features of the last three versions of the *DSM* can be summarized as follows:

- *Reductionism and proliferation of the disorders*: By shifting from illnesses to syndromes, the complexity of mental illness is reduced, because it coincides with its symptoms. Therefore, in the cure, the symptoms take the place of the causes. Disorders do not imply, as illnesses do, an etiological model.
- The emphasis on the symptoms has a *pathologizing slippery slope effect*: In Fact, disorders grew from 128 in the *DSM-I* to 357 in *DSM-IV* (Blashfield & Fuller, 1996).
- *Likelihood of pharmaceutical treatment*: If disorders become more easily identifiable and recognizable [If “five (or more) of the following symptoms have been present during the same 2-week period y”], it becomes easier to associate them to a specific therapy. If the task of psychiatry is to cure the symptoms, then medicines are the best way to do it (the magic bullet). Psychoanalysis treatment is usually long lasting and tailored on the subject: the opposite of the standardization on which the *DSM-V* is based (moreover, in a managed-care regime, private insurances are more inclined to pay for rapid drug treatments rather than for long individual therapies).
- *Having more easily a diagnosis increases the number of patients*: If we are stimulated by TV commercials to make a self-diagnosis just by taking a test

in a newspaper or on the net, the chances to pathologize a normal condition increase – therefore, a TV viewer, for instance, easily becomes a patient and a drug consumer.

- *The proliferation of co-morbidity*: If disorders take the place of illnesses, complicated conditions are now represented by a formula, for example – syndrome k + syndrome z + syndrome y – as a result, the therapeutic answer becomes fragmented and de-contextualized.

In the *DSM-IV*, it is recognized that a mental disorder should not be confused and identified with subjective unpleasant emotions and feelings resulting from a social stressor. Nonetheless, “the DSM often uses the presence of certain symptoms – exclusive of the context in which they arise and are maintained – to diagnose disorders” (Horwitz, 2010, p. 214). In the *DSM-IV*, the presence of certain symptoms is the basis which allows the physician to make a diagnosis of mental disorder bracketing the causes, which have produced the symptoms.

Therefore, *de facto*, DSM conflates normality into pathology. It is not only a matter of “medical dominance” (Freidson, 1970) or “medical jurisdiction” (Abbott, 1988) into the realm of mental disease; the point is the medical definitional power in deciding what is normal and what is pathological (Brown, 1995) – a power which does not have the features of authority, rather than the smoothness of the medical gaze (Foucault, 1965). In other words, the technical tool – the DSM – which should be the medium between medical theory and empirical cases, is far from being a “neutral” instrument. On a different level, Clarke et al. (2003) suggest that,

Computer and information technology and the new social forms co-produced through their design and implementation are the key infrastructural devices of the new genre of meso-institutionalization (y). The techno-organizational innovations of one era become the (often invisible) infrastructure of the next. (p. 165)

The *DSM* with its algorithmical narrative and inferential structure – if symptoms then disease – fits coherently in the biomedical system, playing the role of the neutral infrastructure.

The past years have been characterized by a progressive extension of the social representations of health and of well-being. The imaginary of health and well-being encompasses aspects which once belonged to everyday life: beauty, ordinary emotions, maleness, intellectual, and physical performance (Maturò, 2009). For any deficit in these aspects today, we have medical treatment or support. The reflections carried out up to now might be summarized on the basis of the triad disease, illness, and sickness (Hofmann, 2002; Twaddle, 1994). As said, disease can be considered the biomedical definition of a pathology; illness coincides with subjective feelings of pain or anxiety; and sickness is the way by which society interprets a personal condition. Therefore, if we consider illness as the subjective experience of unease or pain and disease as a physiological disequilibrium, then in the realm of mental health we face an ongoing switch of some “natural” and

ordinary emotions into the sphere of illness and from there into the realm of disease.

Leaving untouched the definition of disease, that is, the biomedical definition of a pathology, a new taxonomy of the triad disease/illness/sickness can be proposed.

The four terms can be defined in the following ways:

Experienced illness: Any perceptions or feelings of pain, sorrow, or anxiety experienced by the subject regardless of the presence of physiological changes detectable by biomedical instruments.

Semantic illness: The sense and meaning a person gives to his/her “pathological” condition. This interpretation might be linked to an “objective” view of the condition (disease) and the experienced illness. It could also be linked to both dimensions. Semantic illness does not necessarily have any negative connotations (one can wait for death peacefully).

Institutional sickness: The sick role, with its connected changes in the everyday life of an individual (exemption from work and normal activities, and legitimacy to stay at home).

Sickscapes: The social representations of illnesses, that is, the social conceptions of the disease (or of the event labeled as “pathological”), held by a population or a specific social group (subculture). The definition also encompasses also the representations media give of a disease or of an event constructed as pathological.

By applying the earlier categories on the transformations of the scenario of mental disorders (bipolar disorder, depression, ADHD), we may summarize our analysis in the following steps:

1. The sickscape fueled by the media system (direct-to-consumer advertisements for drug with prescription), scientific discourse (the syndromization of DSM), economic constraints (managed care), technology (apps), and, in United States, cultural predispositions (the American right to the “pursuit of happiness”) legitimates the transformation emotion-illness-disease.
2. Therefore, some emotions may be experienced by people as illnesses (experienced illness).
3. People may define their illnesses as something which must be cured (semantic illness).
4. The biomedical and pharmaceutical systems create the framework, which facilitates this switch from emotion to illness to disease.

4. How Apps Foster the Medicalization of Mood

Assuming a socio-cultural perspective of analysis, self-tracking apps can be considered a part of the material culture of a society (Miller, 2005). Built on the rhetorical figure of synecdoche – which is based on replacing the whole with the part – we can consider the app for self-tracking to examine the characteristic aspects of a specific cultural system: in our case, a set of customs and beliefs linked to

a more and more neoliberal social organization. As Lupton (2014) states, “apps are new digital technology tools, but they are also sociocultural products located within pre-established circuits of discourse and meaning” (p. 610). Specifically, we are to show that some apps absorb, realize, and encourage medicalization through quantification and gamification practices.

Our study starts with the quantification theme, which is the important role of measurements on apps. Namely, the self-tracking modalities, the possibilities of analyzing data, the existence of different levels of difficulty or commitment, the production of number-based graphics, and the building of rankings. As mentioned earlier, the gamification practice consists in introducing some playful elements into monotonous activities so that these activities become easier to be carried on.

In order to examine these aspects, we carried out an analysis on three apps for mental health and wellbeing, all of them available on Google and Apple Store.³

These apps are among the 20 most downloaded apps of their category. Our study examines two different kinds of texts: the apps’ commercial descriptions and the reviews provided by app users. For what concerns the market description, we focused on topics, approaches, use of text and imagery, and details provided by the developer. Regarding the reviews, the focus is on the kind of language and tones used by the reviewers. As regards the methodology, the content analysis of documents on the web is still in its nascent stages. The task of the content analysis is “to explore the relationship between discourse and the social construction of reality, or how discourse presents particular ideas that become dominant or taken for granted” (Barker, 2014, p. 170).

The first app we want to describe is an app that allows a self-diagnosis on mental health condition. By this app, we can get, in just three minutes, a test about our level of depression, anxiety, bipolar disorder, and post-traumatic stress disorder (PTSD). By answering to a series of questions, each question having five answer options, you can calculate a score on these pathologies and keep a diary to monitor your improvements or your worsenings over the time. The typical questions are: “I feel sad, down in the dumps or unhappy”; “I can’t concentrate or focus”; “Nothing seems to give me much pleasure”; and “I feel tired; have no energy.” The exception is an “extreme” question: “I have thoughts of suicide.” Among the answers, different options can be selected: “Not at all”; “Rarely”; “Sometimes”; “Often”; and “Most of the times.”

It can be noticed how easy it is to exceed a score that quantifies the transition from “normality” to the possibility of mood disorder. Moreover, by looking at the percentages that indicate the probabilities of a mood disorder, it is easy to understand how a person might think they are developing the diseases mentioned, because in one case (anxiety), there is a high possibility of developing the pathology and in the others a medium PTSD and a low possibility (depression).

³We use the methodology used in a study on six different apps for wellbeing (Maturo, Mori, & Moretti, 2016).

Adding the three possibilities together, we could be inclined to think that over the course of our lives, one of these pathologies will mathematically “come true.”

In summary, this app perfectly represents the quantified DSM diagnoses, based only on symptoms without any reference to external events that may affect mood. As mentioned earlier, this trend results in a high pathologization of normal mood shifts. In addition, the ease of use of the app stimulates continuous self-scrutiny and therefore amplifies the process of pathologization of sadness.

As far as gamification is concerned, we must certainly mention the SuperBetter app. Indeed, the “guru” of gamification, Jane McGonigal (2011), author of *Reality is Broken: Why Games Make Us Better and How They Can Change the World*, contributed to develop the gamification elements. The use of gamification to stimulate people to modify their behavior is clearly stated in the app description. In fact, the slogan is “SuperBetter is Living Gamefully.” This claim is explained as follows:

Living gamefully means bringing the same psychological strengths you naturally display when you play games – such as optimism, creativity, courage, and determination – to your real life. It means having the courage and openness to try out different strategies to discover what works best. It means collaborating with allies, and building up the resilience to tackle tougher and tougher challenges with greater and greater success.

Furthermore, the app, as described in the store, is “powered by the science of games, positive psychology and behavior change.” The main aspect of gamification of the app concerns the possibility of gaining “awards” for having completed “challenges.” As seen from the app features, the graphics and messages are very cheerful and positive.

In other words, Superbetter increases productivity of the individuals, improving health and individual performances, by taking advantage of playful and recreational stimuli. Through SuperBetter, we can choose a goal we want to work toward. As claimed in the commercial description, SuperBetter “is just an awesome tool created by game designers who take the best of games and apply it to your real life so you can get stronger, happier, and healthier.” This app encourages the users to break the bad habits (e.g., smoking) and get into good ones (e.g., physical activity). The users state how it is easier to complete certain practices with the help of gaming simulations: “Self-motivation is hard, but playing a game is easy” (superbetter.com player, from iTunes Apps store). It is not a medicalizing app like the one earlier, but it promotes a clear psychology of many human conditions, framing perfectly in today’s therapy culture (Furedi, 2004). One user wrote about Superbetter: “It is not a game, it is an experience.”

Maturo and Setiffi (2016) made a comparison of a diet app in order to assess and analyze the role played by risk in their design, functioning, and description. This analysis can also be undertaken from the perspective of medicalization. Specifically, the medicalization of obesity.

Additionally, we took as an example one of the most downloaded apps to lose weight. This app helps consumers maintain motivation and stay committed to their goals. The app suggests several daily challenges, such as reducing the consumption of carbonated drinks or performing 20 push-ups. The app includes customized motivational reminders to help the user to stay on track and reach their goals. Both the avatar, who represents the user herself/himself, and the selfies taken before and during the diet provide the user with feedback on their progress achievements and encourage the consumer to have a healthy lifestyle (such as, be more active, cook healthy food, and avoid snacking in front of the TV). If the user follows the app's guidance, he or she will receive virtual clothing and accessories for their avatar to wear in the app: the achievement of goals is rewarded through online shopping. The app also provides very practical suggestions for sticking to the diet, such as parking further away from the user's destination. It also sends reminder messages, for example, remember to drink a lot of water. Some important features are only available in the "Pro" version, which you must pay for. These features include a "chart" that allows the user to record "your weight and body measurement" and the "food craving panic button," which the app refers to as a feature "described by our customers as a life saver." By focusing mainly on calories-intake and emplacing the conception that obesity is defined by the body mass index, this app confirms a medicalizable frame. Therefore, the reductionist conception that obesity is an individual problem and that becoming thinner depends basically on individual motivation shifts focus away from important social conditions, which are known to deeply impact health conditions.

5. Take Home Message-3

One of the most pervasive social phenomena today is the medicalization of everyday life. More and more aspects of life that were once seen as normal are now considered pathological. The examples are many and varied: depression, ADHD, introversion, cholesterol levels, blood pressure, "ugliness," pregnancy, and addiction.

Many actors have now joined the medical profession in driving the medicalization of life:

- Pharmaceutical companies through marketing, advertising, and "disease mongering."
- Active consumers who seek a pharmacological solution (a magic bullet) to solve non-biological problems.
- Technology, because highly sensitive diagnostic tools can now detect potential abnormalities even in very low quantities (as we will also see, apps are medicalization factors).
- The culture of risk: Connected to the evolution of diagnostic tools, it is now always possible to be at risk of something. "Pre-sickness" thresholds can be lowered so that everyone exhibits some risk (e.g., blood pressure or cholesterol).
- Organization of care: For example, if we define depression as a chemical imbalance, we can cure it simply by prescribing drugs, whereas considering it as a possible outcome of socioeconomic factors is much more complicated and expensive.

Furthermore, we are also witnessing a conceptual medicalization of society. Numerous aspects of social life are described with medical language. Biomedicine seems to promise many certainties; for example, through “geneticization,” or genetic determinism spread by the media.

The mental health field is heavily medicalized because it is relatively simple, for example, to label situations of sadness as depression. Starting from the DSM-III, mental disorders are identified through symptoms, and the diagnosis is constructed by asking a set of questions about empirical events, which have either happened to the patient or not. Therefore, with regard to mental health, the “clinical gaze” focuses not on discovering the root causes of the mental pathology but on observing a set of symptoms. This has led to a significant increase in the diagnosis of mental disorders. Such diagnostic strategies based on quantification are perfectly convergent with observed app designs. Through an app, one can very easily self-administer tests and subsequently diagnose oneself as sick. To give another example, quantification acts as a driver of medicalization in weight-loss apps. Weight-loss apps enable users to quantify many aspects of food consumption, beginning with caloric intake. These dieting apps are based on a reductionist approach to obesity and weight loss, as obesity is framed as an individual problem. Such framing tends to conceal the many social, political, and economic determinants of health and obesity.

With its seemingly neutral and impersonal language, the biomedical paradigm offers – institutionally and at the level of common sense – a very reassuring definition of the world. However, above all, this system of understanding is well suited to app functions such as quantification, data processing, and data “packaging” in the form of graphs and aesthetically pleasing, often persuasive, figures.

Chapter 4

The Self of the Quantified Self

Abstract

Contemporary society is characterized by extreme acceleration (Rosa, 2010). Time has become a scarce resource and individuals are forced to adhere to the demands of speediness. This condition is connected to the increased performance now required in many areas of daily life, an increase so profound that some authors refer to ours as a “doping society.”

This chapter argues that the practice of quantification exponentially increases the “managerializing” of the user. In this sense, the quantified-self (QS) can be thought of as something that helps people to organize their activities in the manner of the market. Individuals thus become *self-entrepreneurs* who, in keeping with the standard aims of neoliberalism, make use of their collected data in a fashion analogous to the way results are determined in a corporation’s Research & Development department. The self becomes an assortment of analyses by which measures of behaviors and habits are made, all in the name of producing an “objective report” on the user’s characteristics. The ultimate aim of all this is to improve certain parts of life so as to increase and optimize our productivity.

Keywords: acceleration; deceleration; self-tracking; human enhancement; neoliberalism; self-entrepreneurs

1. Social Acceleration, Optimization, and the QS

According to Rosa (2010), contemporary society is characterized by profound acceleration: time has become a scarce resource and individuals are always rushing, forced to meet the demands of an ever-faster pace of life.

In his book, *Alienation and Acceleration: Towards a Critical Theory of Late-Modernity Temporality*, Rosa (2010) describes three types of social acceleration:

1. *Technological Acceleration:* A phenomenon operating at the core of society, this is the primary and simplest form of acceleration. It consists of the intentional development of processes meant to assist with or alter bureaucratic processes. Effects of this form of acceleration have undermined the traditional conceptions of space and time that prevailed in past societies. The outlook of individuals today is radically distinct from that of any past age, as the Internet and technology offer a mode of interpersonal connection that is both immediate and independent of any geographic proximity.

2. *Acceleration of social changes*: This transformation involves the entire society (and therefore cannot be said to take place at its core). It concerns attitudes, values, trends, lifestyles, languages, and even behaviors. Lübbe (2009) describes our society as characterized by something he calls *the contraction of the present*. Because of growing social and cultural innovation, the past is taken not to matter anymore, whereas the future is taken not to matter yet. The present, then – to reiterate Koselleck’s (2004) idea – forms the point where past experience and a horizon of expectation coincide. Building on this conception, Rosa (2010) conceives of social acceleration as “an increase in the decay-rates of the reliability of experiences and expectations and by the contraction of the time-spans definable as the ‘present’” (p. 13).
3. *Acceleration of the pace of life*: This refers to the ever more drastic time “famine” plaguing our society at its core. A lack of time plagues almost every activity, and as a result, there is a widespread need to do more things in less time. This form of acceleration manifests both subjectively and objectively. Its subjective dimension lies in the rapport between individuals and the time at their disposal; there is an increasing pressure on individuals to do more activities and to do them to the utmost. The objective dimension of this pressure can be measured in two ways. First, we can investigate if it is in fact possible to do more things (eat, sleep) in less time. Second, we can investigate if it is in fact possible to compress actions and experiences by doing more things at once. From this objective perspective, it is clear that technological acceleration plays an indispensable part in increasing the number of things we can do in a limited timeframe. Although we thus gain more time, we are expected to use it to do more things.

We can, then, define modern society as a society of acceleration, for it is characterized by a speeding up of the process of life – (or by lack of time) – despite the notable pace of technological acceleration (Rosa, 2010).

Along with these phenomena of acceleration, Rosa (2010) identifies certain forms of *deceleration*: these are methods (some pathological and dysfunctional) that individuals employ (with varying levels of enthusiasm) to deal with the effects of too-extreme acceleration. These methods of deceleration are intended to preserve the modern individual’s energy, which is depleted by the accelerated pace of our society. Mechanisms of deceleration weave a sort of slowing-down – whether ideological or practical – into the fabric of society.

Rosa identifies five forms of *social deceleration*: (a) natural limits; (b) oases of deceleration; (c) unintentional delay; (d) intentional deceleration; and (e) cultural and structural inertia. These five factors can be seen both as foundations on which the performance-oriented society has been built and as forces that drive some individuals to try to stop *dynamization* in its tracks. Some individuals, indeed, try (with varying levels of commitment) to resist the demands of acceleration and performance made by our sped-up society.

- A. *Natural limits*: There are natural factors on which acceleration has only a limited – and in some cases, harmful – impact. Examples of such natural limits are physical processes like visual perception and sensory processing. Of course, it is also true, as we shall later discuss, that many natural limits can be overcome

with the help of certain optimization processes (both physical and cognitive), which allow human beings to go beyond their biological limitations.

- B. *Oases of deceleration*: There are tradition-bound social groups that oppose modern innovations in a systematic and organized way. Consider, for example, individuals who follow a diet of paleo foods, that is, a diet based on the eating habits of Paleolithic humans who existed before agricultural practices emerged. According to adherents of the paleo diet, it is best to follow a diet that reproduces Paleolithic eating habits because our genetic composition has remained mostly unaltered over the many centuries since the Paleolithic age. Virtual communities have been formed around the paleo movement; on the platform Meetup, its adherents trade suggestions and organize meet-ups. Another (better known) example of an oasis of deceleration is the Amish community, which is grounded in strong family ties and an even stronger religious identity. Members of the Amish community do not acknowledge technology (from telephones to electricity) and believe that accepting modern, innovative ideas constitutes a threat to the shared values at the heart of their community. These central values have to do with work in the fields and religious practices, in which all members of the community mandatorily participate. In 2017, it was found that in the United States alone, there were almost 318,400 members of Amish communities. These two cases – paleo and Amish communities – are examples of what Rosa dubs *oases of deceleration*: cultural niches that have remained (or have made themselves) immune to the forces of modernization and acceleration.
- C. *Unintentional delay*: This form of deceleration refers to a sort of malfunctioning whether of the individual or the society. The type of delay in question is unintentional and unplanned – it is a pathological impediment that creates complications. To explain this concept, Rosa offers the example of a traffic jam: a jumble of cars all have to come to stop when a bunch of drivers decides, all at the same time, to go. Another example of unintentional delay can be found in the discomfort individuals feel when they fail to keep up with a pace required of them. A world in which time is a scarce resource is a world in which we must respond proactively to the many demands made of our performance. This can cause various dysfunctions, which numerous authors have analyzed – Ehrenberg (2010), for example, with his *The Society of Uneasiness*, shows that depression is experienced largely outside of a cultural, socially interconnected context (and rather is experienced individualistically); or Han (2015), who in his *The Burnout Society* describes how people struggle to adapt to the demands of our society, becoming pathologically productive in their attempts to maintain themselves. Efforts to maintain physical functioning (e.g., one's mobility and ability to reproduce), as well as to keep up with the demands of modernity in general, turn into true obsessions. This pathological obsessiveness produces a sort of “inflammation of the self” that leaves individuals tired and frustrated. Lack of time leads not only to the stressful compression of our commitments, but also to another major phenomenon: competition. Competition is intimately related to time-conservation, not only in the realm of economics (where saving time facilitates a more competitive market), but in all realms of life, including social ones. Competition gives rise to a growing discomfort in both collective social life and in individuals'

psyches. The main characteristic of competitiveness, according to Rosa, is performance. Increasing competitiveness gives rise to a widespread feeling of inadequacy among anyone who fails to keep up with new requirements for fast and extensive performance. The accelerated regime that characterizes modern society has transformed our conception of the relationship between the individual and the world around him/her, as well as our conception of our “place in the world” (Rosa, 2010).

- D. *Intentional deceleration*: There have always been instances of deceleration intentionally designed to counterpart particular instances of acceleration. Rosa (2010) argues that the effective forms of such deceleration “include ideological movements opposed to the processes of acceleration, and their effects, in the modern world” (p. 36). The history of technological innovation reveals that almost every instance of technological progress (from the car to the computer) has been accompanied by a corresponding hostility (on some people’s parts), which is then carried forward by various opposition movements. Intentional deceleration can be broken down into two types: functional deceleration and ideological deceleration. By functional deceleration we mean temporary slowdowns intended to preserve individuals’ capacity to “function in time” (Rosa, 2010): think, for example, of all the strategies people employ to “unplug” or “recharge” after a period of stress. One of these, as we discuss in Chapter 6, is meditation, which many people regard as a form of therapy capable of helping them to manage their minds and not be overwhelmed by various pressures. By ideological deceleration, we refer to the various radical decelerations advocated for by social and political bodies of an oppositional nature. For example, consider extremist religious sects, ultra-conservative political movements, and those (like anarchists) who reject *tout court* the rules and structure of the society.
- E. *Cultural and structural inertia*: Here, Rosa makes a claim far more controversial than those already reviewed. Drawing on the theories of Baudrillard (1994) and Fukuyama (1992), Rosa claims that the acceleration pervading our society is in fact nothing more than a cover, a disguise draped over late-modern society to conceal its real problem: a lack of new energies and fresh vision. An extreme pace of life serves to conceal this prevalent social paralysis (from which none of us is spared), while nurturing cultural and social inertia.

2. Optimization and Human Enhancement

In discussing acceleration and respondent forms of deceleration, we would be remiss not to note the optimization of our every activity (including the most common tasks), which acceleration necessitates. In a general sense, keeping up with acceleration demands improvement – improvement of ourselves, our performance, our ability to adapt to our new environments. It comes as no surprise, then, that in the last few years a great number of disciplines – from genetics to social sciences – have focused on various forms of human enhancement. Because the process of human enhancement takes many forms and involves many diverse factors, it is

difficult to define it or delineate it neatly. The maximization of our capacities can be understood as ranging from the use of caffeine to the selection of embryos involved in *in vitro* fertilization. In both cases, in fact, our goal is to improve our performance by surpassing natural limits that (otherwise would) restrain us. We thus arrive at a form of medicalization. If medicalization means pathologizing conditions that were once considered not medical but normal, attempts to “cure” individuals through human enhancement can be understood as attempts to upgrade perfectly normal features of ourselves.

Restricting our domain, we will this book mean by “human enhancement” those processes of biomedical intervention that are meant to improve various aspects of our life, particularly,

- psychological wellbeing,
- cognitive and physical abilities,
- general extension of lifespan (Maturò, 2012a, p. 97).

There are many means of improving psychological wellbeing; some of the most common are rest, a stable environment (in economic or social terms), and the use of certain pharmaceuticals (Maturò, 2012b). These days, there are more strategies purported to improve our psychological wellbeing, and in turn, to make us function better (If I’m well, I’ll be more productive). We will later see how meditation can be regarded as a means to an end, a tool employed for the improvement of our psychological health, which is itself regarded as a means of maximizing our productivity and performance.

When it comes to examples of maximizing cognitive capacity, the best example is the use of psychoactive substances like Adderall, a prescription drug whose use is widespread among American and English university students. With the help of this pill, which is usually used to treat attention-deficit disorders, it is possible to stay focused and study for many hours without needing to sleep or take a break. A student can essentially immerse himself or her self in work for over 48 hours without feeling any fatigue. In a less extreme, though more common way, energy drinks are used to the same end: to reduce one’s feeling of fatigue so that one can remain alert as long as possible. Separately, the best examples of the enhancement of our physical capacities can be found in the use of robots for surgical operations and the sophisticated and ever-improving functionality of prosthetics.

Lastly, in considering the extension of lifespan, we must consider attempts made to stop imminent deaths, as well as attempts made to eliminate death in general – an achievable goal, according to some optimistic scholars. The philosophy that promotes such a conception of death is defined as *transhumanism*. Transhumanism – often referred to by H+ (Humanity plus) – is a term coined by Huxley (1950), who in his essay, “In new bottles for new wine,” defends it thus:

The human species can, if it wishes, transcend itself – not just sporadically, an individual here in one way, an individual there in another way, but in its entirety, as humanity. We need a name for

this new belief. Perhaps, transhumanism will serve: man remaining man, but transcending himself, by realizing new possibilities of and for his human nature. (p. 17)

Transhumanism captures a particular cultural outlook that believes technology and scientific discovery hold the possibility of extending our physical and cognitive capacities so as to stop the process of aging and, indeed, of dying. In his book, *Death with Interruptions*, writer Saramago (2005) describes a world in which human beings stop dying and the long-standing transhumanist dream of immortality is finally realized. The transhumanist movement is common all over the world and a number of national associations organize annual meetings and conferences, where transhumanists can trade ideas and opinions about recent technological innovations.

There are different ethical attitudes to take regarding human enhancement; we divide them into those that are “tech-enthusiastic” and those that are “bio-conservative.” Tech-enthusiastic attitudes focus on potential, pointing to the numerous benefits human improvement could make possible. One such tech-enthusiast is Bostrom and Savulescu (2009), who believe that widespread use of robotics and advanced software and engineering in health care would vastly improve its quality and accessibility. Moreover, in an article evocatively titled, “Why I want to be a posthuman when I grow up”, Bostrom (2014) lays out all the advantages he sees in becoming a posthuman subject.¹

Other authors concentrate on the ethical and legal implications that result from the use of technology for human improvement. As Amoores (2016) points out, the existence of robots and automated, weaponized drones forces us to consider what ethical codes still apply in a post-humanist context. It is vital that we examine whether such a technology meets ethical and legal standards. In particular, our society faces the task of formulating a clear and correct standard by which to dole out ethical responsibility and legal liability to various parties (e.g., to designer, manufacturer, and user).

There are also those (e.g., Sandel, 2009) who argue that a culture based on artificial improvement could have deeply dangerous consequences—especially eugenics—and who, in turn, adopt a “bioconservative” position. Human enhancement can also be seen as risking terrible consequences in terms of social inequality. Indeed, Sandel (2009) claims that in the future, there may be two different classes of human beings:

those with access to enhancement technologies, and those who must make with their natural capacities. And if the enhancements could be passed down the generations, the two classes might eventually become subspecies – the enhanced and the merely natural. (p. 75)

¹Bostrom defines “post-humans” as human beings endowed with post-human abilities, that is, abilities, which would be normal but which have been somehow maximized.

Table 1: Use of Cognitive Improvements: Pros and Cons.

Pros	Cons
More productive people	<ul style="list-style-type: none"> • Uncertainty regarding physiological risks • Risk of (at least psychological) addiction
Possibility of making discoveries to everyone's benefit	Risk that accessibility is not guaranteed to everyone
Cognitive empowerment may be readily available and distributed equitably	Alibi provided for avoiding dealing with social problems (depoliticization of social problems)
The individual should have the right to choose to use them and their use should not be forbidden; otherwise, the individual is infantilized	Social push to use (if not, you stay "back")
Reduction of social inequalities (minimizing the effects of family of origin on success in higher education)	In the long term, those who do not improve become an "abnormal" minority; what was once normal becomes pathological.
Many substances improve our mood or our cognitive abilities and are not prohibited (chocolate, moderate use of alcohol, tea, coffee, etc.)	Increase of social inequalities (when, e.g., a person does not want to improve; or when improvement is not available for everyone)
Cognitive enhancers can also be used for artistic, meditative, or philosophical/contemplative purposes	Stigmatization of those who do not want to "improve"
	New and more social expectations around how a person should be
	Rejection of the conception of life as a gift to be accepted in itself (Sandel, 2009); absolutization of the "productive" aspect of life

Source: Maturo (2012a, p. 107).

In such a scenario, human improvement would no longer be equally accessible, so those unable or unwilling to improve themselves could begin to suffer from stigmatization (Maturo, 2012a).

In a society like ours – one of acceleration and optimization – self-tracking can be understood as a perfectly coherent practice. Quantifying our activities and keeping track of them with graphs and statistics allow us to have a clear picture of our progress. By thus keeping aspects of our lives under our control, we practice a kind of optimization of our physical and mental abilities. Self-monitoring allows us to

collect lots of information about ourselves, offering us an “x-ray” view of our activities and, in turn, making us as productive as possible (Morsello & Moretti, 2017). It is possible to measure how many steps one takes and, separately, to keep track of how many hours one sleeps. It is also possible to study these two statistics together so as to determine, for example, whether more rest results in more physical activity. If I want to know the time of day at which I am most productive, I can consult all my data about myself – as if staring at the mirror, I can look “into myself.”

It is fitting here to mention a 2012 technological innovation, Specch.io, a futuristic program designed to synthesize and analyze the data we collect by tracking our daily activities. Specch.io identifies various correlations across the data collected by our smartphones and wearable devices.

Specch.io is designed to make our habits clearer to us by integrating data we collect with various programs; by synthesizing various pieces of data, Specch.io creates a single, unified behavioral picture that users can easily understand. After uploading all of his or her data onto one program on one device, the user studies the screen (as if gazing into the mirror) and selects the various pieces of data he/she wants to combine with others for analysis.

With the help of this lucid and comprehensible image, it becomes possible to work around the pitfalls of human memory, insofar as we gain access to an impartial record of our states.

The self-analysis encouraged in the accelerated, optimized society may be best understood in terms of the Foucauldian interpretation of the technology of the self. According to Foucault (1988), the modern individual rehabilitates himself or herself through a series of techniques:

which permit individuals to effect by their own means or with the help of others a certain number of operations on their own bodies and souls, thoughts, conduct, and way of being, so as to transform themselves in order to attain a certain state of happiness, purity, wisdom, perfection, or immortality. (p. 18)

The described practice of self-rehabilitation is not intended to heal or help the subject; rather, the subject is left to pursue a sort of individual salvation, which, in fact, does no less than ensure that he or she is able to conform to the various performance demands modern society makes of him or her. As we discuss in Chapter 5, technology as Foucault describes it entails a particular form of dominion, which – in the case of the technology of the self – operates as a form of governmentality.

3. The Self of the QS: A Self-Entrepreneur?

When a neoliberal model is applied to personal matters – as if individuals were businesses – the self becomes just another object for management: a person’s subjectivity and rapport with others can be molded in accordance with certain standards. As Chicchi and Simone (2017) suggest, although *corporate management* aims to maximize the usefulness of human resources, employing various techniques to facilitate widespread efficiency, *self-management* aims to *mold* – above

all, to mold the individual, who comes to consider himself as a body-for-profit, a brand, a permanent “entrepreneur of himself.” Principles of management are now applied to areas of life that were, until recently, thought to lie outside the domain of business and its logic: emotions, performance, physicality, and feelings. The concept of performance is not novel in sociological criticism. It was first introduced by Marcuse (1955) in his book, *Eros and Civilization*, and sociologists began to outline the first theories of repression and desire in Western civilizations. Marcuse emphasized the extent to which the idea of sexual performance motivates the individual to use his or her psychophysical energy to productive or work-related ends; capitalism, in turn, was identified as a product of this control over our instincts. It is worth emphasizing here that the dominance of capitalism has, over time, been more and more rationalized (Chicchi & Simone, 2017), and the connection between sexual repression and economic performance has solidified.

These days, the logic of management draws on the concept of human capital, which the social sciences make much of, and which Becker first elaborated in 1964. With this term, Becker (1964) referred to a person’s productive capacity, which can be improved with education – here understood as a process of accumulating knowledge, skills, and abilities – and which determines differences in income. The concept of human capital involves the relocation of a concept typically associated with the lexicon of the market (capital) into the realm of the formation of the individual/the self. Becker thus extended the domain of microeconomic analysis so as to include a wide range of human behaviors and interactions, including those that play out outside the market. On Becker’s picture, whenever individuals resolve to make a particular decision, they do so by calculating the costs and benefits involved. Human capital thus depends on everybody having the active ability to retain and improve the same skills that are useful and necessary for successful economic activity (Chicchi & Simone, 2017). Human capital has become a central factor in corporate/business logic. The human factor is regarded as decisive in determining the success of a corporation. To invest in human capital is to invest in making a company as competitive as possible. The economic valorization of human resources leads – as has been evidenced – to the rising importance of individual *performance*, as well as to the obsessive measuring of it (Chicchi & Simone, 2017).

As Foucault (2008) suggested, the management of a business is comparable to an individual’s management of his or her activities insofar as:

First, the generalization of the economic form of the market beyond monetary exchanges functions in American neo-liberalism as a principle of intelligibility and a principle of decipherment of social relationships and individual behavior. This means that analysis in terms of the market economy or, in other words, of supply and demand, can function as a schema which is applicable to non-economic domains. (p. 243)

The neoliberal subject is a performing subject who takes on the management of himself or herself and – just as occurs in a business – produces a set of information: he or she analyzes his or her needs, defines his or her goals, formulates the

choices he or she must make in terms of reasons and needs, and, finally, performs an internal problem-solving analysis. To invoke Foucault (2008):

economics is not therefore the analysis of processes; it is the analysis of an activity. So it is no longer the analysis of the historical logic of processes; it is the analysis of the internal rationality, the strategic programming of individual's activity. (p. 223)

Relationships and behaviors that in the past were not even conceived of in economic terms today constitute the backbone of business. In the neoliberal age, every area of human behavior can be conceived of like a market and is described in the jargon of investment and competition. It follows that there are few relations – if any – which are *not* conceived of in instrumental terms (Maturò, Mori, & Moretti, 2016). Public and private areas of life are ever more permeated by, and explicated in terms of, principles of individuals' trades and gains (McNay, 2009, p. 75).

The subject thus takes on an active, performative role, which is importantly distinct from the production-oriented role played by the typical subject in the society of control. Following Han (2015), if the twentieth century saw the transformation of our society from a disciplinary one to a performance-oriented one, then subjects today are no longer “citizens of obedience” but instead “citizens of performance.” Mental hospitals, prisons, and the other social institutions Foucault addressed in his works today manifest in different forms: multinational corporations, banks, genetic laboratories (Han, 2015), and – we hypothesize – individuals themselves. Given these changes, power must also be understood differently today: a Benthamite theory of control no longer suffices, as forms of surveillance are no longer centralized but instead are widely dispersed throughout the society. The performative subject is in charge of himself, (ostensibly) free from external authority.

Of the many theories Foucault introduced, that of governmentality plays a particularly central role in his work. Indeed, around this idea Foucault sketched a complicated web of analysis and ideas that served to explain the regulation and social control of citizens implemented by the State. Tracing the genealogy of certain terminology, we find that during the sixteenth century a broad problem around the government and its manifold manifestations emerged. There was the government of souls and that of living beings (a dichotomy close to the hearts of Catholics and Protestants alike); the government of children (especially relevant as problems of pedagogy became more and more important in this period); and, not least, the government of the State, as indeed Machiavelli's Prince emphasized² (Foucault, 1978). This multiplicity was taken to demonstrate the need for

²Foucault (1978) published a series of reflections based on a lecture he gave at the Collège de France that dealt with Governmentality. In particular, inspired by the work of Machiavelli, Foucault discusses how the Prince's state was achieved through techniques very different from those of the government. Further, Foucault emphasizes the strangeness of the Prince's relationship to his principality: the sovereign has little to do with the object of his sovereignty. He rules not by divine right or right given him by his principality; rather, he takes power for himself through conquest.

a unified standard of institutions, procedures, analyses, reflections, calculations, and tactics that could ensure the management of the population, and in turn could guarantee the “government of the living”; in short, the need for the art of government emerged. Foucault showed how social transformations that emerged in Europe in the sixteenth century challenged the feudal system (Lupton, 2003). In turn, the first administrative states were forced to think about the needs and regulation of their populations. Unlike Machiavelli’s Prince, who acquired his power by conquest and inheritance while remaining detached from the object of his governance, now the government – or, better, the governments – had to create new categories³ into which to sort people, so as to allow for the ongoing maintenance of power. In the eighteenth century, this became the dominant model of state-administration in Western countries (Lupton, 2003). The sphere of the art of government was thus widened considerably, so as to concern not just persons but also all of their relationships and interactions. Governing the living, according to Foucault (1978), is like steering a boat: it is necessary to take care not only of the sailors, but also of the cargo and the boat itself. Moreover, steering a boat involves making calculations about the wind, storms, and rocks: it consists, ultimately, in the activity of stabilizing the relationships between the sailors, between the sailors and the cargo, and between the boat and all the obstacles it might encounter. This, following Foucault, can be compared to the governing of men. Governments need guidelines or structures with which to monitor a population and make it conform to the rules.

These days few governments are concerned with instituting antiquated disciplines employed to train the body and mind so as to make citizens more docile. These days, we rather find ourselves in a society that promotes something which Dardot and Laval (2017) have called a new form of government: entrepreneurial governmentality. Institutional practices and discourse at the end of the twentieth century produced the figure of the entrepreneur-man or “entrepreneurial subject,” encouraging the rise of a complex weave of deterrents, incentives, and obligations, which has given rise to a new class of psychological behaviors (Dardot & Laval, 2013). The sector once known as “personnel management” has morphed from a contrivance meant to control and regulate the worker (sometimes – especially in the early phases of capitalism – coercively and violently, and in any case, wastefully and ineffectively), into a contrivance in which the individuality of the worker is treated as a resource to value and exploit (Nicoli, 2012). Entrepreneurial governmentality is a soft form of surveillance that pushes individuals to become ever more productive and efficient.

Yet in the neoliberal subject, there arises a problem related to entrepreneurial governmentality. Today, the subjectivity of the individual is involved in every activity he or she carries out (or which he/she is assigned to carry out); indeed, it draws

³According to Foucault (1977), it was necessary to introduce multiple variables with which to sort individuals into categories: healthy and sick, rich and poor, and useful and less useful. This cataloging became increasingly necessary for the State as it progressed in its task of “normalizing” individuals through common practices and standards.

its strength from its global (omnipresent) character. In order to govern, influence, and control individuals today, then, it is necessary to keep up with this global, entrepreneurial subjectivity. In turn, it is necessary to make use of new modes of control and to set new and ever-higher standards for individuals' conduct and achievements (Dardot & Laval, 2013). Techniques for standardization and cooperation, once provided by a governmentality that arose via expert knowledge, today take the form of numerical evaluative practices designed to monitor the performance activities of the subject. If one's performance does not meet certain required standards, penalties – including delayed career progression or reductions in salary – ensue (Dardot & Laval, 2013). In other words, the subject is governed not from above but from within, molded to submit to his own self-governing, which is itself guided by numerical, impersonal, and ostensibly “neutral” standards and metrics.

The central consequence of this self-governance of the entrepreneurial self is that, having been molded to endure the new conditions imposed on them, individuals act in such a way that their behavior exacerbates and reinforces these conditions. In short, there is a “ripple effect” by which “enterprising subjects,” once produced, reinforce ever more relationships of mutual competition. In a self-fulfilling process, individuals adapt to and reproduce the increasingly harsh conditions they themselves help to produce (Dardot & Laval, 2013). If, as is suggested, the self of the QS organizes his or her activities in a managerial fashion by making use of graphs and statistics, benchmarks and goals, indicators and gamification, his or her newly organized and “scientific” “nature” fits in perfectly to the logic of the market. The self becomes an engineer, driver, and product. The self, indeed, becomes a sort of consultant that can confer meaning and unity on its various products. Just as a big corporation does, the self of the QS is aware of his or her final budget and the progress of his or her productivity. One's subjectivity is conditioned by, and manifests in, one's adherence to entrepreneurial governmentality, which it in turn reinforces and propagates.

The productive subject typical of the industrial society has been replaced by the performative subject typical of the neoliberal society. The repressive paradigm embodied by capitalism is moderated, made softer, by new features of the performative society, in which a simple logic of consumption no longer (at least not always) suffices to explain factories and the work force: these areas are instead explicated in terms of statistics and scores, which take hold in individual subjects, each of whom has his or her own productivity standards to meet. The neoliberal subject thus requires a large quantity of information to plan his or her investments and achieve the profits he or she expects. On an individual level, this translates into greatly amplified introspective tendencies. Indeed, the central characteristic of the neoliberal subject is a marked inwardness or reflexivity, by which one explores one's desires and aspirations, discovers one's potential, weaknesses, and room for improvement and, finally, evaluates the results of one's performance (Maturato et al., 2016).

In a world dominated by the principle of competition and made up almost entirely of strategic relationships, creating a reliable self-image based on our relationships with others becomes troublesome. This is not only because there is always a lurking suspicion that what others communicate to us about our self is

constantly tainted by their own interests but also because it is the very concept of relationship which, when viewed from a neoliberal perspective, must necessarily involve some form of reflexivity which originated in previous times (Maturato et al., 2016). The techniques of self-enterprise inevitably lead to a form of alienation of the self (Dardot & Laval, 2013), and the amplified practice of reflexivity affects the social sphere of the subject who is increasingly isolated in his or her daily life. In fact, although societies – especially Western ones – are increasingly characterized by an emphasis on individualism, the identity of the individual in these societies nevertheless struggles to assert itself, uncertain of its boundaries (Lasch, 1979).

4. Take Home Message-4

In contemporary society, it is perceived that time has become a scarce resource, even though the pace of life has accelerated. The concept of acceleration was introduced within the social sciences by Rosa (2010), who outlines its salient features and current manifestations. The paradox highlighted by Rosa is that this perceived lack of time is accompanied by the fact that individuals must respond proactively to performance needs, considering that the neoliberal spirit is now permeating all aspects of our lives, not just economics. Rosa also notes deceleration phenomena, understood as practices used to maintain a slower pace in the face of the extreme acceleration to which we are exposed. One such practice, functional deceleration, is unique precisely because it is actually fundamental to keeping up with the rhythm of an accelerating society. Functional deceleration aims to preserve the ability to function and continue to accelerate, that is, slowing down now to speed up later. On the individual level, functional deceleration is found in subjects who, in the grip of stress, take a break to regenerate themselves. Meditation is one such coping strategy.

As individuals living in an accelerated society, we seek general improvement of ourselves, our performance, and our ability to adapt to our environment. It is therefore not surprising that in recent years many disciplines, from genetics to the social sciences, have oriented their investigation to include different forms of human enhancement. The main objective of human enhancement is to overcome various natural barriers in order to improve some aspect of our lives, be it our physical, cognitive, or psychic well-being.

To help accomplish this goal, self-tracking apps conveniently provide users with graphs and histograms on their smartphones. This process allows individuals to organize their activities and adjust their preferences as if they were a firm operating within the marketplace. Similar to analysts of a large corporation, users can collect and process large amounts of data with the ultimate goal of optimizing performance.

Within his work, *The Birth of Biopolitics*, Foucault (2008) shows how the term neoliberalism should not only be used to indicate a school of economic thought, but also a political rationale. In other words, economic principles can be applied to fields that were previously considered beyond the scope of economics. Neoliberalism projects that physiological, emotional, and educational contexts can be

organized rationally based on marketplace behavior. Neoliberalism thus triggers a series of policies that conceive citizens as individual entrepreneurs and consumers, whose autonomy is defined by their ability to “take care of themselves” by satisfying their own needs and ambitions (Brown, 1995). The neoliberal subject invests in himself or herself and competes with others to achieve the greatest amount of “profit.” The quantified subject aligns neatly with the standards proposed by neoliberalism. In fact, the application of the neoliberal model to the monitoring of personal dimensions allows for individual performance management. Quantification is therefore capable of shaping intersubjective relationships based on measurements and standards. For this reason, the neoliberal subject is a performing subject who assumes leadership of himself and, like a firm, produces a series of knowledge: he analyzes his needs, defines his objectives, formulates his decisions based on his preferences, and, finally conducts internal problem-solving analysis.

Chapter 5

The Dark Side of Digital Health

Abstract

The chapter critically analyzes the concepts and the practices of surveillance in modern and postmodern societies along with their consequences. We show the changes in the systems, which are used to monitor individuals, and emphasize the transition toward soft surveillance systems, probably stimulated by digital technologies. This switch from top-down control to “lateral” monitoring systems encloses surveillance practices with suggestive names like *interveillance*, *synopticon*, and *dataveillance*. The dark side of digital health has a bright start. According to Topol’s (2016) vision of the future, we will soon be the “consumers,” the real protagonists, of the management of our health – thanks largely to the practically endless data about our bodies, behaviors, and lifestyles we will be able to collect and analyze. We will share our health information in real time with the doctors whom we will choose based on their score in clinical rankings (here, too, quantification rears its head). Yet, this simplified version of health makes it seem that there are always some solutions, which the algorithm can supply as long as it has enough information. Moreover, in the United States, some health-insurance companies have started to offer a discount on premiums to the members who agree to collect and share self-tracking data with them. Clearly, the discount is given only to the workers who have healthy habits. At first sight, this can seem as a win-win trade-off; however, what today is presented as an individual option can easily become a requirement tomorrow.

Keywords: panoptic theories; non-panoptic theories; digital surveillance; surveillance capitalism; health surveillance; social exclusion

1. Approaching Surveillance Through Sociological Theories

Throughout the theoretical traditions of sociology, economics, social control, criminology and law, the concept of surveillance has been widely analyzed (Gary Marx, 2016). When discussing sociological contributions to surveillance studies, we must be careful not to conflate different conceptions of surveillance. In particular, we must distinguish those authors who identify surveillance as an intrinsically negative phenomenon linked to coercion, repression, discipline, power, and domination from those authors who do not. Authors in the first camp can be framed in terms of panoptic theory (Allmer, 2011; Lyon, 2006), while authors in

the second can be framed in terms of non-panoptic theories (Allmer, 2011; Lyon, 2006). Non-panoptic theories employ an administrative conception of surveillance in which the collection of data is taken to be a utilitarian process carried out by the State or administrative bodies. In this vein, Gary Marx has elucidated a number of new surveillance practices, which are propagated via new technologies made possible by the advent of the Internet and Web 2.0.

We turn now to discussing the main differences between panoptic theories and non-panoptic theories. Regarding panoptic theories, we draw primarily on the work of Foucault (1977) and Deleuze (1992). Foucault in particular has inspired many contemporary studies of surveillance (Wood, 2003) and is widely considered the main theorist of control practices. Foucault's picture of control is inspired by the well-known panoptic structure Bentham devised,¹ in which watchmen have an uninterrupted view of the people they survey, while individuals' sense of being constantly monitored bolsters the power of their overseers.

The paradigm of the panopticon, which Michel Foucault develops, helps to explain society's movement from a "corporal" system of punishment to a less brutal, yet far more effective, one. Until the middle of the seventeenth century, the vast majority of criminals were punished with torture or execution. The brutalization of the body was thought to be a form of atonement on the part of the condemned and to serve as a deterrent against crime for spectators. A highly visible spectacle, punishment was intended to discourage others from committing the same (or any other) crime. Only a few decades later, however, new regulations drafted by Faucher in 1838 for the House of young detainees in Paris (Foucault, 1977) had already been effected; spurred on by the requests of the people (who found these tortures increasingly intolerable), a new, less, and highly humane system of punishment was introduced. This ostensibly enigmatic and sudden "sweetness" (Foucault, 1977) was the consequence of multiple factors. First, the rate of violent crime fell, whereas crimes against property rose. Second, the justice system offered no guarantee of accountability or transparency in its judgments. In light of this, people felt the need to appeal to another realm of punishment – they began to conceive of sentences as conferred not on the body of the condemned, but on his or her soul. The primary reason for the movement from corporal punishment to sanctions on personal freedom was the (not unrelated) newfound attention given to the body as a useful entity capable of serving an end. We began, indeed, to view the condemned as potentially useful things. Instead of trying to bring death on the condemned person, we now sought to preserve his or her life – a life granted far more value than in the past – now believed capable of serving a function within the society (namely, forced labor). In this context, the panopticon stands as the perfect machine; it requires no

¹The English philosopher Jeremy Bentham developed the concept of panopticon in the Eighteenth Century. In the exchange of letters in 1787 from Russia to an English friend, the need for a structure described as "a new mode of obtaining power of mind over mind" (Božovic, 1995, p. I) is outlined. We can define panopticon as a type of institutional building, which allows all inmates of an institution to be observed by a single watchman without the inmates being able to tell whether they are being watched. Moreover, panopticon has been conceived as equally applicable to hospitals, schools, nursing homes, and kindergartens. However, the most successful application was with the prison.

chains, no claws with which to trap the prisoner, because visibility is already a trap in itself. Thanks to its invisible mechanisms, the panopticon operates as a sort of “laboratory of power” (Foucault, 1977), infiltrating the behavior of individuals and molding their habits. From his or her central and superior position, the inspector can control all the movements of the inmates; this “bird’s-eye view” can be seen as offering the inspector a sort of experimental laboratory – a structure in which to observe how certain transformations can be effected in individuals.

The panopticon is not a particular physical space or institution, but a *form* of power, an instrument whose disciplining reproduces control (and vice versa), and which becomes a real “anatomy of power” (Foucault, 1977). For example, the body has always been taken to be a malleable entity, but in the panopticon, it is shaped by new modes of control (Foucault, 1977). Interference with the body occurs on a level of fine-grained detail, that is, through the management of movements, gestures, and attitudes; the discipline and repetition of (certain) activities is essential to condition the subject’s body. We are no longer interested in body language, but instead in productivity and the effectiveness of movements. This is one illustration of the way we come, in the panopticon, to consider discipline as an unbounded and established practice, supposedly carried out in accordance with the (fictional) autonomy of the individual (Foucault, 1977). This “domestication” of individuals is characterized by constant and forceful domination. Discipline and control no longer take the form of a link of chains; precisely, in their defiance of a particular material (and in turn, identifiable and knowable) instantiation, their power over individuals is multiplied (Foucault, 1977).

Trained, conditioned subjects are far more productive than subjects whose bodies have been brutalized. In addition to Foucault, we must now consider the work of another French philosopher, Gilles Deleuze. Deleuze (1992) argues that enclosed environments in which discipline is enforced by technology are in crisis. Indeed, these spaces are in dire straits because new technologies make it ever easier to transcend boundaries. These technologies do not apply to particular, confined domains, but rather operate across time and space and – in this sense – “freely,” unbound by (for example) the distance between discrete institutions. Control today thus operates openly across open environments. Deleuze therefore proposes that we transition from thinking of our society as one of discipline to one of control.

Deleuze explicates his theory of a society of control in terms of the following three central claims:

- First, surveillance involves the production and presentation of simulations, rather than the truthful representation of its objectives.
- Second, the boundaries of surveillance are essentially indeterminate, and practices of surveillance tend to spread; thus, becoming a part not only of disciplinary organizations, but also of everyday life.
- Finally, surveillance is in fact participatory and, thus, perpetuated and implemented by the subjects themselves.

If in disciplinary societies, as Foucault proposed, surveillance and conditioning practices moved between different institutional environments (from the school to the barracks, from the barracks to the factory), then in societies of control, by

contrast, one cannot distinguish the boundaries separating one institution from another, because they are co-existent (Deleuze, 1992). Breaking from panoptic theories of surveillance (which conceive of surveillance as a technique of control and subjugation of individuals), some scholars work instead with an administrative conception of surveillance. On this conception, surveillance is taken to be an information-gathering activity of the state through which information is collected, processed, codified, and reported; its purpose is merely administrative, helping organizations' bureaucracy function better (Allmer, 2011). The conception thus employs a generic definition of surveillance, conceiving of it as a multi-faceted, technical process. Among the various authors who here merit mention are Giddens, Dandeker, and Gary Marx. In his analysis of surveillance, Giddens (1981) explains how its origin is closely tied to capitalism and, more specifically, to the formation of the nation-state. Giddens (1981) defines surveillance in terms of two interconnected phenomena: first, the accumulation of symbolic and material information, which can be stored by an organization or a public institution; and second, the supervising of subordinates by their superiors. The collection and storage of information generates power that is in turn reinforced through the supervision of workers. Extending Foucault's theory of the contemporary condition of the society, Giddens describes how the collection, synthesis, and analysis of information about the individuals who compose a society can also constitute a means of controlling their activities and attitudes. An integral and pervasive element of social integration, surveillance – following Giddens – became greatly important upon the advent of capitalism. Two pertinent surveillance systems – market surveillance and surveillance by the state – turn out to be closely intertwined; considered in tandem, these twin processes of surveillance clarify the historical relationship between the capitalist labor contract and the state's monopoly on violence (Lyon, 1994). Giddens takes up Foucault's treatment of surveillance as a *lens through which* to analyze the attainment of the totalitarian state, whose essential features can be broken down into a few key factors, which include extreme attention to surveillance, a very rigid moral code, and a charismatic figure whom individuals in the state recognize as leader. At the same time, Giddens criticizes Foucault's work, and in particular, his idea that punishment in the form of violent spectacle has been replaced by anonymous surveillance as a consequence of the rise of capitalism. Giddens charges Foucault with overemphasizing the analogy between the prison and the capitalist factory or workplace, arguing that there are substantial differences between the two, which should not be overlooked. Unlike prisons or clinics, the capitalist workplace is not a total institution. Moreover, the worker is not imprisoned in the factory but traverses the workplace as a (*de jure*) free man. Surveillance practices have developed in diverse national contexts and their consequences, according to Giddens (1981), are neither simply positive nor simply negative, but mixed. For example, the welfare state is rooted in the state's detailed knowledge of the population; thus, surveillance (using that term to mean the state's record keeping about citizens) creates the possibility not only of control, but also of new forms of democratic resistance. As Simon (2005) points out, Giddens shows modern surveillance to be characterized by an ever-increasing distance between the observer and the observed. Because of this increasingly distant rapport, supervisory

surveillance operations are carried out without any particular reference to those observed. Writing in the wake of Giddens, Dandeker devotes much of his work to the relationship between surveillance and the state apparatus (bureaucracy). More specifically, Dandeker describes surveillance as a process of information gathering and modern administrative organization. In this context, the term “surveillance” is not intended to connote some form of espionage but refers more generally to the collection of information and the supervision of individuals (Allmer, 2011). Modern surveillance, following Dandeker (1990), entails the following: (1) collection and storage of certain information about individuals and objects; (2) supervision of individuals’ actions; and (3) employment of the information collected to the end of monitoring the behavior of the observed subjects. Given these consequences, surveillance cannot be thought of merely as an aspect of social relations; on the contrary, it is a strategy that can be used to produce a system of social norms. In his book, *Surveillance, Power and Modernity: Bureaucracy and Disciplines from 1700 to the Present*, Dandeker (1990) chronicles the evolution of bureaucracy and the accompanying surveillance practices in various institutions over the past three centuries. Bureaucracy and surveillance turn out to be very closely linked, and indeed, almost correlated. Surveillance can be thought of as a process that produces certain knowledge or pieces of information and as a supervisory practice in which both members and non-members of certain institutions are “observed” or “tracked.” It follows that bureaucracy can be understood as a modern mode of surveillance – one increasingly honed and sophisticated by the “powerhouses” of the state (namely, military and police forces) and the capitalist enterprise. Analysis of bureaucratic surveillance is therefore the key to understanding the structure and organization of power in modern societies (Ericson, 1991). As bureaucracy grows, surveillance spreads; this is apparent in the ubiquity of formal, legalistic reasoning; new conceptions of the necessity of discipline; innovative uses of information technology; and the occupational division of labor among experts. Dandeker advances his claim that bureaucracy and surveillance are yoked by scrutinizing various “bureaucratic machines” and the surveillance practices they have implemented. While discussing military, police, and corporate bureaucracies, Dandeker identifies specific forces, which have motivated the expansion of surveillance. First, he refers to the growing importance of professional skills within bureaucracies and determines that “experts” (in whatever given area) independently make choices about the nature and use of surveillance to be employed. Second, he shows that surveillance increases in proportion to the volume and complexity of the administrative tasks at hand. The significance of new information and communication technologies, and the resultant distinction between traditional and new forms of surveillance, are matters Gary Marx (1988, 2016) has long addressed. In contemporary society, increasing surveillance has led to the progressive collapse of the private sector into the public sector; in a sense, we are under constant observation. For Gary Marx (2002), surveillance is primarily a technical process, defined as the use of technical means to extract or create personal data. As a central example of such surveillance, Gary Marx cites parents monitoring (or controlling) their child with cameras. This sort of surveillance typifies the capital-intensive (rather than labor-intensive) surveillance Gary Marx discusses; it introduces the

category or role of a suspect and presents it as a preventive measure. It is decentralized, difficult to understand, and omnipresent (Lyon, 2001). Gary Marx has contributed to studies guided by a “neutral” conception of surveillance by introducing and emphasizing the distinction between past and contemporary surveillance practices. Those past practices can be described as follows: “Traditional surveillance relied on the unaided senses and was characteristic of preindustrial societies. Information tended to stay local and compartmentalized” (Gary Marx, 2016, p. 17). As far as new surveillance practices are concerned, developments in the field of information technology are progressively eroding the barriers that prevent our being totally and constantly monitored. Gary Marx characterizes this phenomenon as a New Surveillance, which aims to collect data in an ever-wider ambit. Unlike the surveillance practices typical of modern states, this form of surveillance is used in business and commercial sectors to learn about citizens’ habits and tastes (rather than to govern the country). New technologies for collecting personal information are increasingly present in our society. Since the last half of the twentieth century, technology has increasingly been used to track and collect personal information; for example, video-audio surveillance; sensors to capture heat, light, motion, and sound; night-vision glasses; electronic labels; biometric-access mechanisms; drug analysis; DNA analysis; computer monitoring; and, not least, the use of electronic mail and computer programs as expert systems (Gary Marx, 2002, p. 9).

2. Digital Surveillance

Modern technology has significantly altered the relationship between the public and the private. It has also caused an individual’s number of social relationships to rise. Social media is not a simple “technological fact,” but a potent force that has altered the way individuals see the world (Colombo, 2013). The fact that we daily hand over our data to online platforms (simply by using them) perfectly expresses a phenomenon that for many years has dominated markets and quotidian life: technological convergence. This term refers to the conversion of practically all information into a digital format, which marks the end of a distinction between different types of media (Colombo, 2013). Television was the first technology to spread data and information digitally, but every new technology since has followed the suit – from the personal computer to the smartphone, from the virtual-reality computer to electro-medical devices. The typical citizen or user does not perceive technology’s control over him or her or the new opportunities for control this technology and its data collection creates:

New media technologies may help level the playing field in some respects by widening access to the means of creating and distributing a range of cultural and informational products, but they also create new asymmetries. Google may know a lot about users’ patterns of browsing, emailing and eventually mobility, but users know very little about what information is collected about them and how it is being put to use. (Andrejevic, 2012, p. 76)

We need, here, to highlight the transition from “old” to “new” media. The control exerted by traditional broadcasting systems was concerned primarily with content, that is, the information being transmitted. Its aim was to shape the user ideologically via the news conveyed. With the transition to narrowcasting systems, content control has become much more complicated, precisely because of the vaster network and greater sharing opportunities offered to users 2.0. What relationship, then, obtains between digital information and modern surveillance? New forms of digital technology give rise to a new form of control:

digital technology has augmented the scope and range of surveillance system new and old. Networked devices like mobile phones and laptops facilitate the collection of detailed information about user behavior while older databases move into digital form that can be more readily searched, sorted, and mined. (Andrejevic, 2012, p. 91)

The new surveillance practices carried out in our digital society are best understood in terms of the following concepts: *interveillance*, *synopticon*, and *dataveillance*. *Interveillance* refers to a form of control (previously defined as lateral surveillance by Andrejevic (2005) that concerns peer-to-peer monitoring and the use of surveillance tools by individuals rather than by public or private institutions. This form of horizontal control, exercised among peers, involves subjects’ (mostly voluntary) self-exposure on the internet. It involves three forms of routinized social monitoring and self-expression, which are integrated into the technological architecture of many contemporary social media platforms: (1) watching and judging (morally, aesthetically, etc.) networked Others; (2) watching Others watching oneself, that is, sensing and anticipating the gaze of strangers as well as of fellow group members; and (3) watching one’s own data double, that is, the hypermediated Self in the form of (for instance) geographical positioning or personalized publicity offers (Christensen & Jansson, 2015, p. 1480).

Essentially, the rise of *interveillance* has modified the control techniques used on and by the subject. Indeed, we have become more and more willing to give over our data in exchange for certain services (e.g., a free email account); personal benefits are thus prioritized over the safeguarding of our private information (Colombo, 2013). This surveillance practice (i.e., *interveillance*) is rooted in the proliferation of online communication and the development of the Internet economy, which “allows for an unprecedented level of interaction among geographically dispersed individuals, groups, and institutions, they simultaneously ratchet up the uncertainty level” (Andrejevic, 2005, p. 488). If, on Foucault’s account, disciplinary institutions such as the school, the army, and the hospital shape the soul of the modern individual (his or her habits, convictions, and behaviors), certain important differences are obtained in the case of the online society. In this case, the object of control is the self-same user who provides information about himself or herself voluntarily, which is then “marketed” and transformed into informational capital. These days, many users agree to share their personal information in exchange for certain benefits. By agreeing to share our contacts, we can

get a free account on Gmail; Facebook invites us to provide our phone numbers to ensure greater protection of our profiles; without much (or any) concern, we tick the data-collection box to get free Wi-Fi at the airport. These practices nurture modern surveillance, which is distinctive insofar as the surveyed participate in it voluntarily: we willingly hand over private information in order to obtain certain benefits. This new mode of control cannot be read as a volatile instance of “network sociality” for it is rather:

a complex, media-enhanced social regime, which saturates the symbolic and emotive interplay between social subjects at the most common level of human life – that is, at the level of self-creation and ontological security – producing a multitude of social contingencies. (Christensen & Jansson, 2015, p. 1481)

Norwegian sociologist Thomas Mathiesen (1997) in his article, “The viewer society,” first introduced the concept of the synopticon, in which Mathiesen sought to overturn the panopticon control model Foucault proposed in his analysis of power. Mathiesen suggests that we move from a panopticon conception of control (where one located in the central tower observes all the inmates) to a synopticon model, where the many observe the few who are located in the new tower (the media). The few in the tower are those who appear on screen, who through their performance attract the gazes of, and impose themselves on, the citizens-spectators. Thus, it is those on the periphery who observe the center and not – as the panopticon model implies – the one in the center who observes those below, controlling the exterior from above (Ragnedda, 2008). Still, as Mathiesen himself notes, the two models are not mutually exclusive and in fact can be perfectly integrated: an institution can be panoptic and synoptic at the same time.

The synopticon model has influenced many authors (Bauman, 1998; Lyon, 2006) but in the era of web 2.0 has undergone considerable alteration. Doyle (2011), in particular, highlights the way “Mathiesen’s analysis was focused on broadcast television as the mechanism through which ‘the many’ saw ‘the few’” (p. 286). Mathiesen (1997) indeed states that, “synopticism, through the modern mass media in general and television in particular, first of all directs and controls or disciplines our consciousness” (p. 230). Clearly, his analysis is not particularly concerned with the Internet, probably because of when he wrote. Nowadays, of course, this oversight is obvious, and it is crucial to consider all the new possibilities the web introduces in terms of surveillance. In particular, we must note the possibility that the many are looking at the few “can take place on social media platforms, in which the activities of public figures or celebrities can be watched and commented on by multitudes of platform members” (Lupton, 2018, p. 23).

Finally, to explain dataveillance, it is necessary to recall the significance data has taken on in contemporary society. The Snowden revelations in June 2013 were a dramatic wake-up call for citizens; for the first time, the massive surveillance of users’ personal information and data, generated via their use of social networks or apps, was made public. Elements of life surveyed included marital status, eating

habits, favorite music, and even health-related aspects such as the last cold one suffered (van Dijck, 2014). What makes such pervasive collection and control of data tolerable for citizens is the promise of obtaining greater security in return. In addition, as seen in Chapter 1, the paradigm of datification – closely related to the quantification of everyday life – has, for many individuals, normalized data-collection. Datification can be defined as “the transformation of social action into online quantified data, thus allowing for real-time tracking and predictive analysis” (van Dijck, 2014, p. 198). In essence, companies and multinationals monitor our online behavior, using social networks including Facebook, Twitter, YouTube, LinkedIn, etc., to collect information about human behavior. The quantity of personal information on the Internet facilitates control over users and the creation of *ad-hoc* services; “we can now collect information that we couldn’t before, be it relationships revealed by phone calls or sentiments unveiled through tweets” (Mayer-Schoenberger & Cukier, 2013, p. 30). The widespread belief that objectively quantifying certain activities or preferences is the most powerful way to make sense of and predict the behavior of human beings is thus reinforced. This is why it is important to refer to the phenomenon of datafication as a “form of continuous surveillance through the use of (meta)data” (van Dijck, 2014, p. 198). The datification of society occurs in digital terms, technology offering new forms of control over citizens. We can also say that:

dataveillance – the monitoring of citizens on the basis of their online data – differs from surveillance on at least one important account: whereas surveillance presumes monitoring for specific purposes, dataveillance entails the continuous tracking of (meta) data for unstated preset purposes. (van Dijck, 2014, p. 205)

New surveillance is grounded in this data harvesting, which Zuboff (2015) calls *surveillance capitalism*: its aim is “to predict and modify human behavior as a means to produce revenue and market control” (p. 75). Zuboff makes an in-depth study of changes in professions and professionals, as well as in the organizational models of offices, companies, and factories in which – since the late 1980s – computers and IT systems have been introduced. Her research, over time, has shown, first, that the relationship between IT and man (and work) takes for granted that technology is not neutral (for it enables certain human experiences but precludes others). Second, with technology, individuals and groups of people “build” new “horizons” and make different decisions than in the past; technology influences individuals’ conceptions of both possible and future scenarios. Finally, human choices are influenced by those social, political, and economic interests that affect the potential and limitations of man, work and technology itself. Technology, even more than algorithms, can make individuals attribute certain “weights” to certain social, economic, and political matters. Personal data, which are collected and processed, are of many different kinds. As we will see later, health-related information is particularly attractive to large companies, precisely because health-related matters constitute a significant opportunity for profit.

3. Health and Surveillance

The relationship between surveillance and medicine is often thought of in terms of monitoring risk factors, which could compromise the health status of a population. Efforts are made to control various aspects of life (including individuals' behavior), with the aim of developing prevention programs to keep people from getting sick. The World Health Organization (2016) defines² public health surveillance as

the continuous, systematic collection, analysis and interpretation of health-related data needed for the planning, implementation, and evaluation of public health practice. Such surveillance can: serve as an early warning system for impending public health emergencies; document the impact of an intervention, or track progress towards specified goals; and monitor and clarify the epidemiology of health problems, to allow priorities to be set and to inform public health policy and strategies.

For example, numerous health control initiatives have emerged in Italy. Among these, we here mention *OKkio alla SALUTE*, a surveillance system concerned with tracking overweight and obesity in primary school children (6–10 years old) and related risk factors. Founded in 2007, the main objective of this initiative is to collect a detailed record of certain risk factors, which include geographical variability and children's eating habits, physical activity levels, activities at school, nutrition, and exercise. In January 2007, another Italian health surveillance initiative, *La sorveglianza Passi*, was born. Its aim was to carry out 360-degree monitoring of the health of the Italian adult population (18–69 years) through a systematic and continuous collection of information about habits and lifestyles and through state-of-the-art intervention programs, which the country is implementing to reduce risky behavior. One of the objectives of the *Passi* surveillance program is to increase the population's awareness and understanding of its own health. Separately, monitoring a certain segment of the population can be useful for early detection of health problems. For example, the National Health Service carries out screening programs – examinations made of a more or less broad band of the population – intended to identify certain diseases before their symptoms manifest. Such screenings have the following two central features:³

- They are aimed at people who stand at a particular risk of developing a given illness. On both societal and individual levels, it is economically unsustainable to screen people with low risk of developing a given disease.
- They are carried out at regular intervals. In order for a disease to be caught early, it is essential that high-risk individuals be screened and re-screened as long as is necessary to secure health.

²For more information, see http://www.who.int/topics/public_health_surveillance/en/.

³For more information, we suggest consulting the website of the Italian Ministry of Health.

These forms of control (i.e., screenings of the population) are characterized by the promotion of different forms of disease prevention. In discussing preventative-medical practices, we must consider a collection of activities and intervention practices aimed at reducing the morbidity (i.e., number of patients in a given period) and mortality of a country. There are three main levels of prevention: primary, secondary, and tertiary. Primary prevention consists of actions intended to prevent the onset of disease and strengthen the body's defenses (e.g., vaccination). Secondary prevention is interventional, seeking to heal biological damage already in progress, before it develops into a full-on clinical disease. This can be accomplished, for example, through certain early diagnoses. Finally, tertiary prevention concerns the rehabilitation phase of illness and the prevention of relapses, as well as the reintegration of the patient into his or her family and social context.

The relationship between surveillance and medicine can also be conceived of without appeal to risk factors; indeed, we can think of the subject as the protagonist of his or her own self-surveillance. Foucault (1963) offers a thorough treatment of the evolution of medicine in his book, *The Birth of the Clinic*, in which he traces the main features of medical practices from the late eighteenth through the early nineteenth centuries. Throughout its history, medical authority took hold (and expanded its domain) at the patient's bedside, where, for many years, medical knowledge was formed and expanded. Here, the patient himself or herself did not become the focal point of the medical story; however, the focus was on his or her illness and the symptoms it produced. The illusory idea of a practice of medicine, which sees no separation between the object and subject of medical knowledge, is a sort of myth, which early clinical sages accepted and propagated. The Zeitgeist of the Enlightenment called into question the assumptions, which were temporarily fundamental in medicine, for example, the notion that disease was not linked to the biological body but was instead an immaterial essence.

Only in the nineteenth century, Foucault (1963) tells us, was disease freed from that intangible and immaterial dress, shattering into material, anatomical elements. Since then, medical knowledge became something that could be integrated – or made to coincide with – political knowledge; indeed, disease in general was pigeonholed into the issue of public epidemics, because contagion was an ever-felt – and not particularly unlikely – possibility. Illness thus began to represent a public issue. Foucault, as it happens, discusses the birth of the so-called proto-clinic, whose nosological⁴ function can be seen clearly. We can observe in the clinic certain structures of the school. With the clinic, we began to learn, for example, about diseases that manifested only time to time and about patients who were hospitalized. Doctors learned how to recognize the symptoms, manifestations, and consequences of illnesses (an education made easier because the illnesses observed were often the same); this education in turn allowed for the creation of a so-called “chronicle of the findings” (Foucault, 1963). The patient thus became an object of (potential) knowledge, which allowed for more learning and more scientific (medical) knowledge. As essential tools in identifying a

⁴Nosology is the science of disease classification.

particular disease, symptoms (and knowledge of them) became greatly important, seemingly allowing us to crack the code of the language of medicine and health. According to Foucault, the relationship between medicine and surveillance is rooted in the medical authority's establishment and representation of what is, and what is not, to be considered pathological. Through the examination, study, and analysis of organs, symptoms, and bodies in relation to their environments, clinical medicine can determine what counts as pathology and what does not; what is normal and what represents a deviation from regular human functioning; and when it is necessary to intervene with a body, and when not. This medical gaze becomes the sovereign lens through which men or women can be observed and, perhaps, reintegrated into a healthy environment (the society itself).

Deepening the theme of health surveillance, Armstrong (1995) provides an analysis of medicine's transformation through time. According to Armstrong, medicine has fundamentally changed four times in history. Its first phase, the so-called Library Medicine conceived of health in terms of the technical and scientific knowledge of experts (doctors). Their medical authority had hold over all ambits of health such that disease was conceived of under the auspices of medical knowledge.

In the second phase – that of “Bedside Medicine” – disease was interpreted in light of symptoms and a resultant classification of symptoms into more specific pathologies. For example, according to Armstrong, if the headache and cough were once explained as diseases in themselves, the evolution of symptom-classification in this phase resulted in their being thought of instead as symptoms, which indicated various pathologies (and thus widened the domain of many pathologies' symptoms).

The third phase of medicine – “Hospital Medicine” – can be considered a sort of development of the previous phase. Symptoms remained essential in identifying particular diseases and making particular diagnoses but now the focus shifted to the patient's body, which became the central focus of medical attention.

The fourth phase of medicine – “Surveillance Medicine” – is upheld in many contemporary societies. In this phase, medicine is considered with symptoms and what they indicate about disease, but its central focus is on the individual and his or her relation to the wider community (Petersen, 1997). Ensuing medical surveillance is nourished by Laboratory Medicine, which monitors individual well-being in order to minimize the future risks and maximize the health of the entire population (Armstrong, 1995).

In short, medicine was originally focused on medical knowledge – knowledge concerned with the identification of symptoms – and later directed its attention to the body of the patient. Finally, there emerged a conception of subjects that emphasized the relation between their medical status and wider societal, collective healing. This final step led to a fundamental reconceptualization,

This new Surveillance Medicine involves a fundamental remapping of the spaces of illness. This includes the problematisation of normality and the redrawing of the relationship between symptom, sign and illness. Through Western medicine and biomedicine,

it has survived and extended itself over the last two centuries to become the dominant model of medicine in the modern world. (Armstrong, 1995, p. 393)

Armstrong's analysis, while extending Foucault's theory of the birth of the clinic, focuses on the problematization of normality so as to effect a "fundamental remapping of the spaces of illness." Not only is the diagram between symptom, sign, and illness redrawn but also the very nature of illness is reconstrued (Armstrong, 1995, p. 400). Armstrong (1995), in fact, argues that the twentieth century marked a fundamental shift in medicine, for the clinical gaze shifted from the body and its functioning to the body in relation to the external environment. In other words, we no longer conceive of illness as something associated with individual corporeality, but rather as a concrete social fact. Armstrong (1995) describes this new mechanism of power as "surveillance medicine." This change has broadened the boundaries of medicine – interpreted by other authors as medicalization (Illich, 1973) or healthism (Crawford, 1980) – and painted a new picture of the relation between health and disease so as to promote (through control over the population) a widespread welfare regime. In this sense, the individual is not only subjected to medical surveillance but is moreover expected to become responsible for his or her own surveillance, dedicating himself or herself to a self-surveying practice.

4. Softening of Self-Surveillance

The use of mobile devices to encourage a healthy lifestyle, and therefore to improve health, is a forceful phenomenon in contemporary society. In recent years, the healthcare market has seen the introduction of numerous technologies, which offer new modes of measuring and maintaining health. It is no longer just the professional clinical domain that specializes in adopting digital devices to improve the delivery of care (as was the case, e.g., with telemedicine). Nowadays, many apps for tablets and smartphones facilitate the patient's or user's direct management of his or her disease. As Lupton (2012, p. 231) claims:

recent health promotion campaigns have included the opportunity to interact in an online support or discussion group, or to post and receive messages on Facebook or Twitter about a health-related issue.

The new cohabitation of technology and health offers new modes of surveillance, examples of what Gary T. Marx calls the softening of surveillance. By this term, Gary Marx refers to the more palatable (and, as we shall see, more widespread) control which contemporary digital devices make possible. Basically,

the new soft surveillance has several aspects: minimal visibility and invasiveness as well as passive, often automated data collection. The means may be distinguished, as when sensors and cameras are hidden in everyday objects. (Gary Marx, 2016, p. 117)

The development of increasingly smaller and more efficient sensors and micro-chip computers and, more generally, the widespread use of wireless systems, have led to new surveillance standards and practices. Among these, practices of so-called self-surveillance have been bolstered, and their significance in everyday life can be seen in:

the attention one pays to one's behavior when facing the actuality or virtuality of an immediate or mediated observation by others whose opinion he or she deems as relevant – usually, observers of the same or superior social position. (Vez & Bruno, 2003, p. 273)

Control over individual attitudes and behavior (exercised by individual subjects themselves) “using digital technologies involves people actively gathering information about themselves in the interests of achieving better self-knowledge and (often) self-optimisation” (Lupton, 2018, p. 23). Self-surveillance when it comes to health, then, can be understood as a means of satisfying the subject's desire to improve his or her own condition. We have seen that self-tracking – understood as a product of the ever-quantifying society – can introduce self-surveillance in terms of health. Especially, in the case of chronic illnesses, self-tracking may not only serve a preventive function but also allow for the smoother management of illness in its earliest phases. As research conducted by Moretti and Morsello (2017) suggests, self-tracking relates to health on three main levels: preventative, diagnostic, and therapeutic. First, regarding prevention, self-tracking carried out with digital tools (apps and wearable devices) allows one to monitor his or her progress in adopting a healthy lifestyle and to set and achieve goals related to improving his or her (physical or mental) condition. This may facilitate the prevention of the onset of certain diseases. Second, regarding self-tracking and diagnosis, we must start by noting that diagnosis can be made on a personal, introspective level (self-diagnosis) or by third parties (hetero-diagnosis) – almost always doctors or health professionals (Moretti & Morsello, 2017). Diagnosis is, without any doubt a crucial moment in the course of managing most any disease; this is why, it is considered a medical skill par excellence. This prestige aside, some apps have been designed to allow the user to perform a self-diagnosis of certain diseases. One of these is SkinVision, an app that allows one to make an evaluation of possibly cancerous skin blemishes. The user takes a picture of the section of his or her skin where he or she has identified a potentially cancerous patch; with the help of the app's algorithm, the user can find out if he or she has skin cancer. The app uses a method of mathematical analysis called “fractal geometry” that analyzes any skin lesions in the user's uploaded photos. Research conducted by Maier et al. (2014) has tested the accuracy of the app through the analysis of 195 images of skin lesions. The results show the app to provide an accurate diagnosis or detection of melanoma in 81% of cases.

There are also apps intended not for self-diagnosis but designed expressly for diagnosis of the user by a doctor. One such example is the DoctOral app, which aims to help dentists, doctors, and medical students diagnose oral cavity

injuries and prevent osteonecrosis of the jawbones due to drug use. The app provides so-called “trees or decisional pathways,” established courses meant to steer the evaluation of the “single” patient’s condition. The app basically offers two functions. Its first function is based on the initial recognition of lesions in the oral cavity. The user is guided along a (digital) path, answering multiple-choice questions. In light of these answers, the app delivers the user one or more diagnostic hypotheses and further information about each hypothesized diagnosis in the form of a summary sheet and clinical images. The app’s second function is to arrange the planning of dental care, taking into account various possible paths for the dental treatment of the patient, with the advantage of having (somewhat) personalized information about him or her and therefore making this decision-making process (somewhat) more personalized.

Finally, with regard to self-tracking and therapy, new technological devices can increase the patient’s or user’s autonomous management of his or her disease. Especially in cases of chronic illness, the patient has “to have specific skills” (Moretti & Morsello, 2017, p. 53), which self-tracking may make easier. Further, professionals can also acquire certain new skills related to disease management with the help of new devices. Doctors can use apps to track a patient’s journey and facilitate the delivery of care.

5. The Dark Side of Digital Health

Self-tracking practices make possible the collection of a tremendous quantity of personal data. These data, as we have seen, are often simplified and broken down in terms of scores, rewards, and prizes (a strategy we have defined as gamification). The information obtained through self-tracking – both inside and outside the sphere of health – has, over time, become very valuable for companies, which (with ever-increasing zeal) invite their employees to monitor themselves and share the results of this self-tracking. In certain cases, companies may institute monitoring so as to glean information about employees’ productivity and behavior at work. One such example is a bracelet Amazon designed to speed up employees’ search for products in warehouses. According to its patents, the bracelet is able to monitor an employee’s searching the shelves for a product with great precision, and even vibrates to guide the employee in the right direction, essentially controlling his or her movements. The small tablet currently used to scan barcodes upon locating products is, with the bracelet, replaced with a wearable device that the employee must keep on during work hours. The introduction of this “support” method has been seen by many to offer companies a new (and newly precise) means of controlling employees throughout their movements and activities (monitoring, e.g., how many steps they walked, how many breaks they took, and how productive they were during work). Separately, there are situations in which collected data are used to determine the type of policy a customer should be provided – as in the case of car insurance, for example. A person’s driving habits (speed, compliance with rules, etc.), monitored through sensors, may be used to calculate his or her risks of accidents, and in turn determines the price of the person’s insurance policy.

Recent research conducted by Richardson and Mackinnon (2017) evidences that in Canada, the use of wearable devices at workplaces is a widespread phenomenon. In the 14 cases they present, Richardson and Mackinnon show how fitness-tracking devices and smartwatches are widely used at the workplace to encourage employees to maintain a healthy lifestyle and keep their motivation for a healthy lifestyle high. In some cases, lower health insurance premiums are presented as an incentive to stimulate employees' physical activity – their steps taken, kilometers traveled, or calories burned. The more steps one takes, the lesser the risk one will get sick – and in turn, the less one must pay for one's health insurance. Wearable devices, which tend to be expensive (the average price of Fitbits ranges from 46 to 270 dollars), are in some cases supplied directly to employees by employers, with a view to promoting a "corporate wellbeing." The main advantage of wearable devices is that they make it possible to collect data in real time *without* requiring any effort on the part of the worker (i.e., without requiring the intentional activity (e.g., logging) involved in using many traditional self-tracking apps). In cases of corporate tracking, physical activity is promoted among employees in the name of greater productivity. What constitutes welfare for a company overall, however, does not necessarily coincide with – and indeed may contradict – what constitutes wellbeing for individuals.

The central contribution of self-monitoring is that it offers us the possibility of obtaining data, which allow us to take more accurate measurements of both our daily actions and lifestyles overall. Integrating the resultant abundance of information with more traditional clinical data may present a much more complete picture of the health of people than previously available. Self-tracking thus seems to offer the possibility of improving risk management and knowledge about health and disease, and marks a shift from exclusive dependence on health professionals to a health management model based on patient-involved prevention (Btihaj, 2018). Basically, cures and treatment plans can be reorganized and customized around the specific needs and nature of the user or patient.

Information collected through self-tracking is processed with algorithms, which facilitate the prediction of future behaviors and which sort users into different categories according to their interests, tastes, and lifestyles. In this sense, algorithms act as "soft" surveillance mechanisms on our habits, lifestyles, and even our physiology.

The potential of m-Health – or, more generally, of e-health – is often felt to be inexhaustible, and there remain many authors who have faith that the technology's effects on health and healthcare will, on the whole, be positive. In his not too-timidly titled 2016 book, *The patient will see you now: The future of medicine is in your hands*, Eric Topol presents an impressive list of cases and ways in which smartphones and apps help improve our health. Thanks to the smartphone and all it offers, the era of medical paternalism has passed, while – following Topol – we today witness the dawn of the "democratization of medicine." On Topol's vision of the future, we will soon be the "consumers," the real protagonists, of the management of our health, thanks largely to the practically endless data about our bodies, behaviors, and lifestyles we will be able to collect and analyze. Laboratory tests, digital X-rays, biomarkers, genetic, and lifestyle data will all converge

(and remain) in the memory of our mobile phones, available to us upon a mere touch. We will share our health information in real time with the doctors whom we will choose based on their score in clinical rankings (here, too, quantification rears its head). In turn, these doctors – thanks to evidence-based medicine and sophisticated algorithms – will be able to process our data and intervene in a precise, accurately predictive, and personalized way.

The techno-enthusiastic wave that first swelled at the end of the twentieth century in Silicon Valley has not yet broken; far from it, supporters of the dot.com society try today to subsume all spheres of human life under the domain of technology. The health arena has shown itself to be among the most fertile for this tech-recruitment, because personalized health information seems to allow individuals to be more informed, more engaged, and more in control of their lives. The active and participatory role thus assigned to citizens is central not only because it is hoped that greater individual accountability will reduce health costs, but also because this active, participatory role is in fact a prerequisite of the collection of personalized health information. The data-driven approach requires users' data – and, indeed, an active role for citizens in their collection.

This conception of health, motivated by cost-containment, is built on the following two foundations: first, the ability to gather precise and exhaustive data about a subject's health; and second, the subject's willingness to act, at a molecular level (Rose, 2007) on their physiology based on these data. It is therefore a positivistic and agent-involving conception, requiring both data and openness to action. This philosophy of health is driven by a faith in "technological solutionism" (Morozov, 2013) – that is, by a conviction (if a markedly positivist one) that solutions to even the most complex problems can be found if only we can manage to find the right information, model the most sophisticated algorithms, and devise the most suitable technology. This is an approach to health, then, which brackets the interdependency of various factors that affect healthiness, the perverse effects of conceiving of technology as a panacea that can cure everything, and pertinent socio-economic context.

The idea of the subject as self-entrepreneur, as well as widespread enthusiasm for datification and use of algorithms, fit in nicely to the neoliberal orientation dominant in the realm of health (Maturò, Mori, & Moretti, 2016). That is, the quantification of daily life, including the conception of persons in physiological, molecular terms (Rose, 2007), is both the cause and the effect of our society of algorithms. In order for our social environment to be captured, processed, and modified in an algorithmic context, it must, indeed, be turned into something numeric. As Neyland (2015) writes, in order to participate in the (widely popular) world of algorithmic systematization, the external world must be modeled in mathematical terms. In Luhmann-esque terms, the external environment can "resonate" and be made sense of in the algorithmic realm only if it is conceptualized in numerical terms. Bit by bit, the external world is re-codified and reconstructed in the terms of algorithmic reality, until eventually it may become the only actual reality we encounter. As Beer (2012) suggests, algorithms are integrated into everyday social processes and thus become an organic part of them; fueled by raw information, algorithms reinforce, maintain, and even reshape our

relationships, knowledge, and social world. Algorithms are not just tools for and products of specific economic, social, and cultural processes; they also produce specific effects on social organization, the economy, and certain cultural dimensions (Kitchin & Dodge, 2011). They are not just intellectually instrumental tools, but also performative actors. Against this backdrop, it is not surprising that the American start-up “Health IQ” has, from 2014 (the year it was founded) to 2017, already collected 81 million dollars from a plurality of investors betting on its success. Health IQ is an insurance broker, a mediator between individuals and insurance companies. Its guiding principle is that people who have healthy lifestyles and a take good care of themselves (i.e., those with a high “Health IQ”) should pay less for health insurance, because their life expectancy is higher and their chances of getting sick lower than those with low Health IQs. If one goes to the Health IQ website, one is prompted to respond to a long barrage of questions, which ask about one’s physical state, lifestyle and fitness habits, diet, and level of awareness and knowledge of health issues. Pulling from these answers, the algorithm calculates one’s so-called Health IQ, which is then used to negotiate the price of one’s insurance policy. Self-tracking, health data, and financiers are being woven into an ever-tighter braid. In the United States, numerous health-insurance providers offer customers discounts if they agree to share data gathered by their Fitbits (bracelets that digitally track the physical activity of their wearer).

Given access to subjects’ psychophysical states (detected and recorded through self-tracking), and with the help of algorithms, health-insurance companies can estimate people’s chances of staying healthy (in a probabilistic and quite general way, of course). Relatedly, self-tracking can act as a nudging, “gentle push” toward participation in, and adherence to, healthy lifestyles. Even what we choose for our diet can be “supervised” (e.g., through the measurement of glucose). The instantaneous sharing of their physiological and behavioral data allows individuals to receive discounts on their policies; there is even a system of “daily” discounts based on self-tracked data currently being tested. On this proposal, policy price is updated daily rather than annually, as data related to our behavior can be shared instantly. Such digital surveillance is mainly encouraged by companies, because it is companies above all who pay for individuals’ (employees’) health insurance in the United States. Further, the ObamaCare reform guarantees tax rebates to companies that encourage physical activity among their employees. For example, BP Oil Company has offered its employees Fitbits “for free” – that is, in exchange for monitoring their physical activity. The employees who have accepted number 14,000. Those who take more than a million steps in the course of a year receive an economic bonus; because for such an activity on the part of its employees, BP itself receives a discount from health-insurance companies. The British insurance company Vitality has made an agreement with Apple such that any person who decides to take out a Vitality life-insurance policy will – as the website reads – get a “Watch Series 3 GPS and Apple Watch Nike+ Series 3 GPS from £29 and pay nothing more if you stay active and track your activity to earn Vitality points.” The monthly payment for Vitality can range from £0 to £12.50 depending on the customer’s activity level during the previous month. Such discount schemes target not only adults, but children, too. In fact, the company has created a Vitality

Health Kids webpage. If a child's parents agree to take out a Vitality policy for the child, the child has the opportunity to obtain a "kid activity tracker" (a fitbit, but with a cardboard cartoon character on the wristband) at discounted prices. If the child shows a good attitude to healthy lifestyle, the whole family can receive a discount to travel to Disneyland. In the case of children and self-tracking, we see, the two processes of gamification and quantification meet.

The main worry about our society's emphasis on digital health, at least compared to the m-Health, concerns the risk of social exclusion. By so emphasizing the role of individual responsibility in health, consideration of social and economic factors is eroded. We in fact know very well that obesity (to take just one example) is not just a problem of body mass index, and is not simply solvable through the diligent quantification of food (e.g., by counting all the calories one has ingested) nor through the popularization and gamification of athletic activity. Obesity is a socio-political problem that epitomizes inequality of opportunity (Cardano, 2008). It comes about as the result of intertwined factors including social justice (or lack thereof), the economic politics of food multinationals, and social stratification (Maturo, 2014). Apps may be useful in maintaining or promoting health, but the absolutization of the conception of the self as an entrepreneur – a conception essential to the m-Health movement – may prompt and legitimize practices, which encourage the de-empowerment and decreasing presence of the state in the process of removing social and economic inequalities.

Algorithms and health surveillance policies also introduce certain risks. Some companies fine their employees if they fail to achieve certain "wellness" results. Far from "play" and exciting possibility, self-tracking in the company is becoming a professional duty, something on the level of real work commitments. Surveillance is introduced as having a place even during employees' free time; the logic of production and work is introduced precisely into the domains that should be free of it (see Chicchi & Simone, 2017). From an individual perspective, self-tracking becomes a social obligation. Our most intimate physiological states are scrutinized, measured, and parameterized.

6. Take Home Message-5

Despite its ancient roots, surveillance has only recently become part of the social sciences debate. Among sociological theories, the dominant approaches are:

- Panoptic theories, which consider surveillance as a negative practice; that is, an instrument to strengthen control mechanisms.
- Non-panoptic theories, which propose the analysis of surveillance as a neutral practice (Allmer, 2011; Lyon, 2006).

Panoptic theories are mainly inspired by the reflections of Foucault and Deleuze, who analyze the functions and implications of new forms of control exercised on individuals up to the point of dystopia. On the other hand, three main authors present surveillance as an essential, and therefore neutral, part of the state apparatus: Giddens, Dandeker, and Gary T. Marx.

The proliferation of digital technologies and their subsequent effects on control practices have changed the study of surveillance. The democratic nature of the web allows individuals to perform peer (or horizontal) surveillance. Several authors highlight the many possibilities for surveillance offered by the Internet: Colombo's *interveillance*, Mathiesen's definition of *synopticon*, and van Dijck's theory of *dataveillance*. In practice, surveillance has stopped being an instrument in the hands of the few and became a tool for the masses. Risk-factor monitoring is the most widespread health-surveillance practice, covering many aspects including symptoms, behaviors, and epidemics, with the ultimate goal of developing prevention programs. By declining the forms of control at the individual level, numerous apps and wearable devices offer the possibility to monitor indicators like blood pressure or heartbeat, and can simplify at-home health treatments for those suffering from illness. In other words, the practice of self-tracking can be effective both in the prevention of disease by encouraging healthy lifestyles and in the limited provision of treatment.

The integration of health and technological devices has some negative implications that must also be considered. First, health-related surveillance can be seen as a form of control exercised by both the medical institution and individuals. On one hand, being medically supervised through continuous monitoring practices can lead to reduced health risks. Indeed, having information about one's condition in advance allows one to deal with potential difficulties and dangers before they become problematic. On the other hand, many authors see medical surveillance as a risk in itself, especially considering the surrender of vulnerable personal data (Lyon, 2004). The digital collection of sensitive personal information could lead to the stigmatization of those who, by adopting bad habits such as smoking, drinking alcohol in excess, or doing little exercise, are held personally responsible, and therefore punishable, for being at greater risk. Removing the data collected by an app from its wider context implies "molecular" information subjugation; economic, social, and political factors are not taken into consideration. In other words, analytic software can construct a "data-double" of the subject without considering the characteristics or social determinants that most affect his or her health. Finally, digital health is not immune to social-exclusion mechanisms. In the United States, for example, there are many health-insurance companies that offer discounts if customers consent to sharing their data. To obtain this discount, employers who provide insurance coverage often encourage their employees to use a wearable device or participate in self-tracking. By gaining access to their customers' psychophysical states, health-insurance companies can use algorithms to estimate the likelihood of people staying healthy.

Chapter 6

The Positive Medicalization: Digital Meditation

Abstract

In this chapter, the authors discuss the results of research carried out on a sample of students at an elite university in the northeastern United States. The focus of the research was the interpretations that the students gave to a period of digital meditation. Meditation, yoga, and mindfulness have boomed in popularity over the past few years. Several factors are responsible of our “age of anxiety.” The de-standardization of life trajectories makes people freer (at least apparently) but requires more choices and, thus, reduces the sense of security. According to Rosa (2010), anxiety has intensified due to social acceleration. Therefore, it is not surprising that we sleep less than before. However, sleep loss is not just due to stress. According to Crary (2013), capitalism produces a consumer who should be able to buy “7/24.” Consequently, the chances of consumption should not have temporal boundaries. In sum, it is not surprising that there are numerous apps to cope with anxiety. Going back to the research, one result should be mentioned: several students have used biomedical jargon to describe the effects of meditation. Someone spoke of “digital therapy” referring to meditation. Moreover, some affirmed that the perception that they had of their own body had changed; thus, they were more keen on the quantifiable aspects of bodily health. In general, students found meditation as a very useful “therapy” for a quick fix for the many stresses of college. This is why we called it a “positive” medicalization.

Keywords: Acceleration; anxiety; meditation; positive medicalization; postmodern society; risk

1. Anxiety Between Loss of Tradition and Social Acceleration

There is little doubt that our age is characterized by anxiety. We are constantly talking and writing about our anxiety, stress, and discomfort. This is done medically and in a broader sense. We talk about our anxiety with work, love, illness, travel, and (certainly in Italy) in relation to our favorite football team. We can

become somewhat anxious when we have to make decisions, such as choosing the school for our children or the hospital for our parents. Any time is a good time to detect the symptoms of anxiety in our state of mind. As we will see in the following pages, even meditation can cause anxiety, without even talking about social media or TV programs reporting negative and, indeed, “anxious” news. However, why did we end up in an “age of anxiety”?

From a historic point of view, sociology has suggested that traditional landmarks have gradually collapsed. These landmarks were based on values, institutions, thus revealing a cognitive nature. Obviously, there are also emotional effects because cognitive certainties produce positive feelings of stability and a sense of control over life events:

Tradition has the hold it does (...) because its moral character offers a measure of ontological security to those who adhere to it. Its psychic underpinnings are effective. There are ordinarily deep emotional investments in tradition, although these are indirect rather than direct; they come from the mechanisms of anxiety-control that traditional modes of actions and belief provide (Giddens, 1994, pp. 65–66).

Since its origins, sociology has identified numerous social phenomena that could potentially generate disorientation, uncertainty, and consequently anxiety. In particular, these phenomena were associated with a loss of community and traditions. In the nineteenth century, Tonnies had already noted a transition from “community” to “society.” Community is founded on traditions and a sense of belonging. It is typically related to the pre-industrial age, in which a strong sense of union between people prevailed. The society of modern industrial society is instead based on rationality and exchange, and people are “separated” from each other. Durkheim shows how the evolution of work organization has triggered a transition from a simple society characterized by mechanical solidarity, in which people perform similar activities and resemble each other, to a more differentiated society. Highly complex societies are characterized by the specialization of work activities. A type of “organic” solidarity prevails in these societies, legitimized by rules of an abstract type and based on cooperation. However, as Durkheim claims, there is increasing evidence that rapid changes in the social and economic sphere are not accompanied by equally rapid changes in the collective consciousness and social norms. This lack of coordination generates an “anomie,” which leads to uncertain and uneasy individuals. Anomic suicide is indeed a typical suicide of our times, characterized by sudden changes.

In more recent times, Lyotard (1984) has shown how in the second half of the twentieth century, we enter Postmodernism. Postmodernism is characterized by a lack of confidence in the so-called metanarratives: idealism, enlightenment, Marxism, and religion. These important structures, which used to drive human action, have been replaced by contextual and temporary truths. These are extremely weak points of reference.

Recently, Rosa has focused on social changes related to time. According to Rosa (2010), our society is characterized by a triple acceleration (technological acceleration, acceleration of social changes, and acceleration of the rhythms of life), which reduces one's available time.¹ Furthermore, according to Rosa, social acceleration serves as a functional equivalent to eternal life. This is a rather sophisticated but consistent reasoning. Secularization – in addition to undermining certain fixed points in people's lives, such as marriage – contributed to adding value to life before death. Therefore, enjoying life on earth today means feeding ourselves with as many experiences as possible, while spoiling life in all its dimensions has become the main aspiration of modern man (Rosa, 2010). Accelerating the pace of life and exhausting as many of its options as possible appears as the best way to achieve the promise of eternal life. The frustration of modern man, therefore, derives from the fact that today we perceive that we could enjoy many more experiences than we do. That is why, we anxiously think that life consists of accumulating as many experiences as possible.

The concept of acceleration suggested by Rosa is based on two main components. The first is a growth of the rhythms of decadence of the reliability of knowledge. What we know – skills, experiences, and certainties – becomes obsolete in a very short time. Hence, this will result in disorientation and probably anxiety because we do not know how to make our choices. The second is a contraction of temporal intervals defined as “present.” To corroborate this statement, Rosa offers two examples, taking the generation as a baseline. Rosa states that changes in the family and work sectors have accelerated, moving from an inter-generational (pre-modernity) rhythm to a generational rhythm (modernity) and finally to an intragenerational rhythm (late modernity). Taking the case of family, in particular, in agricultural societies, families were stable even through generational changes; in classical modernity (from around 1850 to 1970) structures were organized around the couple and disappeared when spouses died. Today, families tend to change several times during the life of an individual due to divorces and new unions. Similarly, Rosa points out that in premodernity, the son inherited his father's work and therefore the same work “lived” for more than one generation. Subsequently, during modernity, individuals were free to choose their work, but they were keeping it through their entire life (so, workplaces were strictly linked to the life of individuals). Today, however, more jobs are changed over the course of a lifetime. Rosa then shows how two important social institutions such as family and work have now become more unstable than in the past and can therefore generate uncertainty.

2. Anxiety in the Risk Society

For less than a century, or even a few decades, things have changed dramatically. We have clearly faced a de-standardization of life-trajectories. Today, the choices we make acquire great importance. For this reason, we run the risk of making

¹See Chapter 4.

mistakes. In addition, not all choices are reversible. Yet, “we have no choice but to choose how to be and how to act” (Giddens, 1994, p. 75). Greater freedom obviously involves more responsibilities.² Alternatively, as Bauman says (1998), a gradual loss of security. As for consequences of one’s decisions, Luhmann (1993) distinguishes between risk and danger. When negative consequences arise because of our decisions, we talk about risk. On the other hand, when negative consequences derive from natural events or from factors that we cannot control, we speak of danger. For instance, if we decide not to continue with studying, it will be our fault when in the end we cannot find any job. Therefore, we run the risk of being unemployed. Our exposure to earthquake is instead a danger because it does not depend on our will or our decision. In some cases, consequences can be both risk and a danger. If our company fires us following a delocalization of production, then getting unemployed is a danger because it does not depend on our will.

In more concise terms, anxiety is the natural outcome of the need to decide. On a social level, the dimension of risk can be described as a contingency and an excess of possibilities (Luhmann, 1993). If the future (partly) depends on our decisions and not on God or fate, then it is normal to be anxious. It could be said that there is a right for anxiety.

However, risk is not only connected to individual decisions, but it has now become a peculiar feature of our society and a widely used category of sociological analysis. The concept of risk has only recently entered the field of sociology, but it has rapidly become a pillar of sociological theory and empirical studies. According to Anthony Giddens, when we stopped worrying so much about what nature could do to us, and we started worrying more about what we have done to nature, we moved from a society dominated by dangers to a society dominated by risks (Giddens, 1990). Risks are a product of human ability and are concerned with catastrophes and harmful phenomena occurring in our natural and social environments. They arise from technological and scientific development and causes unanticipated consequences. Our society is dominated by risk because it is future oriented and therefore decisions taken today will produce effects tomorrow. Yet, only rarely can these effects be anticipated and foreseen; the world of today being too complex and interdependent to be studied with a linear model of forecasting. For example, financial speculation on mortgages in Florida could lead to pension reform in Italy. Moreover, risks are global: a nuclear disaster in Ukraine can cause an increase of cancer in Lithuania. Also, nowadays, (perceived) risks have increased because of the infinite set of scientific tools that we have to analyze reality. In medicine, for example, sophisticated diagnostic tools make it impossible for anyone to be considered completely healthy: we are all “at risk” of something. These different risk phenomena act as an anxiety multiplier: “it is commonly assumed that the more we recognise

²Of course, our discussion is done in general terms. Social and economic factors can severely limit individual choices or even reduce them to zero. In this regard, the concept of structural violence by Paul Farmer (2005) is an enlightening topic.

ourselves as ‘being at risk’, the more vulnerable we become towards anxiety” (Wilkinson, 2001, p. 5).

The relationship between anxiety and medicine has tightened in the second half of the twentieth century. In those years,

the development of “consumer cultures” as diversified life styles through consumption stimulated the scientific interest in how emotions and their handling are understood as part of these cultures and how emotions are turned into products that can be consumed or sold. (Schnabel, Bengs, & Wiklund, 2012, p. 84)

According to Horwitz (2013), the tranquilizing drugs became part of the fabric of the postwar American way of life: “These drugs became an object of consumerism, promoted in the mainstream and tabloid press, mass circulation magazine, and the new medium of television” (pp. 119–120). Anxiety is a vague concept. If we take a semiotic perspective and think of the relationship with one’s own object, where fears “refer to something definite” (Kierkegaard, 1981, p. 42), by contrast anxiety, has “a quality of indefiniteness and lack of object” (Freud, 1979, p. 325). Anxiety is positioned in-between a sense of un-easiness and a mild mental disorder. In fact, it is the privileged ground for mental health medicalization: “The amorphous definitions of anxiety conditions in DSM-I and DSM-II encouraged blurry boundaries between normal and pathological anxiety in epidemiology as well as in clinical practices” (Horwitz, 2013, p. 129). From the following versions of the DSM, pathological anxiety and sadness became a fact of life.³

There is however another ingredient to mention in the description of the “age of anxiety.” We are referring to the somewhat opposite aspect of anxiety, that is, sleep. In the last 50 years, the United States has passed from about eight hours of sleep a night to less than six-and-a-half hours on average (Crary, 2013). According to Crary (2013), capitalism has “attacked” sleep. Neoliberalism cannot bear that we take time off work and cut consumption. The “24/7 society” has promoted a bioderegulation, that is, our body’s obligation to serve market needs (Brennan, 2003). Through a series of micro-observations, Crary (2013) shows how sleeping contrasts with neoliberalism: urban spaces are designed to prevent people from falling asleep, with cities dominated by light and the possibility to consume 24/7. Moreover, taking a semiotic approach to culture, Crary points out that technological devices can be set to “sleep mode.” In this way, devices are never switched on or off; they are set in a low-power mode, which however does not coincide with any refreshing sleep, but rather with a half-awake, half-asleep state. An eternal alert. To this example, we can add – playing with words – the measurement of sleep efficacy that appears in some apps for the quantification of sleep. Efficacy is generally a measure used in the marketing sector or other antagonistic-competitive environments. It is rather symptomatic that efficacy has

³See Chapter 3.

been transposed into the sleeping dimension, considering that the latter should be the antithesis of efficacy itself.

Anxiety also appears to be at the basis of the therapy culture, which characterizes our times, at least in Anglo-American society (Furedi, 2004). In fact, today there is a very marked attention – we would like to say “obsessive” but we would saw off the branch we are sitting on – on our emotional well-being. Every small emotional upheaval is framed as problematic, dangerous, and probably pathological, Furedi says. Any event that can disrupt our self-esteem has to be neutralized. This will obviously occur when the event has been understood, metabolized, and overcome from a Hegelian perspective. Furedi (2006) claims that any problem has its whole army of counsellors, which provide suggestions and therapies: “Psychologists, mentors, life coaches, herbalists, parenting coaches, and a bewildering variety of counselors are more than happy to offer their diagnoses of any illness afflicting the individual” (p. 15).

In this “psyculture,” it is particularly interesting – in our opinion – to analyze some solutions that are generally suggested to cope with anxiety, or more generally to reach an increasing level of emotional well-being. We therefore tried to understand how a large group of university students lived and interpreted a digital meditation experience performed through an app. Meditation is undoubtedly a practice of “functional deceleration” (Rosa, 2010) which helps us to “slow down,” relax and whenever the case, get back to work at full strength. It is therefore “functional” to maintain the pace of social acceleration, as it is only a temporary slowdown.

The work by Barker (2014) has substantially shaped our research tool, in the attempt to verify and deepen some of her results. By doing research through content analysis on some mindfulness texts, Barker has shown how:

mindfulness represents a significant expansion in the definition of disease; it intensifies the need for therapeutic surveillance and intervention; it defines healing as a never-ending process. Paradoxically, to cope with anxiety, mindfulness allegedly opposes the rationalized life, and, yet, it is itself a highly disciplinary practice that can be practiced by apps.

3. The Headspace App and Research-Design

3.1. Research Design

There are many meditation apps on today’s digital market. These apps have various functions, such as mood tracking, and the main app stores (iTunes and Google Play) offer detailed commercial descriptions and user feedback via customer reviews. To test the impact of using a technological device in the practice of meditation – traditionally guided by a teacher during individual or group sessions – research has been conducted on a sample of university students. The 145 students who took part in the project all attend the same prestigious university in New England. Participants were asked to download the free promotional version of one of the most popular digital meditation apps, that is,

Headspace (HS), follow the instructions provided by the virtual coach, and report their impressions of the experience after the cycle.

HS, an app directed at guided meditation, has 10 phases in the first level, each of which provides tips and advices to optimize the experience. HS advertises itself as a “gym membership for the mind” and thus establishes itself as something as beneficial and necessary to use daily. The app suggests completing one 10-minute phase every day consecutively. In the first several levels, the app recommends that the user relocate to a quiet environment, as sounds can be distracting for beginners. The meditation sessions are guided by a male voice that instructs the user to take a few deep breaths, notice any background noise, and become aware of various physical sensations. Attention should be paid to the weight of the body and the body’s contact with the chair. These exercises are very similar to the practice of mindfulness.

As presented on the website,

Headspace is the simple way to reframe stress. Sleep trouble? Meditation creates the ideal conditions for a good night’s rest. Relax with guided meditations and mindfulness techniques that bring calm, wellness and balance to your life in just a few minutes a day.

The company further explains how the consumer is joining over 5 million existing users. The app also provides in real-time the number of people who are meditating (see Fig 1), encouraging users to start meditation and inviting them to unlock higher levels and improve their future meditation performance.



Fig. 1: Headspace Followers.

These users can map their journey, track their progress, get rewards as they go, and connect with friends to motivate themselves and others. HS explains that in meditation, one must find a proper balance between focusing too heavily on thoughts and emotions and not observing them at all.

One of the main characteristics of HS, which contributed to the decision to choose this app over alternatives, is the element of gamification. HS provides rewards if users meditate regularly, principally free-trial access to advanced versions of HS. We can compare the free month subscription after 15 days spent meditating to a sports trophy or a prize in games like bingo: the gamer is constantly incentivized to play again.

Moreover, the gamification of HS differs from its traditional forms (see Chapter 2) by extending the gaming elements to other areas. First, the app’s setup is aesthetically pleasing: it has a simple display with many different colors. In the HS system, a chain of circles represents the days/levels, which move up when you complete the day’s meditation. Second, as a learning tool, HS uses animations to explain certain aspects of meditation and illustrate them in an accessible way. HS presents enjoyable animation clips before meditation sessions almost every other day depicting how easy mindfulness can be with a little practice (see Figs. 2 and 3).

Among the goals pursued by HS, there is not only the possibility of increasing mental well-being, but also of improving individual productivity, as shown in Fig 4.

The app provides a daily reminder to “Get Some Headspace” based on the time that the user personally sets to meditate daily. When logging into the app, you are given the option to synchronize it with your Google calendar, so you can get reminders every day at a time that works for you. These prompts are “motivation messages” that encourage the user to change unhealthy lifestyle habits,



Fig. 2: Features of Gamification (a).



Fig. 3: Features of Gamification (b).



Fig. 4: Productivity.

which, in this case, means increasing mindfulness through meditation. The app provides simple graphics and engaging characters to build an overall user-friendly product. The app compiles data and statistics such as “Average Duration,” “Total Number of Sessions,” and “Total Time Meditating” to further motivate the user. The main self-tracking component of HS is the total amount of minutes spent meditating as well as the consecutive number of days one has meditated. The daily reminders, along with graphs, quantify the user’s meditation activity.

On the HS website, founders of the app declare that when meditation becomes a habitual daily task for all, they will have achieved their purpose. To do so, the application stresses meditation's effect on mental health and the convenience of meditation through your mobile phone. However, it appears that improving global mental health and overall wellness is not the company's only goal – after a 10-day free trial, users are required to purchase a HS subscription to access the entire program.

In the first phase, students who took part in the research downloaded HS. They were then asked to follow the instructions given by the virtual coach, who suggested completing the course in 10 days (10 sessions of 10 minutes each). As stated earlier, the students were granted 30 days of time. After 30 days, students filled out an on-line questionnaire (see Appendix) in which they reported their impressions and their experience using HS. The questionnaire consisted of 30 closed-answer questions and one open-answer question, in which the students could freely express their opinion regarding his/her experience with digital meditation. The questionnaire was created using Google Form and sent to students via email so that students had immediate access to the on-line survey via a link. The analysis was conducted using two different approaches. Statistical analysis was first carried out to verify trends in frequencies and evaluate the main aspects. Second, content analysis was conducted with respect to the open answers provided by the students. Through the support of a Computer Assisted Qualitative Data Analysis Software, Atlas.ti, it was possible to evaluate the collected material using in an organized fashion. The questionnaire can be divided into the following four thematic areas:

1. *Sample composition*: socio-demographic characteristics of the participants.
2. *Experiment description*: referring to the student's impression of the experiment itself (e.g., *Did you complete ten session meditations? If you have completed the meditation cycle in more than 10 days it was because ...*).
3. *Characteristics/previous experiences of students*: familiarity with the practice of mindfulness (yoga and meditation) and with the previous use of the app to practice it (e.g., *Had you ever practiced digital mediation or digital yoga before the meditation app? (two answers allowed); Do you use other fitness apps?*).
4. *Relation between tool and/meditation*: in this case, we focused on the relationship between subjects/user and technological device (smartphone) to understand how digital meditation has influenced the subjects (e.g., *How would you describe your experience with digital meditation? During the experimentation period, have you ever sought out additional news or information regarding meditation or mindfulness?*).

3.2. The Quantitative Analysis

From primary analysis – univariate – some data that underline the adherence to digital meditation by student users emerged. Regarding the general experience, almost all the students (eight out of ten students) completed the meditation cycle of ten sessions (see [Table 1](#)).

For those who were unable to complete the HS trial, most of them said they did not have enough time to spend on the app. The other students claimed to find the activity boring and stopped the experiment. Meditation, for some students, went beyond just daily practice. As can be seen in Table 2, more than half of the students (55.9%) said that they thought of meditation at other times of the day even without being prompted by the app.

In terms of sharing the digital meditation experience, 69% of students say they have talked about it, as shown in Table 3.

Table 1: Did You Complete the Meditation?

1) Did You Complete 10 Session Meditations?	
	Valid Percent
Yes	84.1
No	15.9
Total	100.0

Table 2: During the Experimentation Period.

8) During the Experimentation Period:	
	Valid Percent
I did not think about meditation unless prompted by the HS App	44.1
I thought about meditating at times of the day without prompts from the App	55.9
Total	100.0

Table 3: During the Meditation Program.

12) During the Meditation Program, Have You Recounted Your Experience with Meditation to Another Person?	
	Valid Percent
Yes, I have	69.0
No, I have not	31.0
Total	100.0

They discussed it especially with people not involved in the experiment but still interested in meditation (see [Table 4](#)).

Focusing on the relationship between the student/user and the digital meditation practice, [Table 5](#) shows how 6 out of 10 students said that they felt comfortable using the app as opposed to a more traditional method.

Regarding the practice itself, most of the students (41.4%) declared that they consider meditation as a pleasant habit. In 23.4% of cases, however, the students confirmed the importance of meditation, but underlined how physical activity can replace this practice. The data are not particularly surprising, given that almost the entire sample practices sport regularly – possibly, due to the fact that the university provides numerous fitness facilities free of charge. It should be noted that only in 20% of cases students see meditation as something fashionable or trendy.

The content analysis of the open answer highlighted the salient aspects of what the students experienced during the meditation period.

Table 4: Discussing the Meditation Experience.

13) If You Have Discussed the Meditation Experience with Another Person, Whom Did You Discuss it With?	
	Valid Percent
Another participant in the experiment	35.4
Someone who was not a participant but was nevertheless interested in meditation	52.5
Someone with no interest in meditation	12.1
Total	100.0

Table 5: Preferences of Meditation.

19) With Respect to Meditation?	
	Valid Percent
I would have preferred personal guidance	15.2
I was comfortable with the app	62.1
I would have preferred solitary meditation without the app	22.8
Total	100.0

Table 6: Opinion of Meditation.

20) Would You Say that Nowadays Meditation is:	
	Valid Percent
Kind of a necessary technique to cope with stress	14.5
A pleasant habit	41.4
Important, but can be replaced with sport	23.4
Kind of a trendy fashion	20.7
Total	100.0

4. Why is Meditation Relaxing and Stressful at the Same Time?

After providing the main quantitative data from the survey, we now consider the words used in the answers given by the students to the open question: *How would you comment your experience with digital meditation?*

The answers were subjected to content analysis. Within the social sciences, content analysis refers to a set of procedures of analytical classification for texts and other symbolic elements, which can be used to study communication activities (Losito, 2007; Rositi, 1970). In other words, through content analysis it is possible to synthesize and consolidate the information collected. Along with predictable positive perceptions, an unexpected point of view emerged from the analysis of the answers: in many cases, the students experienced digital meditation as a stressful practice. This ambivalence proved to be particularly present along the following four semantic axes:

- Changes in mood.
- Changes in body perception.
- Productivity.
- Interactions with the app.

For each of the four highlighted areas, we will show how students expressed this relaxing/stressful dichotomy.

4.1. Changes in Mood

After practicing digital meditation, some students highlighted both positive and negative effects on their mood. However, the majority of the students recognized that HS has aided in their daily struggle with anxiety. Concerning the strengths, students emphasized that HS has improved their mood and concentration, as well as given them the ability to get in tune with something as simple as breathing. They seemed to start looking at things more optimistically – as if the glass were “half-full, rather than

half-empty.” Especially, after doing the meditation exercises, they noticed that they felt calmer than they did before the session. Therefore, it can be said that HS makes perceived happiness even better by promoting a calmer state of mind. The sessions focused the user’s attention on body position and breathing, which, as some students pointed out, they are usually never aware of because they are busy doing other things that they consider to be more important. As one student wrote,

This (digital meditation) made me feel better and improved my mood at that moment because when all of my focus was on my body and breathing, it took my attention away from anything external that may have been causing stress.

Students also praised the digital coach who lead the meditation session. The coach’s voice and words are designed to be “soothing and peaceful,” which helps to create a relaxing environment. Thus, the entire meditation experience could be shaped by the calming nature of the narrator’s voice and style of meditation. According to some students, HS has the capacity to replicate the feeling of being in a yoga studio with a real instructor. Further, the ability to relax and meditate in environments other than a studio was found to be liberating and somewhat empowering.

By giving users the ability to de-stress at any point throughout the day, this app enables people to become more mindful of their mental state and provides incentive to care for their bodies and minds. Students said that they felt less stressed during the 10-day meditation period: they felt that HS helped them to get in a better mindset and ultimately improved their overall health.

Having time to unwind is important for people living in an “accelerated society,” such as the students in the sample. The students affirmed that digital meditation has proven to be an interesting solution to this problem. Additionally, HS can be personalized through set meditation times, and its smartphone-based platform is extremely convenient. The app, as highlighted in its description, can send alerts to prompt users. For some students, the ability to calm down and focus on mindfulness helped them with daily activities. Studying at one of the most prestigious American universities can be especially stressful and demanding. Here is one reported experience:

My experience with digital meditation was sort of what I would have expected. I was able to calm myself down and focus more on myself because of the digital meditation experience. Being a college student who has a very busy schedule and a lot of stress, the meditation really helped me settle down and focus on one thing at a time and I was sitting quiet, and feeling no sense of judgment toward anyone, especially myself. Sometimes I feel I am too harsh on myself when it comes to performance in school and in soccer. However, when I was practicing the meditation, I felt like these judgments towards myself were less harsh, if even there at all. After the exercise, I felt re-energized and clear in the head, I definitely felt a difference and I feel it had to do with an increased sense of mindfulness through my being.

Essentially, this student affirmed that digital meditation helped to reduce the anxiety that she has been struggling with in college. Undergraduate students often worry about their state of mind and wonder whether they are truly happy with their current situation and performance. However, the students in this study pointed out that digital meditation eased that tension through guided breathing. They felt much more present and contented afterward. Anxiety can be crippling, resulting in social isolation, individual struggles, and strained relationships. Moreover, anxiety can obfuscate decision making and inspire unnecessary fear.

The weak points of HS mainly concern the fact that digital meditation did not benefit all students. Some reported that digital meditation had a negative impact on their mood, some saw no change, and others did not experience an increase in self-awareness during usage. Perhaps, they approached the exercise with some skepticism toward the potential benefits of meditation. Some participants claimed that they would appreciate further scientific research into the neurobiological mechanisms behind the effects of meditation. This, according to these students, could stimulate participation in meditative exercises. When they felt that HS did not help them to relax immediately, they lost interest.

In some cases, sessions were considered stressful – they intensified anxieties about upcoming due dates. In other words, digital meditation has also been seen as an uncomfortable and an avoidable source of stress. Several students remarked that they were only available to meditate before they went to bed, which was often around 2 a.m. in the morning when they were already tired and irritable. Notably, not everyone benefited from the virtual coach. The app’s narrator prompts the user to acknowledge every part of his/her body, from head to toe. Some participants argued that such thorough acknowledgement placed undue attention on their physical body, causing users to dwell on perceived problems and fostering a negative self-image. Additionally, one student lamented that the soothing words of the app could never replace the effects of a deep conversation, peaceful walk, or meaningful reflection otherwise incorporated into her day.

Enjoyment of meditation is further limited by time constraints. Some students declared that by forcing themselves to meditate for consecutive sessions, they felt more daily stress, fatigue, and disappointment. Although they recognized that these stressors stemmed from their own busy academic workload and schedule, they expected to feel better after the meditation session. In addition, being forced to suppress their thoughts actually caused greater anxiety. Some students even considered meditation as something that can often cause discomfort, especially if it is shared. As a student pointed out,

The problem with a meditation app, aside from the stigma of meditation and therefore maybe not wanting to tell others about one’s participation in it, there are not necessarily changes that can be widely viewed by the public.

Finally, other students did not like the fact that HS made users dependent upon their smartphones for their well-being. Even though they recognize the use of technology in improving health generally, some participants claim that it is

necessary acknowledge the prominent role that environmental factors play in determining health in the wider population.

4.2. Bodily Changes

The second area in which ambivalence toward digital meditation emerged was its effects on users' bodies. Positively, users reported that their bodies felt more relaxed, and that by being encouraged to focus on the small sensations of breathing, they felt more "in tune" with the body's natural mechanisms. They subsequently felt more appreciative of each respiration. According to some students, doing digital meditation exercises has been extremely beneficial, and has helped the body in ways "that drugs do but in a more natural and effective way." Sessions were compared to power naps; moreover, some noted that the best word to describe how they felt after waking up from these naps was "alive." One participant reported her experience with the digital meditation as follows:

Getting up at 6 am in the morning can place anyone in a state of confusion and lack of energy. For myself, when I would listen to the meditation exercises I would feel more present in the moment. I guess before every workout I would get up and make sure I didn't leave the apartment without eating breakfast. Not to say that the breakfast gave me some energy, after completing the meditation session I felt like I instantly had more energy in the morning. The energy level was heightened. I felt capable of doing things that I felt more alive doing during the days I had workouts in the afternoon.

However, some participants pointed out that they were unable to remain focused on the body due to distractions in the environment. Students familiar with practicing mindfulness affirmed that while they were able connect with their bodies during instructor-led meditation, they were distracted by their phones when using HS.

In addition, focusing and listening to one's body can lead to heightened awareness of physical ailments. As claimed by a student,

As a student-athlete my body is prone to aches and pains and the focusing on every aspect of my body cause me to think more about areas of my body that had previously been injured and were healed. 'Did my knee really get better or is my pain tolerance higher? Do my ankles crack too much and what could that mean?'

Greater awareness of one's own weaknesses can therefore generate a new form of anxiety.

4.3. Productivity

Several participants affirmed that HS helped them to concentrate on their current environment and activities, aiding in greater productivity.

Considering that university can be overloaded with stress, pressure, and negative relationships, digital meditation can be seen as a quick-and-easy way to manage daily anxieties. Participating students determined that negative emotions associated with balancing school, work, and extracurricular activities were not “normal,” and that they could become more “healthy” and “calm” through mindfulness. Setting aside a few minutes to focus on mental stimuli and physical perceptions had a grounding effect, especially when students found themselves feeling consumed by pessimism and worry.

In one student’s words,

I tend to place a great amount of pressure on myself in most aspects of my life, as I allow the importance of my academic performance, as well as my physical fitness and health, and ability to succeed in the career path I hope to follow, to carry significant weight in determining my mental and emotional health. Thus, meditation has provided me with the means necessary to center myself and feel at peace when I am most vulnerable to the impacts of stress and consequent anxiety or panic. Not surprisingly, then, I found digital meditation via the app Headspace to be a very valuable experience.

It seems that HS allowed students to take a step back from their hectic daily schedules and find some reprieve in a relaxed stream of consciousness.

Most students reported that digital meditation served as kind of “reset button” for their minds, quickly improving focus and clarity with regard to activities, performance, and relationships. As one student stated:

I liked that it was short because I knew I could do it without it taking up a lot of my time. I felt that meditating early on in the day helped calm me down and center me for my day. I found it very easy to use and very simple.

Although I have not been using the app after the 10 days I have continued to wake up each morning and take deep breaths while looking out my window. This new ritual that I have developed is due to the use of headspace and gets me in the right mind to start every day.

The app’s negative effects on productivity can be summarized as follows: time constraints, undue pressure to perform, and disenchantment. Regarding time constraints, students found it difficult to adjust their schedules to accommodate a 10-minute session. Few participants stated explicitly that spending 10 minutes per day on the app was too much; however, if they had several similar apps requiring an equal amount of time, they would be spending nearly 10% of their day participating in virtual health programs. For some students, trying to find time for the sessions was stressful. On the contrary, one student wrote:

We all concoct an image of how we want our lives to appear, and in a perfect world I would be someone who meditates for an hour each day, and puts self-care before everything else. Alas, that is not easy in the culture we live in.

Anxiety generated by living in a performance-based society is a recurring theme in this study. Time constraints frustrate one's ability to meet the level of expectation. Some students considered digital meditation practiced in solitude to be useless because it was not competitive, and thus did not provide the positive reinforcement that they were accustomed to receiving. Students did not feel the need or desire to share the results of their sessions; indeed, some students felt that their friends would judge them for participating in digital meditation.

Some students struggled to manage their sessions because the regular reminder alerts and scheduling conflicts created a sense of urgency. Students who set up the reminder function received emails from HS indicating how much time they had spent meditating thus far. They felt as though these numbers did not exactly coincide with the app's stated purpose, while HS aimed to promote mind and body relaxation, getting alerts regarding their "progression" made users anxious.

In addition, HS's smartphone-based platform reminded the students of calendars, emails, meeting alerts, and other sources of tension. In this sense, the participating students do not think that smartphone apps are conducive to meditation.

The discourse surrounding the practice of meditation rarely takes into consideration the context of a society concerned with grades, physical beauty, and material gain; a society which ties the value of its members to their productivity.

4.4. Interactions with the App

The fourth and final category of analysis concerns the interactions students had with the app itself, such as the platform's usability and responsiveness to the needs of the students. Content analysis revealed both positive and negative perceptions. Many students found HS convenient and accessible – instead of going to a meditation class, they had all the tools necessary for a relaxing meditation session in the palm of their hand. In other words, "the choice to meditate was always in their pocket."

Regarding the weaknesses, some students lamented that the app fails to recognize structural sources of stress. For example, the virtual trainer continuously advised users to take time to meditate. However, it can be difficult to find time if you are working several jobs, have children, or face other obstacles to self-care. The app focuses only on the act of meditating; it cannot mitigate the exogenous factors that contribute to stress. In essence, HS has users stop everything to focus on their phone screen, which promises to be a "place of calm." The instructional video legitimizes the human experience by recognizing negative thoughts and feelings; if does not, however, acknowledge that there are circumstances out of the user's control.

Other students did not think that smartphone technology was consistent with the practice of meditation. Technology absorbs our attention and distracts us from our immediate surroundings, which stands in direct opposition to the goals of meditation.

Further, difficulties in using the device were highlighted by students with different cultural backgrounds:

Because I have a different non-western cultural background I feel that I had a different reaction to the app. I felt that it was a little intrusive even when reminders to meditate popped up. How I would have chosen to interact with the app is for it to be available for me whenever I feel stressed, so that it was an open option I could use. With time I feel like just as when we want to chat we open chatting apps as our 'go to' whenever one feels stressed it will become natural to reach for the app.

In conclusion, assisted mindfulness can encourage users to be more aware of the present; however, at the same time, it can cause stress related to electronic reliance.

5. Taking Meditation as a (Digital) Therapy

As we mentioned, anxiety, stress, and discomfort are very common feelings in today's society. We go through social changes that can easily displace the subjects: acceleration, de-traditionalization, and loss of cognitive standpoints. Meditation is presented as an answer to possible losses and periods of intense stress. In this section, we present some interpretations regarding students' comments on their digital meditation. Whereas in the previous paragraph we focused on some apparently contradictory aspects of students' answers regarding how they manage their digital meditation, in this section we try to take a closer view and grasp the underlying meanings that students have given to their meditation period. Above all, we tried to understand the way in which students conceive their digital-meditation activity, the underlying meanings attached to that, and therefore the cognitive frames and the ways in which students have "explained" their digital meditation.

Our idea is that in many cases, students have conceived digital meditation as a therapy. In this sense, Barker's analysis is confirmed: meditation presents some strongly medicalized aspects. In our case, however, the medicalization of meditation derives from a more general conceptual medicalization of society (Clarke, 2011; Conrad, 2007), or at least from the spreading of a specific "molecular" type of thought (Rose, 2007) among students, and probably in many social spheres. Clearly, it is not possible to make a precise comparison between an app and volumes about mindfulness, although both are semiotically considered texts (Eco, 1984). However, the medicalizing aspect of digital meditation cannot derive from hypothetical biomedical discourses included in the HS app. Rather, Barker found multiple medicalizing statements in books that talk about mindfulness.

After providing some examples and comments, we will conclude our theoretical proposal on how to interpret digital meditation. Our arguments are built along three semantic areas. In other words, we have grouped students' answers on the meaning of digital meditation into three categories: digital therapy; medicalized perception of the body; and de-stressing function of the app for mental health.

5.1. Digital Therapy

Our proposal to consider digital meditation as a positive form of medicalization is just not the result of complicated reasoning or highly justified and speculative interpretations. Many students have instead explicitly referred to HS as a therapy. Students appear very much in line with what Furedi (2004) describes with respect to the therapeutic culture, and what Rose claims (2007), with respect to the spreading of biomedical representations of the body. Specifically, the following second quote accurately describes the opinion of a student who assumes that meditation is a treatment. The third student too has no doubts about equalizing HS and therapy. As we will see, digital meditation is actually seen as a therapy for stress and anxiety, experienced by many students in an elite college. Some apparently bizarre answers provided in the previous paragraph – for instance, those describing the 10-minute daily activities with HS as a “stressful” commitment – should be framed within students’ busy time-schedules. Many of them live their college years in such a dedicated and serious way, and have such planned and organized days that they find it difficult to get out of their routine. The specific college we are referring to is a very expensive one – tuition fees are over \$60,000 a year – and students (or at least some of them) feel a great deal of responsibility. Therefore, digital meditation is seen as a therapy for an extremely intense life in a demanding environment.

Using the app Headspace for 10 days gave me the opportunity to engage in short periods of meditation. The app was a form of “digital therapy” that trained me to become more in-tune with my body sensations and thoughts.

I don’t view myself as being “sick” so I’m not sure what meditation will cure in my case.

However, this type of therapy is not enjoyable for my type of personality because making plans and being busy energize me.

It is worth noting that the word “busy” appears 30 times in students’ comments, whereas the word “stress” is repeated over 250 times. The three excerpts from students’ comments clearly illustrate the relief that digital meditation can provide to the difficulty of keeping up with several duties. It is clear that this functionalist view of meditation is quite distant from any social representations it evoked a few decades ago. Once, meditation was indeed considered an inner journey, which might even take quite a while. It was a challenging and an alternative-flavored experience that changed individuals by making them explore their deepest dimensions, as is the case of Larry, the main character of *The Razor’s Edge*, a novel by Somerset Maughan. Today, meditation conveys in many instances a McDonaldized use, or a “quick and easy fix to daily anxieties.” Yet, we have been told that meditation is not a simple task in our age, described just like the “age of anxiety.”

As a busy student, I do not very often take advantage of the health benefits available to me on campus, so I feel that the convenience and easy accessibility of digital meditation has helped me by offering a way to gain some of the benefits without having to invest as much time.

College can be a stressful place and digital meditation is an answer quick and easy fix to daily anxieties. It's easy to be overloaded with pressures, stresses, and negative relationships. Constantly being in a state of healing through digital meditation can have a positive correlation to life happiness and balance. To conclude, I look forward to continuing my participation with digital meditation.

Being a college student who has a very busy schedule and a lot of stress, the meditation really helped me settle down and focus on one thing at a time and I think that really helped me in my day-to-day activities.

In addition, we can also note that even in the comments of students there are some aspects related to quantification to improve their health. We can therefore note how an activity that once had a touch of mysticism is now regarded as a function serving a specific goal and carried out with a scientific attitude. Apps are a part and expression of the techno-scientific frame and the dominant neo-positivist discourse that characterizes biomedicine. Apps appear as devices that enable a “data-driven life.” Moreover, the young age of students and their being upper class (20% of students come from 1% of the richest families in America – documented statement) may easily push toward an instrumental approach to health, typical of people with a high Cultural Health Capital (Shim, 2010). Once again, it is worth mentioning that students’ language is quite often characterized by the use of a techno-scientific and managerial Newspeak: the adjective “quantifiable” is indeed the basis for their action strategies – as if they were a company.

I found it interesting that the meditation exercises caused me to think more about quantifiable aspects of bodily health.

It changed my way of thinking as well, making healthy choices a more quantifiable and thus approachable problem to deal with in everyday life.

While the app was presenting the meditation, the app did mention ways to be mindful or our bodies, but beyond this, I did not find ways to improve health. I did not see ways to quantify my health.

In some cases, this change has been remarked:

It is somewhat odd to me to think that technology has become so important to us that we felt the need to integrate it with our health,

as it is almost as if people will only be motivated to actively monitor their health if there is a way to do it technologically.

There are respondents who emphasize the importance of quantification to measure their “progress” in sport and other aspects of their daily lives. It is therefore quite a “scientific” and Tayloristic attitude toward the body, which denotes a strong sense of mastery.

Personally, I use several health tracking apps, and wear the Apple Watch every single day which tracks pretty much everything. My watch tracker is the most important thing I have to track my fitness progress.

The mastery mechanism can be described in a simple and precise way:

Health apps, like the meditation app I used, keep track of and try to help monitor the health of individuals. Doing so gives people confidence to keep maintaining their health and to try to be better.

Digital meditation demonstrates that health is not just a medical matter. As one of the students claimed, people can take care of their health in other places, too. Furthermore, digital meditation can be seen as a way of prevention as well as a real therapy.

As a general concept, the Headspace app demonstrates how the medical sphere is no longer limited to the hospital; there are new ways for people to track and improve their health on their own.

I started to meditate using the HeadSpace app as a part of my therapy (...) meditation was always at the back of my mind as a potential “fix” or at least something to do when symptoms got especially bad.

5.2. Stress

As said above, “stress” is the most common term found in students’ comments when referring to the use of HS. As we have seen from the percentages, most students assessed the experience of digital meditation as largely positive. Yet, we may wish to discriminate between the different reasons for satisfaction. For instance, some students noted that decreasing the level of stress is a pre-requisite for a healthier life.

Headspace was different in that it catered to my needs of achieving mindfulness and put me in a habit of promoting my mental health and mindfulness first through its repetition and reminders at specific times of the days. I was better able to follow through

with my meditation, and as a result, my mental health did improve considerable because of this new technology.

With finals stress mentally looming in the horizon on a daily basis, I sometimes stress while thinking through the various courses on my plate. However, this app allowed me to take a step back from my hectic daily schedule and find some reprieve in consciously feeling my mind and body in a relaxed state of being.

While going through the exercises it was apparent to me that being in the present, enjoying the now, and accepting my own thoughts and feelings are vital in living a healthy stress-free life.

Therefore, people are more likely to make healthier choices for their health.

I enjoyed the experience, and I believe that the app creates an outlet to normalize mental health and encourage self-care behaviors.

I felt very calm and collected during my time meditating toward the end of the 10 day-cycle. I believe it allowed myself to be more responsible for my health.

I believe new apps such as Headspace that promote psychological and emotional well-being through meditation and other relaxing activities are a great addition to our smartphones, because they can help promote more active self-care of our psychological well-being.

The functional aspect of digital meditation – the functional deceleration (Rosa, 2010) – is, however, very well considered:

I tend to place a great amount of pressure on myself in most aspects of my life, as I allow the importance of my academic performance, as well as my physical fitness and health, and ability to succeed in the career path I hope to follow, to carry significant weight in determining my mental and emotional health. Thus, meditation has provided me with the means necessary to center myself and feel at peace when I am most vulnerable to the impacts of stress and consequent anxiety or panic.

As already seen, the importance of technology to relieve stress is widely recognized:

My experience with digital meditation helped me understand the role of technology in my life and how it can positively affect my mental health.

When comparing my experience with meditation with a group of people and an instructor versus meditating in my own space, by myself and with a digital instructor, I actually prefer the digital version.

Decreasing stress levels through the use of this app sets the user up for a healthier life. If we each try to impact the health and thus the life of another, whether by working in the medical field or starting a blog, we can truly change societal flaws in medicine:

the experience was very soothing and a good de-stressor. After a meaningful meditation session, my body would feel relaxed and more receptive to noticing the small nuances around me.

In recent years, meditation has become an important practice in my life as it has allowed me to feel composed and in control during times of stress. I tend to place a great amount of pressure on myself in most aspects of my life, as I allow the importance of my academic performance, as well as my physical fitness and health, and ability to succeed in the career path I hope to follow, to carry significant weight in determining my mental and emotional health. Thus, meditation has provided me with the means necessary to center myself and feel at peace when I am most vulnerable to the impacts of stress and consequent anxiety or panic:

I would say that my experience with digital meditation was an impressive and eye-opening experience. Going into the exercises I was a little skeptical, but I soon found out that it was in my best interest to invest my time into each exercise. Ten minutes out of one's day will never be too much to ask for, especially when it comes to health.

My experience with Headspace was relatively enlightening for several reasons. I was impressed with the ease in which I could begin meditation each morning. Any skepticism that I had about the effects of meditation was quickly vanquished after my third day of usage.

I felt myself, calmer and more positive during the session with the effect lingering at least for a few hours after the 10 minutes.

Though it seems counterintuitive, mindfulness tracking at times can itself become a chore and even a source of stress because I am now suddenly aware of my stress, and on the day that I missed doing the exercise for 10 consecutive days.

My experience with digital meditation helped me understand the role of technology in my life and how it can positively affect my mental health.

5.3. Body Perception

In addition to stress and mood in general, many comments focused on the body. In principle, meditation should make people more aware of their bodies and this was also confirmed by respondents.

I guess the best word to describe how I felt was alive. Meditation did to my mind what going to the gym did to my body; it made it both more flexible and stronger.

It helped me to forget about the constructs and troubles of the world and regain a sense of myself, my body, and peace throughout.

What I thought was interesting about this 10-day period was that I did feel more in tune with myself and my body, and even after a few sessions, I could feel when something was off in my mood or in my physical body.

Clearly, whether the app is effective or not goes beyond the scope of sociological studies. However, the following excerpts show how body awareness is read through a “clinical gaze,” as Foucault would say (1963). More recently, the Foucauldian scholar Nikolas Rose (1990) used the expression “neurochemical self.” With this expression, Rose refers to the growing biologization of mental illness, and therefore, as a consequence, to the idea that our state of mind is an effect of chemical transformations occurring in our brain. Therefore, to modify our self, we have to re-establish the biochemical balance through pharmacological therapies. Or, as one may believe by reading some comments, we can turn to a “quick fix,” represented by HS.

My body felt more relaxed, but rather than consider the change from an emotional perspective I used my knowledge of neuroscience to consider which neurotransmitters might be causing this mood shift.

By focusing on the present and paying attention to the body, we will not miss important messages our body is trying to send us. Also, if we get carried away by our negative emotions and stress, our bodies become open to illness, as this “dis-attention” will cause biochemical alternations and interfere with our bodies natural healing ability. (...) mindfulness can truly benefit us, as it pushes us to pay attention to everything related to our body, so we will not miss anything.

I can understand how someone might feel better in the mind and may have lower blood pressure from a few minutes of meditation a day, however, I didn't feel as though my potential for healing increased.

Similarly, another student wrote,

Doing these meditation exercises have been extremely beneficial and has helped my body in ways that drugs do but in a more natural and effective way.

The analogy with pharmacological therapy is explicit, as is the idea of a neurochemical “body.”

By just being mindful of my body and its surroundings for 10 minutes a day, I could notice when little things were wrong, like a headache or a knot in my back that I would’ve just brushed off if I hadn’t taken the time. I think this experience was important in showing me the value of slowing down for a few minutes a day just to monitor yourself.

Daily meditation does result in barely statistically significant declines in blood pressure, suggesting a link between meditation and decreased stress.

From these numerous quotes regarding body, it is clear how digital meditation increases the awareness of those who use HS toward their body and their own self. As we have stated several times, the frame through which these students described their experience is often of a techno-scientific nature. Students appreciate the possibilities of HS quantification and find it extremely useful and functional to cope with stress in a competitive environment, as is a prestigious college. An exception to this mainstream idea is offered by two students, but it seems interesting to conclude with their comments:

I think the reward system in the app made me think less about what meditation was doing for my health, and more about how I could win rewards in the game, which was somewhat detrimental to how I was conceptualizing health.

Meditation in this instance has become a highly disciplinary process, which ironically goes against the aims of mindfulness.

6. Take Home Message-6

“Anxiety” and “stress” have become buzzwords, widely used both in common language and in media discourse. These terms are not only used to describe people’s feelings, but also to characterize situations; for example, one can say that the current political scene is experiencing a period of anxiety. From a sociological perspective, it can be said that anxiety arises during situations in which a person is forced to make risky decisions without a solid reference point. According to

Lyotard (1984), the postmodern condition is characterized by the loss of certainties that were originally provided by “meta-narratives” such as religion and Marxism. Since the mid-nineteenth century, sociologists like Tonnies and Durkheim have shown how and why societies have become increasingly fragmented and heterogeneous. Furthermore, since the industrial revolution mismatches between social change and social representation have produced anomie as people try to make sense of the new social context in which they live. According to (Giddens, 1991), social actors in the nineteenth century were asked to be more “reflective,” that is, to continually self-monitor to avoid making regrettable decisions. Further, the de-standardization of life trajectories makes people feel more free, but requires more choices, and thus reduces one’s sense of certainty. According to Rosa (2010), anxiety has intensified due to societal acceleration. Enormous technological advancements over the last 30 years mean that we are now expected to do more things in a shorter period: the pace of life has sped up. It is understandable, then, that we sleep less than ever before – but sleep loss is not just an effect of stress. According to Crary (2013), capitalism produces consumers who are willing and able to buy “24/7.” Consequently, consumption has no temporal boundaries. Therefore, the proliferation of apps to cope with anxiety is unsurprising.

Our research sampled a large group of students from a prestigious university in the northeastern United States. The students were asked to download HS, one of the most popular smartphone apps for meditation. The app’s free trial includes 10 meditation sessions of 10 minutes each, guided by a virtual coach. After the meditation sessions, students were asked to report their experience by filling out a survey.

We believe that some results are worthy of attention:

- Many students used biomedical jargon to describe the effects of meditation. Someone referred to meditation as “digital therapy”.
- Some students stated explicitly that spending 10 minutes per day on the app was unreasonable because of time constraints.
- Some students struggled to manage their sessions due to the sense of urgency and anxiety caused by scheduling conflicts and the app’s regular reminders.
- Someone claimed that the meditation experience itself was “boring”.
- Some affirmed that their perception of their own body had changed, and that they were more focused on quantifiable aspects of bodily health.

In general, students found meditation as a very useful “therapy,” like a quick fix for the many stresses of college. Hence, we find that the app constituted a “positive” medicalization.

This page intentionally left blank

Chapter 7

Exercise is (also) Medicine

Abstract

In our society, there are some trends that are not exciting. We are living increasingly in an aging society and we are becoming fatter (globesity). Moreover, we are facing an alarming decline in physical activity (PA) worldwide. In this context, chronic diseases are booming and health expenditures are skyrocketing. Stimulating PA is likely the best way to reduce the burden of disease and increase the social, psychological, and economic well-being of a community. In this chapter, two projects aimed at increasing PA among individuals are presented. The key point of the two projects is that they medicalize PA. The first project was carried out in Italy. A series of doctors started to “prescribe” PA as if it were a medicine. Therefore, PA is presented as a real cure to treat diseases and pathologies. The other project was supported by a private enterprise. The “concept” of the project is summarized as follows: “The quantity and quality of the physical activity carried out by the patient should be considered by the general practitioner as a clinical parameter as well as other parameters, such as blood pressure, weight, and glucose level.” It is possible that the success of these two initiatives stems from the fact that the biomedical complex has a strong influence on the part of the population. It is very effective to use a reliable source to spread a health promotion message. It becomes a medicalization without pathologization and a form of medicalization without pharmacologicalization. In Conrad’s (2007) words, it becomes a conceptual medicalization.

Keywords: Clinical medicalization; conceptual medicalization; fitness; obesity; physical activity; positive medicalization

1. Chronic Conditions, Ageing, and the Cost of Physical Inactivity

The last 150 years of Western society have been characterized by vast changes in the health sphere. The increase in life expectancy is certainly one of humanity’s most important achievements; in some countries, it has doubled over the course of a century. Advances in medicine and improved living conditions have helped to eradicate many infectious diseases that were, until the nineteenth century, the

leading cause of death in most countries. Today, the epidemiological environment is dominated by chronic-degenerative diseases largely caused by certain lifestyle choices. This scenario is slowly but steadily triggering a paradigm shift in biomedicine, that is, from cure to prevention. Indeed, healthcare costs have exploded over the last few decades: today's patients require decades of continuous treatment, and medical technology costs are prohibitively high. The increase in life expectancy is certainly a social achievement. Once, due to viruses, wars, and poverty, people died before they had the opportunity to age. Industrialization and the advent of the welfare state have brought heated houses, clean water, better working conditions, easy access to food, and medical advances – the most important factors for increased life expectancy. Over the past 160 years, the growth in life expectancy has been linear in countries with higher general well-being. For example, in 1850, a Swedish woman could expect to live an average of 45 years, whereas, today she can reach nearly 85 – an increase of three months per year (Oeppen & Vaupel, 2002). This trend is widespread across the globe. In the last 30 years, the number of people in the world over 60 years has doubled and it is estimated that it will more than double again by 2050, the year in which – for the first time in history – the number of over-60s will exceed the number of people aged between 0 and 14 years old. In fact, the future likely holds completely new social scenarios for humanity. In some countries, half of the population is composed of elderly people. For example, Japan in 2050 will have 44% over 60; one-third of these will be over 80. Germany and Italy will approach a similar demographic composition.

The increase in life expectancy is both a cause and an effect of the epidemiological transition. In the second half of the seventeenth century in London, only 6% of deaths were caused by cardiovascular disease and cancer; whereas about 75% of deaths were caused by infectious diseases, malnutrition, and complications during childbirth (Omran, 2005). Using the term epidemiological transition, demographers refer to the shift from acute diseases (especially infectious diseases) to chronic diseases as the main causes of death of a given population. In Western society, this transition took place in the twentieth century. Omran describes chronic diseases as “man-made diseases.” It is therefore clear that a person's lifestyle has become decisive for his/her health since around 1900. Whereas previously people were mostly victims of adverse and inevitable events – famines, viruses, and wars – today, to some extent, we pose the greatest threat to our own health. However, the concept of personal responsibility in the field of health can be fraught, as health choices do not depend completely on individuals, but on the social context in which they exist. Non-communicable diseases can be effectively hindered by acting on risk factors: smoking, low physical activity (PA), poor diet, and excessive consumption of alcohol. Unfortunately, risk-factor indicators are not decreasing. People today are more sedentary than ever before. It is therefore not surprising that physical inactivity is directly responsible for an annual death toll (5.3 million people) that is higher than the number of deaths caused by smoking (5.1 million people).

Significant human, financial, and technological resources are required for healthcare systems to function. Families are often expected to provide care for

their disabled relatives who may remain in a state of dependence for many years. This burden can cause emotional stress and physical fatigue, as well as depression and burn out on the part of primary caregivers. Furthermore, caregiving responsibilities can reduce one's capacity for paid work and therefore cause financial hardship for the family unit.

1.1. The Inevitable Growth of Healthcare Costs

It is likely that the next few years will see a progressive increase in global average life expectancy, above all due to developing countries catching up with countries where life expectancy is already high. Alongside the payment of pensions – considered one of the greatest financial challenges to the sustainability of the welfare state – are concerns about growing healthcare costs. Healthcare costs are polarized between the young and the old: costs for the treatment of diseases typical of the elderly have grown much faster than healthcare costs for young people in recent decades. As a result, the care for an 80-year old is much more expensive today than the care of the same person in the same condition in 1980, even when controlled for inflation.

Growing health care costs are due in large part to the impact of health technologies. Medical technology can reduce the unit cost of care by making treatment more efficient, but this often increases expenditure. Moreover, although such an outlook may appear cynical, technology can improve the chance of survival for people with very poor health conditions, further accumulating treatment costs over a longer lifetime. Obesity is a risk factor for many serious and expensive diseases, and therefore constitutes a major threat to rising life expectancy. One of the fundamental causes of obesity is physical inactivity. Humanity has never moved so little as it does today: sedentary work and modern transportation mean that most of our life is spent sitting, causing various health problems. As we will see, a small stimulus to PA would have enormous positive consequences for the state of our psychophysical health conditions. Obesity, which is a preventable condition, is responsible for 5% of deaths worldwide. If its prevalence continues to increase at the current rate, almost half of the adult population will be obese or overweight by 2030. Three of the first four global social burdens are health-related: smoking, obesity, and alcoholism. These lifestyles can be modified, albeit to varying degrees, with PA. The World Health Organization (WHO) provides the following worrying data on the issue of obesity:

1. obesity doubled from 1980 to 2008 worldwide;
2. 35% of adults over the age of 20 were overweight in 2008, and 11% were obese;
3. 65% of the world's population lives in countries where obesity and overweight are responsible for the death of more people than malnutrition; and
4. over 40 million children under age five years were overweight or obese in 2012.

Approximately 27.2% of the US population was obese in 2012; in 2008, the rate of obesity was 25.5%.

The most significant growth took place in the over-65 age bracket. There are many interdependent causes of obesity (Batnitzky, 2008). The famous expression “obesity epidemic” is, in fact, not accurate, despite strong media usage. “Globesity,” or the growing global existence of obesity, is more accurately considered “endemic,” because the spread of obesity is multicentric and does not originate from a single contagious outbreak. There are the following four main theories that attempt to explain the origins of globesity:

1. the prospect of changing lifestyles;
2. the biological-evolutionary perspective;
3. the political economy of food products; and
4. the theory of social inequality.

As mentioned, these approaches are intended as analytical perspectives. These are not mutually exclusive theories; they can be interdependent.

The perspective of changing lifestyles. This approach focuses on PA due to changes in the spheres of work and technological development. Thanks to the industrial revolution, our PA has directly (e.g., transport) or indirectly (e.g., television) decreased; hence, the increase in obesity and overweight. Switching from outdoor work and manual labor to office jobs behind desks may have reduced instances of colds and flu, but has also led to weight gain, high cholesterol, and high blood pressure (Sullivan, 2010). Obviously, nutrition – which constitutes a large part of one’s lifestyle – plays a very important role in determining one’s weight.

The biological-evolutionary perspective. For millennia, natural selection has rewarded individuals who could store the most calories to survive periods of famine. Evolution favors the retention of fat, but our bodies have not yet adapted to the new environmental conditions of a sedentary lifestyle. This mismatch between individual biological nature and the social environment favors obesity and overweight. Furthermore, the so-called “saver gene” leads us to eat more than is necessary – in the past, this surplus would have served us in times of need, but today it likely does more harm than good (Speakman, 2013).

The political economy of food products. This perspective concentrates on the analysis of commodity quality of common food items (Moss, 2013). High fat and sugar content results in a dizzying increase in daily calories. Mass-market and highly processed food, known as junk food, is often the cheapest and most convenient source of calories available (Nestle, 2002). Some manufacturers even use ingredients that stimulate abnormally high consumption.

The theory of social inequality. According to this theory, social inequality is a major generator of obesity (Chang & Christakis, 2002; McLaren, 2007). Socio-economic causes of obesity are complex and layered (Cardano, 2008). First, it should be noted that unhealthy, fattening foods are often cheaper and more accessible than healthier, more nutritious ones. Especially in the United States, there are neighborhoods in which it is not physically possible to buy fresh fruits, vegetables, or lean meat. Moving out of a “food desert” requires time and money – those at the lower end of the socioeconomic spectrum may be unable to access

proper nutrition due to structural barriers (Gottfredson, 2004). Moreover, it has been shown that binge-eating can be a way to achieve immediate gratification among those who have few means to find other forms of pleasure. In this case, healthy foods are not what is consumed generally.

1.2. Overall Decrease in PA

Recent research has highlighted an alarming decline in PA worldwide (Hallal et al., 2012). The increase in physical inactivity is concentrated in high-income countries; however, it is also expanding in developing countries. In just 44 years, or about 1.5 generations, PA in the United States has decreased by 32%, with an expected decline of 46% by 2030. At the same time, Great Britain has recorded a 20% drop over the last 44 years, which will reach 35% by 2030. According to the WHO, 31.1% of adults worldwide are physically inactive. When the data are disaggregated by region, stark differences appear: in Africa, 25.7% of adults are inactive; in America, it is 43.3%; in the eastern Mediterranean, 43.2%; in Europe, 34.8%; in Southeast Asia, 17.0%; and 33.7% of adults are inactive in the Western Pacific. Disaggregated by gender, it appears that women are more inactive than men are across the globe: 33.9% and 27.9%, respectively. Physical inactivity has heavy effects on the economy: taking into account only four countries (China, India, Great Britain, and the United States), the costs of physical inactivity were over US \$200 billion in 2008.

Taking a sociological perspective on the human life cycle uncovers another reason to worry. According to this view, childhood and early adolescence strongly influence the individual's future development. Today, children are much less active than in the past. Recent research has found that PA among American children aged 9–15 years reduced by 75% since the 1970s (Wen & Wu, 2012). The reduction among European teenagers is 50%. The consequences are not only physical, but also cognitive and social, and can trigger a vicious cycle. A decrease in PA among children and young people therefore has negative effects on their entire life cycle. Compared to children who regularly engage in PA, those who are physically inactive have a high probability of obesity, miss more days of school, perform worse academically, are more likely to have a low-income job, and are more likely to develop poor health. It is important to emphasize that these scenarios represent probabilities and general tendencies, not certainties.

In addition to the individual life cycle, physical inactivity is also transmitted across generations: the children of physically inactive parents are 50% less likely to be physically active than other children. It has been found that American teenagers dedicate half their time to PA, whereas, among Chinese children, this proportion is found among adolescents and their parents. A 2013 study conducted within the Eurobarometer on EU-28 countries demonstrates that socioeconomic status (measured by income and education level) correlates directly with the frequency of PA (European Commission, 2014). The percentage of people who perform PA at least once a week reaches 58% among managers, 44% among employees, and 45% among self-employed workers. This percentage drops to 39% among artisans and 37% for the unemployed. The results are similar based on

the level of educational qualifications: 68% of those who left school at age 15 do not exercise or do sports; this percentage drops to 27% among those who have continued their studies beyond age 20. People with economic problems are more likely not to perform PA than those who are better off: 56% of those who find it hard to pay their utility bills do not carry out any sporting activity, whereas, this percentage drops to 36% among those who instead can easily pay. Based on these data, it is easy to see that the benefits of regular physical activity are reaped to a greater extent by the more prosperous members of society, while the negative health consequences of inactivity are concentrated among the lower social strata. Social interventions that aim to encourage participation in physical activities or regular physical exercise could therefore help reduce health inequalities. Many health education activities have been implemented to counter physical inactivity; however, as written in the Editorial of a special issue of *The Lancet* dedicated to PA, health-promotion campaigns have had little success:

The traditional public health-based approach on the evidence and exhortations it was for the moment unsuccessful, at least at certain levels. With a few exceptions, health professionals have not been able to mobilize institutions and the population for the purpose of taking physical inactivity as a public health problem. (Das & Horton, 2012, p. 189)

In summary, worldwide PA is a neglected aspect of prevention. In the following pages, we will present some ideas and best practices related to combating physical inactivity.

2. Prescribing Pills of Exercise

In 2007, the American College of Sports Medicine (ACSM) and the American Medical Association (AMA) co-launched Exercise is Medicine (EIM) – a US-based health initiative that has since been coordinated by ACSM. As reported in the official website:

The purpose of EIM is to make physical activity assessment and promotion a standard in clinical care, connecting health care with evidence-based physical activity resources for people everywhere of all abilities. The scientifically proven benefits of physical activity remain indisputable, and they can be as powerful as any pharmaceutical in preventing and treating a range of chronic diseases and medical conditions.¹

Research conducted by Lobelo et al. (2014) reported the evolution of EIM during its first years. The authors analyzed the initiative's components and future

¹Retrieved from https://www.exercisemedicine.org/support_page.php/about/ (para. 1)

plans. They divided the EIM into two main phases, where “the initial phase of the EIM Global Health Initiative (2010–2013) focused on raising awareness for the importance of integrated PA (physical activity) promotion in healthcare” (Lobelo et al., 2014, p. 2) and the second one was oriented toward the implementation of the EIM solution. The authors divided this last phase into three modules which together aimed at “integrating clinical and community resources for PA promotion, via the use of health technology and decision support systems” (Lobelo et al., 2014, p. 2). The first step concerns physical activity assessment, the second involves the physical activity prescription/behavioral counseling, and the third and final step orients patients to engage in self-management or EIM-certified programs and professionals.

Since its activation, the EIM initiative has expanded its borders to embrace numerous countries in both North and South America. Additionally, the European Initiative for Exercise in Medicine (EIEIM) was created at the 2015 ACSM meeting held in San Diego. The association has the same purposes of the American one and, as stated on its official web site, EIEIM will be a sustainable European initiative that²:

- includes physical exercise in treatment plans;
- includes exercise in primary and secondary prevention of diseases;
- includes physical exercise in teaching goals and plans for medical students;
- creates broad awareness that exercise is indeed medicine;
- makes “level of physical activity” a standard vital sign question in each patient visit;
- helps physicians and other health care providers to become consistently effective in counseling and referring patients with regard to their physical activity needs;
- leads to policy changes in public and private sectors that support physical activity counseling and referrals in clinical settings;
- produces an expectation among the public and patients that their health care providers should and will ask about and prescribe exercise; and
- encourages physicians and other health care providers to be physically active themselves to act as an example.

Through these initiatives, EIM aims to stimulate physical activity through the guidance of doctors and physicians. Put simply, the doctor will prescribe exercise exactly as if it were a medication, with precise doses and times. To understand how physical activity can be prescribed and/or advised by experts, we present in the sections 2.1 and 2.2 two examples: the first concerns physical activity, understood as a sort of therapy that must be followed as if were a medical recipe; the second concerns a digital-solidarity initiative that seeks to promote physical activity even among those who do not have sufficient means.

²Retrieved from http://exerciseismedicine.eu/?page_id=14784

2.1. Physical Activity as a Therapy: The Case of Emilia–Romagna

The Italian Region of Emilia–Romagna has implemented several projects since 2010 aimed at promoting physical activity to better manage of patient/citizen health. The first project that we will discuss, entitled “The prescription of physical exercise and physical activity as a tool for prevention and treatment,” started in February 2011.

The project combined two distinct paths that, despite sharing the same basic aims and organizational model, had unique characteristics: adapted physical activity (APA) and adapted physical exercise (APE).

The APA course concerned non-medical, group-based exercise programs specifically designed for subjects with chronic illnesses, and was oriented toward lifestyle modification. The program was prescribed by doctors and required periodic health assessments, which took place twice a week in a non-healthcare setting and in groups selected based on specific pathologies.

The second program, APE, concerned individual physical exercise as prescribed by a medical doctor. The manner, intensity, frequency, and duration of the sessions were determined based on a preliminary assessment of the patient’s health condition.

After a year of activity, improvements in functional and clinical parameters were recorded in all patients involved. Notably, patients showed increased cardiovascular efficiency (assessed with walking speed and muscle strength), weight loss, decreased abdominal circumference, and decreased systolic and diastolic blood pressure.

Alongside the project described, networks are being formed between Local Health Authorities (LHA) and public and private gyms in the Emilia–Romagna regional territory in order to certify and recognize these gyms at the institutional level. In short, the LHA aims to make physical activity more accessible by transforming gyms into places where people can do physical exercise in a safe, medically controlled environment. In these gyms, people with chronic, skeletal, or neuromuscular diseases, or who are otherwise subjected to specific clinical protocols, can practice activities prescribed by their doctor. In order to be accredited as a “health” gym, each gym must submit an application to the LHA for evaluation.³

The last example we will discuss is “MuoviBo” (Move Bologna), which was promoted by the Municipality of Bologna in 2016. This project was created to promote physical activity outside of designated structures, making the historic center a sort of open-air gym. Groups of people, or walking groups, decide to meet up and exercise together through the MuoviBo app. Through this initiative, people can share the “effort” of being active, making it a more enjoyable, social experience. The platform is simple. First, users choose their preferred walking time and starting point, and then indicate their walking speed: 4.5, 5.0, or 6.0 km/h. Finally, they are ready to start. The general itinerary passes by the main

³Retrieved from <http://salute.regione.emilia-romagna.it/sanita-pubblica/palestre-che-promuovono-salute>

landmarks and points of interest in the historic center. The walking group can be homogeneous if all of the subjects indicate that they will walk at the same speed and follow the same itinerary. The app's "blister" function is an example of medicalization of the app's design and functionality.

As we see in the "Info" portion of the screenshot, every 10 minutes of physical activity corresponds to one digital "pill." Once a blister is ticked, the user understands that they have consumed one "dose" of physical activity. Users can therefore quantify the amount of physical activity they have completed in a period of time by counting the number of digital pills they have consumed. Charts can further demonstrate progress over time and help users to see how they have been positively medicalized.

2.2. Digital Solidarity: The Initiative "Let's Move for a Better World"

Like most other sectors, wellness has been affected by profound transformations introduced by digital technology. The Italian company Technogym, considered a world leader in the field of fitness, introduced their first physical training software in 1996. The software sparked a series of technological innovations linked to wellness which led, in 2012, to the creation of the first cloud platform to connect people, equipment, and various clubs in the fitness sector: MyWellness.⁴ While running on the treadmill, the MyWellness user can connect to personalized programming determined by his/her specific training needs. In addition, with this connection mode, the user can view certain parameters related to his/her health status, such as body mass index, and can receive advice from a personal trainer via virtual chat. Essentially, users connected to this platform can train at any Technogym-equipped facility as if it were their regular fitness center. To further stimulate the user, this comprehensive wellness system incorporates gamification logic through simulated competitions and challenges against virtual athletes. In fact, through the MyWellness platform it is possible for the network of users to share and compare their data related to the physical activity they have performed. Through the site, all Technogym tool users can connect and even challenge each other. Wellness digitalization further deepened with the introduction of the Technogym app. In addition to integrating with smartphone apps like Apple Health and MapMyFitness and wearable devices such as Fitbit and Garmin watches, the app provides a new unit of measure expressly invented by the employees of Technogym: the Movergy Index. The Movergy Index combines movement and energy and shows users their activity level at any moment of the day. According to Technogym, pursuing a high Movergy Index is the ideal way for users to maintain a healthy lifestyle.

If users do not have the ability or desire to exercise in a gym, the Technogym app includes an "Outdoor" function to track open-air races, bike rides, and even walks. This function seems to be in line with the promotional message of

⁴Technogym's breakthrough in the world of fitness is well documented in an article published in the magazine *Wired* (March 12, 2018).

“wellness on the go,” thanks to the possibility of accessing one’s personal profile at any given place and time.

In recent years, solidarity initiatives have been created to promote healthy lifestyles (including through physical activity) among socioeconomically disadvantaged populations. Among the various projects is the Let’s Move for a Better World Campaign (Let’s Move). The project, launched in 2014 by the Technogym company, starts from the observation that while walking and moving is part of human nature, technology, and automation have made the world more sedentary. As a result, chronic diseases related to physical inactivity (obesity, hypertension, heart disease, etc.) have become a global problem from a social and economic point of view. At the heart of the program are physical training sessions that take place at fitness centers around the world to encourage more people to get active. The initiative is very simple: by training in one of the fitness centers participating in the campaign (called Wellness Ambassadors) users can earn MOVEs (the unit of measurement for movement). MOVEs are accumulated by doing the most diverse physical activities: running, climbing stairs, shopping, or simply walking the dog. As a result, MOVEs are collected both in the gym and outdoors. Unlike calories, MOVEs are independent of body weight. Let’s Move is also gamified: the fitness centers which collect the most MOVEs are given the opportunity to choose a school or a non-profit association to receive a donation of the most advanced Technogym equipment. In addition to improving their own fitness, participants can help their community to become more active; hence, the term digital solidarity. According to the official website, the campaign immediately attracted international media attention. Such positive press led Technogym to promote three special editions of Let’s Move. The first special edition was presented at the 2015 Italian Expo. In this case, Technogym directed its campaign toward the event theme of food and its global representation, modifying its slogan to Let’s Move & Donate Food in support of the United Nations World Food Program. Visitors were encouraged to donate their MOVEs earned through physical activity – every 1,000 MOVEs corresponded to a meal given to children suffering from malnutrition. The second and third editions were held in 2016: at the World Economic Forum (WEF) (held in Davos) and at the Rio Olympics. WEF participants were invited to download the Technogym app to track their daily movement, and the collected MOVEs again translated into meals donated to children in countries affected by malnutrition. During the Rio Olympics, the Technogym company promoted the Let’s Move for Rio project. In practice, athletes and wellness enthusiasts were able to measure their physical exercise through the MyWellness cloud during training and competition. Sportsmen and Olympians, so-called “Wellness Enthusiasts,” and gym-goers from all over the world were encouraged to promote sport and physical activity as a social opportunity. The collected MOVEs were converted into Technogym equipment, later donated to 22 public gyms in some of Rio’s most disadvantaged communities.

Unfortunately, valuable prizes such as equipment and food can incentivize cheating. To quash dishonest strategies that have disqualified some participating centers in the past, Technogym has established that each user can collect a maximum number of 2,000 MOVEs per day of the competition.

Given the success of previous editions, Technogym has continued its proposal in both 2017 and 2018, thus creating a world wellness ecosystem based on the spread of physical activity to combat the consequences of sedentary lifestyles. In addition to the important social aspect, “Let’s Move for a Better World” represents for the company and the participating gyms a very effective tool for increasing business. The campaign has proven to attract new members thanks to its web- and social media-based communication strategy and the “viral” effect of members sharing their training experiences online. The campaign enhances team spirit by emphasizing the community surrounding each club and encouraging the achievement of a common goal. As such, Let’s Move for a Better World can be considered an opportunity to increase customer loyalty, motivation, and attendance, thanks to the engaging nature of the initiative. The Let’s Move campaign summarizes Technogym’s mission: to spread wellness on a global scale. The company believes that educating younger generations is an indispensable starting point to achieve this goal, creating a more sustainable society that has among its founding values the respect for health.

However, it is known that the users of these devices constitute only a small part of the population, and that physical activity is often connected to social determinants like income or place of residence. This explains why health inequalities are linked to social determinants like education, housing, and lifestyle. Moreover, health inequalities strengthened by such factors are reinforced by unhealthy behaviors (WHO, 2014). Not everyone has the capacity to counteract a sedentary lifestyle by simply downloading an app.

3. Fostering Positive Digital Medicalization

As already mentioned in Section 1, healthcare expenditures will probably increase substantially over the next few decades. An aging population, the growing burden of chronic diseases, the rising costs of health technologies, and the expanding demand of healthcare consumers will have a significant impact on health costs. Most states, indeed, can hardly cover the cost of the health services necessary to properly treat the population. Even private health insurers will be unable to offer adequate coverage to their policyholders, unless the policies reach staggering costs themselves. It is a common opinion that it is possible to make the management of health systems more efficient and cost effective. For example, as Topol (2016) writes, the new frontier of “digital health” may allow the reduction of some costs.

The dynamics of health systems are complex, and are characterized by internal “countervailing powers” (Light, 2010). However, a substantial downsizing of health spending could be brought about by the creation of a healthier society. Stimulating greater physical activity is certainly a way to reduce the burden of disease. Additionally, physical activity might increase the social, psychological, and economic well-being of a community. As stated in the 2008 European Union Physical Activity Guidelines, a moderate level of exercise could reduce the risk of heart attack by 27%, the risk of developing diabetes by 33%, and the risk of coronary heart disease by 35%. Some evidence shows that for every euro spent

to promote physical activity, there is an impressive return of 13.1 euros due to reduced medical expenses and fewer sick days spent away from work.

There is therefore strong economic incentive for states and their citizens to promote fitness activities. In order to be sustainable, welfare states must actively stimulate wellness practices. As we have already seen, the project developed in Emilia–Romagna Region – in which physical activity is presented as a tangible strategy to cure diseases before they develop – seems very promising.

We have also discussed the active role that Technogym has played in concretely promoting the analogy between physical activity and medication. The company is a global partner of the “Exercise is Medicine” program described in this chapter, a project promoted by the ACSM and the AMA, the two most important American associations in the field of exercise and health. The concept of the project can be summarized as follows: “the quantity and quality of the physical activity performed by the patient should be considered by the general doctor as a clinical parameter like any other, such as blood pressure.”⁵

These two examples can be considered cases of positive medicalization. In general, medicalization is the process by which aspects of life once considered normal are now considered pathological (Conrad, 2007). Examples of medicalization are found in many spheres, such as mental health, pregnancy, sexuality, and cosmetic surgery.⁶ As we saw in Chapter 3, the term generally has a negative connotation: in many cases, medicalization pathologizes the unpleasant side of normal situations – for example, shyness (Lane, 2007) – to make them the object of care and to increase the sale of medication.

We can say that there is little doubt that, in many cases, medicalization is actually a negative phenomenon. Medicalization can cause damage to people’s health and the budget of a state. However, medicalization by itself should be considered a neutral concept: “While medicalization describes a social process, like globalization or secularization, it does not imply that a change is good or bad” (Conrad, Mackie, & Mehrotra, 2010, p. 1943). Additionally, Conrad (2007) distinguishes between *over-medicalization*, which is bad, and *medicalization*, which apparently is not: “While ‘medicalize’ literally means ‘to make medical,’ and the analytical emphasis has been on over-medicalization and its consequences, assumptions of over-medicalization are not a given in the perspective” (p. 5). On this basis, we agree with Parens’s (2013) proposal to “get over the traditional assumption that medicalization is bad per se, and try to articulate the difference between good and bad forms of it” (p. 29).

In the case of fitness, medicalization appears to be a positive phenomenon: it can be considered as a means to prevent diseases in their early stages. It also allows people to remain healthy and productive, reduces the consumption of medicines and medical services, decreases public and private health expenditure, and allows individuals to live more years independently from medical treatments. Furthermore, this kind of “cure” tries to promote healthy habits and lifestyles.

⁵Retrieved from Technogym website: <http://www.technogym.com/it/azienda/news-ed-eventi/news/azienda/il-congresso-nazionale-d/25223>.

⁶See Chapter 3.

The type of medicalization associated with physical activity as early care does not fit neatly within Conrad's (2007) definition. In fact, the prescription of physical activity can be seen as a cure only because it happens following a doctor's written prescription, but in reality, it is first, a form of prevention and human improvement (Maturò, 2012). However, it must be included in the sphere of medicalization because of the biomedical language used in practice.

Our proposal starts from simple and factual reasoning. The biomedical complex is highly trusted by the population. Moreover, it is a system made up of experts and is a trusted diffuser of information (Giddens, 1994; Sztompka, 2000), so it makes sense to use the biomedical complex as a reliable source of health promotion messaging. Health promotion in this manner uses medicalization without pathologization and without pharmacologicalization. This is known as conceptual medicalization (Conrad, 2007).

Biomedical language is used in the description of the initiative "EIM." It could not be otherwise. Here, it is the biomedical apparatus that provides legitimacy to an activity that in itself has never been conceived as a cure in the strict sense: "Prescribing *physical activity* (PA) in the right 'dosage' is a highly effective prescription for the prevention, treatment and management of more than 40 of the most common chronic health conditions encountered in clinical practice."⁷ Even in the case of the Emilia-Romagna Area initiative, conceptual medicalization is quite evident: when there are specific pathological conditions, the doctor can agree with the person the adherence to a certain type of physical activity, regulated according to precise protocols (modalities, frequency, intensity, duration, and progression over time). In these cases, we talk about the prescription of physical exercise that takes on a role similar to that of therapy.⁸

At its core, this kind of medicalization appears to be the opposite of medicalization in its broadest (negative) sense. This apparent paradox can be easily dissolved if we analyze the relationship between words and their referents. In summary, it can be said that conceptual medicalization without clinical medicalization is possible. Medical language can be used to promote non-biomedical actions, in this case physical activity. There is no contradiction in this. Clearly, when we refer to "pills of exercise" or "clinical parameters of physical activity," we are using metaphorical language – we transfer the expressions of biomedical origin into the context of everyday life. Like it or not, this transfer makes the message more effective. Indeed, it makes messaging more understandable because an activity's connection with health becomes immediate, and messaging is perceived as more authoritative because it is issued by a reliable source: the biomedical complex (Luhmann, 1993). The messages of the health system, in the Italian case of the Regional Ministry of Health, are medicalized because – said Luhmann (1993) – it cannot be otherwise: the medical system interacts with the social environment through its specific communication code, that is, the biomedical lexicon. Sontag

⁷Retrieved from https://www.exerciseismedicine.org/support_page.php/healthcare/

⁸Retrieved from <http://salute.regione.emilia-romagna.it/sanita-pubblica/palestre-che-promuovono-salute>

(1977) writes that we need to de-metaphorize the language used in the context of disease. The metaphors, says Sontag, eventually lose their figurative nature and gain the power to stigmatize. The metaphor of a disease becomes the social characteristic of the patient. If, on a social level, AIDS is represented as punishment for immoral behavior, the patient will easily be seen as one who deserves the disease. For this reason, Sontag writes, we need to help the sick – and the rest of society – to understand that diseases do not represent value judgments.

With regard to the use of metaphorical language surrounding disease, we only partially agree with Sontag. We adhere rather to the idea of Eco (1984), according to whom metaphors are an indispensable cognitive tool in knowing reality. Of course, they can be imprecise and give rise to misunderstandings, stigma, and stereotypes, but metaphors cannot be avoided in everyday life and science (Hesse, 1983). Semiological guerrilla warfare (Eco, 1984) should only be waged on metaphors that create harmful stigma.

Considering exercise as a drug implies a social paradigm shift that places wellness culture at the center of its interests. It is a mental leap, a change of frame – the cognitive frame – through which one interprets health within society. This is a necessary change, as we have tried to explain here.

To facilitate this trend, closer interactions should be fostered between organizations that deal – directly or indirectly – with health. Specifically, we can mention many diverse actors with the capacity to support the transition toward a wellness culture: political institutions, fitness operators, and universities (Rutgers, 2014).

First, as fitness is both an economic activity and an investment in health, it could benefit from reduced state taxes, similar to the designation given to medicine and medical equipment. Second, given the social importance of promoting fitness in the workplace, companies should receive tax deductions for stimulating physical activity among employees. Furthermore, campaigns for physical activity should always be promoted at institutional level – possibly through the establishment of a period of time during the year expressly dedicated to this. The obligation to promote the enhancement of physical activity should also be transmitted to doctors.

Regarding fitness operators, they should build institutionalized relationships with health organizations in order to provide “fitness performance.” In addition, they should consider establishing widespread fitness programs open to the wider community and, in some cases, focused on schools and corporate wellness. Programs to attract special demographics such as children, the elderly, pre-diabetics, and those at risk of obesity should also be considered. Specific coaching measures, including apps, should be developed in order to reduce the high dropout rate that occurs in the first six months of gym membership. Apps and gamification can play a central role in promoting physical activity, as demonstrated in Chapter 2.

Last but not least, specialized measures should be taken to attract those who do not carry out any physical activity: the so-called “non-exerciser.” Although we have repeatedly stressed the importance of wellness for companies, little has been said about the role of educational and scientific institutions. Universities should devote more research to the consequences of physical inactivity. Furthermore, physical exercise should be considered more closely as an alternative to medical provision in the narrow sense. In order to place a new drug on the market and

prove its therapeutic efficacy, it is also suggested that in future clinical trials pharmaceutical companies will introduce physical exercise as an element of comparison (Rutgers, 2014).

These possible interventions are in some cases ambitious. They are, however, necessary if we want to contain the explosion of health costs and, obviously, reduce the suffering linked to illness and social hardship. Of course, some critical aspects must also be taken into account, such as the risk of stigmatizing those who do not appear to be “performing” perfectly, or who simply choose not to practice an intense wellness lifestyle. It should also be emphasized that it is not always possible to simply “choose” a healthy lifestyle.

Economic and social inequalities hinder these possibilities. For this reason, institutions, in synergy with market actors and the community, must try to facilitate the choice of wellness by reducing the inequalities of access.

4. The Spillover Effects of Fitness

Today the benefits of physical activity are considered to be underestimated both at the social and institutional levels. As we have seen in previous chapters, the widespread practice of fitness that would result from a wider diffusion of wellness culture has effects in many dimensions, not only physical. These are spillover effects, or externalities, that affect other areas. To illustrate them more broadly – although not exhaustively – we will discuss the human capital model (Bailey, Hillman, Arent, & Petitpas, 2013).

The development of human capital promoted by fitness has effects on the following dimensions: physical capital, financial capital, social capital, intellectual capital, individual capital, and emotional capital. Mainly, the effects of physical activity are as follows:

- *Physical capital*: Results in improvements in general motor skills, cardio-respiratory system, muscle strength, bone strength, immune system, etc. This prevents diabetes, general mortality, cardiovascular disease, hypertension, heart attack, colon cancer, breast cancer, lung cancer, ovarian cancer, and back pain. Additionally, reduction of smoking, other addictions, and suicidal tendencies.
- *Financial capital*: Results in increased income, productivity, and commitment to work; reduction of healthcare costs and absenteeism at work.
- *Social capital*: Leads to improvement of social cohesion and the degree of community trust, greater acceptance of people with disabilities, reduction of juvenile crime, and greater social inclusion.
- *Intellectual capital*: Leads to improved academic performance, school commitment, learning, and concentration.
- *Emotional capital*: Results in improved mood, growth of self-esteem and sense of self-efficacy, greater appreciation of one’s body image, and prevention of stress, depression, and anxiety.
- *Individual capital*: Results in improvement in non-cognitive skills and self-discipline.

Even this quick overview of the various “capitals” connected to fitness shows how wellness culture is principally reinforced by the concert/interaction of different actors, although the support of institutions is a pre-condition.

There are measures that could be taken rapidly (some have been mentioned in the previous paragraph) and which could directly fuel the growth of wellness culture. There are two pillars by which wellness culture should be supported: the spread of wellness and fitness practices during childhood, and making physical activity an integral and “normal” part of daily life.⁹ There is also another aspect – which could be identified as ethical – that in our view should be taken into account. Today, we are witnessing a paradox: on the one hand, people are doing less and less physical activity; we have already described how relatively affluent Western societies of today are the most static and immobile, in the strict sense of the term, of all human history. On the other hand, enrollment in health clubs, wellness tourism, and the practice of physical activity in the workplace has increased. There is the risk that what appears to be a paradox is, in hindsight, nothing more than the entrenchment of polarization between two sectors of society: those dynamic people destined to live in health and another, much wider swath, made up of people less interested in health. Among this last category belongs to those who tend to be overweight or obese and who are at risk of many chronic diseases. This is what we define as the wellness divide. Thus, the growth of wellness culture should aim to reduce this divide.

The theory of networks generally and social networks specifically assumes that information and innovation are disseminated through family, friends, and work contacts. Creating consensus on wellness and nurturing a subculture of healthy lifestyles is a process that self-amplifies and enhances wellness culture. Wellness culture can be strengthened by multiplying the opportunities to practice fitness, reducing the socioeconomic difficulties for access to physical activity, and stimulating networking. Fitness must be gently facilitated – people should be nudged rather than forced to participate – and those who offer wellness must be placed in a position to offer the best conditions. The benefits would propagate throughout society without negative side effects.

5. Take Home Message-7

The last 150 years of Western society have been characterized by vast changes in the health sphere. The increase in life expectancy is certainly one of humanity’s most important achievements; in some countries, it has doubled over the course of a century. Today, the epidemiological environment is dominated by chronic-degenerative diseases largely caused by certain lifestyle choices. Indeed, healthcare costs have exploded over the last few decades. This scenario is slowly but steadily triggering a paradigm shift in biomedicine: from cure to prevention.

⁹Nike, Inc. (2013). *Designed to move. A physical activity action agenda. Executive Summary* (p. 7). Retrieved from <http://e13c7a4144957cea5013-f2f5ab26d5e83af3e-a377013dd602911.r77.cf5.rackcdn.com/resources/pdf/en/full-report.pdf>

Surely, we cannot say that this shift is complete, but some best practices should be mentioned. Physical activity plays a fundamental role in disease prevention, so the promotion of physical activity is certainly a way to reduce the burden of disease and increase the social, psychological, and economic well-being of a community. A moderate level of exercise reduces the risk of heart attack by 27%, the risk of developing diabetes by 33%, and the risk of coronary heart disease by 35%.

In this chapter we presented two projects that aimed to increase physical activity among the population. The first project was carried out in Emilia–Romagna Area in Italy, where a series of doctors started to “prescribe” physical activity as if it were a medicine. Physical activity was, therefore, presented as a cure to treat diseases and pathologies. The other project relates to digital solidarity and is supported by Technogym, a corporation that mainly produces machinery for fitness centers. Technogym is global partner of the program “Exercise is Medicine,” an initiative promoted by the ACSM and the AMA, which are the two most important American associations in the field of physical exercise and health. The concept of the project is summarized as follows: the quantity and quality of physical activity carried out by the patient should be considered by the general practitioner as a clinical parameter along with other traditional parameters, such as blood pressure, weight, and glucose level. The peculiarity of these two successful projects is that they present physical activity as a cure. Their approach is therefore distinctly medicalized. In these two cases, medicalization appears as a positive phenomenon: it is conceived as a prevention strategy that can cure diseases early and, at the same time, can help people to remain healthy and productive, thereby reducing their consumption of medicine and medical services. Another positive consequence is decreased public and private health expenditures. Furthermore, this kind of “cure” tries to develop healthy habits and lifestyles so that people can more independently from medical treatment.

In our opinion, the success of these two initiatives stems from the fact that the biomedical complex has a strong influence on the population. It is a system made up of trusted experts who, through programs like those mentioned above, can communicate not only about diseases, but also about good habits (Sztompka, 2000). Thus, it is effective to use reliable sources of knowledge and advice in health promotion messaging. It becomes a medicalization without pathologization and pharmacologicalization. In Conrad’s (2007) words, it becomes a conceptual medicalization. In summary, it can be said that conceptual medicalization can exist without clinical medicalization. Physical activity, if taken properly, has no side effects.

This page intentionally left blank

Conclusion

The research we carried out with the students at a US university produced some unexpected results. Notably, the use of medical expressions to describe their experiences using apps. Several students, who used an app to guide them through meditation procedures, characterized the experience as “digital therapy.”

In the same way, two projects to promote physical activity were presented by two big organizations using biomedical lexicon and adopting a medicalizing perspective: “pills of exercise,” “prescriptions of physical activity,” and “physical activity should be (...) considered by the general practitioner as a clinical parameter.” The peculiarity of these two successful projects is that they continue to present physical activity as a cure. Therefore, their approach is distinctly medicalized.

As mentioned previously, the most popular definition of medicalization is the one proposed by Conrad (2007), which states that medicalization is the transformation of normal conditions into pathologies or disorders. This kind of medicalization, which could be considered clinical medicalization, is only partially helpful in the analysis of the research and the two projects. Hence, it could be fruitful to take into consideration another kind of medicalization proposed by Conrad (2007), which he called “conceptual medicalization,” namely, the use of a biomedical lexicon to frame a phenomenon that is not medical. There are several examples of this. One is the diffusion of “evidence-based something.” The “evidence-based” formula was initially used with regard to medicine (evidence-based medicine) and then adopted by other disciplines in order to accrue their epistemic authority (evidence-based education, evidence-based policy, etc.). Another example is advertising that magnifies the health benefits of different food.

Regarding the two projects that promoted physical activity, medicalization appears to be a positive phenomenon: it is conceived as a prevention strategy that can help people to remain healthy and productive, thereby (paradoxically) reducing their consumption of medicine and medical services. The success of these two initiatives stems from the fact that the biomedical complex has a strong influence on the population. It is an expert system that fosters organizational and professional trust (Sztompka, 2000). In this case, we have medicalization without pathologization as well as without pharmacologicalization. Conceptual medicalization can exist without clinical medicalization.

The success of conceptual medicalization can be seen as a consequence of the “metanarratives crisis” (Lyotard, 1984). In Lyotard’s view in the second half of the nineteenth century, religion and Marxism lost their power as drivers for the orientation of human actions. Religions and political ideologies do not act any more as pools of meaning that social actors can use to articulate their interpretations of the events occurring in an accelerated society.

Biomedicine is thriving today: barely a day passes without there being some mention in the news of a new discovery in genetics or in neuroscience. Another sign of the “good health” enjoyed by biomedicine is the persistence, in some respects, of *medical domination* (Abbott, 1988). Physicians – at least in some European countries – hold top corporate and public healthcare positions. Moreover, they have often the last word in bioethics disputes. It goes without saying that in their *curricula vitae*, doctors are not socialized either to management or to bioethics.

In previous chapters, we have given many examples of medicalization. On one hand, clinical medicalization is cause for concern: the proliferation of self-diagnosis using mental health apps can be as dangerous as the individualistic idea of health promoted by diet apps (disconnection from social context).

On the other hand, we should consider conceptual medicalization (which is a frequent result of apps such as meditation apps) as a positive phenomenon. Conceptual medicalization arises from the symbolic dominance of biomedicine in social representations of health and not the commercially motivated activities of health corporations.

Apps that encourage competitiveness, that is, fitness apps, do not appear to have any significant negative consequence. Sport is inherently competitive and existed well before the birth of neoliberalism.

However, it is important to note that other features of health apps can have serious consequences. As we have shown, self-tracking can be monitored by algorithms used by the Health Industrial Complex, with the potential for the phenomena of social exclusion, discrimination, and blaming. While at the workplace, gamification appears to result in exploitation. Both with regard to health and work, quantification can be the basis for governing from a distance (Rose, 1990).

On the positive side, apps have been proven useful for the treatment of addictions. In addition, of course, apps are great for fitness. We know that health inequalities are grounded in socioeconomic conditions (health justice). Therefore, the “causes of causes” of health inequalities should be addressed; contrasting risk factors is not enough (Link & Phelan, 2010). The reputational capital of the biomedical frame can be used to foster actions for social justice as shown by the given examples of conceptual medicalization. However, to reap any significant benefit, relevant institutions need to action.

Appendix: Questionnaire Digital Meditation

1) Please enter your gender

- Male
- Female
- Other

2) I am currently a

- Freshman
- Sophomore
- Junior
- Senior

3) My Major is:.....

4) Did you complete 10 meditation sessions?

- Yes
- No

5) If not, how many sessions did you complete?

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8

6) How would you describe your approach to the mediation experience?

- I meditated one session per day, completing the task in 10 days.
- I required more than 10 days to complete the meditation cycle, therefore I (sometimes) meditated for more than one session per day.
- I required more than 10 days to complete the meditation cycle, but I never meditated for more than one session per day.
- I did not complete the meditation cycle.

7) If you have completed the meditation cycle in more than 10 days it was because ...

- Unforeseen extenuating circumstances.
- I was aware beforehand that I could not complete 10 consecutive sessions.
- Other.....

8) Why were you unable to complete the 10-day meditation cycle? (only for those who did not complete the 10-day meditation cycle)

- I lost interest.
- I did not have adequate time on certain days.
- I found no benefit from meditating.
- I found it boring.
- I never started.
- Other.....

9) Have you ever stopped a mediation session prematurely but resumed later?

- No.
- Yes, and I restarted from the beginning.
- Yes, and I resumed from where I left off.

10) Besides the Headspace App alert, have you created another reminder (e.g., with Google calendar, phone alarm, etc.) to meditate?

- No.
- Yes.

11) During the experimentation period:

- I did not think about meditation unless prompted by the Headspace App.
- I thought about meditating at times of the day without prompts from the App.

12) During the experimentation period, have you ever sought out additional news or information regarding meditation or mindfulness?

- Yes, from the Internet.
- Yes, I asked friends/colleagues.
- No.

13) During the experimentation period, did you at any time meditate with another person?

- Yes.
- No.

14) If yes, how many times?

- 1–3
- 4–6
- 7–9
- 10

15) During the meditation program, have you recounted your experience with meditation to another person?

- Yes, I have.
- No, I have not.

16) If you have discussed the meditation experience with another person, whom did you discuss it with?

- Another participant in the experiment.
- Someone who was not a participant but was interested in meditation.
- Someone with no interest in meditation.

17) If you have discussed the meditation experience with another person, what did you discuss?

- Changes in mood
- Changes in body perception
- Technical aspects of the app
- Other.....

18) Are you considering continuing with the meditation?

- Yes, especially via a digital medium.
- Yes, but with a course or personal mentorship.
- Yes, alone and without digital aid.
- I am not sure.
- Not at the moment.

19) Do you use other fitness apps?

- Yes.
- No.

20) If yes, please list a maximum of three fitness apps you use.....

21) How would you describe your experience with digital meditation?

	Strongly Disagree	Disagree	Neither Nor Disagree	Agree	Strongly Agree
Strange					
Normal					
Challenging					
Intriguing					

22) With respect to meditation ...

- I would have preferred personal guidance.
- I was comfortable with the app.
- I would have preferred solitary meditation without the app.
- Other.....

23) Would you say that nowadays meditation is ...

- Kind of a necessary technique to cope with stress.
- A pleasant habit.
- Important, but can be replaced with sport.
- Kind of a trendy fashion.

24) Had you ever practiced mediation or yoga before the meditation app? (2 answers allowed)

- Yes, I have meditated.
- Yes, I have done yoga.
- No.

25) Had you ever practiced digital mediation or digital yoga before the meditation app? (2 answers allowed)

- Yes, I have meditated through an app.
- Yes, I have done yoga through an app.
- No.

26) During the days you used the meditation app, did you perceive any changes in your body?

- No.
- Yes.

27) If yes, please describe these perceived changes:

I perceived

28) During the days you used the meditation app, did you perceive any changes in your mood?

- No.
- Yes.

29) If yes, please describe these perceived changes:

I perceived

30) Do you practice any sport or regular physical exercise?

- Yes, several times a week.
- Yes, one or two times a week.
- I do some physical activities but not regularly.
- Generally speaking, I do not practice any physical activities.

31) Open question

How would you comment on your experience with digital meditation?

References

- Abbott, A. (1988). *The system of professions*. Chicago, IL: University of Chicago Press.
- Abraham, J. (2010). Pharmaceuticalization of society in context: Theoretical, empirical and health dimensions. *Sociology*, *44*(4), 603–622. doi:10.1177/0038038510369368
- Allmer, T. (2011). Critical surveillance studies in the information society. *TripleC*, *9*(2), 566–592. Retrieved from <https://www.triple-c.at/index.php/tripleC/article/view/266>
- Amoore, L. (2016). Cloud geographies. Computing, data, sovereignty. *Progress in Human Geography*, *42*(1), 4–24. doi:10.1177/0309132516662147
- Anderson, C. (2008). *The end of theory: The data deluge makes the scientific method obsolete*. Retrieved from <https://www.wired.com/2008/06/pb-theory/>
- Andrejevic, M. (2005). The work of watching one another: Lateral surveillance, risk, and governance. *Surveillance and Society*, *2*(4), 479–497. Retrieved from <https://ojs.library.queensu.ca/index.php/surveillance-and-society/article/view/3359/3322>
- Andrejevic, M. (2012). Exploitation in the data mine. In C. Fuchs, K. Boersma, A. Albrechtslund, & M. Sandoval, (Eds.). *Internet and surveillance: The challenges of web 2.0 and social media* (pp. 71–88). London: Taylor & Francis.
- Andrejevic, M., & Burdon, M. (2015). Defining the sensor society. *Television & New Media*, *16*(1), 19–36. doi: <https://doi.org/10.1177/1527476414541552>
- Armstrong, D. (1995). The rise of surveillance medicine. *Sociology of Health & Illness*, *17*(3), 393–404. Retrieved from <https://onlinelibrary.wiley.com/doi/pdf/10.1111/1467-9566.ep10933329>
- Austin, J. L. (1962). *How to do things with words*. London: Oxford University Press.
- Bailey, R., Hillman, C., Arent, S., & Petitpas, A. (2013). Physical activity: An underestimated investment in human capital? *Journal of Physical Activity and Health*, *10*(3), 289–308. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/23620387>
- Barber, B. (2007). *Con\$umed. How market corrupts children, infantilize adults and swallows citizens whole*. New York, NY: W.W. Norton & Company.
- Barker, K. (2008). Electronic support group, patient-consumers, and medicalization: The case of contested illness. *Journal of Health and Social Behavior*, *49*, 20–36. doi: <https://doi.org/10.1177/002214650804900103>
- Barker, K. (2014). Mindfulness meditation: Do-it-yourself medicalization of every moment. *Social Science and Medicine*, *106*, 168–176. doi: 10.1016/j.socscimed.2014.01.024
- Batnitzky, A. (2008). Obesity and household roles: gender and social class in tobacco. “Sociology of health and illness”, *30*(3), 445–462.
- Baudrillard, J. (1994). *The illusion of the end*. Oxford: Polity.
- Bauman, Z. (1998). *Globalization. The human consequences*. New York, NY: Columbia.
- Becker, G. S. (1964). *Human capital*. New York, NY: Columbia University Press.
- Beer, D. (2009). Power through the algorithm? Participatory web cultures and the technological unconscious. *New Media & Society*, *11*(6), 985–1002. doi: <https://doi.org/10.1177/1461444809336551>
- Beer, D. (2017). The social power of algorithms. *Information, Communication & Society*, *20*(1), 1–13. doi:10.1080/1369118x.2016.1216147
- Blashfield, R. K., & Fuller, A. K. (1996). Predicting the DSM-V. *The Journal of Nervous & Mental Disease*, *184*(1), 4–7. Retrieved from https://journals.lww.com/jonmd/Abstract/1996/01000/Predicting_the_DSM_V.2.aspx

- Bogost, I. (2011). *Why gamification is bullshit*. Retrieved from http://bogost.com/writing/blog/gamification_is_bullshit/.
- Borghì, V., & Giullari, B. (2015). Trasformazioni delle basi informative e immaginazione sociologica. *Rassegna Italiana di Sociologia*, 76, 379–402. doi:10.1423/81797
- Bostrom, N. (2014). Why I want to be a posthuman when I grow up. In R. L. Sandler (Ed.), *Ethics and emerging technologies* (pp. 218–234). London: Palgrave Macmillan.
- Bostrom, N., & Savulescu, J. (2009). *Human enhancement*. Oxford: Oxford University Press.
- Bourdieu, P. (1979). *Distinction: A social critique of the judgement of taste*. New York, NY: Routledge.
- Bourdieu, P. (1986). The forms of capital. In J. Richardson (Ed.), *Handbook of theory and research for the sociology of education* (pp. 241–258). Westport, CT: Westport Greenwood Press.
- Bowker, G. C., & Leigh, S. (1999). *Sorting things out*. Cambridge, MA: The MIT Press.
- Božovič, M. (1995). *The panopticon writings by Jeremy Bentham*. London Verso.
- Brennan, T. (2003). *Globalization and its terrors: Daily life in the west*. London: Routledge.
- Bröer, C., & Heerings M. (2013). Neurobiology in public and private discourse: the case of adults with ADHD. *Sociology of Health & Illness*, 35(1), 49–65. doi:10.1111/j.1467-9566.2012.01477.x
- Brown, P. (1995). Naming and framing: The social construction of diagnosis and illness, “Social of health and social behaviour”, 35, 34–5.
- Brown, P. (1995). Naming and framing: The social construction of diagnosis and illness. In P. Brown (Ed.), *Perspective in medical sociology* (3rd ed.). Prospect Height, NY: Waveland Press.
- Btihaj, A. (2018). *Self-tracking. Empirical and philosophical investigations*. New York, NY: Palgrave Macmillan.
- Cambridge Analytica. (2016). *Report gamification and the future of education*. Retrieved from <https://www.worldgovernmentsummit.org/api/publications/document?id=2b0d6ac4-e97c-6578-b2f8-ff0000a7ddb6>
- Cardano, M. (2008). Disuguaglianze sociali di salute. Differenze biografiche incise nei corpi. *Polis*, XXII(1), 119–146. Retrieved from <https://iris.unito.it/retrieve/handle/2318/27794/2898/CARDANO%20Disuguaglianze%20sociali%20di%20salute%20POLIS%201%20202008.pdf>
- Carpenter, M. (2000). ‘It’s a small world’: Mental health policy under welfare capitalism since 1945. *Sociology of Health & Illness*, 22(5), 602–620. doi: <https://doi.org/10.1111/1467-9566.00222>
- Carter, S. M., Rogers, W., Heath, I., Degeling, C., Doust, J., & Barratt, A. (2015). The challenge of overdiagnosis begins with its definition. *BMJ*, 350–869. doi: <https://doi.org/10.1136/bmj.h869>
- Chang, V. W., & Christakis N. A. (2002). Medical modeling of obesity: A transition from action to experience in a 20th century American medical textbook. *Sociology of Health & Illness*, 24, 151–77. Retrieved from <https://onlinelibrary.wiley.com/doi/pdf/10.1111/1467-9566.00289>
- Chicchi, F., & Simone, A. (2017). *La società della prestazione*. Roma: Ediesse.
- Chiong, W. (2001). Diagnosing and defining disease. *Journal of American Medical Association*, 285(1), 89–90. doi:10.1001/jama.285.1.89-JMS0103-2-1
- Christensen, M., & Jansson A. (2015). Complicit surveillance, interveillance, and the question of cosmopolitanism: Toward a phenomenological understanding of mediatization. *New Media & Society*, 17(9), 1473–1491. doi: <https://doi.org/10.1177/1461444814528678>.
- Clarke, A. (2011). Magazine portrayal of attention deficit/hyperactivity disorder (ADD/ADHD): A post-modern epidemic in a post-trust society. *Health, Risk & Society*, 13(7–8), 621–636. doi: <https://doi.org/10.1080/13698575.2011.624178>
- Clarke, A. E., Shim, J. K., Mamo, L., Fosket, J. R., & Fishman, J. R. (2003). Biomedicalization: Technoscientific transformations of health, illness, and U.S. biomedicine. *American Sociological Review*, 68(2), 161–194. doi:10.2307/1519765
- Colombo, F. (2013). *Il potere socievole. Storia e critica dei social media*. Milano, Italy: Bruno Mondadori.

- Comaroff, J., & Comaroff, J. L. (2006). Figuring crime: Quantifacts and the production of the un/real. *Public Culture*, 18(1), 209–246. doi: <https://doi.org/10.1215/08992363-18-1-209>
- Conley, D. (2009). *Elsewhere, U.S.A.: How we got from the company man, family dinners, and the affluent society to the home office, BlackBerry moms, and economic anxiety*. New York, NY: Knopf Doubleday Publishing Group.
- Conley, D., & Glauber, R. (2006). Gender, body mass, and socioeconomic status: New evidence from the PSID. In K. Bolin, & J. Cawley (Eds.), *The economics of obesity: Advances in health economics and health services research*. Bingley: Emerald Publishing.
- Conrad, P. (2007). *The medicalization of society: On the transformation of human conditions into treatable disorders*. Baltimore, MD: Johns Hopkins University Press.
- Conrad, P., & Barker, K. (2010). The social construction of illness: Key insights and policy implications. *Journal of Health and Social Behavior*, 51(S), S67–S79. doi:10.1177/0022146510383495
- Conrad, P., & Leiter, V. (2004). Medicalization, markets and consumers. *Journal of Health and Social Behavior*, 45, 158–76. Retrieved from <http://www.jstor.org/stable/3653830>
- Conrad, P., Mackie, T., & Mehrotra, A. (2010). Estimating the costs of medicalization. *Social Science and Medicine*, 70, 1943–1947. doi:10.1016/j.socscimed.2010.02.019
- Crary, J. (2013). *24/7: Late capitalism and the ends of sleep*. New York, NY: Verso.
- Crawford, R. (1980). Healthism and medicalisation of everyday life. *International Journal of Health Services*, 10, 365–388. doi:10.2190/3h2h-3xjn-3kay-g9ny
- Cummings, P., Golson, M., Goodman, D., & Nonamaker, L. (2013). Gaming to engage the healthcare consumer. Retrieved from https://pharmageek.fr/wp-content/uploads/2014/03/Gamification_Engage_Healthcare_Consumer_rev.pdf
- Dandeker, C. (1990). *Surveillance, power and modernity: Bureaucracy and disciplines from 1700 to the present*. Cambridge: Polity Press.
- Dardot, P., & Laval, C. (2017). *The new way of the world on neoliberal society*. London: Verso
- Das, P., & Horton, R. (2012). Rethinking our approach to physical activity. *The Lancet*, 380(9838), 189–190. doi:10.1016/S0140-6736(12)61024-1
- Delbaere, M. (2013). Metaphors and myths in pharmaceutical advertising. *Social Science & Medicine*, 82, 21–29. doi:10.1016/j.socscimed.2013.01.020
- Deleuze, G. (1992). Postscript on the societies of control. *October*, 59, 3–7. Retrieved from <http://www.jstor.org/stable/778828>
- Deleuze, G. (2009). *Foucault*. Napoli, Italy: Cronopio.
- Desrosiers, A. (2011). Buono o cattivo? Il ruolo del numero nel governo della città neoliberale. *Rassegna Italiana di Sociologia*, LIII(3), 373–397. doi:10.1423/35257
- deWinter, J., Kocurek, C. A., & Nichols, R. (2014). Taylorism 2.0: Gamification, scientific management and the capitalist appropriation of play. *Journal of Gaming & Virtual Worlds*, 6, 109–127. doi: https://doi.org/10.1386/jgvw.6.2.109_1
- Di Chio, S. (2015). Grandi numeri, piccole elite. *Rassegna Italiana di Sociologia*, 4(5), 433–454. doi: <https://doi.org/10.1016/j.invent.2016.10.002>
- Dorfles, G. (1988). *Il feticcio quotidiano*. Bologna, Italy: Feltrinelli.
- Douglas, T. (2007). Enhancement in sport, and enhancement outside sport. *Studies in ethics. Law and Technology*, 1(1). Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2742076/>
- Doyle, A. (2011). Revisiting the synopticon: Reconsidering Mathiesen's 'The Viewer Society' in the age of Web 2.0. *Theoretical Criminology*, 15(3), 283–299. doi: <https://doi.org/10.1177/1362480610396645>
- Drell, L. (2014). Let the gamification begin. *Marketing health services*. Spring, 34(1), 24–7. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/24741765>
- Duncker, E., & Disco, N. (1998). Meaningful boundaries: Symbolic representations in heterogeneous research and development projects. In N. Disco & B. van der Meulen (Eds.). *Getting new technologies together, studies in making socio technical order*, Berlin, Germany: de Gruyter.

- Durkheim, E. (1933). *The division of labor in society*. (G. Simpson, Trans.). New York, NY: Macmillan.
- Eco, U. (1984). *Semiotica e filosofia del linguaggio*. Torino, Italy: Einaudi.
- EHFA (Ed.). (2014). *The future of health and fitness: A plan for getting Europe active by 2025*. Nijmegen, The Netherlands: Black Box Publishers.
- Ehrenberg, A. (2010). *La società del disagio*. Torino, Italy: Einaudi. [ed. orig La Société du malaise. Paris: Odile Jacob]
- Epstein, S. (2007). *Inclusion the politics of difference in medical research*. Chicago, IL: The University of Chicago Press Books.
- Ericson, R. V. (1991). Surveillance, power and modernity: Bureaucracy and discipline from 1700 to the present day. In C. Dandeker (Ed.), *American Journal of Sociology*, 96(5), 1262–1264. doi: <https://doi.org/10.1086/229656>
- Erikson, E. (1963). *Childhood and society*. New York, NY: Norton.
- Espeland, W. N., & Stevens, M. L. (2008). A sociology of quantification. *European Journal of Sociology*, 49(3), 401–436.
- European Commission. (2014a). *Sport and physical activity*. Brussels, Belgium: Special Eurobarometer 412.
- European Commission. (2014b). *Green paper on mobile health*. Brussels. Digital single market.
- Faber, N. S., Savulescu, J., & Douglas, T. (2016). Why is cognitive enhancement deemed unacceptable? The role of fairness, deservingness, and hollow achievements. *Frontiers in Psychology*, 7(232), 1–12. doi:10.3389/fpsyg.2016.00232
- Farmer, P. (2005). *Pathologies of power. Health, human rights, and the new war on the poor*. Berkeley, CA: University of California Press.
- Figert, A. E. (2011). The consumer turn in medicalization: Future directions with historical foundations. In B. Pescosolido, J. Martin, J. Mcleod, & A. Rogers (Eds.). *The handbook of the sociology of health, illness & healing: Blueprint for the 21st century* (pp. 291–307). New York, NY: Springer.
- Flegal, K. M., Graubard, B., Williamson, D. F., & Gail, M. H. (2005). Excess deaths associated with underweight, overweight, and obesity. *Journal of the American Medical Association*, 293(15), 1861–1867. doi:10.1001/jama.293.15.1861
- Fleming, P. (2005). Workers' playtime? Boundaries and cynism in a culture of fun program. *Journal of Applied Behavioral Science*, 41(3), 285–303. doi: <https://doi.org/10.1177/0021886305277033>
- Floridi, L. (2012). Big data and their epistemological challenge. *Philosophy and Technology*, 25(4), 435–437. doi: <https://doi.org/10.1007/s13347-012-0093-4>
- Fourcade, M., & Healy, K. (2013). Classification situations: Life-chances in the neoliberal era. *Accounting, Organizations, and Society*, 38, 559–572. doi: <https://doi.org/10.1016/j.aos.2013.11.002>
- Foucault, M. (1965). *Madness and civilization. A history of insanity in the age of reason*. New York, NY: Pantheon Books.
- Foucault, M. (1963). Naissance de la clinique. Une archeologie du regard médicale. Paris: Presses Universitaires].
- Foucault, M. (1977). *Discipline and punish. The birth of the prison*. New York, NY: Random House.
- Foucault, M. (1978). Governmentality' (Lecture at the Collège de France). In G. Burchell, C. Gordon, & P. Miller (Eds.), *The Foucault effect: Studies in governmentality*. Hemel Hempstead: Harvester Wheatsheaf.
- Foucault, M. Technology of the Self (1988). UK: Tavistock Publications].
- Foucault, M. (2008). *The Birth of biopolitics. Lectures at the Collège de France*. New York, NY: Palgrave.
- Fowler, J. H., & Christakis, N. A. (2009). Dynamic spread of happiness in a large social network: Longitudinal analysis over 20 years. Framingham Heart Study. *BMJ*, 337–338. doi: <https://doi.org/10.1136/bmj.a2338>

- Freidson, E. (1970). *Professional dominance*. New York, NY: Atherton Press.
- Freud, S. (1920). *On metaphysics*. London: Penguin Books.
- Fukuyama, F. (1992). *The end of history and the last man*. New York, NY: The Free Press.
- Furedi, F. (2004). *Therapy culture: Cultivating vulnerability in an uncertain age*. London: Psychology Press.
- Furedi, F. (2006). The end of professional dominance. *Society*, 43(6), 14–18. doi: <https://doi.org/10.1007/BF02698479>
- Furedi, F. (2006). *The politics of fear, beyond left and right*. London: Continuum Press.
- Giddens, A. (1981). *A contemporary critique of historical materialism*. Berkeley, CA: University of California Press.
- Giddens, A. (1990). *The consequences of modernity*. Cambridge: Polity Press.
- Giddens, A. (1994). Risk, trust and reflexivity. In U. Beck, A. Giddens, & S. Lash (Eds.), *Reflexive modernization: Politics, tradition and aesthetics in the modern social order* (pp. 56–109). Cambridge: Polity Press.
- Goffman, E. (1969). *Strategic interaction*. Philadelphia, PA: University of Pennsylvania Press.
- Goffman, E. (1974). *Frame analysis: An essay on the organization of experience*. Cambridge, MA: Harvard University Press.
- Goldacre, B. (2012). *Bad Pharma: How drug companies mislead doctors and harm patients*. London: Fourth Estate.
- Gottfredson, L. (2004). Intelligence. Is it the epidemiologists' elusive 'fundamental cause' of social class inequalities in health? *Journal of Social and Personality Psychology*, 86, 174–199. doi:10.1037/0022-3514.86.1.174
- Greely, H., Sahakian, B., Harris, J., Kessler, R. C., Gazzaniga, M., Campbell, P., & Farah, M. J. (2008). Towards responsible use of cognitive-enhancing drugs by the healthy. *Nature*, 456, 702–705. doi:10.1038/456702a
- Groh, G. (2012). Gamification: State of the art definition and utilization. In N. Asaj, B. M. Konings, F. Poguntke, B. Schaub, M. Wiedersheim, & M. Weber (Eds.), *Proceedings of the 4th seminar on research trends in media informatics*, Institute of Media Information, University of Ulm, Germany (pp. 39–46).
- Habermas, J. (1984). *The theories of communicative actions*. Boston, MA: Beacon Press.
- Habermas, J. (1987). *Il discorso filosofico della modernità*. Roma-Bari, Italy: Laterza [ed. orig.: (1985), *Der Philosophische Diskurs der Moderne*, Frankfurt: Suhrkamp Verlag].
- Hallal, P. C., Andersen, L. B., Bull, F. C., Guthold, R., Haskell, W., Ekelund, U., & Lancet Physical Activity Series Working Group. (2012, July 21). Global physical activity levels: Surveillance progress, pitfalls, and prospects. *The Lancet*, 380(9838), 247–257, 2012.
- Han, B. C. (2015). *The burnout society*. Stanford, CA: Stanford University Press.
- Heller, N. (2015). *High score. A new movement seeks to turn life's challenges into a game*. *The New Yorker*, 14 September. Retrieved from <https://www.newyorker.com/magazine/2015/09/14/high-score>
- Herzfeld, M. (1992). *The social production of indifference*. Chicago, IL: The University of Chicago Press.
- Hesse, M. (1983). The cognitive claims of metaphor. In J. P. Van Oppen (Ed.), *Metaphor and religion* (pp. 27–45). Brussels, Germany: Vrije Universiteit Brussel.
- Hibou, B. (2015). *The bureaucratization of the world in the neoliberal era an international and comparative perspective*. New York, NY: Palgrave Macmillan.
- Hofmann, B. (2002). On the triad disease, illness and sickness. *Journal of Medicine and Philosophy*, 6, 651–673. doi:10.1076/jmep.27.6.651.13793
- Hofmann, B. (2016). Medicalization and over diagnosis: Different but alike. *Medicine, Health Care and Philosophy*, 19(2), 253–264. doi:10.1007/s11019-016-9693-6
- Horwitz, A. V. (2010). Pharmaceuticals and the medicalization of social life. In D. W. Light (Ed.), *The risks of prescription drugs* (pp. 92–115). New York, NY: Columbia UP.
- Horwitz, A. V. (2013). *Anxiety: A short history*. Baltimore, MD: Johns Hopkins University Press.

- Horwitz, A., & Wakefield, J. (2009). La medicalizzazione della tristezza. In A. Maturò & P. Conrad (Eds.). *La medicalizzazione della vita. Salute e Società, VIII*(2), 56–74. doi:10.3280/ses2009-002005
- House, J. S. (2002). Understanding social factors and inequalities in health: 20th-century progress and 21st-century prospects. *Journal of Health and Social Behavior, 43*, 125–42. doi:10.2307/3090192
- Huxley, J. (1950). New bottles for new wine: Ideology and scientific knowledge. *The Journal of the Royal Anthropological Institute of Great Britain and Ireland, 80*(1/2), 7–23. Retrieved from <http://www.jstor.org/stable/i331116>
- Illich, I. (1973). *Limits to Medicine – Medical Nemesis: The Expropriation of Health*. London: Marion Boyars Publisher Ltd].
- Jagoda, P. (2013). Gamification and other forms of play. *Boundary 2, 40*(2), 113–144. doi: <https://doi.org/10.1215/01903659-2151821>
- Johnson, D., Deterding, S., Kuhn, K. A., Staneva, A., Stoyanov, S., & Hides, L. (2016). Gamification for health and wellbeing: A systematic review of the literature. *Internet Interventions, 6*(2016), 89–106.
- Jutel, A. (2009). Sociology of diagnosis: A preliminary review. *Sociology of Health and Illness, 31*(2), 278–99. doi:10.1111/j.1467-9566.2008.01152.x
- Kaplan, J. (2012). From medicalization to biolooping: Reflections on “boosting brainpower?” *Salute e Società, 2*, 166–169. doi:10.3280/ses2012-su2012en
- Kelty, C. M. (2008). *Two bits. The cultural significance of free software*. Durham, NC: Duke University Press.
- Kierkegaard, S. (1981). *The concept of anxiety: A simple psychologically orienting deliberation on the dogmatic issue of hereditary sin*. Princeton, NJ: Princeton University Press.
- Kitchin, R., & Dodge, M. (2011). *Codespaces. Software and everyday life*. Cambridge, MA: The MIT Press.
- Kleinman, A. (1978). Concepts and a model for the comparison of medical systems as cultural systems. *Social Science and Medicine, 12*, 85–93. Retrieved from <https://pdfs.semanticscholar.org/34cf/ffdc077e388aac11e6c4a83bdf5210705e5.pdf>
- Kleinman, A., Eisenberg, L., & Good, B. J. (1978). Culture, illness, and care: Clinical lessons from anthropologic and cross-cultural research. *Annals of Internal Medicine, 88*(2), 251–258. doi:10.7326/0003-4819-88-2-251
- Kleinman, A., & Good, B. J. (Eds.). (1985). *Culture and depression: Studies in the anthropology and cross cultural psychiatry of affect and disorder*. Berkeley, CA: University of California Press.
- Koselleck, R. (2004). *Futures past: On the semantics of historical time*. New York, NY: Columbia University Press.
- Lacan, J. (1959). *Le séminaire. Livre VII. L'éthique de la psychanalyse*. Paris: Seuil.
- Lane, C. (2007). *Shyness: How a normal behavior became a sickness*. New Haven, CT: Yale University Press.
- Lasch, C. (1979). *The culture of narcissism: American life in an age of diminishing expectations*. New York, NY: W.W. Norton & Company.
- Latour, B. (1987). *Science in action: How to follow scientists and engineers in action*. Boston, MA: Harvard University Press.
- Latour, B., & Woolgar, S. (1979). *Laboratory life: The construction of scientific facts*. Princeton, NJ: Princeton University Press.
- Lawrence, M., & Germov, J. (2008). Functional foods and public health nutrition policy. In J. Germov & L. Williams (Eds.). *A sociology of food and nutrition: The social appetite* (pp. 147–175). Oxford: Oxford University Press.
- Leibniz, G. W. (1666). *Preface to his new essays on human understanding, and in Dissertatio de arte Combinatoria*. Retrieved from <http://www.earlymoderntexts.com/assets/pdfs/leibniz1705book1.pdf>

- Light, D. W. (2010). *The risks of prescription drugs*. New York, NY: Columbia University Press.
- Light, D. W., & Maturo, A. (2015). *Good pharma. The public-health model of the Mario Negri Institute*. New York City, NY: Palgrave Macmillan.
- Link, B., & Phelan J. (2010). Social conditions as fundamental causes of health inequalities. In C. Bird, P. Conrad, A. Freemont, & S. Timmermans (Eds.). *Handbook of medical sociology*. Nashville, TN: Vanderbilt University Press.
- Lobelo, F., Stoutenberg, M., & Gutber, A. (2014). The exercise is medicine global health initiative: 2014 update, "Br. S. Sports. med", 48, 1627–1633.
- Loe, M., & Cuttino, L. (2012). Consumatori ambivalenti. Uso strategico di farmaci e gestione dell'identità tra studenti universitari con ADHD (Ambivalent consumers. Strategic Pharmaceutical Use and Identity Management among ADHD College Students). *Franco Angeli*, 2, 105–131. doi:10.3280/SES2012-S02008
- Lopez, S. (2011, October 19). Disneyland workers answer to "electronic whip". *Los Angeles Times*. Retrieved from <http://articles.latimes.com/2011/oct/19/local/la-me-1019-lopez-disney-20111018>
- Losito, G. (2007). *L'analisi del contenuto nella ricerca sociale (Vol. 1)*. Milano, Italy: Franco Angeli.
- Lübbe, H. (2009). The contraction of the present. In H. Rosa, & W. E. Scheuerman (Eds.), *High-speed society: Social acceleration, power and modernity*. University Park, PA: Pennsylvania State University Press. 159–178
- Luhmann, N. (1993). *Risk: A sociological theory*. Berlin, Germany: Walter de Gruyter.
- Luminea, C. (2013). Gamification. *Financial Management*, 42(2), 13.
- Lupton, D. (2003). *Il rischio*. Bologna, Italy: Il Mulino.
- Lupton, D. (2012). M-health and health promotion: The digital cyborg and surveillance society. *Social Theory & Health*, 10(3), 229–244. doi: <https://doi.org/10.1057/sth.2012.6>
- Lupton, D. (2014). Apps as artefacts: Towards a critical perspective on mobile health and medical apps. *Societies*, 4, 606–622. doi:10.3390/soc4040606
- Lupton, D. (2018). *Digital health: Critical and cross-disciplinary perspectives*. London: Routledge.
- Lyon, D. (1994). *The electronic eye. The rise of surveillance society*. Oxford: Polity Press.
- Lyon, D. (2001). *La società sorvegliata. Tecnologie di controllo della vita quotidiana*. Milano, Italy: Feltrinelli.
- Lyon, D. (2006). *Theorizing surveillance (Crime ethnography)*. New York, NY: Routledge.
- Lyotard, J. F. (1984). *The postmodern condition: A report on knowledge*. Manchester: Manchester University Press.
- Maier, T., Kulichova, D., Schotten, K., Astrid, R., Ruzicka, T., Berking, C., & Udrea, A. (2014). Accuracy of a smartphone application using fractal image analysis of pigmented moles compared to clinical diagnosis and histological result. *Journal of the European Academy of Dermatology and Venereology*, 29(4), 1–5. doi:10.1111/jdv.12648
- Marcuse, H. (1955). *Eros and civilization: A philosophical inquiry into Freud*. Boston, MA: Beacon Press.
- Marrone, G. (2011). *Addio alla natura*. Torino, Italy: Einaudi.
- Marx, T. G. (1988). *Undercover: Police surveillance in America*. Berkeley, CA: University of California Press.
- Marx, T. G. (2002). What's new about the "new surveillance"? Classifying for change and continuity. *Surveillance & Society* 1(1), 9–29. Retrieved from <https://ojs.library.queensu.ca/index.php/surveillance-and-society/article/view/3391/3354>
- Marx, T. G. (2016). *Windows into the soul. Surveillance and society in an age of high technology*. Chicago, IL: The University of Chicago Press.
- Mathiesen, T. (1997). The viewer society: Michel Foucault's "panopticon" revisited. *Theoretical Criminology*, 1(2), 215–34. doi: <https://doi.org/10.1177/1362480697001002003>
- Maturo, A. (2007). *Sociologia della malattia. Un'introduzione*. Milano, Italy: FrancoAngeli.

- Maturo, A. (2009). Médicalisation, marketing pharmaceutique et inégalité sociales. *Revue Sociologie Santé*, 30, 177–186.
- Maturo, A. (2010). Bipolar disorder and the medicalization of mood: An epidemics of diagnosis? In A. Mukherjea (Ed.). *Understanding emerging epidemics: Social and political approaches*. Bingley: Emerald Publishing.
- Maturo, A. (2012a^o). *La società bionica. Saremo sempre più belli, felici e artificiali?* Milano: Franco Angeli.
- Maturo, A. (2012b). Medicalization: Current concept and future directions in a bionic society. *Mens Sana Monogr*, 10, 122–133. doi:10.4103/0973-1229.91587
- Maturo, A. (2013). The medicalization of education: ADHD, human enhancement and academic performance. *Italian Journal of Sociology of Education*, 3, 175–188. doi:10.14658/pupj-ijse-2013-3-10
- Maturo, A. (2014). Fatism, self-monitoring and the pursuit of healthiness in the time of technological solutionism. *Italian Sociological Review*, 2, 157–171. doi:http://dx.doi.org/10.13136/isr.v4i2.80
- Maturo, A., Mori, L., & Moretti, V. (2016). An ambiguous health education: The quantified self and the medicalization of the mental sphere. *Italian Journal of Sociology of Education*, 8(3), 248–268. doi:10.14658/pupj-ijse-2016-3-12
- Maturo, A., & Setiffi, F. (2016). The gamification of risk: How health apps foster self-confidence and why this is not enough. *Health, Risk & Society*, 17(7–8), 477–494. doi: https://doi.org/10.1080/13698575.2015.1136599
- Mayer-Schoenberger, V., & Cukier, K. (2013). *Big data. A revolution that will transform how we live, work, and think*. London: John Murray Publishers.
- McGonigal, J. (2011). *Reality is broken: Why games make us better and how they can change the world*. New York, NY: Penguin.
- McGonigal, J. (2015). *SuperBetter: A revolutionary approach to getting stronger, happier, braver and more resilient*. Toronto, Canada: Penguin Books.
- McLaren, L. (2007). Socioeconomic status and obesity. *Epidemiological Review*, 29, 29–48. doi:10.1093/epirev/mxm001
- McLellan, F. (2007). Medicalisation: A medical nemesis. *The Lancet*, 369, 627–628. doi: https://doi.org/10.1016/S0140-6736(07)60293-1
- McNay, L. (2009). Self as enterprise. Dilemmas of control and resistance in Foucault's the birth of biopolitics. *Theory, Culture & Society*, 26(6), 55–77. doi: https://doi.org/10.1177/0263276409347697
- Mead, G. H. (1934). *Mind, self and society*. Chicago, IL: University of Chicago Press.
- Merry, S. E. (2016). *The seductions of quantification: Measuring human rights, gender violence, and sex trafficking*. Chicago, IL: The University of Chicago Press.
- Miller, D. (2005). Materiality: An introduction. In D. Miller (Ed.). *Materiality*. Durham, NC: Duke University Press.
- Miller, P. (1992). Accounting and objectivity: The invention of calculating selves and calculable spaces. *Annals of Scholarship*, 9(1/2), 61–86. doi: https://doi.org/10.1016/0361-3682(87)90039-0
- Moretti, V., & Morsello, B. (2017). Self-management and type 1 diabetes. How technology redefines illness. *Italian Journal of Science and Technology Studies*, 8(1), 51–71. Retrieved from http://www.tecnoscienza.net/index.php/tsj/article/view/288/188
- Morozov, E. (2013). *To save everything, click here: Technology, solutionism, and the urge to fix problems that don't exist*. London: Penguin.
- Morsello, B., & Moretti, V. (2017). Your health in numbers. A sociological analysis of two quantified-self communities. *Salute e Società*, 3, 214–227. doi:10.3280/SES2017-SU3014
- Moss, M. (2013). *Salt sugar fat: How the food giants hooked us*. New York, NY: Random House.
- Moynihan, R., & Cassels, A. (2005). *Selling sickness: How the world's biggest pharmaceutical companies are turning us all into patients*. New York, NY: The Nation Institute.

- Moynihan, R., Heath, I., & Henry, D. (2002). Selling sickness: The pharmaceutical industry and disease mongering. *British Medical Journal*, *324*(7342), 886–891. Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1122833/>
- Murray, J. (2009). La pubblicità per i farmaci con obbligo di prescrizione in un contesto globale: Un confronto tra la Nuova Zelanda e gli Stati Uniti. In A. Maturò, & P. Conrad (Eds.). *La medicalizzazione della vita. Salute e Società*, *VIII*(2), 202–221. doi:10.3280/SES2009-002013
- Neresini, F. (2015). Quando i numeri diventano grandi: Che cosa possiamo imparare dalla scienza. *Rassegna Italiana di Sociologia*, *LVI*(3–4), 405–431. doi:10.1423/81798
- Nestle, M. (2002). *Food politics: How the food industry influences nutrition and health*. Berkeley, CA: University of California Press.
- Neyland, D. (2015). On organizing algorithms. *Theory, Culture & Society*, *32*(1), 119–132. doi: <https://doi.org/10.1177/0263276414530477>
- Nicoli, M. (2012). Io sono un'impresa. Biopolitica e capitale umano. *Aut-Aut*, *35*(6), 85–99. Retrieved from https://www.academia.edu/5163461/_Io_sono_unimpresa._Biopolitica_e_capitale_umano
- Nussbaum, M. C. (1995). Human capabilities, female human beings. In M. C., Nussbaum & J. Glover, (Eds.). *Women, Culture and Development*. Oxford: Clarendon Press.
- Oeppen, J., & Vaupel, J. (2002). Broken limits to life expectancy. *Science*, *296*, 1029–1031. Retrieved from <http://www.econ.ku.dk/okocg/VV/VV-Economic%20Growth/articles/artikler-2006/Broken-limits-to-life-expectancy.pdf>
- Omran, A. R. (2005). The epidemiologic transition: A theory of the epidemiology of population change. *Milbank Q.*, *83*(4), 731–757. doi:10.1111/j.1468-0009.2005.00398.x
- Oravec, J. A. (2015). Gamification and multigamification in the workplace: Expanding the ludic dimensions of work and challenging the work/play dichotomy. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, *9*(3), article 6. doi:10.5817/CP2015-3-6
- Parens, E. (2013). On bad and good forms of medicalization. *Bioethics*, *27*(1), 28–35. doi:10.1111/j.1467-8519.2011.01885.x
- Parsons, T. (1951). *The Social System*. Glencoe: The Free Press.
- Pasquale, F. (2015). *The black box society: The secret algorithms that control money and information*. Cambridge, MA: Harvard University Press.
- Pavòn-Cuéllar, D. (2014). “Extimacy”. In T. Teo (Ed.). *Encyclopedia of critical psychology*. New York, NY: Springer.
- Petersen, A. (1997). Risk, governance and the new public health. In A. Petersen, & R. Bunton (Eds.), *Foucault, health and medicine*. London: Routledge.
- Porter, T. M. (1995). *Trust in numbers: The pursuit of objectivity in science and public life*. Princeton, NJ: Princeton University Press.
- Postman, N. (1982). *The disappearance of childhood*. New York, NY: Random House.
- Putnam, R. (2000). *Bowling alone. The collapse and revival of American community*. New York, NY: Simone & Schuster.
- Ragnedda, M. (2008). *La società postpanoptica*. Roma, Italy: Aracne.
- Ragnedda, M. (2011). Social control and surveillance in the society of consumers. *International Journal of Sociology and Anthropology*, *3*(6), 180–188. Retrieved from http://www.academicjournals.org/article/article1379500884_Regnedda.pdf
- Rey, P. J. (2014). Gamification and post-Fordist capitalism. In S. P. Walz, & S. Deterding (Eds.). *The gameful world*. Cambridge, MA: The MIT Press.
- Richardson, S., & Mackinnon, D. (2017). Left to their own devices? Privacy implications of wearable technology in Canadian workplaces. *Surveillance Studies Centre*. Retrieved from <http://www.sscqueens.org/publications/left-to-their-own-devices>
- Ritzer, G. (1997). *Il mondo alla McDonald's*. Bologna, Italy: Il Mulino.
- Rogers, A., & Pilgrim, D. (2011). Medical sociology and its relationship to other disciplines: The case of mental health and the ambivalent relationship between sociology and psychiatry. In B. Pescosolido, J. Martin, J. Mcleod, & A. Rogers (Eds.), *The handbook of the sociology of health, illness & healing: Blueprint for the 21st century* (pp. 21–38). New York, NY: Springer.

- Rosa, H. (2010). *Alienation and acceleration: Towards a critical theory of late-modern temporality*. Singapore: NUS Press.
- Rose, N. (1990). *Governing the soul: The shaping of the private self*. London: Routledge.
- Rose, N. (2007). *The politics of life itself: Biomedicine, power, and subjectivity in the twenty-first century*. Princeton, NJ: Princeton University Press.
- Rositi, F. (1970). *L'analisi del contenuto come interpretazione*. Torino, Italy: ERI.
- Rutgers, H. (2014). Summary of recommendations for stakeholders. In EHFA (Ed.), *The future of health and fitness: A plan for getting Europe active by 2025*. Nijmegen, The Netherlands: Black Box Publishers.
- Sandel, M. (2009). The case against perfection: What's wrong with designer children, bionic athletes, and genetic engineering. In J. Savulescu & N. Boström (Eds.), *Human enhancement* (pp. 71–90). Oxford: Oxford University Press.
- Saramago, J. (2005). *As intermitências da morte* (Death with interruptions). San Diego, CA: Harcourt.
- Schäfer, M., & van Es, K. (2017). *The datafied society, studying culture through data*. Amsterdam: Amsterdam University Press.
- Schein, E. H. (2010). *Organizational culture and leadership*. Hoboken, NJ: John Wiley & Sons.
- Schnabel, A., Bengs, C., & Wiklund, M. (2012). Modernità, stress e ricerca dell'autogestione emotiva (Modernity, stress and the quest for emotional self-management). *Salute e Società*, 2(16), 74–89. doi:10.3280/SES2012-S02006
- Schor, J. (2004). *Born to buy: The commercialized child and the new consumer culture*. New York, NY: Simon & Schuster.
- Sennett, R. (1974). *The fall of public man: On the social psychology of capitalism*. New York, NY: Vintage Books.
- Sharon, T. (2017). Self-tracking for health and the quantified self: Re-articulating autonomy, solidarity, and authenticity in an age of personalized healthcare. *Philosophy & Technology*, 30, 93–121. Retrieved from <https://link.springer.com/article/10.1007/s13347-016-0215-5>
- Shim, J. K. (2010). Cultural health capital: A theoretical approach to understanding health care interactions and the dynamics of unequal treatment. *Journal of Health and Social Behavior*, 51(1), 1–15. doi:10.1177/0022146509361185
- Simon, B. (2005). The return of panopticism: Supervision, subjection and the new surveillance. *Surveillance & Society*, 3(1), 1–20. Retrieved from <https://ojs.library.queensu.ca/index.php/surveillance-and-society/article/view/3317>
- Sontag, S. (1977). *Illness as metaphor*. New York, NY: Vintage.
- Speakman, J. R. (2013). Evolutionary perspectives on the obesity epidemic: Adaptive, maladaptive, and neutral viewpoints. *Annual Review of Nutrition*, 33, 289–317. doi:10.1146/annurev-nutr-071811-150711
- Sullivan, D. A. (2010). A social change model of the obesity epidemic. In A. Mukherjea (Ed.), *Understanding emerging epidemics: Social and political approaches*. Bingley: Emerald Publishing.
- Sztompka, P. (2000). *The ambivalence of social change: Triumph or trauma?* Berlin, Germany: WZB, Querschnittsgruppe Arbeit und Ökologie.
- Tesnière, L. (1959). *Éléments de syntaxe structural*. Paris: Librairie C. Klincksieck.
- Timmermans, S., & Almeling, R. (2009). Objectification, standardization, and commodification: A conceptual readjustment and research agenda. *Social Science and Medicine*, 69, 21–27. doi:10.1016/j.socscimed.2009.04.020
- Timmermans, S., & Epstein, S. (2010). A world of standard but not a standard world: Toward a sociology of standards and standardization. *Annual Review of Sociology*, 36, 69–89. Retrieved from <http://www.iheal.univ-paris3.fr/sites/www.iheal.univ-paris3.fr/files/%21%20ISO%20Timmermans-Epstein-ARS-WSSW.pdf>
- Tomlinson, J. (2007). *The culture of speed: The coming of immediacy*. London: Sage Publications.
- Topol, E. (2016). *The patient will see you now: The future of medicine is in your hands*. New York, NY: Basic Books.
- Turner, B. (2004). *The new medical sociology*. London: W.W. Norton & Company.

- Turrini, M. (2015). Practicing the biomedicine to come: Direct-to-consumer genetic testing, healthism and beyond. *Eà: Journal of Medical Humanities & Social Studies of Science, Technology and Biomedicine*, 7(2), 49–69. Retrieved from <https://lissuu.com/eajournal/docs/10-turrini>
- Twaddle, A. (1979). *Sickness behavior and the sick role*. Boston, MA: G. K. Hall & Co.
- Twaddle, A. (1994). Disease, illness and sickness revisited. In A. Twaddle, & L. Nordenfelt (Eds.), *Disease, illness and sickness: Three central concepts in the theory of health. Studies on health and society*. Sweden: Linköping, p. 18.
- Twaddle, A., & Hessler, R. (1978). *Handbook of medical sociology*. New York, NY: MacMillan.
- van Dijck, J. (2014). Datafication, dataism and dataveillance: Big data between scientific paradigm and ideology. *Surveillance & Society*, 12(2), 197–208. Retrieved from <https://ojs.library.queensu.ca/index.php/surveillance-and-society/article/view/datafication>
- Veiz, P., & Bruno, F. (2003). Types of self-surveillance: From abnormality to individuals ‘at risk’. *Surveillance & Society*, 1(3), 272–291. Retrieved from <https://ojs.library.queensu.ca/index.php/surveillance-and-society/article/view/3341>
- Viola, F. (2017). *Gamification per la vita dei cinesi*. Retrieved from <http://www.gamefications.com/autore/>
- Walz, S. P., & Deterding, S. (2015). *The gameful world approaches, issues, applications*. Cambridge, MA: The MIT Press.
- Watzlawick, P. (1974). *Change: Principles of problem formation and problem resolution*. New York, NY: W.W. Norton & Company.
- Watzlawick, P., Beavin, J. H., & Jackson, D. (1967). *Pragmatics of human communication*. New York, NY: W.W. Norton & Company.
- Wen, P. C., & Wu, X. (2012). Stressing harms of physical inactivity to promote exercise. *The Lancet*, 380, 192–193. doi:10.1016/S0140-6736(12)60954-4
- Whitson, J. R. (2013). Gaming the quantified self. *Surveillance & Society*, 11(1/2), 163–172. Retrieved from <https://ojs.library.queensu.ca/index.php/surveillance-and-society/article/view/gaming>
- Whitson, J. R. (2014). Foucault’s fitbit: Governance and gamification. In S. P. Walz, & S. Deterding (Eds.), *The gameful world*. Cambridge, MA: The MIT Press.
- Wilkinson, I. (2001). *Anxiety in a risk society*. London: Psychology Press.
- Williams, S. J., Martin, P., & Gabe, J. (2011). The pharmaceuticalisation of society? A framework for analysis. *Sociology of Health & Illness*, 33(5), 710–725. doi:10.1111/j.1467-9566.2011.01320.x
- Wolf, G. (2010, May 2). The data-driven life. *The New York Times*, Sunday Review, MM38. Retrieved from http://www.nytimes.com/2010/05/02/magazine/02self-measurement-t.html?_r=0
- Wood, D. (2003). Editorial. Foucault and panopticism revisited. *Surveillance & Society*, 1(3), 234–239. Retrieved from <https://ojs.library.queensu.ca/index.php/surveillance-and-society/article/view/3338>
- Young, A. (2006). Antropologia della “illness” e della “sickness”. In I. Quaranta (Ed.), *Antropologia medica* (pp. 107–148). Milano, Italy: Cortina Ed.
- Zinn, J. (2008). Heading into the unknown: Everyday strategies for managing risk and uncertainty. *Health, Risk & Society*, 10(5), 439–450. doi:10.1080/13698570802380891
- Zola, I. (1983). *Socio-medical inquiries*. Philadelphia, PA: Temple University Press.
- Zuboff, S. (2015). Big other: Surveillance capitalism and the prospects of an information civilization. *Journal of Information Technology*, 30, 75–89. doi:10.1057/jit.2015.5

This page intentionally left blank

Index

Note: Page numbers followed by “n” with numbers indicate foot notes.

- Accelerated society, 4, 83, 118, 151
- Acceleration, 72, 107
 - of pace of life, 72
 - of rhythms of life, 107
 - of social changes, 72, 107
- Ad-hoc services, 93
- Adapted physical activity (APA), 140
- Adapted physical exercise (APE), 140
- Adherents, 73
- Age compression, 31–32
- Age extension, 32
- Age of anxiety, 106, 109, 124
- Aging, 6, 31, 133–138
 - mitochondrial-free radical theory, 43
 - population, 143
- AIDS, 146
- Alcoholism, 49, 135
- Algorithms, 23–26, 103
- American College of Sports Medicine (ACSM), 138, 149
- American Medical Association (AMA), 138, 149
- Amish community, 73
- “Anomie”, 106, 131
- Anxiety, 122, 123, 130
 - age of, 106, 109, 124
 - between loss of tradition and social acceleration, 105–107
 - in risk society, 107–110
- Apple Health apps, 141
- Apps, 103, 125, 152
 - Diet apps, 152
 - digital meditation apps, 110
 - DoctOral app, 98–99
 - foster medicalization of mood, 66–69
 - free trial, 131
 - gamification in, 3, 33
 - health apps, 126, 152
 - interactions with, 122–123
 - MapMyFitness apps, 141
 - meditation apps, 152
 - Mental health apps, 152
 - self-tracking apps, 66–67
 - stores, 110
- Atlas.ti, 114
- Attention, 111
- Attention Deficit Hyperactivity Disorder (ADHD), 49, 66
- Barker’s analysis, 123
- Bedside Medicine, 96
- Behavioral economics, 10
- Bills, 21
- Bingo, 112
- Bio-conservative attitudes, 76
- Biological-evolutionary perspective, 136
- Biomedical
 - complex, 48
 - language, 145
 - lexicon, 145
- Biomedicalization, 53
- Biomedicine, 152
- Bipolar disorder, 66
- Birth of the Clinic, The* (Foucault), 95, 97
- Black Future Social Club (BFSC), 23
- Bleisure, 30
- “Blister” function, 141
- Body perception, 129–130
- Bureaucracy, 89
- Bureaucratic surveillance analysis, 89
- Burnout Society, The* (Han), 73–74
- Calculating power, 22
- “Calculating selves”, 23
- Capital-intensive surveillance, 89

- Capitalism, 52, 131
 - infant ethos of, 29–33
 - infantilizes consumers, 31
- Career management, 44
- Caries, 60
- Cholesterol-lowering drugs, 57
- Chronic conditions, 133
 - families, 134–135
 - inevitable growth of healthcare costs, 135–137
 - overall decrease in PA, 137–138
 - western society, 133–134
- Chronic diseases, 134
- Chronic fatigue, 62
- Chronic-degenerative diseases, 134, 148
- Citizen score, 22
- Clinical medicalization, 152
- Co-morbidity proliferation, 65
- Co-operational gamification, 34
- Cognitive psychology, 10
- Command-and-control government model, 11
- Computer Assisted Qualitative Data Analysis Software, 114
- Computer–human interaction researchers, 39–40
- Conceptual medicalization, 6, 52, 56–57, 70, 123, 145, 149, 151–152
- Consumerism, 57
- Consumers, 54–55
- Consumption habits, 21
- Contemporary social media platforms, 91
- Content analysis, 117, 122
- Corporate management, 78–79
- Corporate tracking, 100
- Corporate wellbeing, 100
- Credit cards, 21
- Credit score, 27
- Critical thinkers, 2
- Cultural and structural inertia, 74

- Data-driven approach, 101
- “Data-driven life”, 10, 26, 125
- Data-driven research, 23–26
- Dataveillance, 5, 91–93
- Datification, 93, 101
- De-politicization, 11–12
- De-stressing function of app, 123
- Deceleration, 72, 83
 - functional, 83, 110, 127
 - intentional, 74
 - oases of, 73
 - unintentional delay, 73–74
- Demographics, 146
- Depression, 66
- “Deregulatory state ideology”, 58
- Design standards, 16
- Diagnostic and Statistical Manual of Mental Disorders (DSM)*, 4, 12, 63
 - and quantified diagnosis, 59–63
- Diagnostic psychiatry, 12, 63
- Diet apps, 152
- Digital health, 104, 143
 - approaching surveillance through sociological theories, 85–90
 - dark side of, 99
 - digital surveillance, 90–93
 - m-Health, 100–101
 - self-entrepreneur, 101–102
 - self-tracking practices, 99–100
 - softening of self-surveillance, 97–99
 - studies, 2
 - and surveillance, 94–97
 - vitality, 102–103
- Digital meditation, 118, 121, 123, 125–127
 - apps, 110
 - questionnaire, 153–156
- Digital solidarity, 141–143
- Digital surveillance, 90–93, 102
- Digital technologies, 91, 98, 104
- Digital therapy, 5–6, 123–124, 126
- Digitalization, 31, 40, 43
 - wellness, 141
- Disciplinary institutions, 91
- Discomfortness, 47, 63, 73, 105, 119, 123

- Disease, illness, and sickness (DIS), 59–61
- Disease mongering, 4, 53–55
- “Distant governance”, 16–17
- DoctOral app, 98–99
- “Domestication” of individuals, 87
- Driving habits of person, 99
- Dynamics of health systems, 143
- Dynamization, 72
- Economic forces, 53–54
- EIM Global Health Initiative, 139
- Emilia–Romagna Case, 140
- “Emotion-risk assemblage” theory, 43
- Emotional capital, 147
- Endoptikon, 3, 39–45
- Entrepreneurial governmentality, 81
- Entrepreneurial subject, 81
- Epidemic of mental disorders, 63–66
- “Eschatological” scenarios, 33
- Ethical attitudes, 76
- Eurobarometer, 137
- European Initiative for Exercise in Medicine (EIEIM), 139
- Evidence-based governance, 11
- Evidence-based medicine, 19, 151
- Exercise is Medicine (EIM), 6, 138, 144, 149
 - chronic conditions, ageing, and cost of physical inactivity, 133–138
 - digital solidarity, 141–143
 - evolution, 138–139
 - fostering positive digital medicalization, 143–147
 - PA as therapy, 140–141
 - prescribing pills of exercise, 138
 - spillover effects of fitness, 147–148
- Extimacy, 43–45
- Facebook, 34, 44, 92–93, 97
- Fibromyalgia, 62
- Financial algorithms “make decisions”, 10
- Financial capital, 147
- Fitbits, 102
 - watches, 141
- Fitness, 146, 148
 - fitness-tracking devices, 100
 - spillover effects of, 147–148
- Forced labor, 86
- Foucault’s picture of control, 86
- Foucault’s treatment of surveillance, 88
- Fox-effect, 32
- Fractal geometry, 98
- Framing, 3, 39, 68, 70
- Functional deceleration, 74, 83, 110, 127
- Futile diagnostics, 55
- Games, 1, 3, 35–37, 68
- Gamification, 1–4, 33–35, 99, 146, 152
 - features, 112
 - governmentality and endoptikon, 39–45
 - of HS, 112, 113
 - infant ethos of capitalism, 29–33
 - philosophy of Jane McGonigal, 35–39
- Gamification and future of education*, 1
- Garmin watches, 141
- Generational misfortune, 30
- Genetic predisposition, 55
- Globesity, 6, 136
- Google Form, 114
- Google Play, 110
- Google search engine, 1
- Governmentality, 39–45, 78, 80
 - entrepreneurial, 81–82
- Gross Domestic Product (GDP), 22
- Grounded theory, 25–26
- Headspace app (HS app), 110–111, 123, 126
 - quantitative analysis, 114–117
 - and research-design, 110–114
- Health
 - apps, 126, 152
 - behavior change, 2
 - care realm, 34
 - IQ, 102
 - management model, 100
 - and surveillance, 94–97

- Health surveillance
 - health-insurance companies, 104
 - Italian health surveillance
 - initiative, 94
 - and medicine, 96
 - policies, 103
 - public, 94
- Health-related surveillance, 104
- Healthcare costs, 135
 - inevitable growth of, 135–137
- Healthism, 47–51, 97
- Healthization, 50
- Healthy lifestyles, 148
- Heart attack, 62
- Heartbeats, 10
- Hierarchical model, 11
- “Hospital Medicine”, 96
- Human capital model, 147
- Human enhancement, 42–43, 74–78
- Human life cycle, 137
- Human standard, 16
- Humanity, 135

- Illness, experienced, 66
- Immutable mobiles, 14
- In vitro fertilization, 75
- “Indicator culture”, 2, 42, 45
- Indicators, 10
- Individual capital, 147
- Individual life cycle, 137
- Inevitable growth of healthcare costs, 135–137
- Infant ethos of capitalism, 29–33
- Infantilization of consumer, 32
- Institutional language, 14
- Institutional medicalization, 52
- Institutional sickness, 66
- Intellectual capital, 147
- Intelligence Quotient (IQ), 22
- Intentional deceleration, 74
- Interactional medicalization, 52, 56–57
- Interactions with app, 122–123
- “Interstitial” activity, 30
- Interveillance, 5, 45, 91
- Intra-actions, 41–42
- iTunes, 110

- Junk food, 49, 136
- Justice system, 86

- La sorveglianza Passi, 94
- Laboratory Medicine, 96
- The Lancet*, 138
- Learning practices, 33
- “Let’s Move for Better World”
 - initiative, 141–143
- Library Medicine, 96
- Life expectancy, 148
- “Linguistic turn”, 13
- LinkedIn, 93
- Local Health Authorities (LHA), 140
- Lung tumor gene, 49

- m-Health, 100, 103
- Machine-learning approach, 24
- Management characteristic, 17
- MapMyFitness apps, 141
- Market surveillance, 88
- McGonigal, Jane, 35–39
- Mechanical solidarity, 106
- Medical dominance, 52–53, 65
- Medical domination, 152
- Medical jurisdiction, 65
- Medical knowledge, 95
- Medical language, 145
- Medical technology, 135
- Medicalization (*see also* Positive medicalization), 3, 51, 97, 144–145, 149
 - apps foster medicalization of mood, 66–69
 - consumers, 54–55
 - drivers, 53
 - DSM and quantified diagnosis, 59–66
 - economic forces, 53–54
 - organization of care, 56
 - and pharmaceuticalization, 56–59
 - technology, 55–56
 - therapy culture and healthism, 47–51
- Medicalized perception of body, 123

- Meditation, 110, 111
 apps, 126, 152
 bodily changes, 120
 body perception, 129–130
 changes in mood, 117–120
 digital therapy, 124–126
 interactions with app, 122–123
 productivity, 120–122
 relaxing and stressful at same
 time, 117
 stress, 126–128
 as therapy, 123
- Menstrual cycle, 10
- Mental disorder, 58
- Mental health apps, 152
- Mental illness, 129
- Meta-narratives, 106, 131
 crisis, 151
- Metaphorical language, 146
- Mindfulness, 110
- Misdiagnosis, 55
- Mobile devices, 97
- Mobile-Health (M-Health), 34
- Modern surveillance, 89
- Modern technology, 90
- Modernity, 107
- Modernity, late, 107
- Mood, 129
 changes in, 117–120
 tracking, 110
- “Motivation messages”, 112
- Motivational gamification, 34
- Movergy Index, 141
- MOVEs, 142
- “MuoviBo” app, 140
- National Alliance on Mental
 Illness, 57
- National Health Service, 94
- Natural limits, 72–73
- Naturalization, 13
- Neo-Luddism, 6
- “Neoliberal bureaucratization of
 world”, 11–12
- Neoliberal subjects, 4, 79–80, 82
- Neoliberalism, 12, 31, 83–84
- Network sociality, 92
- Neuro-chemical processes, 48
- “Neurochemical self”, 129
- “Neutral” conception of surveillance, 90
- New surveillance, 90–91, 93
 standards and practices, 98
- “Niche standardization”, 16, 18
- Non-communicable diseases, 134
- Non-panoptic theories, 86, 103
- Nosology, 95*n*4
- Numerical thresholds, 10
- Oases of deceleration, 73
- Obesity, 103, 135
- “Obesity epidemic”, 136
- OKkio alla SALUTE* system, 94
- On-exerciser, 146
- Optimization and human
 enhancement, 74–78
- “Organic” solidarity, 106
- Organization of care, 56
- Organizational characteristic, 17
- Organizational culture, 18
- “Outdoor” function, 141
- Overdetection, 55
- Overdiagnosis, 4
- Overmedicalization, 144
- Panhealthitism, 50
- Panoptic theories, 103
 of surveillance, 88
- Panoptic theory, 85–86
- Panopticon, 86–87
 conception of control, 92
- Passi surveillance program, 94
- Performance standard, 16
- Personal Identification Number
 (PIN), 41
- Personal information, 21
- Personal responsibility, 134
- Personal scores
 and ratings, 27
 social classes to, 20–26
- Personnel management, 81
- Pertinent surveillance systems, 88
- Pharmaceutical industry, 57

- Pharmaceutical treatment, 64
 Pharmaceuticalization, 56–59
 Physical activity (PA), 134, 139, 145, 147, 149
 overall decrease in PA, 137–138
 as therapy, 140–141
 Physical capital, 147–148
 Physical exercise, 146
 Physical inactivity
 chronic diseases related to, 142
 cost of, 133–138
 Physiology, 10
 Political economy
 of food products, 136
 of pharmaceutical industry, 57–58
 Positive digital medicalization, 143–147
 Positive medicalization (*see also* Medicalization), 6, 144
 anxiety between loss of tradition and social acceleration, 105–107
 anxiety in risk society, 107–110
 Headspace app and research-design, 110–117
 meditation as therapy, 123–130
 meditation relaxing and stressful, 117–123
 Post-Fordism capitalism, 40
 Post-Fordistic economy, 3, 40
 Post-traumatic stress disorder (PTSD), 67
 Postmodern condition, 130
 Postmodernism, 106
 Power, 97
 Pre-modernity, 107
 “Prediabetes”, 55
 Prescribing pills of exercise, 138–143
 Prevention, 48
 Primary prevention, 95
 Procedural standard, 16
 Productive capacity of person, 79
 Productivity, 113, 120–122
 Prosocial emotions, 36
 Protestant ethos, 31
 Proto-clinic, 95
 Pseudodisease, 55
 Psychotherapy, 57
 “Psyculture”, 110
 Public health surveillance, 94
 Public language, 14
 Public sector, 11
 Quantifact, 26, 42
 Quantification rise and power of numbers, 9–15
 Quantified-self (QS), 71
 optimization and human enhancement, 74–78
 Self of QS, 78–83
 social acceleration, optimization, and QS, 71–74
 Quantitative analysis of HS, 114–117
 “Quantitative Self” group, 26
 Questionnaire digital meditation, 153–156
 Rankings, 10
The Razor’s Edge, 124
 “Ready-to-use” scientific facts, 13
 Reductionism and proliferation of disorders, 64
 Rehabilitation, 48
 Research & Development (R&D), 4
 Ripple effect, 82
 Risk society, anxiety in, 107–110
 Risk-factor monitoring, 104
 Risk-reduction, 48
 Saver gene, 136
 Science, Technology, and Society (STS), 13
 Secondary prevention, 95
 Secularization, 107
 Self-entrepreneur, 78–83, 101
 Self-management, 17, 78–79
 Self-surveillance, softening of, 97–99
 Self-tracking, 2, 4, 10–11, 14, 98–99, 102, 152
 apps, 66–67
 component of HS, 113

- deconstructing standardization, 15–19
 - modalities, 67
 - practices, 99–100
 - from social classes to personal scores, 20–26
- Semantic illness, 66
- Sesame Credit Score, 20
- Shift-work sleep disorder, 62
- Sickscapes, 66
- SkinVision app, 98
- Smartphone technology, 122
- Smartwatches, 100
- Smoking, 135
- “Sociability” score, 42
- Social acceleration, 71–74, 107
 - anxiety between loss of tradition and, 105–107
- Social capital, 147
- Social classes to personal scores, 20
 - algorithms and data-driven research, 23–26
 - citizen score, 22
 - educational sociological case study, 21
 - SCS, 20
- Social connections, 36
- Social credit system (SCS), 20
- Social deceleration, 72
- Social engagement, 21
- Social inequality theory, 136–137
- Social institutions, 107
- Social media, 90
- Social networks, 93, 148
- “Social physique”, 51
- Social system, 61
- Social Wall, 23
- Social-exclusion effects, 3
- Socialization, 33
- Society, 48, 107
 - of control, 87
- The Society of Uneasiness*, 73–74
- Socio-cultural perspective of analysis, 66–67
- Socio-economic
 - causes of obesity, 136
 - characteristics, 24–25
- Sociological theories
 - approaching surveillance through, 85
 - panoptic theory, 85–86
- Sociologists, 41–42
- Sociology, 106
 - of diagnosis, 61–63
- Softening of self-surveillance, 97–99
- Spillover effects of fitness, 147–148
- Sport, 152
- Standard biomedical human, 16
- Standards/standardization, 15
 - deconstructing standardization, 15–19
 - design, 16
 - performance, 16
 - procedural, 16
 - terminological, 16
- Statistical analysis, 114
- Stress, 123–124, 126–130
- SuperBetter app, 35
- Surveillance, 87–89
 - Bureaucratic surveillance analysis, 89
 - capital-intensive, 89
 - capitalism, 93
 - digital, 90–93, 102
 - Foucault’s treatment of, 88
 - health and, 94–97
 - health-related, 104
 - Market, 88
 - modern, 89
 - “neutral” conception of, 90
 - panoptic theories of, 88
 - Passi surveillance program, 94
 - pertinent surveillance systems, 88
 - public health, 94
 - through sociological theories, 85
 - through sociological theories, 85–90
 - traditional, 90
- Surveillance by state, 88
- “Surveillance Medicine”, 96–97
- Syndromization, 12
- Synopticism, 92
- Synopticon, 5, 91–92, 104

- “Tech-enthusiastic” attitudes, 76
- Techno-enthusiastic wave, 101
- Technoenthusiasts, 2
- Technogym app, 141–142, 149
- Technological/technology, 93
 - acceleration, 71, 107
 - convergence, 90
 - solutionism, 5, 101
- Television, 90
- Terminological standards, 16
- Tertiary prevention, 95
- Therapy culture and healthism, 47–51
- Traditional broadcasting systems, 91
- Traditional public health-based approach, 138
- Traditional surveillance, 90
- Transhumanism, 75
- Tuberculosis, 62
- Twitter, 93, 97
- Unintentional delay, 73
- Univariate data, 114
- Video game, 31
- Violent crime, 86
- Vitality, 102
- Voluntary participation of players, 36
- Wearable devices, 100, 141
- Weisure, 29–33, 40, 45
- Wellness culture, 148
- Wellness Enthusiasts, 142
- Western society, 148
- World Economic Forum (WEF), 142
- World Health Organization (WHO), 50, 94, 135
- World Trade Organisation (WTO), 64
- YouTube, 93