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The Legacy of the Involvement

Unfolding academic design *praxis*

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Camilla Forina
Turin, June 14th, 2024

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Summary

In September 2019, Politecnico di Torino signed the initiative Polito STUDIO in collaboration with Ordine degli Architetti di Torino (OAT, Turin Chambers of Architects) to steer the first project of technology transfer (TT) in the field of Architecture. The project aims to boost an iterative model of collaboration between scholars in architecture and private firms registered at OAT for knowledge exchange and production. Such a framework can be explained as the reflection of a tendency in academic production that frequently encompasses interests and accountabilities rooted outside the scientific community towards increasingly application-oriented approaches, as well as an effect of the intensification of European legislation demanding public engagement in the redistribution of products and systems likely to promote technical or economic progress.

This research takes such an initiative — that is part of the University's Third Mission (TM) mandate that as ANVUR suggests encompasses the gathering of all results and knowledge transfer initiatives closely associated with economic stakeholders, with the ultimate goal of generating economic advantages for universities and institutions, while also contributing to the overall improvement of the regions in which they are situated — as a premise and empirical field to unpack the Italian dichotomy that counterposes practice and research in architecture. Indeed, the two poles of the discipline are in the Italian context moving progressively apart because of a normative framework that prevents scholars from practicing and an academic environment that rarely pitches professionals within the educational path.

The Polito STUDIO approach is intended as a mode to move beyond established Italian academic boundaries towards a more applied branch of the research. More specifically, towards a research attitude that intends design practice as an arena for empirical investigation — as also endorsed by the National Agency for the Evaluation of University and Research (ANVUR) that maintain, although in an intricate system of evaluation, design projects among the scientific outputs recognized in the 08a disciplinary sector of Architecture. In this sense, it is partly inspired by the functioning of University-led Design Institutes (UDIs). Specifically, it relates to the phenomenon of university-based architects who serve as both professors within the university and designers in its Design Institute. In a publication for the 60th anniversary of THAD, Zhuang Weimin, the dean of the Architectural Design and Research Institute of Tsinghua University and professor in architecture, underscored that professors-designers envision their firms within the UDI as a space dedicated to the accumulation of knowledge, the advancement of research, and students' education. This vision emphasizes a strong symbiosis between education and research, where architects, engineers, professors, and students all form an integral part of its personnel. Consequently, the institution's design projects and day-to-day practices are inherently research-oriented.

The hypothesis of the work is hence that in retrospectively retracing the edges of knowledge production in the development of a project within the university it is appropriate to define an evaluative model that takes into account (and highlights) the various iterative exchanges (and advancements) that have been performed. By ideally building upon Amirante's pursuit of a more performative mode of assessing architectural projects as scientific outputs, this work capitalizes on the insights gained from observing the research group engaging in third-mission activities and technology transfer to advance the research agenda and drawing on experimental approach in steering scientific investigation.

The theoretical framework broadens to consider the scientific debate investigating contemporary processes of knowledge production and future patterns more generally. This perspective, on one side, detects an intensifying external steer (economic, political, social, and so forth) among the main actors in the arena that push towards applied approaches. On the other side, it highlights the

pervasiveness of the evaluation culture propelled (in many yet not all sectors) by bibliometric indicators that is gradually leading towards a quantitative yet not qualitative growth in academic production. In this perspective, using the ANVUR regulations concerning ASN, VQR, and VQR-TM, the work's intent is to contribute to the broader debate on how and when the project can be considered a scientific research product by precisely identifying in technology transfer a possible endorsement. Hence, by leveraging the scheme adopted for the third VQR exercise to assess TM activities, this work proposes the development of a similar structure to evaluate the architectural design as a scientific product. Precisely defining the knowledge produced through its transmission, the depicted scheme establishes a shared model for validating projects. This document will then consist of the design proposal per se but supplemented with a range of other information highlighting its margins for generalizability, transferability, and replicability. The proposal recommends seizing the opportunity presented by the cumulative efforts of the scientific community in VQR-08a to refine more appropriate criteria and indicators. The ultimate goal is to integrate this model into individual-focused systems, such as the ASN.

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Glossary of English and Italian Acronyms and Abbreviations

ACE Architects' Council of Europe
Am *Raccomandazione* Amendament
ANVUR *Agenzia per la valutazione del sistema Universitario e della ricerca* National Agency for the Evaluation of Universities and Research Institutes
ASN *Abilitazione Scientifica Nazionale* National Scientific Qualification
CNAPPC *Consiglio Nazionale degli Architetti Pianificatori Paesaggisti e Conservatori*
CR China Room Research Group (Politecnico di Torino)
CUN *Consiglio Universitario Nazionale* Italian National University Council
EEC *Comunità Economica Europea* European Economic Community
EC *Comunità Europea* Eropean Community
DD *Decreto direttoriale* Directorial Decree
Dir. *Direttiva* Directive
DIs Design Institutes
DLgs *Decreto Legislativo* Legislative Decree
DM *Decreto Ministeriale* Ministerial Decree
DPR *Decreto Presidenziale* Presidential Decree
GEV *Gruppo di Esperti Valutatori (incaricati per la VQR)* Group of Expert Evaluators (appointed for VQR)
HES Higher Education System
L *Legge* Law
MIUR *Ministero dell'Istruzione, dell'Università e della Ricerca* Ministry of Education, University and Research (Italy)
MOE Ministry of Education (China)
MOST Ministry of Science and Technology (China)
MOHURD Ministry of Housing and Urban-Rural Development (China)
MSC *Macro Settore Concorsuale* Group of academic recruitment field
NPK New Production of Knowledge
OAT *Ordine degli Architetti di Torino* Turin Chamber of Architects
PDIs Private Design Institutes
Polito Politecnico di Torino
SC *Settore Concorsuale* Academic Recruitment Field

SCUT South China University of Technology
SCUTAD Architectural Design & Research Institute of SCUT
SoDIs State-owned Design Institutes
SSD *Settore scientifico-disciplinare* Academic Discipline
TEIs Tertiary Education Institutions
THAD Architectural Design and Research Institute of Tsinghua University
TDH Turin Design Hub
TM Third Mission
TSH Tsinghua University
TT Technology Transfer
TJAD Tongji Architectural Design and Research Institute
UDIs University-led Design Institutes
VQR *Valutazione della Qualità della Ricerca* Research Quality Assessment
VQR3 *Terzo esercizio di Valutazione della Qualità della Ricerca* Third excercise of the Research Quality Assessment (2015-2019)
VQR-08a *Valutazione della Qualità della Ricerca Area 08a* Research Quality Assessment for the 08a area
VQR-TM *Valutazione della Qualità della Ricerca-Terza Missione* Research Quality Assessment-Third Mission
VQR3-TM *Terzo esercizio di Valutazione della Qualità della Ricerca-Terza Missione T*hird excercise of the Research Quality Assessment-Third Mission (2015-2019)

For proper name abbreviations refer to the credits of the individual project in the appendixes.

Glossary of English and Italian academic positions

The translation of Italian academic positions has been carried out based on the guidelines provided by MIUR in 2010, as outlined in the document titled *Definizioni della tabella di corrispondenza tra posizioni accademiche italiane cd estere*. In particular, the reference system used for this translation was the one adopted in the United States.

Rector *Rettore*
Full Professor *Professore Ordinario (I fascia)*
Associate Professor *Professore Associato (II fascia)*
Assistant Professor *Ricercatore a tempo indeterminato*
Assistant Professor with time contract *Ricercatore a Tempo Determinato di tipo B (RTDb)*
Research Associate with time contract *Ricercatore a Tempo Determinato di tipo A (RTDa)*
Research Fellow *Assegno di ricerca*
Research Grant *Borsa di ricerca*

English translations of all documents and references originally published in Italian are to be considered the sole responsibility of the author unless explicitly stated otherwise. In the case of direct quotations within the text, it has been chosen for reading convenience to include the translated text; original excerpts are rather included in the relevant footnotes.

Prologue

Reasons and origins of the work

Research background

The research is part of the Joint Ph.D. curriculum named "**Transnational Architectural Models in a Globalized World**" within the framework of the *Doctoral Program in Architecture. History and Project* at Politecnico di Torino and the *Doctoral Program in Architecture, Urban and Rural Planning* at Tsinghua University in Beijing. The terms of the agreement stipulate that the participants spend the 3-year working under the joint supervision of professors from Polito and Tsinghua, attending training courses in both institutions, and foresee a period of study of 18 months in the hosting university to allow the direct observation of the studied phenomena as well as the consultation of archival sources. Nevertheless, initiating the Ph.D. scholarship in November 2019, COVID-19 restrictions impacted the entire study period preventing the possibility of traveling to China. The Joint Ph.D. program proceeded thus remotely through the collaboration among tutors from both universities and the remote attendance of all the required activities. At the same time, the prolonged restrictions due to the pandemic break out — and yet the impossibility of direct exposure to places, sources, processes etc. — determined a constant state of uncertainty throughout the 3-years investigation as to whether or not conducting a field survey; such uncertainty culminated in the corroboration of a radical rearrangement of the research that progressively reduced the importance of the Chinese benchmark

privileging the Italian (and Turinese) panorama.

This research thus takes its clue from a specific circumstance within the China Room research group (hereafter CR) and thus some reflections resulting from experiences collected in the two years preempting the beginning of my Ph.D. (2018-2019) and further explored during the years of the doctoral study. More specifically two Research Grants carried out in the same research group and strongly permeated by the participation in design proceedings and then unleashed into other projects over the following years.

In January 2018 I was involved as a research grant holder within CR to take part in the design team appointed to develop the *Olympic Experience* project: the refurbishment of the Main Oxygen Factory Workshop in Shougang (Beijing) — the very same site tackled in the master thesis (2016-2017) — for the Big Air Venue Beijing Winter Olympic Games 2022. The project has been realized in collaboration with THAD - Architectural Design and Research Institute of Tsinghua University and Atelier TeamMinus. Back at the time, the project constituted the largest of the engagements conducted so far as well as one of the firsts design of the yet newly established research hub in Politecnico di Torino that was attempting to launch a platform for applied and on-field experimentation focused on Chinese urbanization and architecture. The group, now in its sixth year of activity (among which only two as formalized research center), includes scholars from DAD - Department of Architecture and Design, and DIST - Interuniversity Department of Regional and Urban Studies and Planning. Apart from the design exercise per se, the project has been faced since the very start with the specific intention to later pursue a scientific output consisting of the reconstruction of its process. In this perspective, I was charged — in addition to being part of the design team and main appointed for the implementation of all the design materials besides the 3d model (floor plans, elevations, sections, axonometric views, etc.) — to keep track of all the material evidence/exchanges/ communications occurred in its course. Based on this archive in 2022 has been published the book *The Story Of A Section. Designing The Shougang Oxygen Factory* in which the authors Michele Bonino, Edoardo Bruno, Alessandro Armando, and Giovanni Durbiano meticulously reconstruct the process of project implementation by carefully interpreting the archive of the documents and

exchanges realized during the design. Such involvement has been the first pin for further exploration of what would mean to approach a design proceeding within the academia, as well as the first field trial of a broader ontology recognizing not only the materiality of the project but also the wide spectrum of the socio-technical features designating the architectural practice: documents, interactions, negotiations; thus identifying the project as the larger process of actions and reactions occurring among the involved actors. It is also thanks to this first experience that the collection and archiving of all documents, meetings and exchanges continued in the projects developed in subsequent years.

Besides this case, further activities led within CR to the sedimentation of a number of design projects and curatorship before and after Shougang. Such projects in the majority embrace the specificity of the research branches and doctoral dissertations, to further enhance the understanding and critical capacity of the group researchers through practical first-hand involvement in the object and field of study. Just to name a few: the refurbishment of the Pearl River Piano Factory in Guangzhou (Guangdong Province, China) inaugurated in 2021, the concept plan of the Yanzhou Island (Zhaoqing, Guangdong Province, China) realized in 2016, the curatorship of the exhibition *CHINA GOES URBAN The City to Come* hosted in 2020 at MAO Museo d'Arte Orientale (Turin) and the installation *Hutong Playground* for the 2017 Beijing Design Week in collaboration with EPFL and Tsinghua University[2]. In this sense, the proceedings and design projects developed within CR consisted of the premises/hints/case study/supports for the research conducted within the group and frequently involved doctoral students and professors belonging not just to China Room or Politecnico di Torino, but also to foreign institutions and in particular Chinese universities and agencies. In most cases indeed, the partners were figures belonging to China's top-ranked universities such as Tsinghua University (Beijing) and South China University of Technology (Guangzhou), and more specifically their operative wing: the Design Institutes. The collected

[2] For further information see the very first report published by the research group in 2021 in which the activities carried out in about a decade of collaborations with China are systematized to "underline the strategic role of research both as a discovery and a systematization of practices which allows to carry out scientific knowledge land design practices - and where the referred geography becomes the occasion to test instruments of investigation" (Bruno et al, 2021: 9).

collaborations led therefore to a gradual mutual understanding of the notions of design and more specifically its role within the educational and research field in China, as well as an insightful gaze at modes, actors, and strategies of design practice in PRC from within.

In my case, by contrast, the procedure progressed in the opposite direction; or rather broadening from a specific field study, towards a theoretical and generalizable approach. Indeed, over the course of my four years within China Room, I have been part of other four design proceedings developed by CR and Chinese Design Institutes. Although these projects did not start with the same assumptions and systematization as Shougang's and only in some cases constituted direct material for observation and experimentation of other doctoral research, it is possible to find in them several elements in common. First and foremost, an incremental methodological progression capable of disentangling the logic of design praxis in China. Nonetheless, what makes it even more intriguing is the exploration of the research group's behavior as they strive to align their applied research with Italian regulations. However, it is important to note that this issue will be further examined and problematized in Chapter 4 by retrospectively unfolding the sequence of designs analyzed in this study.

Among the aforementioned projects, I have been assistant curator of the 2019 Bi-city Shenzhen Biennale of Urbanism/Architecture main venue exhibition *Eyes of the City* curated by Carlo Ratti Associati, Politecnico di Torino/China Room and South China University of Technology (February 2019 - March 2020), as well as part of the design team appointed for the unrealized Masterplan realized for the Square of Futian Station (Sunken Plaza, Shenzhen), located in front of the site hosting the 2019 UABB. The design has been developed by the curatorial team along with invited international practitioners such as Atelier Bow-Wow+Tokyo Tech Tsukamoto Lab, NODE Architecture and Urbanism, HIL Architects, Jiang & Associates Design with the support of Guangzhou Architectural Engineering Design Institute Co., Ltd. The project exploited the design for the reconfiguration of the existing infrastructure as a cue to further reflect on the impact that the contemporary notion of infrastructure and hyper-mobility have in urban design. The design though has not been realized and neither discussed in public/ institutionalized spheres, therefore it will not be included as one of the cases

analyzed in this study.

Moreover, in 2020 (June-October) I have been project architect for the design *Prosperous Lishui* realized by Politecnico di Torino/China Room and IAM-Institute of Mountain Architecture in collaboration with the South China University of Technology. It was awarded 3rd prize in the "Future Shan Shui City International Urban Design Competition". The design, located in a valley in the southern Zhejiang province, has been the opportunity for a broader design-based reflection on the consequences that urban development has on the agricultural terrains, questioning innovative models of agricultural production and traditional landscape safeguard yet not renouncing a high raise of urbanization. At the same time, the project has been the opportunity to experiment with a broader network of mutual enhancement including in the design team professors and researchers from various departments that worked simultaneously in smaller subgroups. The enlargement of partakers required a consistent increase in the number of exchange opportunities among Polito internal teams as well as Chinese partners and most importantly a systematization of the cooperation, thus defining an even more aptly interdisciplinary and transnational stream of work.

Even more crucial to the development of this dissertation, was the project POLITO Studio signed on September 21, 2020 (corresponding to the conclusion of my first year as a Ph.D. student) by Polito Rector Guido Saracco and Oat President Massimo Giuntoli. Its premises consist of the commitment of both institutions to strengthening the relationship between academia and professional practice in Turin by deploying the *know-how* gathered from Polito in abroad scenarios to embody a project for training-in-practice in the field of architecture. Consistent with the explicit mandate of MIUR that reclaims the Third Mission among the institutional responsibilities of each university as well as the Polito 2018-2024 Strategic Plan aiming to multiply the amount of "models for technology transfer in the field of architecture, planning and design" (70) and the "applied research aimed at industrial innovation and societal challenges" (35), China Room has been appointed to the development of the first model to be staged in China. Apart from being a forecasting chance to smooth the interplay among the two institutions (Oat and Polito) notoriously witnessing frictions during much of the latter decades, such an initiative has been an opportunity for

the researchers involved to further explore an innovative model of approaching design-oriented research involving external practitioners and reflect upon the opportunities and potentialities of a community of practice mediating between Academia and Profession. In this sense, has been launched a wider research project that takes its cue from the cooperation experiences described so far as well as the testimony of the Chinese context, in which the apparent split between professional practice and academic research is approached with fewer limitations. The project's main attempt is to identify and test the threshold between speculative investigation and concrete relapse of design practice, observing the innovation potentials linked to a direct mixing of different competencies, examining the specific (Italian) institutional framework as well as already existing models to encourage such permeation and open up towards incremental modes of innovation. In such a framework, the team involved first participated in the definition of the operative mechanism and later also in the concrete design activities questioning both from a theoretical, bureaucratic, and empirical point of view the epistemic framework as well as its margins for innovation. Although being still too early to catch the effects/achievements/conclusions of this joint venture, some preliminary considerations have been presented to a wider public in international conferences in these years (Bonino et al, 2021; Bonino et al., ongoing). This thesis, handed three years after the launch of the initiative, consists of one of the first outcomes of the research, and this initiative is the core of the chapter 6-7.

Framing the research questions

My background as the author of a Ph.D. dissertation, thus, is pervaded by the struggle to recognize the aforementioned kinds of activities (design projects, exhibition curatorship, design consultancies, etc.) as part of my mandate, and by extension of a scholar mandate in general. The many efforts and debates that took place both inside the research group (with tutors and fellows) and outside of it (in the department, as well as in wider collective discussions held with members of other universities), concerning if and how to improve their recognition to assessable scientific outputs (and thus to publish), confirms the perception that, at least in the Italian academic sector, the architecture discipline is still in a position of uncertainty as to whether or not to claim the validity of one of its main

competencies: the design act. This condition has been even stressed in recent decades and is echoed in national and international threads of debate. On one side it is the reflection of a notion of design and project that is complex, volatile, and exposed to various facets and intertwinings: from the social to the political, from the historical to the formal, from the technical to the functional, etc. On the other side, it is due to the socio-political and economic changes that occurred during much of the latter half of the century resulting in the intensification of systematization in the field of education and training culminating in the sharpening of a discrepancy among the academic disciplinary specialization and the practical procedures.

Indeed, the proliferation of norms adopted in the Italian, as well as European settings, led on one side to a shared, hyper-connected system, while on the other to a waiver of the dissimilarities (or peculiarities) among vocational and degree courses, polytechnics, and universities. The necessity to standardize specific items for the course program indeed seems to result nowadays in a perfectly coordinated structure among all the national schools, to a struggle to distinguish a teaching approach (or educational program) that is shared, specific, and exclusive to one university only. Such a condition is recognizable also in the loss of the sense of common belonging or a unitary statement of the single institutions or departments; and has as well been the perception as an in-mobility student first — B.Arch. at Roma Tre University in 2014, Erasmus at Bauhaus Universitat in Weimar in 2015, and M.Arch. at Politecnico di Torino in 2017 — and researcher later. Although some schools managed to keep a recognizable common approach, in the great majority it takes to a fragmented environment in which methods, interpretations, and influences are more related to the will of the single teacher than to a broader shared plan. This tendency of renouncing the renowned and centralized authorship that for decades characterized the architectural environment, overdraw a multiplication (or fragmentation) of the adopted perspective, as well as redundant rhetoric deployed by such institutions in the attempt to diversify (at least on a promotional level) a rather identical route.

This attitude has moreover been flanked by progressively distancing the study of the discipline from its practice due to the tendency to increasingly bound the limits of action of the academic sector to preserve the integrity of an already

overcrowded professional market. A contingency that consisted in intensifying the limits for scholars to exercise the matter/substance they are supposed to eventually teach, or rather "theoretical and methodological aspects, concerning issues and techniques of contemporary design and environmental transformations, as well as in applied and experimental aspects, aimed at mastering typological, compositional, processual and constructive characters of different architectural scales, as well as connections with structural and plant engineering problems"[3] (CUN, 2015: 29-30). Nevertheless, these norms actually overdraw to an intensification of alternative ways to keep in informally realize projects although within the Academia. Thus constituting de facto the molding of space among the main competencies belonging (almost) exclusively to the figure of the architect (intended as a graduate in architecture, not necessarily a professional), it is debatable and also non-productive to preventing the exploitation of such an ability. Quoting Laura Ricci, full professor of Urban Planning at the Department of Planning, Design, Technology of Architecture at Sapienza University (Rome) during the conference "Sperimentare il progetto. Insegnamento e Ricerca scientifica nelle Scuole di Architettura" ("Experimenting the design project. Teaching and Scientific Research in Schools of Architecture", held on June 19th, 2014 in Rome) "the interdiction for university professors in the design disciplines to engage in professional experimentation and on-field validation is thereby demarcating the misleading identity of a faculty that must teach design without being able and knowing how to design, establishing a sterile and theoretical disciplinary self-referentiality"[4] (Ricci, 2014a: 16).

Such issues led to an increasing estrangement among the two spheres of the discipline: theoretical reflections and design practice. Indeed, although being generally esteemed in the academic environment an aptitude to recognize the

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[3] "Aspetti teorici e metodologici, concernenti i problemi e le tecniche della progettazione contemporanea e delle trasformazioni dell'ambiente, e in aspetti applicativi e sperimentali, finalizzati al controllo dei caratteri tipologici, compositivi, processuali e costruttivi delle diverse scale architettoniche, nonché alle connessioni con i problemi strutturali e impiantistici" (CUN, 2015: 29-30).

[4] "Il divieto per i professori universitari delle discipline del progetto di svolgere attività professionale di sperimentazione e di validazione sul campo sta dunque delineando la fuorviante identità di un corpo docente che deve insegnare a progettare senza potere e sapere progettare, affermando una sterile e teorica autoreferenzialità disciplinare" (Ricci, 2014a: 16).

project as a retrospective object of knowledge in itself (of society, culture, contexts, space, processes, techniques, habits, policies, etc), is less acknowledged to the design (intended as the concrete action of modifying the space) the ability to produce knowledge in the interim, and yet be ascribable as research output. It becomes even more controversial while considering that, although being design projects listed among the possible research products to be delivered for the National Scientific Qualification (ASN) as well as the national Research Quality Assessment (VQR), its evaluation is still tricky and furthermore is exclusively related to post-doctoral positions (first- and second-tier professors).

Consequently, nowadays in many cases, the most effective method deployed in obtaining acknowledged scientific products through the design still consists in its translation into scientific texts (monographs, articles, etc.) and thus the superimposition of a theoretical, and therefore more scientifically ascribable, perspective on the work performed. This is also due to the constant and necessary confrontation with the scientific productivity of bibliometric indicators and evaluation policies, which is triggering a process of quantitative, and not necessarily qualitative, intensification of publications meant more for evaluation purposes than for the opportunity to share results per se. Both aspects are retraceable, for example, considering the results of the VQR 2015-2019[5]. Of the 5434 products evaluated for this purpose indeed, 99,06% consisted of written contributions, and of these merely 14 % were rated of excellent and relevant quality deserving the highest "class A" label (ANVUR, 2021a). The remaining 0.94% pertained to the category defined as "other", i.e. design, drawing, exhibition, architectural project, art prototype, and related projects; the amount has been even less than those submitted in the previous VQR despite the various initiatives predisposed to prove and reclaim its validity happened in the last years.

As will further be explored within the work, such considerations cross national borders and witnessed a series of booms and busts also outside the Italian academic environment in particular since the 80s. The topicality and the relevance of this issue is yet demonstrated by a growing number of national and international publications and conferences addressing it as well as Ph.D. programs

[5] The VQR mechanism, its effects and the related national debate are touched in Chapter 1.

that are struggling to update the common procedure of scientific production to a more properly architectural scale — namely the Architectural Design Ph.D. held at the UCL Bartlett School of Architecture where candidates are required to develop a thesis concerning "a project and a text that share a research theme and a productive relationship"[6] or the Dap-R (Design and Architecture Practice Research) held in 2016/2017 in the RMIT University's School of Architecture and Design "an inter-institutional research project examining and mobilizing a practice-based approach to doctoral research and training in design and architecture"[7].

Nevertheless, in the case of this thesis, the intent is not to claim a scientificity intrinsically embedded in the architectural project, but rather to set the scene for its plausibility or the potential profitability that the project can infuse into the research. This consideration steers from the assumption that considering the deepest nature of the project as being in its effectuality, such ought also to be (or be allowed to) its theory and thus the academic performances.

It is thereby appropriate to explicitly disclose an aspect that has been so far implicitly stated, i.e. the interpretation that this work adopts in referring to *design*: an iterative mode of shape, transforming and implementing the space through architectural objects. In other words, this work is mainly related to the disciplinary sector 08/D1: ICAR/14, and in particular in the exposition of the project as a recurrent process nurturing the reconfiguration of the space as a response to real-world's issues and in compliance with codified models and regulations. Nevertheless, the elusiveness, or rather extensiveness, nature of design is yet consistent also in the statement of the scientific-disciplinary contents of this academic branch[8], that MIUR defines as following: "the scientific-disciplinary contents refer to architectural design, in its extension from detail to the urban dimension, as a process and synthetic occasion. They are divided into methodological aspects, concerning the theories of contemporary design;

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[6] Extract from the Ph.D. course presentation page at the following link: www.ucl.ac.uk/prospectve-students/graduate/research-degrees/architectural-design-mphil-phd

[7] Extract from the Ph.D. course presentation page at the following link: www.dap-r.info/about

[8] For a better understanding of Italian organization of the university see Chapter 1.

analytical-instrumental, for the study of the distributive, typological, morphological, and linguistic characters of architecture and the city; compositional, concerning the aggregative and formal logic by which the organism is defined in its elements and parts and is in relationship with its context; and designing, for the solution of specific issues related to interventions ex novo or on the constructed object"[9] (DM October 4th, 2000: all. B). In this sense, quoting the words of Jeremy Till (2007), "architecture exceeds the building as object, just as art exceeds the painting as object", but it is still in the ability to design that lies the architect's distinctiveness, and the researcher-designer should be able to deploy this advantage.

At this point, it is necessary to introduce as well the interpretation that this work adopts referring to *research*: the production or codification of knowledge that could be generalized, falsified and repeated. Yet again, it is necessary to better specify the approach/lens deployed towards the modalities of producing knowledge and innovation in this sense. The hegemony that academic institutions had since their inception in producing and distributing knowledge has been progressively flanked in the last decades by new interests, practices, and dynamics that pull near the academic and governmental institutions a wide range of heterogeneous locations and organizations. Academic institutions, in collaboration with governmental ones, are gradually expanding their missions and role as entrepreneurial agencies through a wide range of heterogeneous locations and organizations such as research centers, think tanks, spin-offs, and so on. Such institutions enable their members to expand their field of activity. In most cases, however, their studies are more related to applied sciences (physics, chemistry, biology, engineering, etc.) and less concerning other disciplines among which architecture. In this account, the researcher can not anymore (or at least not always) be considered an independent individual acting merely through the willingness to chase a broader level of knowledge. Indeed, Universities dynamics

[9] "I contenuti scientifico-disciplinari si riferiscono al progetto architettonico, nella sua estensione dal dettaglio alla dimensione urbana, come processo e momento di sintesi. Si articolano in aspetti metodologici, concernenti le teorie della progettazione contemporanea; analitico-strumentali, per lo studio dei caratteri distributivi, tipologici, morfologici, linguistici dell'architettura e della città; compositivi, riguardanti la logica aggregativa e formale con cui l'organismo si definisce nei suoi elementi e parti e si relaziona col suo contesto; progettuali, per la soluzione di tematiche specifiche relative ad interventi ex novo o sul costruito" (DM October 4th, 2000: all. B).

expose (through strategic plans, networks, rankings, etc.) an increasing interplay existing between scientific research and external interests (economic, political, social, etc.), thus corroborating a stream of research products and behaviors resulting of (or triggered by) the specific contingency to which they are intrinsically linked. Such a condition progressively led "the hegemony of theoretical or, at any rate, experimental science [...] the autonomy scientists and their host institutions" (Nowotny et al. 2003: 179) to be by necessity placed beside an approach that is "application-oriented, trans-disciplinary, and subject multiple accountabilities". These dynamics are further exacerbated by recent years' policies due to the financial and environmental crises on one side and the rise of a *knowledge society* on the other.

Nonetheless, the newsworthiness of the issue is gaining attention in all the academic sector and more specifically for single institutions. In Italy, ANVUR is already in its third exercise in evaluating Universities performances related to industrial property management, spin-off enterprises, third-party activities, and intermediation offices; in sum, all the institutional activities complying with the definition of *Third Mission* as "aperture to the socio-economic environment through the enhancement and transfer of knowledge"[10] (ANVUR, 2011: 18). About that, it is interesting to note that Area 08 (Civil Engineering and Architecture) is among the four disciplinary areas that acknowledge *technology transfer* among the parameters for the scientific evaluation of candidates[11], however, intended as "brevetti o licenze" (patents or licenses) that are hardly tailored to the activities inherent in the competition sector Area 08a that gathered ICAR/10 - Architectural Engineering, ICAR/11 - Building Production, ICAR/12 - Architectural Technology, ICAR/13 - Design, ICAR/14 - Architectural and Urban Composition, ICAR/15 - Landscape Architecture, ICAR/16 - Interior Architecture and Design, ICAR/17 - Rapresentation of Architecture, ICAR/18 - History f Architecture, ICAR/19 - Conservation and Restoration of Architecture, ICAR/20 - Urban and Regional Planning, ICAR/21 - Urban Design and Landscape.

[10] "Apertura verso il contesto socio-economico mediante la valorizzazione e il trasferimento delle conoscenze" (ANVUR, 2011: 18).

[11] Together with: area 01 - mathematics and computer science; area 06 - medical sciences; area 07 - agricultural and veterinary sciences (CUN, 2011).

Nevertheless, in a different document released by ANVUR the knowledge dissemination is not limited to *licenze* or *brevetti* but extended to the "multiple activities through which original knowledge produced by universities and research institutions is transformed and eventually made available to society and the economic system"[12] (ANVUR, 2015a: 4), thus forecasting a wider spectrum of actions.

What does this entail in the domain of architecture? What scenarios is it likely to lead to and what are the potential structures? What are the new aspects of exploitation in light of the opportunities for intra-disciplinary and extra-disciplinary collaboration? To what extent can the field of applied research be interwoven and what products can be introduced?

As a result, research questions gradually evolved over time in tandem with the accumulation of experiences and expertise. In other words, from a wider perspective, the research grafted within the debate on the strong mutual correlation between theory and practice, scientificity and design, Academia and Profession, progressively evolving toward the specificity of the technology transfer in architecture. Therefore, the work identifies in the Third Mission (TM) the juncture to bridging the production of applied knowledge with its measurability or at least the prompt for its claiming (as a scientific product).

With that in mind, the work is configured as a design-driven research traced back to my situated position as a researcher and architect involved mainly in design projects within a research group dedicated to applied investigations in collaboration with Chinese Universities and Design Institutes. In this sense, the interest in understanding the possibility to deploy design action in the Academic environment is faced, therefore, a system that apparently already succeeds where ours (Italian) stops, depicting consistent modalities of approaching scientific behaviors in a multi competencies, design-oriented mode. The contacts with the Chinese educational (and professional) model, founded on empirical experimentation, demonstrated indeed a rather opposite attitude to the Italian

[12] "Molteplici attività attraverso le quali la conoscenza originale prodotta dalle università e dagli enti di ricerca viene trasformata e resa disponibile alla società e al sistema economico" (ANVUR, 2015a: 4).

environment: a praxis that notoriously let professors, researchers, and post-graduate students carry out practical experiences within the academic path, legitimizing and claiming a multidisciplinary and pragmatic approach addressed in obtaining scientific deductions through empirical research.

Starting from such a specific field of study and application — corresponding to the various design experimentations first-hand collected within the research group and only to a minor extent prior to my entry — this work progressively expands the lens of observation to investigate some gray areas in regard to the pivotal role that the project holds within the established field of academic research, especially within the Italian panorama. The attempt is then to translate the empirical experiences layered over the past four years into critical legacy, or rather considerations embedded within a broader theoretical framework, so as to retrospectively frame/problematize what has been done so far in an increased scientific awareness compared to the purely technical approach that marked my first involvement in projects. Part of the investigation thus revolves around the Chinese enterprises, to better understand and verify the coherence between their self-definement and actual operating conditions. The purpose, however, is not to attempt a comparison between the two models.

Methodological notes

This thesis is embedded in the context framed so far, holding together the researcher's own perspectives, the institutional mandate entrusted to her by the research group, and the university's concern underlying the observed initiative (Polito Studio). The approach undertaken is hence based on the mobilization of theoretical perspectives and practical methodologies based on the active and participatory involvement of the researcher. In this perspective, the linchpin of the work is thus the result first of all of the background of the author mainly ascribable to the most applied branch of the discipline — namely architectural design, that profoundly permeated also her first contact with the professional academic sphere — then of a specific contingency that allowed the author a firsthand engagement in beholding the main applied research projects held within the China Room research group since its formalization in 2016. As a result, the research has been developed within an evolving situated perspective, allowing a direct experimentation of the subsequent advancements broadened to other third-

party institutions to include local professional association. This obviously leads to a necessity to problematize both the internal perspective and the not-disinterested mandate of the author, a matter which will be addressed in the opening of the second part of the work, where dynamics/data/documents collected as an actress involved in the action are effectively wielded.

To better introduce the structure of this text, the first part focuses on an investigation of the current conditions for professional and academic practice in Italy, and a framing of the Chinese context on the same issue. In the first case, the study is elaborated through a systematization of current Italian regulations, starting from a (sectoral) enactment of the stratification that led to the current situation. An operation conducted mainly through the study of bureaucratic documents produced by national institutional bodies, reports of national and European professional conditions, but also publications and proceedings of the main conferences on project teaching and research in Italy. In the second case, an operation mainly of state-of-the-art research expanded by some key interviews conducted with leading figures of the main university design institutes in China (THAD, TJAD, SCUTAD). Stating the impossibility of visiting the institutions remotely observed, the data were collected to the possible extent from Chinese sources so as to avoid, in addition to the first English transposition, further additional sifting given by the perception of a foreign observer.

The second part is a systematization of a retrospective reflection on CR, PS and TDH designs as a researcher in-action. Although describing the participation in international design competitions, the main interests - as a researcher - do not involve the design objects in themselves, but rather the functioning leading to the proposal. By peering at the design projects the consistency of the approached designs is indeed not yet detectable in the typology nor in the technical features, or in the formal appearance of the proposals, but rather in the less tangible matter concerning the approach employed, the procedural development wrought within the institutional bureaucratic backdrop as well as the interests underlying the action of the various partakers. The process, therefore, is not influenced by the design choices nor evaluating the results obtained, while understanding the nodes that triggered the iterative trend proper of design from a standpoint of acquiring knowledge at first, and transferring it then. The observation of the projects is thus

led *in-the-making* (Yaneva, 2009b; Todella, 2020), and not on the outcome, as longly investigated within Polito (Gabetti, 1997; Armando & Durbiano, 2017) and the wider international debate (Rust et al., 2007; Till, 2007). Thus the analysis is conducted as an active CR component, namely in a declared internal perspective that is useful in retracing the activities carried out, as well as proposing further approaches gathered from the analytical inquiry. Guiding this approach is the conception of inductively identifying recurrence conditions to be considered as principles for general knowledge in architectural practice throughout the observation of a specific case so as "to make architecture speak [...] to improve the communication of the tacit research carried out in practice" (Till, 2007: 8).

Out of that, the theoretical framework on *practice-oriented research* and *mode-2 production of knowledge* (Gibbons et al, 1994; Nowotny et al., 2001) is used to expand the perspective and generalize the observation.

Research structure

The research organizes the five chapters into three parts that intend to directly express the work's project-based origins.
The **first part** settles the stage of the action, introducing the main actors to the scene and locating them within their surroundings. The **first chapter** expands to theoretical treatments, positioning the research in a more defined bibliographic field that tries to establish a relationship between the concept of Mode-2 in producing knowledge and the field of practice-oriented research thus recognizing the investigation of design activities, behaviors, and learning mechanisms as a concrete subject of scientific investigations. The **second chapter** focuses on the Italian environment, thus aiming to frame the institutionalization and development of Italian policies concerning the organization and access to universities as well as the main norms introduced to settle the overlap with professional practice. In the meanwhile, the chapter retraces the main phases of the relationships among the schools of Architecture and the professional associations, as well as the main actors and features of scientific production and evaluation for research in Architecture in Italy (namely ANVUR, ProArch, and so forth). The narration proceeds with the **third chapter** that positions the Chinese partaker, thus unpacking University-led Design Institutes' development and functioning. It opens framing the institutionalization and development of the Design Institutes in general, thus retracing the architectural practice and education in PRC from

Maoist China towards contemporary conditions positioning in the last part University-led DIs as a *de facto* contact point and exception in a general strict process. This chapter primarily relies on secondary sources, particularly those from Chinese scholars. These sources are supplemented by conversations, discussions, and interviews conducted with Tongji, Thad, and Scutad affiliates.

The **second part** constitutes the core of the research and encompasses the empirical aspect of the work. It reorders the main events in a logical and operational sequence. This central part hence heavily relies on firsthand sources and materials collected over the past five years within the China Room research group and the Polito Studio board, restructuring them through a retrospective *reflection-in-action*. In the **fourth chapter**, the focus is on introducing and positioning the case study, the author's perspective, and the adopted approach. Then, **Chapter five** introduces the three participating institutions in the subsequent designs: Politecnico di Torino/China Room, THAD - Architectural Design and Research Institute of Tsinghua University, and SCUTAD - Architectural Design Research Institute of the South China University of Technology. It sheds light on the challenges and endeavors undertaken by the Politecnico di Torino China Room research group to enhance access to insights and data in a foreign and complex context, specifically China, through applied research, then exploring the first block of designs, known as the projects carried out before the establishment of the PS mechanism, and delves into how the insights gathered through these projects were capitalized upon. The **sixth chapter** then analytically retraces the various phases and objectives of the conception of the Polito Studio initiative, examining the specific issues addressed in approaching technology transfer in the field of architecture. It introduces the prototype, referring to the VQR-TM worksheet, and highlights both its functionality and impact. Moving on to the **seventh chapter**, it further delves into the effective functioning of the model by observing two designs developed by participants of the PS initiative.

The **third part** summarizes the experiment conducted by situating it within a broader literature and critical context. The **eighth chapter** offers a final reflection on the investigation, putting forth a new worksheet for evaluating design as a scientific practice within the university, utilizing the potential of VQR-TM.