

Springer Series in Design and Innovation 37

Francesca Zanella · Giampiero Bosoni ·
Elisabetta Di Stefano · Gioia Laura Iannilli ·
Giovanni Matteucci · Rita Messori ·
Raffaella Trocchianesi *Editors*

Multidisciplinary Aspects of Design

Objects, Processes, Experiences and
Narratives

OPEN ACCESS


 Springer

Editor-in-Chief

Francesca Tosi, *University of Florence, Florence, Italy*

Series Editors

Claudio Germak, *Politecnico di Torino, Turin, Italy*

Francesco Zurlo , *Politecnico di Milano, Milan, Italy*

Zhi Jinyi, *Southwest Jiaotong University, Chengdu, China*

Marilaine Pozzatti Amadori, *Universidade Federal de Santa Maria, Santa Maria, Rio Grande do Sul, Brazil*

Maurizio Caon , *University of Applied Sciences and Arts, Fribourg, Switzerland*

Springer Series in Design and Innovation (SSDI) publishes books on innovation and the latest developments in the fields of Product Design, Interior Design and Communication Design, with particular emphasis on technological and formal innovation, and on the application of digital technologies and new materials. The series explores all aspects of design, e.g. Human-Centered Design/User Experience, Service Design, and Design Thinking, which provide transversal and innovative approaches oriented on the involvement of people throughout the design development process. In addition, it covers emerging areas of research that may represent essential opportunities for economic and social development.

In fields ranging from the humanities to engineering and architecture, design is increasingly being recognized as a key means of bringing ideas to the market by transforming them into user-friendly and appealing products or services. Moreover, it provides a variety of methodologies, tools and techniques that can be used at different stages of the innovation process to enhance the value of new products and services.

The series' scope includes monographs, professional books, advanced textbooks, selected contributions from specialized conferences and workshops, and outstanding Ph.D. theses.

The volumes of the series are single-blind peer-reviewed.

Keywords: Product and System Innovation; Product design; Interior design; Communication Design; Human-Centered Design/User Experience; Service Design; Design Thinking; Digital Innovation; Innovation of Materials.

How to submit proposals

Proposals must include: title, keywords, presentation (max 10,000 characters), table of contents, chapter abstracts, editors'/authors' CV.

In case of proceedings, chairmen/editors are requested to submit the link to conference website (incl. relevant information such as committee members, topics, key dates, keynote speakers, information about the reviewing process, etc.), and approx. number of papers.


Proposals must be sent to: series editor Prof. Francesca Tosi (francesca.tosi@unifi.it) and/or publishing editor Mr. Pierpaolo Riva (pierpaolo.riva@springer.com).


Francesca Zanella · Giampiero Bosoni ·
Elisabetta Di Stefano · Gioia Laura Iannilli ·
Giovanni Matteucci · Rita Messori ·
Raffaella Trocchianesi
Editors

Multidisciplinary Aspects of Design

Objects, Processes, Experiences and Narratives

Editors

Francesca Zanella 
Department of Engineering “Enzo Ferrari”
University of Modena and Reggio Emilia
Modena, Italy

Giampiero Bosoni 
Department of Design
Politecnico di Milano
Milan, Italy

Elisabetta Di Stefano 
Department of Humanities
University of Palermo
Palermo, Italy

Gioia Laura Iannilli 
Department of Philosophy
and Communication Studies
University of Bologna
Bologna, Italy

Giovanni Matteucci 
Department of Philosophy
and Communication Studies
University of Bologna
Bologna, Italy

Rita Messori
Department of Humanities, Social Sciences
and Cultural Industries
University of Parma
Parma, Italy

Raffaella Trocchianesi 
Department of Design
Politecnico di Milano
Milan, Italy



ISSN 2661-8184

ISSN 2661-8192 (electronic)

Springer Series in Design and Innovation

ISBN 978-3-031-49810-7

ISBN 978-3-031-49811-4 (eBook)

<https://doi.org/10.1007/978-3-031-49811-4>

This work was supported by Centro Studi e Archivio della Comunicazione, Università di Palermo and Politecnico di Milano.

© The Editor(s) (if applicable) and The Author(s) 2024. This book is an open access publication.

Open Access This book is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this book are included in the book's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the book's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

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

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

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

Paper in this product is recyclable.

Without their help, it wouldn't have been possible to make this event and this volume happen. We hope that this book will become a useful tool of reflection on the theoretical and methodological aspects between humanities and design.

The scientific committee and book editors:

Giampiero Bosoni, Elisabetta Di Stefano, Gioia Laura Iannilli, Giovanni Matteucci, Rita Messori, Raffaella Trocchianesi and Francesca Zanella.

Reference

1. Celaschi, F.; Penati, A.; Trocchianesi, R. Design e Humanities al Politecnico di Milano, pp. 16–30. In M. Celi; E. Formia (eds) *Humanities Design Lab. Le culture del progetto e le scienze umane e sociali*. Maggioli editore, Sant'Arcangelo di Romagna (2016).

Contents

OBJECTS

Beyond the Beauty-Utility Diatribe: Towards New Aesthetic Categories for the Eco-design	3
<i>Elisabetta Di Stefano</i>	

“The Useful-Beautiful Couplet”: On the Aesthetic Appraisal of Designed Objects	11
<i>Jane Forsey</i>	

Imaginative Object and Mimetic Object	21
<i>Andrea Mecacci</i>	

OBJECTS. Objects Between Anthropology and Material Culture

Seaweed Fabrics for Fashion Design. A Field Research Experience	31
<i>Paolo Franzo</i>	

Material Objects as Dispositive of Memory	41
<i>Toufic Haidamous</i>	

Objects Between Material Culture and Visual Culture	56
<i>Loredana La Fortuna</i>	

Puppets’ Tales. New Design Perspectives for a Multimedia Archive of a Humanity’s Intangible Heritage	65
<i>Vincenzo Maselli</i>	

Anonima Castelli. Objects, Design and Cultural Heritage	75
<i>Dario Scodeller</i>	

OBJECTS. Political and Social Value of Objects

Through the Mirror. Concept Maps to not Lose (One’s Way Between) Objects	87
<i>Silvia Berselli</i>	

For F☆ck's Sake. The Political Narrative of Sex Toys in the Communication of MySecretCase 103
Silvia Biasetton and Noemi Biasetton

Telephones in Italy, the Italtel Study-Case 116
Rosa Chiesa

Design and Self-reproduction: A Theoretical-Political Perspective 127
Alessio Fransoni

OBJECTS. Philosophy and Representation

Everyday Design: The Aesthetic Dimension of Alternative Use 139
Monika Favara-Kurkowski

Digital Objects' Aesthetic Features. Virtuality and Fluid Materiality in the Aesthetic Education 147
Lorenzo Manera

The Value System of Objects Through the Interpretation of Photographic Language 156
Paola Proverbio

Objects, Things, Hyperobjects. A Philosophical Gaze on Contemporary Design 165
Chiara Scarpitti

OBJECTS. Symbolic Value and Use Value

The Evolution of Yacht: From Status-Symbol to Values' Source 177
Giuditta Margherita Maria Ansaloni, Arianna Bionda, and Andrea Ratti

Liberating the Imprisoned Soul of Dorian Gray: Cultural Affordance as Design Tool to Rediscover Cultural Values 187
Andreas Sicklinger and Alireza Ajdari

The Extraordinary Everyday. The Post-Crafts in the Historical City 197
Viviana Trapani

PROCESSES

Archives and Processes 211
Francesca Zanella

25 Ways to Hammer a Nail. “Postrocian” Aesthetics and Everyday Life’s Poetics in Enzo Mari	225
<i>Rita Messori</i>	

PROCESSES. Contemporary Strategies and Perspectives

Design Through Body Memory for the Regeneration of Urban Areas	235
<i>Anna Anzani, Giulio Capitani, and Eugenio Guglielmi</i>	

Environmental Re-design of the Top San No Touch 2.0 Portable Toilet: The Contribution of the Bio-inspired Approach	244
<i>Mariangela Francesca Balsamo</i>	

How to Use Strategic Design Process to Address Complex Challenges: A Practical Case of Application to Discuss Strategic Design Process’ Fundamental Traits	254
<i>Gianluca Carella, Michele Melazzini, and Francesco Zurlo</i>	

Design for Emergencies: The Contribution of Design Culture in Emergencies	263
<i>Chiara De Angelis</i>	

PROCESSES. Histories of Processes and Processes for History

Exhibiting Design as a Process	275
<i>Fiorella Bulegato and Marco Scotti</i>	

Toward Paris! 45 Years of Domus for a Design à la Français	285
<i>Elena Dellapiana</i>	

Archival Projects. Tools and Methods for Promoting the Corporate Culture Starting from Historical Brand	295
<i>Elena Dellapiana, Ali Filippini, Chiara L. Remondino, and Paolo Tamborrini</i>	

<i>Working in Regress and Beyond, with Rural Material Culture [1]</i>	304
<i>Elisabetta Rattalino</i>	

PROCESSES. Design Methodological Processes

Air as a Design Tool: Raw Material, Infra-material Space, and Transformative Matter	315
<i>Francesca Ambrogio</i>	

Evasion Design for the Novacene Era Design and Production of Cultural Imaginaries 325
Mario Ciaramitaro and Pietro Costa

The Physical Model as an Evolution of the Design Process: From the “Capostipite” to the Finished Product 334
Alessandro Di Stefano and Davide Paciotti

The Felicitating Factor. Cinzia Ruggeri’s Clothing Project 344
Elena Fava

Environmental Affordances: Some Meetings Between Artificial Aesthetics and Interior Design Theory 354
Fabrizio Gay and Irene Cazzaro

PROCESSES. Dematerialized Processes

The Critical Forms of Design Futures Scenarios: Introducing Unconventional Ways of Scenarios Making 367
Ammer Harb

How Do Design Narratives Play a Role in Cognitive and Social Processes? An Explorative-Systematizing Expert Interview 377
Yasuyuki Hayama and Francesco Zurlo

Human-AI System Co-creativity to Build Interactive Digital Narratives 388
Anca Serbanescu

Envisioning Technological Artefacts Through Anticipatory Scenarios and Diegetic Prototypes 399
Mila Stepanovic and Venere Ferraro

EXPERIENCES

Feeling Through Technology 411
Jocelyn Spence

EXPERIENCES. Education and Culture

Storytelling as a Tool to Design Museum Experiences: The Case of the Secret Marquise 423
Licia Calvi, Bertine Bargeman, Moniek Hover, Juriaan van Waalwijk, Wim Strijbosch, and Ondrej Mitas

Open Communication Design A Teaching Experience Based
on Anti-disciplinarity, Thinkering and Speculation 434
Francesco E. Guida

Fashion Education: Cultivating Fashion Designers-Plants 443
Clizia Moradei

Accessible Experiences. Designing Synaesthetic Access to Culture 452
Dina Riccò

Misleading Design Implications of Adopting Embodied Interface
in Everyday Objects 462
Umberto Tolino and Ilaria Mariani

EXPERIENCES. Transitions

Communication Design for Welfare, the Challenge of Preserving
Human Interactions in Remote Participation. Rethinking and Redefining
Collaborative Activities for a Virtual Environment 475
*Valeria Bucchetti, Michela Rossi, Umberto Tolino,
Benedetta Verrotti di Pianella, and Pamela Visconti*

Aesthetics of Design for Social Innovation. Pathways for a Dialogue
with Everyday Aesthetics 485
Annalinda De Rosa and Laura Galluzzo

Designing Employee Experience to Experiment with Novel Working
Modes. Action Research Project to Support Organizations in Engaging
Employees in a Post-pandemic Scenario 493
Michele Melazzini and Gianluca Carella

Design for Behavior Change in Design Education. A Case Study 503
Margherita Pillan

EXPERIENCES. Can Experiences Be Measured?

Italian Cultural Institutions Across and Beyond Covid-19: Designing
Digital Cultural Experiences in Extra-Ordinary Times 513
Ilaria Bollati, Valeria Morea, Federica Antonucci, and Marta Spanevello

Beyond Visualisation Data as Raw Material for Uncoded Experiences 526
Lucilla Calogero

Designer and AR Technology: The Relationships Between the User and Virtual 534
Antonio de Feo and Luca Casarotto

The Robotic Service Objects. Design Approach for the Multidimensional Evaluation of Robotic Aesthetics 544
Claudio Germak and Lorenza Abbate

EXPERIENCES. Tourism and Mobile Experiences

Designing a New User Experience for the Travel Sector: A Research Project Reimagining the Role of Travel Stakeholders in the Digital Post-pandemic Age 555
Venanzio Arquilla, Federica Caruso, Davide Genco, and Chiara Parise

Operazione Arcevia. Existential Community. The Reality of the Experience and the Utopia of the Vision 569
Anna Mazzanti

Collaborative Dialogues Between Souvenirs and Territories: From Evocative Objects to Experience-Objects 584
Marina Parente

NARRATIVES

For a Novel and Transversal Narration of Extemporaneous Places of Artistic and Design Thinking: The City’s Network of Crossroads Between Art and Design: The Milanese Case in the 20th Century 595
Giampiero Bosoni

Design Narrative 603
Raffaella Trocchianesi

NARRATIVES. Communications, Strategies, Tools

Space as a Narrative Interface. Phyigital Interactive Storytelling in the Field of Cultural Heritage 613
Letizia Bollini

Worldbuilding Practice as a Collaborative and Inclusive Design Process. The Case of ACTS-A Chance Through Sport 623
Mariana Ciancia and Francesca Piredda

The Role of Infographics in the Representation of Design Research	632
<i>Vincenzo Cristallo and Miriam Mariani</i>	
The Open Logo and the Closed History Notes of a Social History of Visual Identities	640
<i>Michele Galluzzo</i>	
An Advanced Design Tool for Archiving, Mapping, and Narrating a Complex System: The ADU Packaging Innovation Observatory	649
<i>Clara Giardina</i>	
NARRATIVES. Cultural Heritage, Museums, Territories	
From Narrative to Phygital. An Experimental Semantic Survey	661
<i>Marco Borsotti</i>	
Enhancing Local Cultural Heritage by Designing Narrative and Interactive Exhibitions. MEET at the “Museo del Territorio di Riccione”	671
<i>Alessandra Bosco, Silvia Gasparotto, and Margo Lengua</i>	
Making Value: Storydoing Actions for Cultural and Creative Industries	682
<i>Simona Colitti, Ami Liçaj, Lorela Mehmeti, and Elena Vai</i>	
Ustica, a Whole World in an Island Fragment	694
<i>Cinzia Ferrara and Marcello Costa</i>	
NARRATIVES. Interaction, Digital, Sustainability	
Craftmanship and Digitalization in the Italian Knitwear Industry. A Paradigm Shift for the Narrative of Made in Italy	705
<i>Martina Motta, Giovanni Maria Conti, Giulia Lo Scocco, and Rachele Didero</i>	
Design in the Metamorphosis of Matter	714
<i>Michele De Chirico</i>	
Counter-Narratives Against Gender-Based Violence. A Twofold Perspective on Choices in Interactive Dramas	724
<i>Sofia Peracchi and Ilaria Mariani</i>	
Sustainable Mobility as a Sport	735
<i>Domenico Schillaci, Salvatore Di Dio, and Mauro Filippi</i>	

NARRATIVES. Critical Approach, Languages, Explorations

Provocation Through Narratives: New Speculative Design Tools
for Human-Non-Human Collaborations 747
Francesca Casnati, Alessandro Ianniello, and Alessia Romani

Designer as Drama Manager: Understanding the Roles of Narrative Within
Design Processes for Change 756
Mariana Ciancia, Francesca Piredda, and Maresa Bertolo

Interaction and Verisimilitude. How Narration Can Foster the Design
Process 765
Andrea Di Salvo

Conversation Design for Raising Awareness on the Responsible Use
of the Internet: Co-design of a Chatbot Game with Secondary School
Students 773
*Mauro Filippi, Salvatore Di Dio, Domenico Schillaci, Stefano Malorni,
Angelo Scuderi, and Sabrina Guzzo*


From a Word-Formation to a Concept-Formation: Mnemosphere
as a Connective Tool in Interdisciplinary Design 783
Clorinda Sissi Galasso and Marta Elisa Cecchi

Author Index 795

EXPERIENCES. Education and Culture



Open Communication Design A Teaching Experience Based on Anti-disciplinarity, Thinkering and Speculation

Francesco E. Guida^(✉) 

Department of Design, Politecnico di Milano, Milan, Italy
francesco.guida@polimi.it

Abstract. This paper aims to present and discuss how the teaching of visual identity and experience design in Communication Design education may be developed within a speculative design framework. By adopting this approach, students can experience the ethics of design practice and explore alternative design values, forms, and representations. They become familiar with design as a problem-seeking and problem-finding practice, which encourages the development of concepts, scenarios, and results without any predetermined function. Assuming an open approach to final results and learning more about a design field to be intended as an *open context* with blurred borders.

They base the project's development on the principle of learning by doing, which consists of thinkering, making mistakes and repeatedly trying to improve the results and acquiring competencies and skills. This method pushes the students to experiment with visual expressions and user experiences between two and three dimensions. They could range among many techniques and technologies, from analog to digital ones. Consequently, each design had to be theoretically discussed and physically verified by making prototypes.

By defining a design process and discussing the implications of an *anti-disciplinary approach*, the aim is to inquire how such framing may destabilise conservative methods and consolidate new practices into Communication Design learning.

Keywords: Communication Design · Speculative Design · Thinkering · Design Education · Anti-Disciplinarity

1 Introduction

Communication Design is an open context with blurred borders [1, 2] and, by its very nature, is a discipline situated among scientific knowledge, technical expertise, and art. The discipline's knowledge and culture are becoming increasingly difficult to fit into any existing academic standard compared to the past. It is possible to define it as an anti-disciplinary field that requires a new set of values [3] in terms of knowledge, culture and expertise because of the recent changes and advancements in technologies, expectations and requests from users, audiences and industry. In addition, it is possible

to witness a clear switch from the centrality of function to the centrality of meaning [4]. These statements convey the idea that Communication Design, far from being a mere problem-solving framework, can also be a tool for exploration and questioning to front the uncertainty of our contemporaneity. Because, as affirmed by Bauman [5], in today's world, "the only certainty is uncertainty".

Over the last nine years, these premises have inspired the teaching method and the assignments of a third-year Communication Design Studio (Bachelor in Communication Design) at Politecnico di Milano's School of Design. The students are prompted to work on visual and experience design related to thought-provoking themes, such as human conditions, emotions, or superstructures, like death or rituals, in the meaning of Harari [6]. The theme is an opportunity. The task is to design communicative ecosystems with interactive experiential devices (defined as 'Communicative Machines') as the main applications in a critical and speculative framework.

This is the starting point to involve students in a reflective practice [7], both theoretically (concept, design) and physically (tools, production). Consequently, Communication Design can be used as a tool and a means to validate speculation: the speculative process is correct when designed artefacts, devices, and ecosystems can effectively convey it. Design should not be considered a self-reflexive practice but rather a powerful communication tool to promote speculation.

Students, who work in teams, learn to cross disciplinary borders and adopt a critical approach. Experimentation is intended as a means to find solutions [8], even in areas that teachers, professionals, or students do not master confidently. While developing their projects following learning by doing approach, students experience something close to the definition of thinking [9], according to which results can only be obtained through progressive and collective reworks. Consequently, the discussed teaching approach does not aim to reassure students with fixed notions. Instead, its goal is to unsettle them, providing a set of tools by which they can deal with uncertainties and develop their design outcomes based on the context they are working in.

2 Speculative Design and Technological Fluency

"As design educators, we cannot afford to exclude Speculative Design from [...] education of our students, especially after the current crisis that the whole world is experiencing" [10]. As a pedagogical tool, speculative design opens students' minds to "think more creatively and critically about the role of design in our shared futures" and apply design principles in different contexts and types of projects. Most design educational programmes still adopt "the modernist rational and functional understanding of design as a problem-solving discipline" [11].

By adopting a speculative design approach, students can experience a variety of possible media and tools that are not exclusively belonging to a specific design area or a fixed method. They can practice various approaches, tools, techniques and instruments as well as other practices and disciplines [12]. However, another issue is also relevant here, and it is the one of the technological fluency to be interpreted as the "ability to translate between domains and view the membranes separating areas of inquiry as porous" [13]. Lukens & DiSalvo [13] affirm that "speculative design and technological

fluency are cross-disciplinary and integrative”. Bringing code within the toolset enables students to learn “procedural literacy” and no longer regard the computer as a mysterious “black box” [14]. They regain control of the technology. In the professional context, computational design is misunderstood as a technical skill instead of being regarded as a way of thinking. According to Reas, it allows “to think around and outside of the constraints of any specific piece of software – it makes it more possible to imagine and invent something new [...] the code is a means to an end, and the focus is on what the code creates or generates” [15].

Moreover, it is crucial to consider accessibility to instructions and information related to programming languages offered by the global open source culture as a critical component in this evolutionary process [16]. This culture allows sharing of knowledge, results, and codes, making a constant upgrade possible. Knowledge becomes available for all, blurring the boundaries of a merely academic or professional disciplinary field. For these reasons, students are encouraged to use coding environments (Processing, p5.js, Three.js), electronics and embedded programming with the Arduino ecosystem and digital fabrication to start processes and develop applications. As commented by Bernstein, “fluency with technology often draws on knowledge, skills, and approaches that cross traditional disciplinary boundaries” [17].

3 A Critical and Anti-disciplinary Design Pedagogy

According to the belief that design is a tool to create ideas, not only things, students are involved in a process that moves from problem-solving to problem-finding. That encourages the development of concepts, scenarios and results without any predetermined function, aesthetic or, as already affirmed, boundaries in the use of technology.

The process is based on an anti-disciplinary and evolutionary idea of the educational design process, which does not rely on a fixed design method. Defining a pedagogy as anti-disciplinary means “going one step beyond being multi-disciplinary” [18], avoiding strict specialisation in Communication Design education. Adopting an anti-disciplinary approach could mean “not only working in one specific field, but rather instead drawing from elsewhere to imagine something new” [19].

The applied methodology can be visualised with a spiral model, representing repeating cycles of design moving away from a central starting point (Fig. 1). In each of the four main phases, students experience different steps in the design process as they gradually approach their final assignment.

Once the general theme is given, each group has to define a specific point of view on the theme and a concept to work on: so they have to seek and find a problem to highlight and discuss. They use human superstructures and organisations as useful subjects to ‘represent’ their fiction. It is a “critical pedagogical strategy that emphasises alternative approaches to conventional problem-solving paradigms” that “include both problem-seeking initiatives, and problem-posing inquires” [20]. In this phase, they define a scenario and design concept, starting with a “what if?” question.

The second step is to define a communication strategy and how to develop it in a multidimensional and multichannel dimension (touchpoints and selected media), as well as the ‘Communicative Machine’ (an interactive object or installation) main functions, meanings, and contents. According to their concept and strategy, they must think

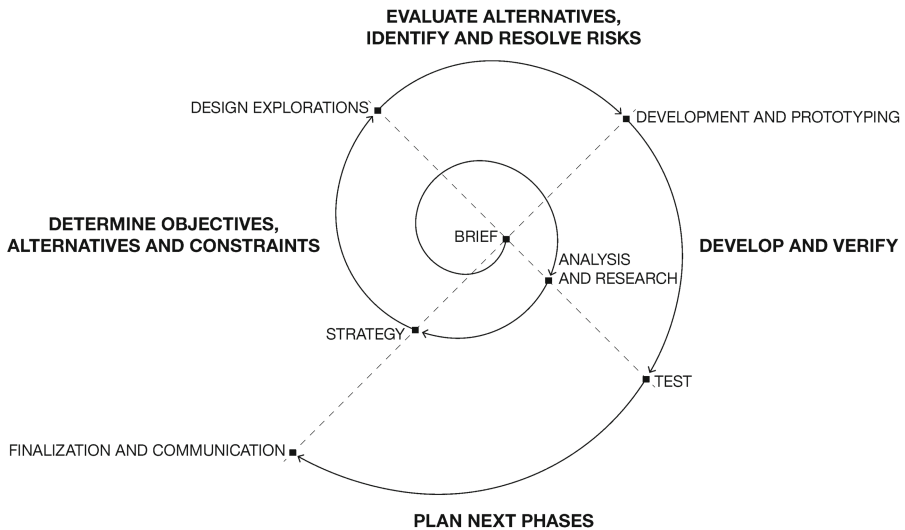


Fig. 1. The spiral model of the applied methodology.

and design a visual identity to consistently communicate in two and three-dimensional outputs. By doing so, the students gain confidence in the design of complex systems.

Few steps are mandatory, and deadlines are not given beforehand to teach the students to move autonomously towards a final result by testing concepts and outputs. The core activity is the prototyping phase, which involves both digital and analog areas. The groups are not strictly organised by distributing students' skills or interests. They are instead encouraged to autonomously acquire the skills they lack – especially for what may concern the areas of digital design, coding and prototyping.

The main outputs are 'Communicative Machines': objects, installations, or interactive devices to be realised as prototypes to be verified and tested (Fig. 2).

Those 'machines' are intended as "object personas": an extension of the design research and educational process arguing for design fiction as an important methodological tool. Design fiction represents a speculative mode of thinking that can disclose new questions and unconventional opportunities [21].

4 Communicative Machines

As Peace affirms, "a work of speculative design is often an object [...]. While prototyping deals with how an idea could be realised, speculative design asks what if that idea was prevalent in our society? Would we want it?" [22]. Those statements appear to be consistent with the learning process's aims and the following results. Each project has been developed (from the concept to the final prototype) over five months. Results are of different scales (from installations to home devices) and show a range of output using various approaches among the variety of critical and speculative ones.



Fig. 2. From top-left, clock-wise: Micromort's monolith, design by A. Aspesi, C. Bacchini, E. Carbone, P. Forino, D. Perucchini, E. Taboada Fung, A.Y. 2019-2020; Schadenfreudemeterstest (Geist), design by A. Arosio, L. Bernini, E. Coppo, E. Monasteri, F. Testa, A.Y. 2019-2020; TOD, design by G. Bonassi, M. Bracchi, S. Casavola, D. Renzulli, T. Stragà, M. Visini, A.Y. 2020-2021; Proxy by Nextnet, design by A. Avanzi, L. Baraldi, S. Cellura, A. Nodari, A.Y. 2021-2022.

During the 2019–2020 Academic Year, the assigned main theme was ‘Death’ (<http://morte13.labsintesi-c1.info/>); an intriguing and demanding issue, especially considering that just after a few months, we had all to front it directly because of the pandemic. Out of 13 projects, it could be interesting and helpful to look at two of them deeper.

Micromort, a fictional currency connecting nationality and the value of death, emphasises that death always has a different social value depending on where it occurred or who has been involved. The critical and political position behind the project is that this value depends on how the western world perceives itself. The speculation is materialised into a ‘stock exchange monolith’, using this solid metaphor for engaging the user. Thanks to an algorithm (Hades 2.0) that considers the GDP per capita, population and number of violent deaths of each nation between 2000 and 2017, Micromort calculates the price of every single death worldwide. More than 21.000 real data items have been collected from public databases. The consistency of the Communication Machine design (a monolith), the data visualisation and the user interaction/interface reveal the critical position of the students (<https://micromortproject.github.io/micromort/>).

Geist (Gedankliches Experimentelles Institut für Spezielle Therapien, which means Experimental Institute of Thought for Special Therapies) is a fictional scientific research centre that studies unknown aspects of the human mind as the Schadenfreude, the pleasure caused by others’ bad luck or death. A fictional test (Schadenfreudemeterstest) forces

the users to simultaneously watch six videos of real-life events, including deaths and killings. The machine is equipped with an Eye Tracker that follows the movements of the user's gaze, analysing how long people focus on each video. Another essential part is the headrest, equipped with two blinkers with integrated speakers that play the audio and constrain the users' movements while watching the videos. At the end of the experiment, the Eye Tracker's collected data are processed by customised software that prints a report, showing the trend of the user's Schadenfreude level. The whole experience aims to reflect on human morbid curiosity about death, which tends to be emphasised by media and social channels, through fiction with several communicative levels: a consistent visual identity inspired by Dieter Rams' design for Braun, which has been developed both in two and three dimensions; the accurate selection of videos showing well-known events; the final data visualisation; an ironic narrative (<http://geistlab.de/>).

Tod, a sort of home device developed during the Academic Year 2020–2021 (<http://retuals.labsintesi-c1.info/>), intended to speculate on the ritual of deads commemoration, starting from the question “What if commemorating the dead was an evaluated performance?”. That year the theme was ‘human rituals’ to explore a permanent pandemic condition. Tod blends into the environment and the everyday life of its users just like every high-tech appliance. It guides the user to the proper commemoration of the dead by suggesting the right frequency and execution. The Core symbolizes each deceased person; it is a portable device made ‘alive’ by the glow of an ever-changing luminous ‘will-o’-the-wisp’. The user can perform the memorial service by placing it in his home hub and periodically performing three tasks: Contact, Conversation and Remembrance. In this case, the speculation, if compared to the two previous cases presented, moves from a pure critical goal to a design future one, assuming the possibility of such a home ritual (<https://toditalia.com/>).

Finally, during the Academic Year 2021–2022 (<http://fattididati.labsintesi-c1.info/home.html>), having as the main theme ‘Daily Data’, another home device, named Nexnet Proxy, intended to speculate on the impact of the internet on the environment. The internet machine consumes energy and produces tons of CO₂ every day, although people continue to see it as ethereal and pure. In a fictional future plagued by an economic and social crisis, the ecological impact of the internet is out of control. Each country is forced to ban the internet worldwide, and Nexnet Proxy is the only device capable of generating connection through user effort. Although the scenario may appear simplistic, it is possible to position Nextnet as a critical-speculative project, imagining a possible future that could also be an alternative present considering the current conditions of our planet.

5 Conclusions

The four shortly discussed projects developed using the presented pedagogy process interpret the different assigned themes (death, human rituals, daily data) starting from different points of view, developing different scenarios, using various technologies and media, from analog to digital ones. A natural consequence is that each design has to be theoretically discussed and physically verified by making prototypes. Students are pushed to experiment with visual expressions, user experiences and tangible interactions

between two and three dimensions, involving inevitably the fourth, the one of time. Students unveil unconventional approaches to the project and explore alternative design values, forms, and representations [23, 24].

The speculation and the critical stance are translated actively by using Communication Design. By adopting this approach, students are led to assume a critical attitude towards their position as designers, reflecting their practice's social and political implications. It is necessary and urgent for the designer to be trained to "reflect-in-action" to become a "researcher in the practice context" [7] and not just to solve problems.

Auger et al. [10] confirm this position as follows: "as a pedagogical tool, speculative design – at its best – opens students' minds to brave new worlds: to critical and creative interventions, transgression, and change, as well as the possibility of applying design principles and tools in very different contexts and types of projects. The speculative approach allows students to create a set of tools and a language for understanding the consequences of their design practice. It is particularly stimulating as an educational tool because it foregrounds criticism, self-reflection, and a move away from familiar practices."

Where design has been paradoxically left behind by its own modernist promises [25], showing the limits of its deterministic spirit, it becomes necessary to re-think new roles for design itself [26]. As stated by Bauman [27], in a post-modern society rife with uncertainties, it is in the ambiguity itself that a transformative potential can be found. For this reason, the proposed teaching approach opens a space for intellectual exploration, demanding a tangible Communication Design translation of such speculation, which can be discussed and evaluated. Furthermore, today, this approach appears even more plausible in a period of new uncertainties. As a designer, far beyond the overconfident utopia of trying to change the world, using Communication Design tools and methods to understand better and critically observe reality may be a first step in contributing and being humble and better citizens of our time.

Using this approach in an educational context aims at opening the disciplinary fields in a consistent and contemporary manner, breaking its borders, and looking to anti-disciplinarity as a necessity for future designers.

Acknowledgements. The author would like to thank the teachers and colleagues who worked during the last years at the Communication Design Studio (Final Synthesis Design Studio), School of Design at Politecnico di Milano. Precisely, professors Andrea Braccaloni, Pietro Buffa di Castelalto, Giacomo Scandolara and Alessandro Masserdotti, the assistants Marcello J. Biffi, Alberto Candido, Michele Invernizzi, Adele Mazzali, Andrea Pronzati, Claudia Tranti and Ernesto Voltaggio. With them, it has been possible to launch, share and evolve an actual, not easy, inventive method and design practice. Consequently, a grateful thought is for all students who accepted the challenge and enthusiastically followed its development.

References

1. Armstrong, H.: *Graphic Design Theory: Readings from the Field*. Princeton Architectural Press, New York (2009)
2. Grimaldi, P.: *Blur Design*. *BlurDesign* **1**, 139 (2009)
3. Ito, J.: *Design and Science. Can design advance science, and can science advance design?*. *J. Design Sci.* **1** (2016). <https://doi.org/10.21428/f4c68887>. Accessed 22 Sept 2022
4. Antonelli, P.: *Talk to me*. In: Hall, E. (ed.), *Talk to me. Design and communication between people and objects*, pp. 6–16. Museum of Modern Art, New York (2011)
5. Bauman, Z.: *Modernità Liquida*, p. VII. Laterza, Roma (2000)
6. Harari, Y.N.: *Sapiens: a Brief History of Humankind*. Harvill Secker, London (2014)
7. Schön, D.: *The Reflective Practitioner: How Professionals Think in Action*. Temple Smith, London (1983)
8. Triggs, T.: *The Typographic Experiment: Radical Innovation in Contemporary Type Design*. Thames & Hudson, London (2003)
9. Antonelli, P.: *States of Design 03: Thinkering*. *Domus Web* (2011, July 4). <http://www.domusweb.it/it/design/2011/07/04/states-of-design-03-thinkering.html>. Accessed 22 Sept 2022
10. Auger, J., Hanna, J., Helgason, I., Mitrović, I. (eds.): *Beyond Speculative Design: Past – Present – Future*. University of Split, Arts Academy (2021)
11. Auger, J.: *Speculative design is a counter to normative design [Interview]*. *Speculative – Post-Design Practice or New Utopia?* (2016). <http://speculative.hr/en/james-auger/>. Accessed 22 Sept 2022
12. Mitrović, I.: *New Reflections on Speculativity*. *Speculativeedu* (2019). <https://speculativeedu.eu/new-reflections-on-speculativity>. Accessed 22 Sept 2022
13. Lukens, J., DiSalvo, C.: *Speculative design and technological fluency*. *Int. J. Learn. Media* **3**(4), 23–40 (2012)
14. Crow, D.: *Magic box: craft and the computer*. *Eye* **18**(70) (2008). <http://www.eyemagazine.com/feature/article/magic-box-craft-and-the-computer>. Accessed 22 Sept 2022
15. Cangiano, S.: *Coding as a way of thinking – interview with Casey Reas*. *Progetto Grafico* **13**(30), 10–19 (2016)
16. Lehni, J.: *Teaching in the spaces between code and design*. *Eye* **20**(81) (2011). <http://www.eyemagazine.com/feature/article/teaching-in-the-spaces-between-code-and-design>. Accessed 22 Sept 2022
17. Bernstein, D.: *Developing technological fluency through creative robotics*. PhD dissertation, University of Pittsburgh (2011). <http://d-scholarship.pitt.edu/8780>. Accessed 22 Sept 2022
18. Childress, J.: *Head, Hands, Heart & Voice*. *justinchildress.co* (2016/05/26). <https://justinchildress.co/head-hands-heart-voice>. Accessed 22 Sept 2022
19. Brin, S.: *Making/Meaning in the Realm of Anti-Disciplinarity*. *opentranscript.org* (2016/11/02). <http://opentranscripts.org/transcript/making-meaning-antidisciplinarity/>. Accessed 29 Sept 2022
20. Blauvelt, A., Davis, M.: *Building bridges: a research agenda for education and practice*. In: Beirut, M., Drenttel, W., Heller, S., Holland, DK (Eds.): *Looking Closer 2*, pp. 77–81. Allworth Press, New York (1997)
21. Cila, N., Giaccardi, E., Tynan-O'Mahony, F., Speed, C., Caldwell, M.: *Thing-centered narratives: a study of object personas*. In: *3rd Seminar Research Network for Design Anthropology. The Research Network for Design Anthropology*, Aarhus (2015). https://www.researchgate.net/publication/305781838_Thing-centered_narratives_A_study_of_object_personas. Accessed 29 Sept 2022
22. Peace, E.: *Speculative design for the real world. How speculative design methods can drive innovation*. *Uxdesign.cc* (2019/07/24). <https://uxdesign.cc/speculative-design-for-the-real-world-551130b22827>. Accessed 29 Sept 2022

23. Johannessen, L. K.: The young designer's guide to speculative and critical design. (2017). <https://www.ntnu.edu/documents/139799/1279149990/16+TPD4505.leon.johannessen.pdf/1c9221a2-2f1b-42fe-ba1f-24bb681be0cd>. Accessed 22 Sept 2022
24. Bardzell, J., Bardzell, S.: What is critical about critical design? In: CHI '13: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems, pp. 3297–3306. ACM, Paris (2013). <https://doi.org/10.1145/2470654.2466451>. Accessed 29 Sept 2022
25. Colomina, B., Wigley, M.: Are we human? Notes on an Archaeology of Design. Lars Müller Publishers, Zürich (2016)
26. Dunne, A., Raby, F.: Speculative everything. Design, fiction, and social dreaming. MIT Press, Cambridge (MA) (2013)
27. Bauman, Z.: Scrivere il futuro. Castelvecchi, Roma (2016)

Open Access This chapter is licensed under the terms of the Creative Commons Attribution 4.0 International License (<http://creativecommons.org/licenses/by/4.0/>), which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.



Author Index

A

Abbate, Lorenza 544
Ajdari, Alireza 187
Ambrogio, Francesca 315
Ansaloni, Giuditta Margherita Maria 177
Antonucci, Federica 513
Anzani, Anna 235
Arquilla, Venanzio 555

B

Balsamo, Mariangela Francesca 244
Bargeman, Bertine 423
Berselli, Silvia 87
Bertolo, Maresa 756
Biassetton, Noemi 103
Biassetton, Silvia 103
Bionda, Arianna 177
Bollati, Ilaria 513
Bollini, Letizia 613
Borsotti, Marco 661
Bosco, Alessandra 671
Bosoni, Giampiero 595
Bucchetti, Valeria 475
Bulegato, Fiorella 275

C

Calogero, Lucilla 526
Calvi, Licia 423
Capitani, Giulio 235
Carella, Gianluca 254, 493
Caruso, Federica 555
Casarotto, Luca 534
Casnati, Francesca 747
Cazzaro, Irene 354
Cecchi, Marta Elisa 783
Chiesa, Rosa 116
Ciancia, Mariana 623, 756
Ciaramitaro, Mario 325
Colitti, Simona 682
Conti, Giovanni Maria 705
Costa, Marcello 694

Costa, Pietro 325
Cristallo, Vincenzo 632

D

De Angelis, Chiara 263
De Chirico, Michele 714
de Feo, Antonio 534
De Rosa, Annalinda 485
Dellapiana, Elena 285, 295
Di Dio, Salvatore 735, 773
Di Salvo, Andrea 765
Di Stefano, Alessandro 334
Di Stefano, Elisabetta 3
Didero, Rachele 705

F

Fava, Elena 344
Favara-Kurkowski, Monika 139
Ferrara, Cinzia 694
Ferraro, Venere 399
Filippi, Mauro 735, 773
Filippini, Ali 295
Forsey, Jane 11
Fransoni, Alessio 127
Franzo, Paolo 31

G

Galasso, Clorinda Sissi 783
Galluzzo, Laura 485
Galluzzo, Michele 640
Gasparotto, Silvia 671
Gay, Fabrizio 354
Genco, Davide 555
Germak, Claudio 544
Giardina, Clara 649
Guglielmi, Eugenio 235
Guida, Francesco E. 434
Guzzo, Sabrina 773

H

Haidamous, Toufic 41
Harb, Ammer 367

Hayama, Yasuyuki 377
 Hover, Moniek 423

I

Ianniello, Alessandro 747

L

La Fortuna, Loredana 56
 Lengua, Margo 671
 Liçaj, Ami 682
 Lo Scocco, Giulia 705

M

Malorni, Stefano 773
 Manera, Lorenzo 147
 Mariani, Ilaria 462, 724
 Mariani, Miriam 632
 Maselli, Vincenzo 65
 Mazzanti, Anna 569
 Mecacci, Andrea 21
 Mehmeti, Lorela 682
 Melazzini, Michele 254, 493
 Messori, Rita 225
 Mitas, Ondrej 423
 Moradei, Clizia 443
 Morea, Valeria 513
 Motta, Martina 705

P

Paciotti, Davide 334
 Parente, Marina 584
 Parise, Chiara 555
 Peracchi, Sofia 724
 Pillan, Margherita 503
 Piredda, Francesca 623, 756
 Proverbio, Paola 156

R

Rattalino, Elisabetta 304
 Ratti, Andrea 177
 Remondino, Chiara L. 295
 Riccò, Dina 452
 Romani, Alessia 747
 Rossi, Michela 475

S

Scarpitti, Chiara 165
 Schillaci, Domenico 735, 773
 Scodeller, Dario 75
 Scotti, Marco 275
 Scuderi, Angelo 773
 Serbanescu, Anca 388
 Sicklinger, Andreas 187
 Spanevello, Marta 513
 Spence, Jocelyn 411
 Stepanovic, Mila 399
 Strijbosch, Wim 423

T

Tamborrini, Paolo 295
 Tolino, Umberto 462, 475
 Trapani, Viviana 197
 Trocchianesi, Raffaella 603

V

Vai, Elena 682
 van Waalwijk, Juriaan 423
 Verrotti di Pianella, Benedetta 475
 Visconti, Pamela 475

Z

Zanella, Francesca 211
 Zurlo, Francesco 254, 377