

A DEBATE  
about RE-  
SEARCH in  
ARCHITEC-  
TURAL DE-  
SIGN

# DE- SIGN-DRIVEN RESEARCH

2

Architectural research meets the general criteria of originality, significance, and rigour. It produces forms of output and discourse that are proper for disciplinary practice, making it discussable,

communicable, and useful to relevant audiences. It is validated through panels of experts who collectively cover the range of disciplinary competencies addressed by the work.

3

REFLECT-  
ING  
ON RE-  
SEARCH  
IN ARCHI-  
TECTUR-  
AL DE-  
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PREMISES  
AND CHAL-  
LENGES IN  
A TWELVE  
YEARS DOC-  
TORAL STO-  
RY

Gennaro Postiglione

THIS IS AR-  
CHITECTURE

Luigi Cocchiarella

ARCHITEC-  
TONICS – SO  
WHAT?

4

Giovanni Corbellini

SITTING ON  
THE SHRINK  
COUCH

Andrea Di Franco

WHAT TER-  
RITORY FOR  
ARCHITEC-  
TURE?

Pierluigi Salvadeo

THE ARCHI-  
TECT RE-  
SEARCHER

Ilaria Valente

THE DOC-  
TORAL RE-

SEARCH  
AS AN ED-  
UCATIVE  
JOURNEY  
THROUGH  
THE THESIS

Fabrizia Berlingieri

WHAT ABOUT  
ARCHITEC-  
TURAL (DE-  
SIGN DRIVEN)  
RESEARCH  
TODAY?

Barbara Coppetti

LAYERS OF

5

# ARCHITECTURE IN THE EDUCATIONAL SPACES

Emilia Corradi

# WHAT SHOULD THE PHD ARCHITECTURE CANDIDATE LEARN?

Luca MF Fabris

# NOTES ON ARCHITECTURE, TECH-

# NOLOGY, AND ENVIRONMENT

Stamatina Kousidi

# THE ENVIRONMENT AS AN ARCHITECTURAL PROJECT

Silvia Bodei

# BETWEEN CRITIQUE AND DESIGN LANDSCAPE RESEARCH

Andrea Oldani

# BETWEEN ART AND SCIENCE

Alessio Battistella

# BRIDGING THEORY AND PRACTICE IN GLOBAL SUSTAINABILITY AND RESILIENCE

Gerardo Semprebon

# ARCHITECTURAL DESIGN AND

# RESEARCH IN ARCHITECTURAL DESIGN RESEARCH

# BRIDGING THEORY AND PRACTICE: THE IMPACT OF DOCTORAL RESEARCH IN ARCHITECTURE ON GLOBAL SUSTAINABILITY AND RESILIENCE

Alessio Battistella

Pursuing a doctorate in architecture transcends traditional academic boundaries, necessitating a profound engagement with real-world problems. The essence of this advanced research lies in its capacity to produce actionable knowledge that significantly influences the built environment and society at large. This shift from theoretical to applied research emphasises the relevance of our work beyond academic discourse, aiming to foster tangible benefits in addressing pressing global challenges.

At the heart of contemporary architectural research is the imperative of environmental sustainability. This focus is not merely a trend but a crucial response to the climate crisis, demanding that architects pioneer solutions for mitigation and adaptation. Research must interrogate and innovate across various dimensions, from reducing carbon footprints to enhancing the resilience of communities against climate impacts. This framework entails exploring sustainable materials, energy-efficient designs, and resilient infrastructures collectively supporting ecological balance and human well-being. Environmental sustainability in architecture must be connected to social and economic dimensions. Research must delve into how sustainable practices contribute to equitable and prosperous societies. By adopting complex approaches, architects can ensure that their solutions address environmental concerns and enhance social cohesion and economic viability. For instance, green building technologies and practices

can reduce energy costs, improve living conditions, and create jobs, fostering more inclusive and sustainable urban development. Adopting circularity models in building production processes represents a paradigm shift in architectural practice. Circularity emphasises materials reuse, recycling, and regeneration, significantly reducing waste and environmental degradation. The integration of circular principles into architectural practice influences the language of architecture by promoting adaptable, modular, and changeable designs. Buildings designed with circularity are often characterised by their ability to be easily modified and reconfigured to meet changing needs. This adaptability ensures that buildings remain functional and relevant over time, extending their useful life and reducing the need for new construction. Circularity in architecture inspires a new aesthetic that values simplicity, flexibility, and longevity. The emphasis on durable, high-quality materials and thoughtful designs frequently results in buildings that age slowly and retain their functionality and beauty over time. The integration of circular principles challenges architects to think creatively about material life cycles and to develop buildings that can evolve over time rather than become obsolete.

The effectiveness of architectural solutions is heavily contingent on the appropriate application of technologies tailored to specific contexts. In diverse environments, from urban centres to rural areas, technologies must be selected based on local climate, resources, and cultural practices. Bioclimatic architecture, which integrates passive design principles to create buildings that blend with their natural environment, significantly influences the language of architecture. This approach leverages climatic conditions to optimise building performance, enhancing thermal comfort, energy efficiency, and sustainability. By prioritising using natural resources and environmental conditions, bioclimatic design reshapes architectural aesthetics and functionality in profound ways. A critical aspect of contemporary architectural research is the responsibility to guide the Global South in avoiding the developmental missteps of the Global North. It involves advocating for sustainable urbanisation models prioritising environmental and social well-being over rapid, unregulated growth. Research should focus on sustainable urban planning, inclusive housing policies, and resilient infrastructure development tailored to the unique needs and challenges of the Global South. Knowledge

transfer and capacity building are vital for empowering local architects and planners to adopt best practices and innovate within their contexts. It concerns sharing expertise, technologies, and methodologies developed through research in the Global North while recognising and valuing local innovations. Collaborative efforts, such as international partnerships, workshops, and training programs, can facilitate this exchange of knowledge and skills. Doctoral research can, furthermore, significantly contribute to addressing the challenges posed by natural disasters and humanitarian crises. Researchers can develop comprehensive solutions that enhance the resilience and well-being of affected communities by focusing on rapid response shelters, resilient housing, sustainable resource management, community-centred design, technological innovation, and policy frameworks. This research addresses immediate needs and contributes to long-term recovery and sustainable development, helping to build a more resilient and equitable future in the face of increasing global challenges. The urgency of the climate crisis necessitates that architectural research provides answers in the short term. It requires a proactive stance in developing and disseminating solutions that can be quickly implemented. Collaboration with

policymakers, industry stakeholders, and communities is essential to ensure that research outcomes are theoretically sound, practically viable, and widely adopted. Architecture doctorate is a profound journey combining academic rigour with practical relevance.

Architectural research can drive significant positive change by focusing on environmental, social, and economic sustainability, adopting circularity in building production, selecting appropriate technologies, and guiding the Global South towards sustainable practices. The challenge and opportunity lie in ensuring that our scholarly endeavours translate into impactful actions, addressing the urgent needs of our planet and its inhabitants.

Alessandro Rocca (editor)  
A Debate about Research in Architectural Design

© 2024 - AUID PhD Program  
Department of Architecture and Urban Studies,  
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© 2024 - MMXII Press  
piazza Leonardo da Vinci, 26  
20133 - Milano  
MMXIIpress@gmail.com  
ISBN 9791298530201

Graphic Design: Gino Baldi  
Editing: Sarah Javed Shah  
Layout: MMXII Studio

The epigraph at page 3 is taken from the  
EAAE Charter on Architectural Research, European  
Association for Architectural Education, 2022.

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