POLITECNICO DI TORINO
Repository ISTITUZIONALE

How a Technology Identity Can Enhance the Diffusion of Good Design Practices in Product Sound Design

Original
How a Technology Identity Can Enhance the Diffusion of Good Design Practices in Product Sound Design / Degiorgis, D., D'Addario, M., Lerma, B., Dal Palu', D.. - In: DIID. DISEGNO INDUSTRIALE INDUSTRIAL DESIGN. - ISSN 1594-8528. - STAMPA. - 1:(2023), pp. 840-851. (Disrupting Geographies in the Design World Bologna (Italia) 20th-22nd June, 2022) [10.30682/diiddsi23t5a].

Availability:
This version is available at: 11583/2985643 since: 2024-02-02T14:02:43Z

Publisher:
Fondazione Bologna University Press

Published
DOI:10.30682/diiddsi23t5a

Terms of use:

This article is made available under terms and conditions as specified in the corresponding bibliographic description in the repository

Publisher copyright

(Article begins on next page)

25 June 2026

diid

disegno industriale
industrial design

theorìa
pòiesis
praxis

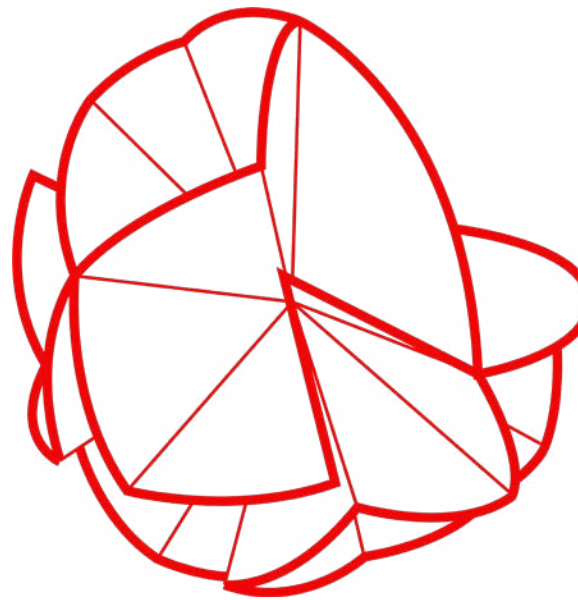
diid.it

DIGITAL
SPECIAL
ISSUE
1

Disrupting Geographies in the Design World

Proceedings of the 8th International Forum of Design as a Process

Alma Mater Studiorum — Università di Bologna



Editors
(Eds.)
Erik Ciravegna
Elena Formia
Valentina Gianfrate
Andreas Sicklinger
Michele Zannoni

Colophon

diid
disegno industriale
industrial design
Digital Special Issue 1
— DSI 1

Year
XXI

diid is an open access
peer-reviewed scientific
design journal

diid is published
three times a year

Registration at Tribunale
di Roma 86/2002
(March 6, 2002)

www.diid.it

Print subscription
(3 issues)
Euro 60,00
Subscription office
ordini@buponline.it

Editor-in-chief
Flaviano Celaschi
Alma Mater Studiorum
— Università di Bologna

Deputy Editor-in-chief
and Managing Editor
Elena Formia
Alma Mater Studiorum
— Università di Bologna

Editors
Erik Ciravegna
Elena Formia
Valentina Gianfrate
Andreas Sicklinger
Michele Zannoni
Alma Mater Studiorum
— Università di Bologna

Founded by
Tonino Paris

Associate Editors
Viktor Malakuczi
Sapienza — Università
di Roma

Lorela Mehmeti
Alma Mater Studiorum
— Università di Bologna

Elena Vai
Alma Mater Studiorum
— Università di Bologna

Art Director
Davide Giorgetta

Editing Assistant
Olga Barmine

CC BY-NC-SA
Creative Commons
Attribution
NonCommercial
ShareAlike

Copyright © 2023
diid disegno industriale
industrial design

Publisher
Fondazione
Bologna University Press
Via Saragozza 10
40123 Bologna
Tel. (+39) 051 232 882
Fax (+39) 051 221 019
www.buponline.com
info@buponline.com

ISSN
1594-8528

ISSN Online
2785-2245

DOI
10.30682/diiddsi23

ISBN Online
979-12-5477-329-1

Scientific Board

Mariana Amatullo
Parsons School of Design
— The New School

Laura Badalucco
Università Iuav di Venezia

Alberto Bassi
Università Iuav di Venezia

Anna Bernagozzi
École nationale supérieure
des Arts Décoratifs, Paris

Paola Bertola
Politecnico di Milano

David Bihanic
Université Paris 1
Panthéon-Sorbonne

Andrea Boeri
Alma Mater Studiorum
— Università di Bologna

Olindo Caso
Delft University
of Technology

Manuela Celi
Politecnico di Milano

Erik Ciravegna
Alma Mater Studiorum
— Università di Bologna

Mirko Daneluzzo
Dubai Institute of Design
and Innovation

Claudia De Giorgi
Politecnico di Torino

Alessandro Deserti
Politecnico di Milano

Dijon De Moraes
Universidade do Estado
de Minas Gerais

Franco Fassio
Università di Scienze
Gastronomiche di Pollenzo

Daniele Fanzini
Politecnico di Milano

Luigi Ferrara
George Brown College

Carlo Franzato
Pontifícia Universidade
Católica do Rio de Janeiro
— PUC-Rio

Giuseppe Furlanis
ISIA Design Firenze

Claudio Germak
Politecnico di Torino

Valentina Gianfrate
Alma Mater Studiorum
— Università di Bologna

Miaosen Gong
Jiangnan University

Christian Guellerin
École de Design Nantes
Atlantique

Roberto Iñiguez Flores
Tecnológico de Monterrey

Çiğdem Kaya
Istanbul Technical
University

Giuseppe Lotti
Università degli Studi
di Firenze

Mario Losasso
Università degli Studi
di Napoli Federico II

Roberto Montanari
Università degli Studi
Suor Orsola Benincasa
di Napoli

Nicola Morelli
Aalborg University

Andrew David Morrison
Oslo School of Architecture
and Design

Spartaco Paris
Sapienza Università
di Roma

Daniela Petrelli
Sheffield Hallam University

Andreas Sicklinger
Alma Mater Studiorum
— Università di Bologna

Francesca Tosi
Università degli Studi
di Firenze

Ambra Trotto
RISE — Research
Institutes of Sweden

Michele Zannoni
Alma Mater Studiorum
— Università di Bologna

Main partners

Latin Design Process

ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA
DIPARTIMENTO DI ARCHITETTURA

Advanced Design Unit

DISEÑO | UC

MA DA Magister en Diseño Avanzado UC

Tecnológico de Monterrey
Escuela de Arquitectura, Arte y Diseño

diid

Related activities and projects

Winter School
Design for Responsible Innovation

BIOGRAFILM FESTIVAL
INTERNATIONAL CELEBRATION OF LIVES

Endorsers

Centro di Ricerca sulle Industrie Culturali e Creative
— Università di Bologna

Cumulus Association

New European Bauhaus

SID Società Italiana di Design

In collaboration with

DAMSLAB

Reviewers

The Proceedings of the 8th International Forum of Design as a Process have undergone a rigorous peer-review process to ensure the scholarly quality of the contributions contained herein.

The Editors extend their sincere appreciation to the following Scholars who served as Reviewers for this Digital Special Issue.

Tarek Abdellatif
Cosimo Accoto
Elena Alfaro
Giulia Allegrini
Margherita Ascari
Margarida Azevedo
Laura Badalucco
Silvia Barbero
Luca Barbieri
Esra Bici Nasır
Alessandra Bosco
Saveria Olga Murielle Boulanger
Sabrina Bresciani
Elena Brigi
Francesca Calabrese
Alberto Calleo
Alfredo Calosci
Serena Cangiano
Stefano Capolongo
Lina María Cárdenas
Paolo Cardini
John Cardozo
Giorgio Casoni
Andrea Cattabriga
Manuela Celi
Gabriel Cereceda
Simona Colitti
Pietro Costa
Doriana Dal Palù
Giorgio Dall'Osso
Dolly Daou
Antonio De Feo
Vanessa De Luca
Barbara Del Curto
Özgen Osman Demırbaş
Carmelo Di Bartolo
Loredana Di Lucchio
Amir Djalali
Alice Donferri Mitelli
Sergio Donoso
Seyedarshia Eghbali
Paola Fabbri
Daniele Fanzini
Anne Farren
Valentina Frosini
Rossana Gaddi
Vanessa Galvin
Silvia Gasparotto
Pamela Gatica
Gionata Gatto
Angela Giambattista
Valentina Gianfrate
Clara Giardina
Carlo Giardinetti
Debora Giorgi
Michael Gray
Pablo Hermansen
Oscar Huerta
Çiğdem Kaya
Elif Kocabıyık
Christopher Kueh
Kristina Lamour Sansone
Jennifer Lane
Carla Langella
Lorna Lares López
Beatriz Leal Ramos
Margo Lengua
Ruth Maribel León-Morán
Beatrice Lerma
Ami Licaj
Lígia Lopes
Anna Lottersberger
Stefano Luca
Patricia Mann
John Martin
Martina Massari
Mauricio Mejía
Paula Melo Signerez
Riccardo Mercuri
Leonel Merino
Giuseppe Mincolelli
Katharine Mollenhauer
Pierluigi Molteni
Carlos Montaña
Roberto Montanari
Edgardo Moraga
Alfonso Morone
Erica Isa Mosca
Federica Natalia Rosati
João Nunes Sampaio
Boon Ong
Giulio Palmitessa
Anty Pansera
Veronica Pasini
Amina Pereno
Merav Perez
Pier Paolo Peruccio
Bárbara Pino Ahumada
Davide Pletto
Gregory Polletta
Alessandro Pollini
Shalini Prasad
Diego Pucci
Nathalie Rodríguez Estrada
Valentina Rognoli
Maximiliano Romero
Ludovica Rosato
Ilaria Ruggeri
Francesca Sabatini
Mariana Salgado
Jorge Sanabria
David Sánchez Ruano
Romina Santi
Andreas Sicklinger
Leila Signorelli
Ricardo Sosa
Frank Spencer
Chiara Sponza
Laura Succini
Ermanno Tasca
Martin Tìroni
Umberto Tolino
Florencia Toro Silva
Beatrice Turillazzi
Elena Vai
Virginia Vignali
Paula Wuth
Burcu Yahız
Nélida Yanet Ramírez Triana
Michele Zannoni
Carola Zurob

Contents

14
The Latin Network for the Development of Design Processes

16
8th Forum Main Partners

18
Disrupting Geographies in the Design World

20
People

26
Impact

Track 1

There's No Plan(et) B: Sustainable Transitions to Systemic Planet-Centric Design

30
There's No Plan(et) B. Sustainable Transitions to Systemic Planet-Centric Design
Erik Ciravegna, Clara Giardina, Davide Pletto

40
Beyond Collaboration: A Network Analysis of Local Stances and Global Frameworks in the Collective Design of the City
Francesca Sabatini, Martina Massari, Saveria Olga Murielle Boulanger

50
Alter_Azioni: Designing between Biological and Artifactual. Scenarios for a Short-Term Future
Pietro Costa, Raffaella Fagnoni

62
(Systemic) Design for Sustainable Territorial Transition: A Literature Review of State of the Art
Asja Aulisio, Silvia Barbero, Amina Pereno

72
Dasein ist Design: An Ontological Discussion of Design in the Ecological Crisis Time
Sabrina Lucibello, Carmen Rotondi

80
The More-Than-Human Trend in Design Research: A Literature Review
Annapaola Vacanti, Francesco Burlando, Isabella Nevoso, Massimo Menichinelli

90
Being and Nature. The Aesthetic Ecocentrism
Adriano Pinho, Francisco Providência

102
Forward to the Primitive. New Sustainable Design Processes Characterized by Primitive Aesthetic
Jurji Filieri, Elisabetta Benelli

110
How Long Does It Take For a Paradigm Shift. A Design-based Critical Essay on Materials and Fabrication Processes
Guilherme Giantini, Lígia Lopes

118
Sustainability Needs Service Efficacity
Chiara Olivastri, Giovanna Tagliasco

126
Systemic Design Applied to Medtech. Guidelines for Corporate Training on Sustainable Healthcare
Enrica Ferrero, Giulia Ferrero

138
Reducing Waste in Healthcare: A Systemic Design Approach for Sustainable Disposables Manufacturers
Gabriele Maria Cito, Angela Giambattista

150
A Framework to Design Appliances for the Circular Economy Scenario
Chiara Battistoni

162
Digital Fashion Technologies & Practices: Design Driven Sustainable Transition in Fashion Industry
Ludovica Rosato, Alberto Calleo

170
Material Resources as a Contextual Complex System
Michele De Chirico

180
Diffuse Micro-Factory: Circular Distributed Production System for Microbial Nanocellulose
Lorena Trebbi

190
From Sea to Fashion. Seaweeds as Material for a Sustainable Transition
Paolo Franzo, Clizia Moradei

198
The Sound of Sustainability. Biomaterials and New Sensory Frontiers
Giovanni Inglese, Sabrina Lucibello, Carmen Rotondi

208
Unpacking Ceramic History in Asia and Europe: Contribution to New Reusable Packaging Design
Raquel Gomes, Cláudia Albino

Track 2

Intersectional Design for an Accessible and Empowering World

220
Intersectional Design for an Accessible and Empowering World: Views from the 8th Forum of Design as a Process
Valentina Gianfrate, Lígia Lopes, Margherita Ascari, Simona Colitti

226
Viva! Colinas. Service Design for Tourism and Reconciliation in Communities of Former Colombian Guerrilla
Beatriz Bonilla Berrocal

238
The Digital Archive as an Inclusive Tool for Knowledge Construction Through Design Practices
Alessandra Bosco, Fiorella Bulegato, Silvia Gasparotto

248
Intercultural Design Approach. Narrative Design for a Multicultural Society
Irene Caputo, Marco Bozzola, Claudia De Giorgi

258
From Wayfinding to Placefinding. Orientation and Alterity in Urban Spaces
Daniela D'Avanzo, Salvatore Zingale

268
A Meta-Analysis for an Interactive, Intersectional and Inclusive Exhibition Based on the SDGs
Sergio Degiacomi, Francesca Zoccarato, Simone De Pascalis, Pietro Crovari, Fabio Catania

278
From Empathy to Inclusive Design: Multisensory Solutions for (Not Only) Socially Sustainable Projects
Federica Delprino

288
Etnography in Sever Do Vouga: Reality<>Change First Step to Engage a Creative and Rural Community
Pedro Fragoso Lopes, Gonçalo Gomes

298
The Implementation of U.D. in a Metal Processing Plant of the Metropolitan Zone of Guadalajara (MZG)
Luis Erik Hernández Sánchez, Enrique Herrera Lugo, Jaime Francisco Gómez Gómez, Francisco Javier González Madariaga

312
Towards Better Public Sector Innovation. Co-designing Solutions to Improve Inclusion and Integration
Ilaria Mariani, Francesca Rizzo, Grazia Concilio

322
Creating Methodological Design Processes for Empowering Artisans of Cali, Colombia
Edgar Andrés Martínez Muñoz, Diana Marcela Giraldo Pinedo

332
Empowering Through Design: Regional Development Strategy of Los Lagos as an Intersectional Case
Daniel Moreno, Katherine Mollenhauer, Arturo Orellana

344
Inclusive Merchandising. A Storyteller for an Accessible University
Monica Oddone, Marco Bozzola, Claudia De Giorgi

354
Geopolitics of Fashion. Glocal Power Evidence and Design Activism for Leading Disrupting Textile Debris in Chile
Bárbara Pino Ahumada

366
Intersectional Design in Practice: A Critical Perspective on Sustainability for All
Alessandro Pollini, Pilar Orero, Alessandro Caforio

374
Empower to Care or Care to Empower? The Theory Behind the Practice That Transforms
Marcia Santos da Silva, Gustavo Severo de Borba

384
Perspectives of Sound: Promoting Social Inclusion Under the Principle of "Access for All" in Museums
Yi Zhang, Raffaella Trocchianesi

Track 3

Design and Responsive Technologies for Human Wellbeing

396
Design and Responsive Technologies for Human Wellbeing
Mirko Daneluzzo, Michele Zannoni, Giorgio Dall'Osso, Silvia Gasparotto

406
Are You Me? Re-Embodiment Process for Telepresence Robots
Lorenza Abbate, Claudio Germak

418
Ethnographic Study: Finger Food Systems, Contribution to a Project Program in Food Design
Lígia Afreixo, Francisco Providência

426
Exhibitions as Hybrid Environments. Exploring Situated & Embodied Interaction in Cultural Heritage
Letizia Bollini, Marco Borsotti

440
Brain Training, Mindfulness, and Wearables: Empowering Employee Wellbeing Through Neurotechnologies
Francesca Bonetti, Giorgio Casoni

450
Data Driven Design: From Environment to the Human Body
Elena Cavallin

458
(Re)Active Materials. Well-Being's Concept Evolution and Advanced Material Innovations
Noemi Emidi

468
PASSO Project: Design of a Smart System Using Biofeedback to Train People with Parkinson's Disease
Silvia Imbesi, Giuseppe Mincolelli

478
Pathos: A digital service to improve women's hospital experience
Elisa L'Angiocola, Angela Giambattista

490
IF THIS THAN THAT Broken Linear Logic. Rethinking and Representing the Design Process
Margherita Ascari, Andrea Cattabriga, Simona Colitti, Ami Liçaj

500
Health Communication as Apo-Mediation. The Impact of Communication Design on Health Prevention and Perception
Daniela Anna Calabi, Alice Maturo

512
From Applications to Implications: Design as a Process for Humanising Future Robotics
Christiam Mendoza, Roberto Íñiguez Flores, Ruth León Morán

522
Mixed Reality as Activator of Collaborative Processes for Transcultural Future
Alessandra Miano

532
Sustainable Data-Driven Strategies and Active Well-Being: A Case Study
Giuseppe Mincolelli, Gian Andrea Giacobone, Michele Marchi

544
Counterpoint. Are We Sure That All These Data Are Good for Us?
Antonella Valeria Penati, Carlo Emilio Standoli

554
The Augmented Body: Technological Contamination in the Fashion-Tech Paradigm
Elisabetta Cianfanelli, Margherita Tufarelli, Elena Pucci

564
Responsible Tech Innovation Through Design: A Participative, Reflective, and Systemic Approach
Jane Vita, Tiina Mäkelä, Teemu Leinonen

Track 4

Design Values Out of the Mainstream: New Geographies of Influence

578
Design Values Out of the Mainstream: New Geographies of Influence
Qassim Saad, Andreas Sicklinger, Lorela Mehmeti

588
An Analytical study to develop the traditional craft in the field of creative industries in Egypt
Hoda Aman

600
Enhancing social well-being through social innovation approach and design expertise: a case study for social innovation in a local district in Turkey
Yagmur Gizem Avci, Ece Cinar, Cigdem Kaya

610
Cultural Factories: Conversion of Industrial Areas into Cultural Hubs
Eva Vanessa Bruno, Beatrice Lerma, Doriana Dal Palù, Claudia De Giorgi

620
Bahrain Knowledge Bay. Using Design Thinking to Establish an Infrastructure Towards Knowledge Economy
Halim Choueiry

630
Culture and creativity as assets for inclusive growth in small and remote places: a design-led process
Annalinda De Rosa, Davide Fassi

640
Culture-based Innovation: A Localized Approach for Designing
Alaa El Anssary, Ahmed Wahby

650
Burning approaches to tensing the present: a new political dimension of design
Fabiana Marotta

658
Design Resistance. Material Solutions for local remoteness
Martina Taranto, Barbara Pollini, Valentina Rognoli

668
How Should Technology Follower Companies of Developing Countries Innovate Through Design Capability?
Bilgen Tuncer Manzakoğlu

680
Subjectivation and cities: relationships between local independent fashion and Possible Future Scenarios
Paula Visoná, Mágda Rodrigues da Cunha, César Kieling

Track 5

New Education Pathways for Future Designers in a Changing World

696
New Education Pathways for Future Designers in a Changing World
Valentina De Matteo, Elena Formia, Roberto Iñiguez Flores, Laura Succini

706
Decolonizing the Design Process: A Case Study in Authorship, Power, and Control
Scot Geib

714
OpenMind Handbook. A System of Design Tools and Processes to Empower Democracy Culture in Primary Schools
Valentina Facoetti, Laura Galluzzo, Ambra Borin

724
Architecture, Design and Community in Colombia. More Urban, More Rural, More Social: The Workshop Experience
Sasha Londoño-Venegas, Adriana Jaramillo Botero

736
Creative Community for Generation Z Teachers in Brazil Through Strategic Design
Lara Maria Luft, Debora Barauna, Gustavo Severo de Borba

746
Design Thinking and Career Development: A Comparative Study
Clio Dosi, Eric Guerci, Jacek Jakieła, Joanna Świętoniowska, Eleni Vordou, Maria José Varadinov, Matteo Vignoli, Gastão de Jesus Marques, Joanna Wójcik

760
Design Processes: From the Historical Perspective to the Application in Startups Companies
Isabela Moroni, Amilton Arruda

772
Design and Innovation: Where Do We Want to Play? Inquiry Into Some Design's Strengths and Weaknesses in Innovation
Marco Limani

782
Design Ecosystem in Portugal. Education, Research and Entrepreneurship
Marlene Ribeiro, Francisco Providência

790
The Design Posture: A Collaborative Learning-By-Doing Approach
Rita Duina, Marco Berni, Andrea Del Bono

798
Advanced Manufacturing for Sustainable Fashion. Developing Interdisciplinary Educational Experiences
Daria Casciani

810
Co-designing Contents With Situated Stakeholders: An In-Field Process in Nolo (Milan)
Davide Fassi, Francesco Vergani

820
Creativity and Mirror Effect: Teaching Creative Skills Through Non-traditional Pedagogies
Alejandra Amenábar Álamos

830
How Design Thinking Could Benefit Future Educational Environments in a Post-Pandemic Era?
Yuqing Zhu, Yunyu Ouyang

840
How a Technology Identity Can Enhance the Diffusion of Good Design Practices in Product Sound Design
Daphne Degiorgis, Marco D'Addario, Beatrice Lerma, Doriana Dal Palù

852
Learning and Teaching From and by Social Media. Instagram to Support Blended Learning Models
Vittorio Linfante, Andrea Manciaracina

864
Education & Practice in Open Design. Improving the Learning Experience Through Knowledge Connections
Fabrizio Valpreda

876
You Can Never Solve Problems With the Same Mindset That Created Them. How Can We Change the How and the What We Teach to Enable Our Students to Become Truly "Terrestrial" Designers? A Proposition Following Bruno Latour's "Terrestrial Manifesto"
Angela Grosso Ciponte, Evelyne Roth

884
Good for Good. Designing Packaging in the Era of Deliveries
Loredana Di Lucchio, Ivo Caruso

896
Onboarding Future Systemic Innovation Designers Through Informal and Collaborative Activities
Leonardo Moiso, Sofia Cretaio, Cristina Marino, Chiara L. Remondino, Paolo Tamborrini

908
Material Practices in Transition: From Analogue to Digital in Teaching Textile and Fashion Design
Delia Dumitrescu, Martina Motta

918
Designing for the Future of Education Through Cultural Heritage
Nour Zreika, Daniele Fanzini

928
We Need to Talk About Learning Design. A Proposal for Critical Conversation
Suzanne E. Martin

938
Collaborative Learning of Ph.D. Candidates in Design on Emerging Scenarios in Scientific Publication
Eleonora Lupo, Sara Radice

948
Scenarios, Networks and Systems: An Alternative to Dichotomous Patterns
Liana Chiapinotto, Fernando Guimarães Horlle, Tássia Ruiz, Celso Carnos Scaletsky

The Latin Network for the Development of Design Processes

The Latin Network for the Development of Design Processes is a group of researchers, academics, students and business professionals of Latin languages and cultures who study and operate in a particular field of design known as design processes. They meet in a Forum, conceived as an international specialised conference, to engage in lively discussions and debates about their studies and experiences.

The Network was founded in 2008 with the “Carta di Torino” manifesto. Since its very beginning, Professor Ph.D. Flaviano Celaschi has been leading a team that, over the years, guaranteed the cultural and scientific focus of the members of the Network, fostering inter-institutional cooperation. Since 2015, the Network has been hosted by the Alma Mater Studiorum – Università di Bologna, within the Advanced Design Unit (ADU) of the Department of Architecture, coordinated by Professor Ph.D. Elena Formia.

So far, the members organised eight Forums, covering the following thematic axes:

Design Cultures as Models of Biodiversity
1st Edition
Universidade do Vale do Rio dos Sinos, Porto Alegre, Brazil
June 24-26, 2009

Design, Art, Craft: Cross-fertilizations and Experiences
2nd Edition
Universidade de Aveiro, Aveiro, Portugal
October 28-30, 2010

Innovation in Design Education
3rd Edition
Politecnico di Torino, Torino, Italy
November 3-5, 2011

Diversity: Design/Humanities
4th Edition
Universidade do Estado de Minas Gerais – UEMG, Belo Horizonte, Brazil
September 19-22, 2012

Advanced Design Cultures. The Shapes of the Future as the Front End of Design-Driven Innovation
5th Edition
Tecnológico de Monterrey, Campus Guadalajara, Mexico
September 18-20, 2014

Systems & Design. Beyond Processes and Thinking
6th Edition
Universitat Politècnica de València, València, Spain
June 22-24, 2016

Design & Territory: Emergencies and Conflicts
7th Edition
Universidad Nacional de Colombia, Sede Palmira, Colombia
June 23, 2020

Disrupting Geographies in the Design World
8th Edition
Alma Mater Studiorum — Università di Bologna, Bologna, Italy
June 20-22, 2022

For more information about the Editions and related publications, see: https://www.forumdesignprocess.org/dgdw22/past-editions/

8th Forum Main Partners

Alma Mater Studiorum — Università di Bologna Advanced Design Unit Department of Architecture

The Advanced Design Unit is a community of professors, researchers and experts who deal with design cultures and their continuous innovation. It operates in the University of Bologna through teaching activities, research, and the third mission.

https://site.unibo.it/advanceddesignunit/it

Tecnológico de Monterrey (TEC)

Established in 1943, Tecnológico de Monterrey is a distinguished private nonprofit university dedicated to cultivating leaders with robust entrepreneurial acumen and a profound sense of humanity, making them globally competitive. With a presence in 26 cities across Mexico, the university boasts a student enrollment exceeding 65,000, encompassing both undergraduate and doctoral programs. Garnering recognition on the global stage, the QS World University Rankings (2021) position Tecnológico de Monterrey at an impressive 155th worldwide. Within its esteemed Escuela de Arquitectura, Arte y Diseño, the university nurtures talents in Architecture, Digital Art, Design, and Urbanism.

https://tec.mx/es

Pontificia Universidad Católica de Chile School of Design

The UC School of Design equips professionals to navigate intricate scenarios, addressing challenges stemming from the ever-evolving landscape of scientific and technological advancements and the socioeconomic and cultural intricacies of the contemporary world. Rooted in the ethical principles of the University, this educational endeavour places particular emphasis on fostering creative intelligence, nurturing critical thinking, and cultivating social sensitivity.

www.diseno.uc.cl

diid disegno industriale industrial design

diid is an open-access, peer-reviewed scientific design journal published three times a year. It was founded in 2002 to fill a gap concerning scientific journals in Italy related to industrial design and design studies. Over the last two decades, *diid* has investigated design disciplines and practices, recording their development thanks to the significant contribution of Italian and international scientific communities. The one inaugurated in 2021, with issue no. 73, is a new phase. The journal, while exploring advanced design cultures, delves into specific aspects such as anticipation, narratives of complex systems belonging to the evolving landscape of capitalism and relational dynamics, the front-end of innovation, the avant-garde of theoretical and applied design debates. The pivotal theme under the lens of analysis is transformation, aiming to comprehend its various impacts and meanings within the realms of innovation domains. With this approach, it aims at overpassing spatial, cultural, economic, and technological boundaries giving voice to design research coming from different areas.

https://www.diid.it/diid/index.php/diid

8th International Forum of Design as a Process

Disrupting Geographies in the Design World

Alma Mater Studiorum — Università di Bologna
Bologna, June 20-22, 2022

Responsible Innovation
Social Justice
Ecocentrism
Changing Education

www.forumdesignprocess.org/dgdw22

How design is evolving to respond to the urgent needs facing our environment and society at large? How to understand and design the dynamic relations between artefacts, human beings and the ecosphere? How might design principles and practices adapt their approaches to attend to the diversity that characterised the world?

In an increasingly globalized world, new geographies in and of design offer the stage for negotiating ecosystem's complexity. Design is positioned as a key driver for improving the living standards of many, where human and environmental capitals are pivotal in local economies, and also for the connection to the rest of the world.

The 8th International Forum of Design as a Process (Bologna, June 20-22, 2022) featured speakers from the Global Design community, expanding the original vocation of the Latin Network for the Development of Design as a Process to include researchers and designers of the Mediterranean Area, Middle East, IOR (Indian Ocean Region), and Global South regions. The aim was sharing new perspectives on design futures with responsibility and justice, at the forefront of change, establishing strategic partnerships, and creating accessible knowledge.

The Forum, spanning three-days of meetings, reflection opportunities and networking activities, involved designers, scholars, young researchers, design entrepreneurs, opinion leaders, in an experimental format. Grounded in three pillars – seminars, workshops, and exhibitions –, the event aimed to attract audiences to Bologna, consolidating the potentials of the design world as hub for thought and creative production for present and future generations.

Speakers' contributions inspired the designers' community of practices, and resonated with students and the wide community, to connect design to all aspects of culture and life. This interdisciplinary approach explored the intersections of materiality and culture, post-coloniality, decoloniality, gender studies, and other areas of human thought and action which seek to analyze, question and challenge the disruptive geographies in the world, today.

Five tracks were proposed to address the different dimensions of design futures centered on responsibility and justice.

The submitted papers were reviewed, and a selection is published in this Digital Special Issue of *diid. disegno industriale – industrial design*. Each track begins with a red page containing the original text used in 2022 for the call for papers, also indicating the names of Chairs, Co-Chairs, and Track Editors. Following this, an introductory paper outlines the contents published in the form of research articles for each track.

CONVENORS AND INTERNATIONAL
ORGANIZING COMMITTEE

People

CONVENORS AND INTERNATIONAL ORGANIZING COMMITTEE

Flaviano Celaschi, Elena Formia, Valentina Gianfrate, Andreas Sicklinger, Elena Vai, Michele Zannoni
Alma Mater Studiorum
— Università di Bologna

Roberto Iñiguez-Flores, Ruth Maribel León Morán, Alfredo Hidalgo-Rasmussen
Tecnológico de Monterrey,
Escuela de Arquitectura, Arte y Diseño

Erik Ciravegna, Alberto González, Rodrigo Ramírez, Andrés Villela
Pontificia Universidad Católica de Chile,
Escuela de Diseño

Managing Editor

Lorela Mehmeti
Alma Mater Studiorum
— University of Bologna

SCIENTIFIC COMMITTEE

Mariana Amatullo
Parsons School of Design – The New School

Laura Badalucco
Università Iuav di Venezia

Alberto Bassi
Università Iuav di Venezia

Anna Bernagozzi
École Nationale Supérieure
des Arts Décoratifs

Paola Bertola
Politecnico di Milano

David Bihanic
Université Paris 1 Panthéon-Sorbonne

Andrea Boeri
Alma Mater Studiorum — Università di Bologna

Olindo Caso
Delft University of Technology

Manuela Celi
Politecnico di Milano

Mirko Daneluzzo
Dubai Institute of Design and Innovation

Claudia De Giorgi
Politecnico di Torino

Alessandro Deserti
Politecnico di Milano

Dijon De Moraes
Universidade do Estado de Minas Gerais

Franco Fassio
Università di Scienze Gastronomiche di Pollenzo

Daniele Fanzini
Politecnico di Milano

Luigi Ferrara
George Brown College

Carlo Franzato
Pontifícia Universidade Católica
do Rio de Janeiro

Giuseppe Furlanis
ISIA Design Firenze

Claudio Germak
Politecnico di Torino

Christian Guellerin
École de Design Nantes Atlantique

Çiğdem Kaya
Istanbul Technical University

Giuseppe Lotti
Università degli Studi di Firenze

Mario Losasso
Università degli Studi di Napoli Federico II

Roberto Montanari
Università degli Studi Suor Orsola Benincasa
di Napoli

Andrew David Morrison
Oslo School of Architecture and Design

Spartaco Paris
Sapienza Università di Roma

Daniela Petrelli
Sheffield Hallam University

Francesca Tosi
Università degli Studi di Firenze

**On behalf of the Department
of Architecture, Alma Mater Studiorum
— Università di Bologna**

Fabrizio Ivan Apollonio

**On behalf of the Università degli Studi
della Repubblica di San Marino
(Partner University of Alma Mater
Studiorum — Università di Bologna)**

Riccardo Varini

Massimo Brignoni

HOSTING UNIVERSITY ORGANIZING AND TECHNICAL COMMITTEE

Margherita Ascari, Luca Barbieri, Alberto Calleo, Andrea Cattabriga, Simona Colitti, Giorgio Dall'Osso, Valentina De Matteo, Matteo Gambini, Silvia Gasparotto, Clara Giardina, Davide Giorgetta, Lorela Mehmeti, Giulio Federico Palmitessa, Davide Pletto, Ludovica Rosato, Laura Succini, Andrea Torreggiani
Alma Mater Studiorum
— Università di Bologna

GRAPHIC DESIGN, WEB DESIGN AND SOCIAL MEDIA MANAGEMENT

Francesca Cianci, Lorenza Di Battista, Ami Licaj, Virginia Vignali
Alma Mater Studiorum
— Università di Bologna

KEYNOTE SPEAKERS

A School for Vernacular Algorithm: Cultural Knowledge Transfer as a System and Aesthetic Algorithmic Encounter

Tegan Bristow
Wits School of Arts

Designing From Within

Paolo Cardini
Rhode Island School of Design

Disrupting Geographies in the Design World

Flaviano Celaschi
Alma Mater Studiorum
— Università di Bologna

Realists of a Larger Reality: Cities, Political Imagination and Social Creativity

Gabriella Gómez-Mont
Experimentalista

The Single Issue Lie: Design and Intersectionality

Anoushka Khandwala
Freelance

Design in Policy-Making

Alessandro Rancati
New Bauhaus Unit, European Commission's Joint Research Centre

GUESTS

Rachel Cooper
Lancaster University

Lorenzo Imbesi
Sapienza Università di Roma

Stefano Maffei
Politecnico di Milano

Tonino Paris
Sapienza Università di Roma

Pieri Paolo Peruccio
Politecnico di Torino

Anna Bernagozzi
École Nationale Supérieure
des Arts Décoratifs

Vanessa De Luca
Istituto Design SUPSI

PROGRAM CHAIRS

Erik Ciravegna
Pontificia Universidad Católica de Chile

Mirko Daneluzzo
Dubai Institute of Design and Innovation

Elena Formia
Alma Mater Studiorum
— Università di Bologna

Valentina Gianfrate
Alma Mater Studiorum
— Università di Bologna

Clara Giardina
Alma Mater Studiorum
— Università di Bologna

Roberto Iñiguez Flores
Tecnológico de Monterrey

Lígia Lopes
Universidade do Porto

Qassim Saad
Curtin University

Andreas Sicklinger
Alma Mater Studiorum
— Università di Bologna

Michele Zannoni
Alma Mater Studiorum
— Università di Bologna

20 National and International Keynote Speakers and Guests

10 National and International Chairs and Co-chairs

3 International Universities Involved in the Organization

7 National and International Endorsers and Partners in the Activities

138 Long Abstracts Submitted

24 Countries

150 Participants

17 Ph.D. Students and Research Fellow Involved

13 Master and Bachelor Degree Students Involved

13 National and International Students Involved in the Workshop “Strange Wonder”

Track 5

New Education Pathways for Future Designers in a Changing World

There is a large consensus about the idea that the pandemic crisis is transforming almost everything for the next years or decades. The crisis will last longer than a few months and its behavioural and social implications could even be permanent, affecting the way we will produce and consume "knowledge" as a direct manifestation of our culture. These boundary conditions could represent the occasion to rethink about our own learning and education frameworks and methods to prepare future designers having a significant role and impact on the emerging challenges affecting organizations and the overall society. The track reflects upon two complementary perspectives. The first, how designers can apply their peculiar productive thinking to specific educational spheres (i.e. academies, universities, schools), but also to other organizations, to produce impactful changes related to cognitive processes and artifacts, moving into an environment where the field of education is going through significant disruptions from multiple points of view. The second, how a non-hegemonic approach to design education could introduce new perspectives on the future of experiences, opening to a more collaborative, inclusive, transdisciplinary and collective learning system. If knowledge has now to be considered at the same time a product, a service, a space, a time, this track invites researchers, practitioners, corporates, students and professionals in the field of education to share their experiences and studies on design-driven processes and related impactful projects on new formats and contents, technologies and interactions, local spaces in global geographies, processes and relationships for the ideation, production, distribution and regeneration of education. In general, the attention should not be addressed to emergency researches and practices arisen during the Pandemic period, but mostly to future focused practices.

CHAIR
Roberto Iñiguez Flores
Tecnológico de Monterrey

CO-CHAIR
Elena Formia
Alma Mater Studiorum
— Università di Bologna

TRACK EDITORS
Valentina De Matteo
Alma Mater Studiorum
— Università di Bologna

Laura Succini
Alma Mater Studiorum
— Università di Bologna

Pluriverse education
Responsible knowledge
Collaborative learning system
Prosumers
Design for metaverse

696
New Education Pathways for Future Designers in a Changing World
Valentina De Matteo, Elena Formia, Roberto Iñiguez Flores, Laura Succini

706
Decolonizing the Design Process: A Case Study in Authorship, Power, and Control
Scot Geib

714
OpenMind Handbook. A System of Design Tools and Processes to Empower Democracy Culture in Primary Schools
Valentina Facoetti, Laura Galluzzo, Ambra Borin

724
Architecture, Design and Community in Colombia. More Urban, More Rural, More Social: The Workshop Experience
Sasha Londoño-Venegas, Adriana Jaramillo Botero

736
Creative Community for Generation Z Teachers in Brazil Through Strategic Design
Lara Maria Luft, Debora Barauna, Gustavo Severo de Borba

746
Design Thinking and Career Development: A Comparative Study
Clio Dosi, Eric Guerci, Jacek Jakieła, Joanna Świętoniowska, Eleni Vordou, Maria José Varadinov, Matteo Vignoli, Gastão de Jesus Marques, Joanna Wójcik

760
Design Processes: From the Historical Perspective to the Application in Startups Companies
Isabela Moroni, Amilton Arruda

772
Design and Innovation: Where Do We Want to Play? Inquiry Into Some Design's Strengths and Weaknesses in Innovation
Marco Limani

782
Design Ecosystem in Portugal. Education, Research and Entrepreneurship
Marlene Ribeiro, Francisco Providência

790
The Design Posture: A Collaborative Learning-By-Doing Approach
Rita Duina, Marco Berni, Andrea Del Bono

798
Advanced Manufacturing for Sustainable Fashion. Developing Interdisciplinary Educational Experiences
Daria Casciani

810
Co-designing Contents With Situated Stakeholders: An In-Field Process in Nolo (Milan)
Davide Fassi, Francesco Vergani

820
Creativity and Mirror Effect: Teaching Creative Skills Through Non-traditional Pedagogies
Alejandra Amenábar Álamos

830
How Design Thinking Could Benefit Future Educational Environments in a Post-Pandemic Era?
Yuqing Zhu, Yunyu Ouyang

840
How a Technology Identity Can Enhance the Diffusion of Good Design Practices in Product Sound Design
Daphne Degiorgis, Marco D'Addario, Beatrice Lerma, Doriana Dal Palù

852
Learning and Teaching From and by Social Media. Instagram to Support Blended Learning Models
Vittorio Linfante, Andrea Manciaracina

864
Education & Practice in Open Design. Improving the Learning Experience Through Knowledge Connections
Fabrizio Valpreda

876
You Can Never Solve Problems With the Same Mindset That Created Them. How Can We Change the How and the What We Teach to Enable Our Students to Become Truly "Terrestrial" Designers? A Proposition Following Bruno Latour's "Terrestrial Manifesto"
Angela Grosso Ciponte, Evelyne Roth

884
Good for Good. Designing Packaging in the Era of Deliveries
Loredana Di Lucchio, Ivo Caruso

896
Onboarding Future Systemic Innovation Designers Through Informal and Collaborative Activities
Leonardo Moiso, Sofia Cretaio, Cristina Marino, Chiara L. Remondino, Paolo Tamborrini

908
Material Practices in Transition: From Analogue to Digital in Teaching Textile and Fashion Design
Delia Dumitrescu, Martina Motta

918
Designing for the Future of Education Through Cultural Heritage
Nour Zreika, Daniele Fanzini

928
We Need to Talk About Learning Design. A Proposal for Critical Conversation
Suzanne E. Martin

938
Collaborative Learning of Ph.D. Candidates in Design on Emerging Scenarios in Scientific Publication
Eleonora Lupo, Sara Radice

948
Scenarios, Networks and Systems: An Alternative to Dichotomous Patterns
Liana Chiapinotto, Fernando Guimarães Horlle, Tássia Ruiz, Celso Carnos Scaletsky

New Education Pathways for Future Designers in a Changing World

Valentina De Matteo
Alma Mater Studiorum
— Università di Bologna
valentina.dematteo2@unibo.it
ORCID 0000-0002-4024-1365

Elena Formia
Alma Mater Studiorum
— Università di Bologna
elena.formia@unibo.it
ORCID 0000-0002-6720-0176

Roberto Iñiguez Flores
Tecnológico de Monterrey
riniguez@tec.mx
ORCID 0000-0003-1486-8735

Laura Succini
Alma Mater Studiorum
— Università di Bologna
laura.succini@unibo.it
ORCID 0000-0003-2662-8413

Abstract
The article presents the results of the debate that emerged during the *8th International Forum of Design as a Process*, organized in Bologna by the design units of three partner institutions: the University of Bologna, the Pontificia Universidad Católica de Chile and the Tecnológico de Monterrey (20-22 June 2022). In particular, the Authors were chairs of the New Education Pathways for Future Designers in a Changing World theme track. It focused on two complementary perspectives. First, how designers can apply their peculiar "productive thinking" to educational spheres or other forms of organizations; second, how a non-hegemonic approach to design education could introduce new perspectives on future experiences. After an introduction about the overall theorical background, five themes have been created to frame the papers by international scholars. The conclusion outlines some elements that can be considered in a process of continuous research and discussion.

Keywords
Pluriverse education
Responsible knowledge
Collaborative learning system
Knowledge prosumers

Copyright © 2023
diid disegno industriale
industrial design
CC BY-NC-SA

Introduction

There is a large consensus about the idea that the pandemic crisis that affected the Planet in the past years has transformed almost everything with impacts for the next years or decades. The crisis is lasting, and its behavioral and social implications could even be permanent, transforming the way we will produce and consume "knowledge" as a direct manifestation of our culture. These exceptional conditions represented the occasion to rethink about our own learning and education frameworks and methods to prepare future designers having a significant role and impact on the emerging challenges transforming organizations and the overall society (Meyer & Norman, 2020).

Starting from these assumptions, the Track New Education Pathways for Future Designers in a Changing World reflected upon two complementary perspectives. The first, how designers can apply their peculiar "productive thinking" (Celaschi et al., 2020) to specific educational spheres (i.e., academies, universities, schools), but also to other forms of organizations, to produce impactful changes related to cognitive processes and artifacts. The second, how a non-hegemonic approach to design education could introduce new perspectives on future experiences, opening to a more collaborative, inclusive, transdisciplinary and collective learning system (Escobar, 2018; Bosco, Gasparotto & Formia, 2021; Boehnert, Sinclair & Dewberry, 2022; Noel, 2022; Formia, Gianfrate & Succini, 2023).

If knowledge has now to be considered at the same time a product, a service, a space, a time, the Track hosted researchers, practitioners, students and professionals who shared experiences and studies on design-driven processes and related impactful projects on new formats and contents, technologies and interactions, local spaces in global geographies, for the ideation, production, distribution and regeneration of education (Salamanca, Mercer & Briggs, 2019; Succini et al., 2021).

In general, the attention has overpassed the practices arisen during the pandemic period being mostly interested to explore future-focused research and processes. The selected essays answered the call of *8th International Forum of Design as a Process*'s Track in creative ways. This led to the publication of 24 papers, by 59 Authors, coming from 10 countries. In particular, the involved institutions and organizations are: Federal University of Pernambuco State, Universidade Federal de Mato Grosso, and UNISINOS (Brazil); Langara College (Canada); Pontificia Universidad Católica de Chile (Chile); Pontificia Universidad Javeriana, Cali (Colombia); Université Côte d'Azur (France); Codesign Toscana ETS, Iuav University of Venice, Politecnico di Milano, Politecnico di Torino, Sapienza University of Rome, and University of Bologna (Italy); Rzeszow University of Technology (Poland); Polytechnic Institute of Portalegre and University of Aveiro (Portugal); University of Borås (Sweeden); University of Applied Sciences & Art Northwestern Switzerland (Switzerland).

To provide for a general overview of the main topics collected in this part of the volume, we started from the word "E.D.U.C.A.T.E", whose anagram contains the key concepts identifying the stream presented below: Empower, Diversity, User-Centricity, Creativity, Ambition, Transition, Ethics. Each of these keywords has been set in

diid DSI No.1 — 2023
Doi: 10.30682/diiddsi23t5a

relation to the others, arriving at the identification of commonalities between the Track contributions, resulting in five main themes. Below, we briefly summarize them, point to fruitful moments of connection, and thereafter highlight opportunities for future development.

Theme 1: Design Ethics and Enabling Education for Emerging Challenges

The first topic is related to Design Ethics and Enabling Education for Emerging Challenges. It focuses on the role of design to get the right "posture" towards wicked problems, such as decolonization, social coexistence, democratic participation, student-centered education, employment perspective. The Authors address design-driven models, experiences, and projects developed in academic environments, but also linked to non-institutional contexts and implemented in local communities.

Starting from the case of Langara College when the Author has been asked to lead a new course called *Decolonizing the Design Process* — which reflects Canada's nationwide trend toward Indigenization of educational frameworks —, Scot Geib (*Decolonizing the Design Process: A Case Study In Authorship, Power, and Control*) explores opportunities and obstacles related to a shift in education models with a focus on Western paradigm disruption. The theme of democratization emerged also in the paper by Valentina Facoetti, Laura Galluzzo, and Ambra Borin (*OpenMind Handbook. A system of design tools and processes to empower democracy culture in primary schools*) that investigates the role of Service Design in activating participatory processes that can foster the co-creation of educational experiences aimed at raising awareness of social coexistence. On the other side, Sasha Londoño-Venegas and Adriana Jaramillo Botero (*Architecture, design and community in Colombia. More Urban, more Rural, more Social: the workshop experience*) focus on the multiple roles of knowledge that calls researchers, teachers and academics to share experiences and studies on small-scale impact projects related to non-conventional formats. In the context like Colombia, which is described as case study, with high rates of neglect of vulnerable sectors such as school-age children, the paper points out the social responsibility of the academia to work on knowledge innovation in terms of formats, contents, practices and methodologies.

Practices for enabling students towards their future opportunities are described in the paper by Lara Maria Luft, Debora Barauna, and Gustavo Severo de Borba (C*reative Community for Generation Z teachers in Brazil through Strategic Design*). It explores the reasons behind the observed lack of engagement among young individuals in pursuing teaching as an appealing professional path. According to the Authors, to overcome the perceived lack of interest among GenZ, design can play a significant role in addressing this issue by fostering the creation of creative communities that enhance connection among members and encourage collaboration (such as the *CoNUMIdade Turbo experience* mentioned in the paper as case study). Finally, Clio Dosi, Eric Guerci, Jacek Jakieła, Joanna Świętoniowska,

Eleni Vordou, Maria José Varadinov, Matteo Vignoli, Gastão de Jesus Marques, and Joanna Wójcik (*Design Thinking and Career Development: A Comparative Study*) highlight the importance of career awareness for university students and the related social responsibility of universities to guide them through the process of choice driven by employability criteria and a counseling approach.

Theme 2: Innovation, Creativity, and Diversity to Lever Collective Intelligence and Inclusion in Complex Environments

The second topic is related to Innovation, Creativity, and Diversity to Lever Collective Intelligence and Inclusion in Complex Environments. It reflects on the role of design to value diversity and inclusion (Costanza-Chock, 2020), hybridizing learning paths by culture and creativity as catalysts for innovation. The first group of papers is strongly connected to the dimension of private organizations such as companies, investigating design-driven innovation perspectives as form for disrupting canonical processes towards a more inclusive and creative vision. Progressively the attention moves towards eco-systems that include wider groups of stakeholders such as universities, creative and cultural industries, local actors, and communities. Finally, the last group of papers reflect methodologically upon the agency of creativity in complex innovation environment.

Isabela Moroni and Amilton Arruda (*Design Processes: from the historical perspective to the application in startups companies*) underline the role of innovation in maintaining an organization's competitive capacity. This dynamic is fundamental for the construction of the central competence of a company which is the ability to generate knowledge. A five-step process is described for this purpose. By presenting the Electrolux case, Marco Limani (*Design and innovation: where do we want to play? Inquiry into some design's strengths and weaknesses in innovation*) discusses the role of design education compared to managers educated in design. According to the Author, fundamental barriers exist to successfully overtaking and legitimizing design in innovation processes. This is because the discourse cannot be siloed among design, business, management, marketing or technology; world complexity requires a holistic approach and the support of each discipline's vertical and horizontal capability to increase the innovation likelihood of success.

Starting from the case of *Design Ecosystem* in Portugal, Marlene Ribeiro and Francisco Providência (*Design ecosystem in Portugal. Education, research and entrepreneurship*) investigate the role of design in creating new problems, activating change in consumption habits and organizational evolution. In this light, the research tries to identify possible causes for the still fragile connection between design and industries and to point out alternatives for a more effective collaboration. In a similar perspective, Rita Duina, Marco Berni, and Andrea Del Bono (*The design posture: a collaborative learning-by-doing approach*) present the perspective of *Codesign Toscana Project* on the idea of "design posture", which emerges as a multifaceted concept with a different nuance when discussed by "experts" or "practitioners". According to the workshop

diid DSI No.1 — 2023
Doi: 10.30682/diiddsi23t5a

series described in the paper, experts adopt a self-reflexive attitude towards their personal and professional life as designers for communities; practitioners are more oriented in conceiving the concept as a "mood" towards the community they work or live in and as a widespread sense of agentivity among people involved in design processes. The research also tries to formalize "design posture" both theoretically and in practice to trigger a series of active citizenship dynamics that can facilitate the multiplication of spaces for inclusion and empowerment. Moving towards a more specific sector, Daria Casciani (*Advanced Manufacturing for Sustainable Fashion. Developing interdisciplinary educational experiences*) investigates the fashion industry as a creative industry with high cultural, social, and environmental impacts, demanding a paradigmatic shift through digital transformation toward a sustainable change. Starting from the lessons learned from the *Advanced Manufacturing for Sustainable Fashion* (ASMF) module conducted at Politecnico di Milano (Design School) in the course Design for the Fashion System, the paper states how fashion education needs to nurture professionals who can tackle increasingly complex challenges, dive into technological systems. Davide Fassi and Francesco Vergani (*Co-designing contents with situated stakeholders: an in-field process in Nolo – Milan*) describe *OCN – Open Campus Nolo*, a living lab promoted by Politecnico di Milano: a multi-purpose format that proved to be suitable for binding research, teaching, and action together, providing methodological principles that could be scaled and replicated in local environments. This context emerges as "design incubator" characterized by the proactivity of local actors - such as citizens, shopkeepers, associations, informal groups -, acting at the core of the design process by developing brand-new and tailor-made solutions, and, at the same time, providing environmental, economic, and social beneficial transformation in an inclusive and democratic way.

Starting from the case of *NUBE Lab Project*, Alejandra Amenábar Álamos (*Creativity and Mirror Effect. Teaching creative skills through non-traditional pedagogies*) aims to indicate creativity and innovation as future engines of the global knowledge economy. In this scenario, a consistent role is played by "design pedagogy" which is crucial for transferring project methodologies and fostering creative skills. However, the technological and social transformations of this century have challenged traditional educational canons and the very definition of creativity. The paper overcomes these challenges by analyzing non-traditional educational paradigms to address them from a design methodology perspective. Finally, Yuqing Zhu and Yunyu Ouyang (*How Design Thinking Could Benefit Future Educational Environments in a Post-Pandemic Era?*) reflect on the change of the learning environment pattern which has characterized the post-pandemic era. As an effort to better support the new traits, design thinking, especially the empathizing, redefining and prototyping strategies, could help in adapting to the new surroundings at three different scales: the family and neighborhood scale, the regional medium-scale learning experience, the international scale, where innovation could be focused on the creation of virtual platforms to grant equal access for learners from developing countries.

Theme 3: User-Evolution to Build New Knowledge Pathways

The third topic is related to User-Evolution to Build New Knowledge Pathways. It reflects on the role of design to build knowledge trajectories focusing on the continuously evolving user-perspective by exploring new topics and the impact of enabling technologies to create hybrid form of education.

Daphne Degiorgis, Marco D'Addario, Beatrice Lerma, and Doriana Dal Palù (*How a technology identity can enhance the diffusion of good design practices in Product Sound Design*) investigate Product Sound Design as a promising research field. The case study is a patented method-and-tool, conceived to collect, analyze, and recreate various sounds to develop a new generation of products with designed mechanical and, eventually, digital sounds. Spreading this innovation within the design community is fundamental to stimulate future more focused and aware practices and can be seen as an example of a way to "educate" the designer to future-focused themes and reconnect the technology to potential users.

Vittorio Linfante and Andrea Manciaracina (*Learning and teaching from and by social media. Instagram to support blended learning models*) investigate the effectiveness of social media, particularly Instagram, within a teaching activity. The assumption behind is that digital transformation drives new visualization, promotion and storytelling processes of the design system, defining new relationships between physical and virtual spaces in which users are not just spectators of the creative phases, but are increasingly involved in processes of "value co-creation" and "cooperative investment". On the other side, the case study *Gamelon Pad*, developed within the research activities of the Open Design group, as part of the virtuaLAB (Politecnico di Torino) activities, in collaboration with Fablab Torino, is described by Fabrizio Valpreda (*Education & Practice in Open Design. Improving the learning experience through knowledge connections*) as the occasion to test a new approach to a multidisciplinary design process, starting from the educational experience. The paper underlines a scenario where a student is put into conditions to experiment the entire design process, in order to develop a physical design solution for a user with disabilities.

Theme 4: Design for Transition

The fourth topic is related to Design for Transition. It reflects on the role of design to enable ecological, social and technological paradigm evolution (Irwin, Tonkinwise & Kossoff, 2022).

Angela Grosso Ciponte and Evelyne Roth (*You can never solve problems with the same mindset that created them. How can we change the how and the what we teach to enable our students to become truly «terrestrial» designers? A proposition following Bruno Latour's «Terrestrial Manifesto»*) describe a series of workshops where interdisciplinary teams of students, as well as lecturers, work in cooperation with enterprises on concrete cases to explore methodological approaches to circular design. Results validate the hypothesis that education can successfully work in an open process and collaboratively convey circularity. Transition has to be consid-

diid DSI No.1 — 2023
Doi: 10.30682/diiddsi23t5a

ered as a target of education at the university level, while companies in transition can operate sustainably in a circular way, even if the main economy does not yet follow this model. Starting with didactic design experimentations, Loredana Di Lucchio and Ivo Caruso (*Good for Good. Designing packaging in the era of deliveries*) point out the attention to process innovation as the result of a progressive loss of centrality of product design. Due to a deep change of scenario, in recent decades design as a discipline and practice has shifted its attention from the morphological and technological aspects of an object (both material or immaterial) to questions related to the interaction in between object and man (Human-Centred Design), in between object and environment (Design for Sustainability), in between object and object (Design for Interaction), in between object and society (Design for Social Innovation), to arrive to exclude the object from the innovation process (Design of Services) and to open to the broader field of systemic design. Leonardo Moiso, Sofia Cretaio, Cristina Marino, Chiara L. Remondino and Paolo Tamborrini (*Onboarding future Systemic Innovation Designers through informal and collaborative activities*) highlight the importance of educational methodologies in shaping digital environments, with the designer's expertise playing a pivotal role. This methodological application is also explored in professional development programs or lifelong learning initiatives, where incorporating digital tools and educational methodologies improve individuals' skills in a rapidly changing digital landscape. Delia Dumitrescu and Martina Motta (*Material practices in transition: from analogue to digital in teaching textile and fashion design*) present case studies exemplifying diverse ways of approaching the teaching of material design in textiles and fashion field, wherein haptic knowledge is combined with digital media. The results of each case study are an example of the positive impact of a cross-disciplinary approach, and of the benefits of combining tools in a context shifting from Industry 4.0 to Industry 5.0. Starting from *ARTERI'A* Project in Vigolzone (Italy) municipality, Nour Zreika and Daniele Fanzini (*Designing for the Future of Education Through Cultural Heritage*) highlight the role of schools and the importance of cultural heritage education. The contribution points out the importance of informal education to be considered as a formal learning tool to be used in a new concept of school that becomes think tanks for designers, stakeholders, and policymakers.

Theme 5: Future-proof Scenarios and Perspectives

The fifth topic is related to Future-proof Scenarios and Perspectives. It reflects on the role of design to build, unbuild, rebuild new scenarios and narratives for the future, including different fields of application (Celaschi et al., 2019).

Suzanne E. Martin (*We Need to Talk About Learning Design. A Proposal for Critical Conversation*) underlines the need for a significant reorientation of design theory and practice to make this a transformative moment in history. According to the Author, design education has the responsibility to re-imagine learning and enable new ways of shaping pedagogical knowledge, finding ways to illuminate the words that visualize that future. Based on the emerging trend of

the "living publication scenarios", Eleonora Lupo and Sara Radice (*Collaborative learning of Ph.D. candidates in Design on emerging scenarios in scientific publication*) show models and practices to disrupt traditional publication patterns and envision new formats beyond the canonical "article". They point out how new typologies research products and new forms of dissemination meet the challenges of an impactful design education to empower PhD students. Finally, Liana Chiapinotto, Fernando Guimarães Horlle, Tássia Ruiz, and Celso Carnos Scaletsky (*Scenarios, networks and systems: an alternative to dichotomous patterns*) outline an alternative point of view on the way design teaches and thinks scenarios, beyond prospective methods that stimulate speculation by antagonisms. Network elements allow us to imagine the future and reflect on the past and present in a systemic way, with the density and specificity that are required from the design professional in problematic situations.

Discussion

Encompassing a variety of aspects regarding the connection between design and knowledge innovation, the previous compilation is far from being exhaustive. A series of "wicked problems" (Rittel & Webber, 1973) have not gone into detail in it. For instance, the rise of artificial intelligence, the urgent challenges for maintaining the Planet, the post-human perspective, the new hybrid-flexible forms of learning linked to enabling technologies, the "education gap", the multidisciplinary contaminations, the growing of skills-centered education ask for new theoretical perspectives, as well as concrete design actions. Addressing our attention to such topics, considered as the contemporary condition of Transition Design (Irwin, 2015) Education, but also Transition Design in and for Education, could yield even more interesting results paving the way for further scholarly discussions.

The second aspect is related to the distance between design research and teaching, that needs to be considered because they "have always had a close (and difficult) relationship in most contemporary educational settings" (Jonesa et al., 2022). The submission received clearly demonstrates that processes of action design research are strictly linked to educational contexts, both inside and outside academia. This is true also if we consider a non-hegemonic approach that overpasses the dominant Western centric perspective.

Finally, the overall discussion opens to consider design education as a specific field of knowledge with all the complexity and contradiction that entails, but also to enlarge the perspective on design as a driver of new eco-systemic education which includes a huger set of contexts (private and public organizations, associations, institution, etc.) and a wider set of not-institutional and informal practices.

Valentina De Matteo
Ph.D. candidate in Advanced Design at the Università di Bologna. Her research is focused on investigating the role and contribution of design in organizational transformation and capacity building. She is a practioner in the field of "change management by design" helping companies to build strategies, processes and new organizational models for design-driven innovation.

Elena Formia
Ph.D., Associate Professor of Design at the Department of Architecture of the Università di Bologna, where she is Director of the First Cycle Degree in Industrial Design and the Second Cycle Degree in Advanced Design.

Roberto Iñiguez Flores
Leader of the School of Architecture Art and Design at the Tecnológico de Monterrey, a national scale project that has operations in 19 cities with undergraduate and graduate programmes in Architecture, Design, Digital Arts and Urbanism. His research focuses on the Advanced Design Cultures, with particular interest in anticipation processes, the relation between systems and design, and how individuals and organisations develop "advanced" design competencies.

Laura Succini
Ph.D. in Design. She is Junior Assistant Professor at the Department of Architecture — Università di Bologna and a member of the Advanced Design Unit, the design research group of the same university. Her research fields are design for/with responsible innovation, design and collaborative approaches within territories with a focus on the relationship with the intangible cultural heritage.

diid DSI No.1 — 2023
Doi: 10.30682/diiddsi23t5a

References

Boehnert, J., Sinclair, M., & Dewberry, E. (2022). Sustainable and Responsible Design Education: Tensions in Transitions. *Sustainability*,14, 6397. https://doi.org/10.3390/su14116397

Bosco, A., Gasparotto, S., & Formia, E. (2021). Futured-Centred Design Education. Projects and Perspectives for Future Challenges. In A. Bosco, & S. Gasparotto (Eds.), *Updating Values. Perspectives on Design Education* (pp.102-107). Quodlibet.

Celaschi, F., Formia, E., Iñiguez Flores, R., & León Morán, R. (2019). Design Processes and Anticipation. In R. Poli (Ed.), *Handbook of Anticipation* (pp. 773–793). Springer International Publishing. https://doi.org/10.1007/978-3-319-91554-8_48

Celaschi, F., De Matteo, V., Formia, E., & Zannoni, M. (2020). Thinking as a designer Productive Thinking in contemporary Knowledge Innovation System. *diid. Disegno Industriale Industrial Design*, 70, 26-33.

Costanza-Chock, S. (2020). *Design justice: Community-led practices to build the worlds we need.* The MIT Press.

Escobar, A. (2018). *Designs for the pluriverse: Radical interdependence, autonomy, and the making of worlds*. Duke University Press.

Formia, E., Gianfrate, V., & Succini, L. (Eds.) (2023). *Design per l'Innovazione Responsabile. Guida per processi formativi in trasformazione*. Franco Angeli Editore [open access].

Irwin, T. (2015). Transition Design: A Proposal for a New Area of Design, Practice, Study and Research. *Design and Culture Journal*, *7*(2), 229-246.

Irwin, T., Tonkinwise, C., & Kossoff, G. (2022). Transition design: An educational framework for advancing the study and design of sustainable transitions. *Cuadernos del Centro de Estudios en Diseño y Comunicación. Ensayos*, 105, 31-72.

Jonesa, D., Noelb L.-A., Marques Leitaoc, R., Lotza N., Merete Nielsend, L., Digranese, I., Börekçif, N. A. G. Z., & Corazzog, J. (2022). Editorial: Futures of design education. In D. Lockton, S. Lenzi, P. Hekkert, A. Oak, J. Sádaba, & P. Lloyd (Eds.), *DRS2022: Bilbao, 25 June - 3 July, Bilbao, Spain*. https://doi.org/10.21606/drs.2022.1064

Meyer, M. W., & Norman, D. (2020). Changing Design Education for the 21st Century. *She Ji: The Journal of Design, Economics, and Innovation*, *6*(1), 13-49. https://doi.org/10.1016/j.sheji.2019.12.002

Noel, L.-A. (2022). Designing New Futures for Design Education. *Design and Culture*, *14*(3), 277-291. https://doi.org/10.1080/17547075.2022.2105524

Rittel, H. W. J., & Webber, M. M. (1973). Dilemmas in a General Theory of Planning. *Policy Sciences*, 4, 155-169.

Salamanca Garcia, J. M., Mercer, L., & Briggs, M. C. (2019). Responsible Innovation: A Model for Holistic Design Pedagogy. *Proceeding of the Design Revolutions, International Association of Societies of Design Research Conference 2019*. https://iasdr2019.org/uploads/files/Proceedings/Ie-f-1040-Sal-J.pdf

Succini, L., Ascari, M., Formia, E. M., Gianfrate, V., & Zannoni, M. (2021). Design for Responsible Innovation. Social Impacts of Products and Services. *PAD 21*, 14, 235-255.

diid DSI No.1 — 2023
Doi: 10.30682/diiddsi23t5a

How a Technology Identity Can Enhance the Diffusion of Good Design Practices in Product Sound Design

Daphne Degiorgis
Freelance (previously, Politecnico di Milano)
daphne.degiorgis@gmail.com
ORCID 0000-0002-3032-6875

Marco D'Addario
Politecnico di Torino
marco.daddario@polito.it
ORCID 0000-0003-3144-2648

Beatrice Lerma
Politecnico di Torino
beatrice.lerma@polito.it
ORCID 0000-0002-4928-314X

Doriana Dal Palù
Politecnico di Torino
doriana.dalpalu@polito.it
ORCID 0000-0002-1603-3486

Abstract
People are plugged into an intangible sound universe. But only a tiny part of the sounds we are exposed to have been purposefully designed. Recently, designers are bashfully approaching these intangible products' quality. Product Sound Design represents, in fact, a promising research field still scarcely explored. The design community is answering this concern through new design methods. An Italian university developed a patented method-and-tool, conceived to collect, analyze, and recreate various sounds to develop a new generation of products with designed mechanical (and, eventually, digital) sounds. Spreading this innovation within the design community is fundamental to stimulate future more focused and aware practices. As well as all new technologies, the new patent didn't have its own identity from the beginning. Extensive work conducted with the scientific approach has therefore been undertaken to redesign its identity to make its disruptiveness intelligible and understandable.

Keywords
Digital identity
Product sound design
SounBe
Technology identity
Virtual presence

Copyright © 2022
diid disegno industriale
industrial design
CC BY-NC-SA

Introduction

Nowadays, all over the world, people are plugged into an intangible universe made of sounds. The "soundscape" (Schafer, 1969) in which we live comprises communicative and uncommunicative, pleasing and unpleasing, useful and sometimes useless stimuli. What is commonly understated is that only an infinitesimal part of the everyday object sounds we are exposed to (e.g., the crackling sound of packaging, the rolling sound of an office chair, etc.) has been purposefully designed (Fenko, Schifferstein & Hekkert, 2011).

What is Product Sound Design and why it is so important

> Products are ubiquitous, so are the sounds emitted by products. Every sound seems to influence our reasoning, emotional state, purchase decisions, preference, and expectations regarding the product and product's performance. Thus, auditory experience elicited by product sounds may not be just about the act of hearing or a sensory response to acoustical stimuli (e.g., this is a loud and sharp sound). People actually experience a product sound beyond its acoustical composition [...]: a complimentary and meaningful relationship exists between a product and its sounds. (Özcan Vieira, 2008).

According to the World Health Organization (WHO), noise pollution is one of the most dangerous environmental threats to health (WHO, 2018). It continues to be a growing concern among policymakers and the public alike. In addition to road traffic, railways, aircraft, wind turbines, and leisure noises, a need for updated health-based guidelines originated at the Fifth Ministerial Conference on Environment and Health (organized in Parma, Italy, in 2010), where Member States asked WHO to produce appropriate noise guidelines that would include additional noise sources such as personal electronic and non-electronic devices or toys (WHO, 2018).

All this evidence highlights how an up-to-date discipline, at the encounter between acoustics, design and cognitive ergonomics, is strongly needed. Product Sound Design represents, in fact, a promising research field, but one that is internationally still needs to be explored.

The Advent of New Practices for Product Sound Design

In recent times, designers are bashfully approaching these intangible products' quality. The design community is starting to answer this concern through new design methods. According to this, in an Italian university, a multidisciplinary team developed a patented method-and-tool named SounBe Fig. 1, conceived to collect, define, analyze, and recreate a variety of sounds, to develop a new generation of products with mechanical (and, eventually, digital) sounds (Dal Palù et al., 2018) as described in scientific literature (De Giorgi et al., 2011; Dal Palù & De Giorgi, 2018).

diid DSI No.1 — 2023
Doi: 10.30682/diiddsi23t5g

Fig. 1
An overview of SounBe tool.

SounBe tool consists of a set of accessories housed in a briefcase and designed to produce sounds from materials samples following a standardized procedure. It can be adopted as a reliable tool to generate sounds to be described also with semantic differentials technique, frequently adopted in sound quality investigation studies. SounBe is an evolving and open tool: as the complexity of gestures and exciting modes existing in real life and in real interaction between a human and an object, or between two objects, is almost endless, the device offers the possibility to reproduce several more common gestures, but the method can be implemented with new gestures still not explored. The physical device allows not only to test material samples but also to submit to the test simple and small products such as, for example, a coffee cup (Dal Palù et al., 2018).

Spreading this innovation within the design community is fundamental to stimulate future practices, especially concerning Product Sound Design. Moreover, the dissemination of SounBe method-and-tool could have a significant role and impact in the educational path of future designers and prepare them to be able to produce impactful changes in the development of innovative cognitive processes, and artifacts, in which sound will be a main asset. As well as all new technologies, the new patented method-and-tool didn't have its own identity from the very beginning.

Finally, this design-driven process was focused on the key questions proposed in the next lines:

- How to ensure that the SounBe technology spreads in the design community?
- What identity to give to the new technology?
- Can a new *phygital* identity (i.e., a new identity that mix physical and digital levels, aiming at the convergence between the two spheres (Johnson & Barlow, 2021) help spread physical technology on and off the web?

This contribution tries to show how a new technology developed to face a phenomenon attracting an increasing attention not only can benefit from a totally new and ad hoc designed physical and digital identity, but also how impactful this could be on the ideation, production, distribution, and regeneration of education (and of next generation products). A descriptive report of this process

is proposed, with the aim not to represent a possible method to be replicated, but to offer the perspective of a case study on the possibility of designing the identity not only of a product or a brand, but of a technology.

Scientific Approach

A new technology identity design is a matter that goes far beyond the boundaries of communication, user experience, and innovation. In the specific case of this research, the identity of a new technology can help spread its adoption, with a consequent positive effect on future product design practices.

The analysis of literature (Haverkamp, 2013; Riccò, 2016) defined a spot at the intersection between visual design and sound, and the integration with semiotics and the synesthetic approach is shown to be crucial to meet cross-sensorial needs. The subsequent sub-chapters, and the related approach schematization Fig. 2, will depict a clearer image about it, always in relation to the proposed case study.

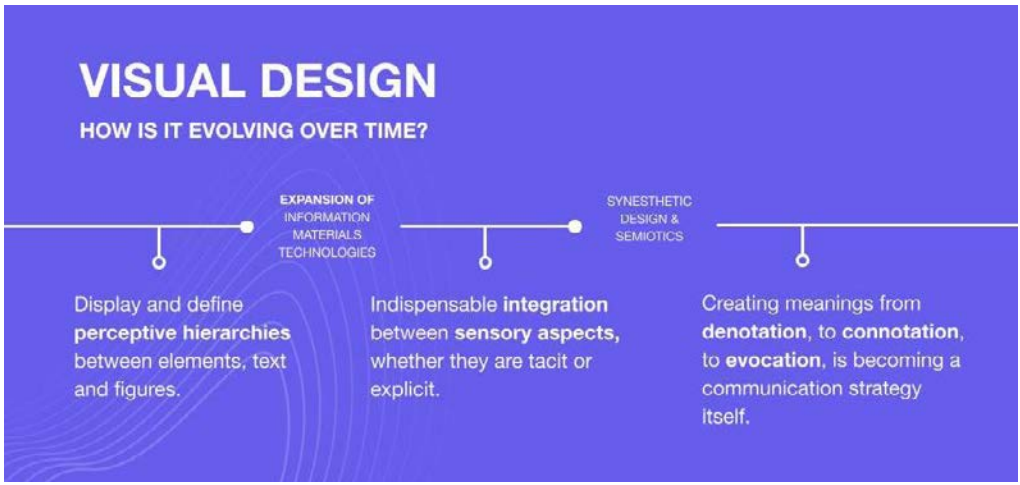


Fig. 2
A schematization of the adopted approach.

A Communication Strategy Based on the Synesthetic Approach

Since products and services' identities shape their desirability, acceptability, and adoptability (Elwyn et al., 2013), they could positively affect future practices, especially those concerning product design.

Traditionally, visual designers seek to display and define perceptive hierarchies between writings and figures. However, as Merleau-Ponty (1945) declared, objects' aspects don't identify just in their geometrical shape but, instead, they are linked with the whole human sensorial sphere. Moreover, the expansion of information, materials, and technologies drives products to an indispensable integration between sensory aspects, whether they are tacit or explicit as many studies researchers confirm. The Italian designer Bruno Munari (1981), in the early 1980s, affirmed that design projects not

diid DSI No.1 — 2023
Doi: 10.30682/diiddsi23t5g

only should consider the senses other than sight but consider them as an essential linked entity. Multisensory integration turns out to be fundamental to meeting the users' cognitive needs, leading to more comprehensive design products (Chandrasekaran, 2017). The result is a necessary interdependence that, in this case, must take place between visual and sound stimuli (Riccò, 2008).

Even though the use of sight is normally perceived as the main sense faculty, other senses, specifically hearing, merge sharply with the sight to shape a consistent representation of the context we are immersed in (Liu, 2020). We will dive deep into the relationship between vision and auditory senses in the next paragraphs.

Visualization to Drive Perceptions

Despite the exploitation of sensory integration, especially with audition, visual-lead translation is still recognized as the most efficient method, on a communicative level, to let the users fully embrace the relationship between the senses (Liu, 2020). The designer can direct the characteristics of those interactions, defining sensorial priorities and hierarchies, to avoid inconsistencies (Riccò, 2008).

Thus, concerning visual strategies, the wise use of typography can drive human attention towards precise sentences, keywords, or lone glyphs to strengthen visual identities, logos or explanatory texts. Moreover, previous color associations and well-known brand identities shape our perceptions, establishing unconscious patterns in our mind. The latter react to shapes similarly, associating them with previous and personal experiences.

The Semiotic Principles of Design

Theoretically, objects or signs denotation is objectively perceptible, but its representation, instead, is an internal image that was formed relying on the memories of sensitive impressions and activities people experienced (Frege, 1892). Hence, this semiotic principle leads to the subjective connotation of a visual element, which changes according to each individual. Starting from this rule, the designer must consider the *denotative*, *connotative,* and *evocative levels*, both individual and collective, of a certain visual stimulus. Nowadays, the process of creating meanings from denotation to connotation, to evocation, can be considered as a communication strategy itself (Bonfantini et al., 2007) frequently exploited by media, visual merchandisers, and designers.

Visual and Auditory Stimuli: An Effective Interdependence

As a typical means of synesthetic translation, the audio description would enrich visual information, thereby conveying the emotions within visual content (Liu, 2020).

In broad terms, verbal and visual descriptions of the sound world require a figural language allowing the visual register to take immediate relevance. In addition, concerning harmony and melody dynamics, the sound vocabulary retains traces from the visual arts (Riccò, 2008).

Thus far, we illustrated the constitutional synesthetic principle on which the research and design of SounBe communication systems are based. In summary, sight and sound are in a constant relationship: from figures arise sounds (think, for example, of the famous "The Scream" by Edward Munch) and with sounds, we can evoke images. We must therefore not expect sounds *to be heard*, but sounds *to be seen*, *evoked* in the literal sense of the term.

In summary, while presenting the current project we intend to propose how an increasing sensory intervention would accommodate richer design elements and design issues where complexity plays an important role (Liu, 2020). By exploiting sight stimuli and psychological processes, a system of visual elements allowed the authors to reach significant results in terms of effectiveness within the creation of a communication strategy that could meet users' needs as well as SounBe main features.

These approaches have been applied to ensure a wide dissemination of SounBe potentiality mainly online, but also offline, through an integrated communication strategy that will be disclosed in the next section.

First Outcomes

As we already said, the communication of the technology was based on a convergence between digital and physical spheres. After a due scenario analysis based on mood boards of the existing panorama related to sound fruition intended in a wide perspective, here only briefly mentioned through some examples taken into account Fig. 3, for the digital "showcase" of this technology, a coordinated image was created, as well as an identity on the website (www.sounbe.design), and a communication plan through straightforward wording for the potential user (designers, researchers, companies), to make its disruptiveness visible and tangible, though online.

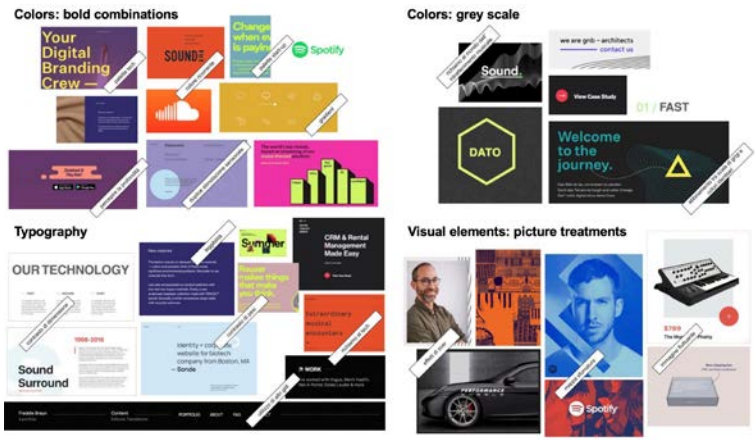


Fig. 3
A synthetic overview of the performed scenario analysis through a mood-board of case studies taken into account on the theme of sound fruition in general.

diid DSI No.1 — 2023
Doi: 10.30682/diiddsi23t5g

Specifically, the multi-level communication of the instrument has been fully revised Fig. 4.

From the initial color palette, colors have moved to ones emphasizing the high-tech aspect of the instrument and the spirit of start-ups. The grayscale, colors of the technique, were flanked by bold combinations of violet (which refers to the blue of the University where SounBe was developed, but also to a more electric color, close to the world of innovation) and acid green (which winks at novelty and sensory stimulation). The gradient map in a combination of identity colors was chosen for the treatment of images, returning visual and narrative uniformity to the photographs chosen to tell the project.

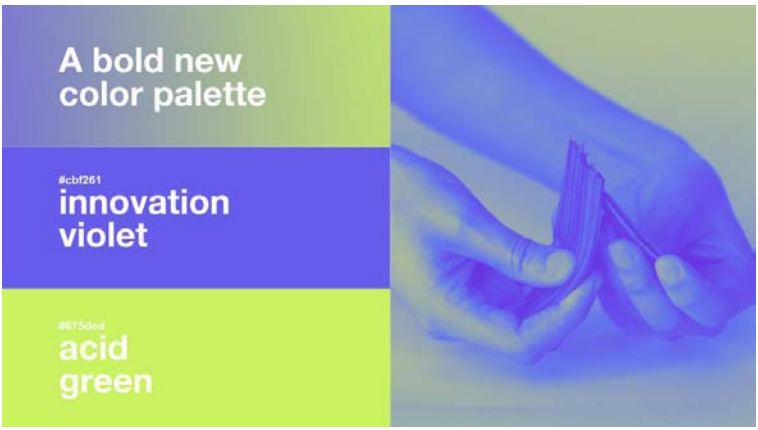


Fig. 4
An example of colors and coordinate image of the technology new identity.

The research subsequently focused on finding the most suitable shapes to tell the world of sound design. The choice fell on the visual imagination of sound waves, stylized to also resemble icons and shapes symbols of the most relevant application sectors for sound design. The result is waves evoking the reverberation of sound and remembering iconic products or silhouettes (e.g. luxurious bracelets or candy packaging) Fig. 5. The logo was the first ground for this new attitude towards shapes, designed to be constantly updated with different sound waves. The new dynamic identity has been completed with a typography that privileges the contrast of dimension between the texts, still in favor of high legibility, in combination with the use of some glyphs such as +, >, arrows. The choice of a sans-serif typography was almost natural, both for the technological context in which the project fits, and to be able to adapt more easily in particular to digital contexts.

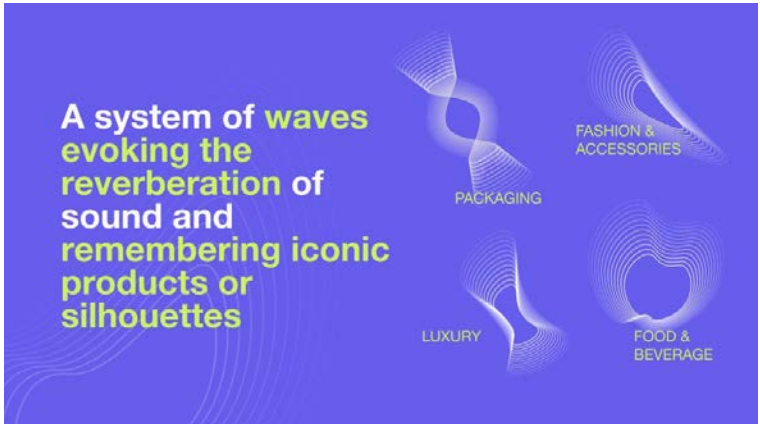


Fig. 5
The system of SounBe's sound waves.

The Showcase of the New Identity of Sounbe

The first context of application of the redesigned identity was the new website, conceived as a real "showcase" of the technology and developed through in-house design phases such as mood boards, brainstorming, cognitive mapping, experience prototyping, all performed inside the extended research team.

Thanks to brainstorming and participatory design with the project team, a vertical scrolling landing page was structured. This choice wants to be a metaphor for deepening the contents. The website is divided into sections, developing the story of the potential of technology, with a simple language and suitable for both simple curious people and designers and companies. Just as if it were a start-up, SounBe is also told, through its technical aspects, the advantages it can generate and the real services with which this technology can be exploited. In this narrative, a human component is not lost, thanks to the faces and stories of the designers who contributed, thanks to their multidisciplinary skills, to the realization of the tool and the services connected to it.

A New Awareness Thanks to Social Media

Social networks can also be leveraged to build a new awareness around sound design. The launch of the new SounBe website was in fact flanked by a social campaign dedicated to the interactions between the culture of design and the history of design with the world of sound. The story of some case studies, such as products with design peculiarities, winners of important awards such as the "Compasso d'Oro ADI", or with a certain reputation and recognition, has been useful to generate interest and amazement around SounBe's technology, as well as to entice designers and companies to take an interest in this area. From a graphic point of view, a series of social cards were created in which it was possible to express the maximum of the visual identity of SounBe, using the sound waves, the colors of the palette and the onomatopoeias corresponding to the sounds that characterize each product presented. The result

is an operation that combines dissemination on the themes of the project culture, promotion of a technology that fits into a sector with great possibilities for development and the ability of good design to marvel Fig. 6.

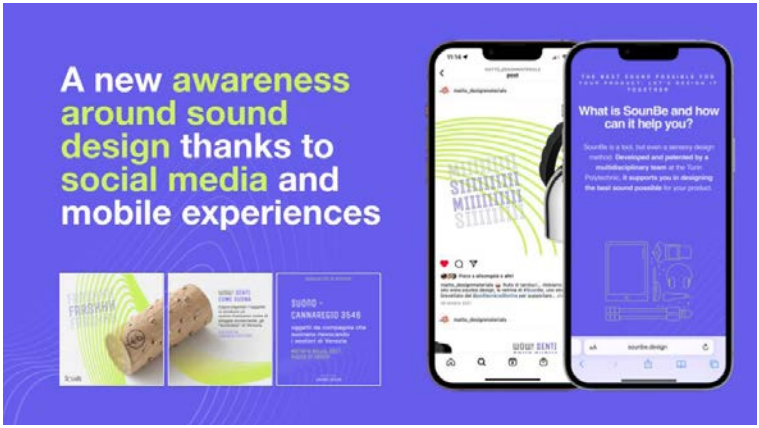


Fig. 6
SounBe's social media and mobile experiences.

Reflections and Reasoning

It is the task of each designer to think about the future with a proactive approach oriented towards growth and continuous improvement. Similarly, the task of academia is, among others, to orient skills and abilities of the future professionals towards the most current challenges that society raises.

Rethink about our own learning and education frameworks and methods to prepare future designers having a significant role and impact on the emerging challenges affecting organizations and the overall society is a key activity of the academic design community. In fact, a non-hegemonic approach to design education could introduce new perspectives on the future of experiences, opening to a more collaborative, inclusive, transdisciplinary, and collective learning system.

The Intelligibility of a New Technology: A Key-Asset

The design-driven innovation is crucial in driving new ideas and new technology; D to D (i.e., Designers to Design) innovations are currently developed more and more (Dal Palù, De Giorgi & Lerma, 2014). Recent research shows how industrial designers might be able to effectively support scientists and technicians in their research activities to foster an effective collaboration (Driver, Peralta & Moultrie, 2011). Unexpectedly, the role of the designer as a key-driver of innovation seems to be underrated by designers themselves, although research in design appears to be anyhow a powerful resource.

In the case of this contribution, the technology was developed by a multidisciplinary team that includes designers at the service of design, and even the technology identity and presence has been developed to convey its adoption and to catch the attention of a design-led public (confirmed by a progressive and growing interest in the technology, obtained since the launch of the communication strategy).

As we all know, the adoption of innovative technologies is nowadays conveyed more and more by the online communication channels. Also, for this reason, a *phygital* technology identity was strongly necessary. In fact, the "physical + digital" dimension was considered the proper space in which the diffusion of SounBe technology could take place. This case study could represent a first reference for other multisensory communications of new technologies identities through the *phygital* medium in the Sound Design sector. However, in this sense, attention to this contribution should not fall only on *how* the project of the new identity of the technology in question (which represents a simple case study) was resolved, but rather on *why* it is important to focus attention on this aspect. In addition, this example raises another debated point within the design community: the necessity to consider the designing of the correct identity of a new technology as a stage of the TRL scale, to strongly convey its adoption.

A New "Sensibility" Within the Design Community

Making a new technology understandable — without the pretension of bothering, however, the adjective *accessible* — is more than creating its online showcase, it is making its potential available to a larger number of possible users. The identity of a new technology can help it to be more inclusive (for instance helping to connect it to its early adopters), and include people who are normally excluded by rapidly changing technology (Langdon, Clarkson & Robinson, 2007). Moreover, in the case of the SounBe communication system, it can also help to rapidly understand the context of use and the complexity of the interactions made possible.

Thanks to its designed identity, the new technology can enhance the diffusion of good design practices in the project phases such as designing the invisible aspect (Ferreri & Scarzella, 2009) of Product Sound. Specifically, it defines new perspectives on the future of experiences, opening to a regeneration of education in the direction of a more collaborative, inclusive, transdisciplinary, and collective learning system: a new responsible knowledge that aims not only at improving the discipline, but also at an internal and external wellbeing of the ecosystem.

This future focused practice appears finally to be in line with the words of Raynold Murray Schafer, soundscape theorist, who affirmed that

> It devolves on us to invent a subject which we might call acoustic design, an interdiscipline in which musicians, acousticians, psychologists, sociologists and others would study the world soundscape together in order to make intelligent recommendations for its improvement. [...] The final question will be: is the soundscape of the world an indeterminate composition over which we have no control, or are we its composers and performers, responsible for giving it form and beauty? (Schafer, 1977).

diid DSI No.1 — 2023
Doi: 10.30682/diiddsi23t5g

Conclusion

From the snap of a chocolate bar to the rustle of a luxury silk shirt, the sound is becoming increasingly relevant. The goal of spreading sound design culture is now becoming more possible thanks to a tool at the service of designers, whose disruptiveness was difficult to understand. Bringing SounBe and its identity back into the world of sound design, investigating its key traits with respect to colors, typography and visual elements was necessary to increase its accessibility. This operation could be seen as an example of a way to "educate" the designer to future focused practices and reconnect the technology to potential users, with the overall goal of spreading the new practice of Product Sound Design within the design community for the future.

Daphne Degiorgis
Master's degree in communication design at the PoliMi, she is currently working for Hogeschool van Amsterdam, collaborating to improve distance teaching. As a research fellow, she collaborated on behalf of MATto on consultancies and business development tools. Recently, her main interests lied at the intersection between synesthesia, education, and visual culture.

Marco D'Addario
Member of Communication Area of Politecnico di Torino, where he deals with institutional campaigns' design and event productions. As a research fellow, he has supported MATto materials library in strengthening its identity and social presence. In his working and non-profit experiences, he looks for a combination between design and humanity.

Beatrice Lerma
PhD, is an Associate Professor in Design at the Department of Architecture and Design of the Politecnico di Torino and Executive Director of the MATto material library, where she carries out research activities on innovative materials and processes analyzed in close correlation with the productive and entrepreneurial system.

Doriana Dal Palù
PhD, researcher, and lecturer in Design at the Politecnico di Torino, she is responsible for acoustic perception in MATto materials library where she assists in the design of sound components. In recent years, her research has expanded to include innovation in materials, particularly as regards changes in the technological paradigm.

References

Bonfantini, M. A., Bramati, J., & Zingale, S. (2007). *Sussidiario di semiotica. In dieci lezioni e duecento immagini*. Atì Editore.

Chandrasekaran, C. (2017). Computational principles and models of multisensory integration. *Current Opinion in Neurobiology, 43*, 25-34. https://doi.org/10.1016/j.conb.2016.11.002

Dal Palù, D., & De Giorgi, C. (2018). Sound in design: a new disciplinary sub-field? *DIID – Disegno Industriale Industrial Design, 65*, 70-77.

Dal Palù, D., De Giorgi, C., Lerma, B., & Buiatti, E. (2018). *Frontiers of Sound in Design. A Guide for the Development of Product Identity Through Sounds*. Springer International AG.

Dal Palù, D., De Giorgi, C., & Lerma, B. (2014). The sound of future objects. Designers providing innovating tools for Design. *Proceedings of the 5th International Forum of Design as a Process. The Shapes of the future as the front end of design driven innovation*, 347-355.

De Giorgi, C., Astolfi, A., Buiatti, E., Lerma, B., Arato, F., & Dal Palù, D. (2011). *SounBe: metodo e strumento per l'analisi sensoriale acustica dei materiali*. Italian Patent No. ITA TO20110089. Politecnico di Torino.

Driver, A. J., Peralta, C, & Moultrie, J. (2011). Exploring how industrial designers can contribute to scientific research. *International Journal of Design, 5(1)*, 17-28.

Elwyn, G., Faulkner, A., Peirce, S., & Ulucanlar, S. (2013). Technology identity: The role of sociotechnical representations in the adoption of medical devices. *Social Science & Medicine, 98,* 95-105. https://doi.org/10.1016/j.socscimed.2013.09.008

Fenko, A., Schifferstein, H. N. J., & Hekkert, P. (2011). Noisy products: does appearance matter?. *International Journal of Design, 5*(3), 77-87.

Ferreri, M., & Scarzella, P. (2009). *Oggetti sonori, la dimensione invisibile del design*. Electa.

Frege, F. G. (1892). *Senso e significato*.

Haverkamp, M. (2013). *Synesthetic Design: Handbook for a Multi-Sensory Approach*. Birkhäuser. https://doi.org/10.1515/9783034611688

Johnson, M., & Barlow, R. (2021). Defining the Phygital Marketing Advantage. *Journal of Theoretical and Applied Electronic Commerce Research, 16*(6), 2365-2385. http://dx.doi.org/10.3390/jtaer16060130

Langdon, P., Clarkson, J., & Robinson, P. (2007). Designing accessible technology. *Universal Access in the Information Society, 6*, 117-118. https://doi.org/10.1007/s10209-007-0080-1

Liu, Y. (2020). *Immersive Learning for Basic Design. An innovative approach based on sensory and narrative.* [Doctoral dissertation]. Politecnico di Milano, Programme in Design, XXXII Cycle.

Merleau-Ponty, M. (1945). *Phénoménologie de la perception.* Gallimard.

Munari, B. (1981). *Da cosa nasce cosa.* Laterza.

Özcan Vieira, E. (2008). *Product sounds: fundamentals & applications*. ID Studio Lab.

Riccò, D. (2008). *Sentire il design. Sinestesie nel progetto di comunicazione*. Carocci Editore.

Riccò, D. (2016). The Ways of Synesthetic Translation: Design models for media accessibility. In P. Lloyd, & E. Bohemia (Eds.), *Proceedings of DRS 2016 Design + Research + Society Future–Focused Thinking, 50th Anniversary International Conference Brighton, 3*, 1101-1110.

Schafer, R. M. (1969). *The new soundscape*. BMI Canada Limited.

Schafer, R. M. (1977). *The soundscape: our sonic environment and the tuning of the world*. Destiny Books.

WHO-World Health Organization. (2018). *Environmental Noise Guidelines for the European Region*. WHO. Regional Office for Europe. https://www.euro.who.int/en/publications/abstracts/environmental-noise-guidelines-for-the-european-region-2018

Published online in September 2023

DIGITAL SPECIAL ISSUE 1

The 8th International Forum of Design as a Process, themed "Disrupting Geographies in the Design World" was held in Bologna from 20 to 22 June 2022. The event was organised by the Advanced Design Unit of the Alma Mater Studiorum – Università di Bologna, Department of Architecture, in collaboration with two partner universities: Tecnológico de Monterrey (TEC) and Pontificia Universidad Católica de Chile.

The Forum engaged speakers from the Global Design community, expanding the original vocation of the Latin Network for the Development of Design as a Process to include researchers and designers of the Mediterranean Area, Middle East, IOR (Indian Ocean Region), and Global South regions. The goal was to share new perspectives on imagining design futures in a responsible and just perspective, at the forefront of change, while building strategic partnerships and creating accessible knowledge.

Structured around three pillars — seminars, workshops, and exhibitions — the Forum hosted meetings, reflection opportunities, networking activities. It involved designers, scholars, young researchers, design entrepreneurs, in an experimental format.

Speakers' contributions not only inspired the practices of the designers' community, but also resonated with students and the broad audiences. The presentations explored intersections of materiality and culture, post-coloniality, decoloniality, gender studies, and other areas of human thought and action which seek to analyse, question and challenge the disruptive geographies in the world, today.

The papers submitted to the five tracks proposed are published in the Digital Special Issue 1 of *diid. disegno industriale – industrial design*, celebrating during those days its 20th anniversary and serving as the fourth partner of the event.

The Editors
Erik Ciravegna, Elena Formia, Valentina Gianfrate, Andreas Sicklinger, Michele Zannoni

DSI No. 1 — 2023
Year XXI
ISSN 1594-8528
ISSN Online 2785-2245
ISBN Online 979-12-5477-329-1

Bologna University Press