

MECHANICAL ENGINEERING / PHYSICS /
PRESERVATION OF THE ARCHITECTURAL
HERITAGE / STRUCTURAL, SEISMIC AND
GEOTECHNICAL ENGINEERING / URBAN
PLANNING, DESIGN AND POLICY / AEROSPACE
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MATERIALS ENGINEERING / MATHEMATICAL
MODELS AND METHODS IN ENGINEERING



Chair:
Prof. Luca Gaeta

DOCTORAL PROGRAM IN URBAN PLANNING, DESIGN AND POLICY

The PhD Programme in Urban Planning, Design and Policy (UPDP) aims to explore the significance and impact of contemporary urban changes and understand how these processes can be governed through planning, design, and policy-making activities. The programme pays specific attention to the transition towards new, more sustainable and equitable modes of urban development and advancements in planning practices to foster potential innovations in traditional urban studies, urban design, and policy approaches.

The integration between different fields of urban research on the one hand and between theory and practice on the other distinguishes the approach promoted by the PhD programme.

Objectives

The UPDP Programme's objective is to provide PhD Students with analytical and interpretative skills and methodologies to advance research in urban studies, spatial planning, urban design and urban policy.

PhD Students are encouraged to reflect upon traditional and innovative practices in these fields by participating in research activities concerning cities and regions in Italy and abroad, paying particular attention to international comparison.

By establishing a dialogue with the best European and International schools, this PhD programme is the place for research and innovative approaches to urban studies, spatial planning and urban design dealing, in particular, with the following themes:

- Multi-scalar regional urbanization processes: rethinking and reshaping the city on a regional scale and addressing the challenges for the analytical approaches and descriptions, as well as for institutional and governance processes;
- Advances and challenges in contemporary planning theory and practice: the reshaping of citizenship, boundaries and collective action in urban areas and their effects in the urban environment;
- Urban transitions towards sustainability: strategies and tools for land and biodiversity preservation, energy conservation, and natural and technological risk prevention and mitigation;
- Social and economic changes and their effects on spatial processes: social inequalities and urban segregation; economic specialization and diversification in a global context;
- Tools for the evaluation and management of urban projects: feasibility and equity of urban projects, as well as the sustainability and design quality of the physical outcomes;

- Urban governance in Europe and the EU urban policy agenda: exploring distinctiveness, convergences and divergences.

Contents and research training

Based on a multidisciplinary approach, the educational programme's main objective is to offer PhD students a challenging environment with space for international debate, research, experimentation, and innovation.

The members of the PhD Board provide most teaching activities, and they form three research groups:

- **Urban studies**
Contemporary cities worldwide face increasing challenges regarding local democracy, sustainable development, environmental resources and landscape management, social cohesion, and cultural diversity. The main issues addressed are social, economic, ecological and territorial transformations, governance problems and technological innovations. The main research topics are: forms and processes of the spatialization of social and economic inequalities; urban segregation; processes and institutions of urban governance; the spatial impact of social innovation; forms and processes of regionalization; social, economic and territorial development in local contexts.
- **Planning theories and practices**
Urban planning is not a unitary or self-contained discipline, and planning knowledge and activities can be improved by delving into (and jointly considering) both theoretical and practical issues. First, the cultures, ethics, traditions and paradigms of planning are varied and have been evolving differently according to their geographical, institutional and political context. Similarly, planning practice is multiform and can be understood from several perspectives. Studying the characteristics, the peculiar interpretations, and the effects of planning practices constitutes a second relevant research field. Thirdly, the selection and discussion of the intersections between planning and other disciplines (e.g. architecture, environmental sciences, policy studies, philosophy and others) can dramatically innovate planning theories and practices, going beyond traditional approaches and perspectives.
- **Design topics, forms and tools**
In a scenario of changing socio-economic, environmental and territorial conditions, theoretical and technical issues for the construction of urban projects and the implementation of urban policies are being experimented with to improve the quality of life. Specific research themes are: the role and form of urban projects in leading territorial transformations; innovation in the description and representation of urban environments and landscapes; tools for the evaluation and management of urban projects and policies aimed at mastering the feasibility and equity of land development, as well as the sustainability and the design quality of the physical outcomes and strategies for land and biodiversity preservation and energy conservation.

The three research areas reflect the contents and themes of the ongoing research at DASTU and represent a framework of future proposals. They will be the backbone for PhD Students' educational and research activities.

Professional and research profiles

According to its international orientation, the UPDP PhD Programme intends to train highly qualified researchers and professionals. It expects them to work in academic institutions, research centres, public administrations and the private sector in the following fields: spatial planning, design

and management of urban projects and policy, urban studies and urban governance.

PhD Doctors with such a profile are qualified to be employed by Italian and international academic institutions, public bodies and research centres, and public and private development agencies.

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EDUCATING CITIES? LOCAL DRIVERS OF SCHOOL SEGREGATION IN SOUTHERN EUROPEAN CITIES: DYNAMICS AND CHALLENGES IN URBAN PLANNING AND POLICY

Nilva Karenina Aramburu Guevara - Supervisor: Costanzo Ranci

Over the past decades, school segregation has been attracting an increased level of attention in urban studies especially concerning the potential effect of specific population compositions in certain schools, in the urban neighborhoods on socio-spatial cohesion and life opportunities (Boterman et al., 2019; Allen et al., 2010; Musterd, 2011; Sykes, 2011). Furthermore, schools have an essential function for the development of a community and their territory, for strengthening social ties, and individual social and spatial mobility. The school acts in the urban territory as a capillary and diffuse agent (Million et al., 2017). Given that, it is crucial to study school segregation. The approaches for dealing with school segregation in urban space vary across and within countries. The school segregation phenomenon has developed many debates in the United States due to the spreading of substantial racial divisions within the American educational systems for decades. In Europe, discussions on school segregation remain much less developed, and they have emerged in a more diversified manner related to social class divisions (Allen et al., 2014). Northern European countries, in fact, more than others, are leaders in studying the phenomenon, while Southern Europe shows a limited interest (Oberti, 2007; Arbaci, 2019) due to the spatial dissemination of the migrant population. Southern

European cities have been recently experiencing increasingly social and ethnic segregation in the student population. This fact runs the risk of intensifying social and spatial exclusion affecting the general level of social cohesion in these cities. Most of the debates show specific aspects of school segregation at the city level, focusing more on quantitative studies related to urban, social/ethnic-racial, and educational/institutional debates (Boterman, 2018; Bonal et al., 2019; OECD, 2018; Alegre, 2010). Most of these debates on school segregation, address in fact, three drivers: the territorial segregation driver, the institutional setting (the educational system, the institutional regulations, policy actions, and school autonomy), and the school choice dimension (Cordini, 2019). In this frame, these three drivers are inextricably intertwined, and they significantly contribute to the shape and the intensity of school segregation. The research project focuses on *what and how the role is played* (indirect and direct impacts) *by local school policies* (implicit and explicit practices) and school agencies in the dynamics of school segregation in the urban territory, also considering the simultaneity of the interactions of the other drivers of school segregation in the institutional setting dimension. It is interesting to see if local school policies are controlling or preventing

school segregation, contributing or not to equal access to education, to intensifying socio-spatial division in these cities and to increasing educational market competitiveness among schools and families with an enormous impact on the social cohesion. Moreover, some observations from some authors (Boterman et al., 2019; Benson et al., 2014; Wilson and Bridge, 2017; Ramos and Groos, 2017) highlight how that many of the problems of school segregation are related to the institutional regulations, and then they consequently are expressed in the schools. Under this perspective, this research aims to *highlight the local dimension of school segregation* through the analysis of local school policies and school agencies in two exploratory case studies: Milan and Barcelona. Two versions (each version includes five urban neighborhoods) that address the issue of “school segregation” in Southern Europe, which is frequently overlooked in European educational and urban policies. These cases were selected due to the predominance of school segregation developments in two social mix areas of analysis, and documented actions of these activities on urban space. The research adopted a mixed research design methodology based on quantitative data, literature review, and a qualitative approach (mainly semi-structured interviews

and observation). The findings from the study across these countries revealed significant challenges identified in the local governmental authorities and their local urban educational policies that impact on school segregation. In this vein, this research found further evidence from the comparison of the two cities and their case studies that the *local governance system and policy* (primarily the local territorial actions and policies) *are relevant to explain and manage school segregation*. The role of local governments and their policy decisions are relevant in the school segregation processes because, within a set of more general institutional rules, the management of school segregation at the school level plays an important role in preventing different composition of schools that lead to an excessive gap in the quality of the schools themselves. Moreover, each local government tackles the issue of school segregation differently, even though they are subject to the same pressure of the quasi-market system. Their final impact seems to be slightly different as school segregation still exists in Barcelona (stable) as well as in Milan (slightly increased). In different contexts, the level of local educational and urban policies is crucial. Both cities have different educational landscapes (the institutional setting work together with the territory) within their similar

territorial landscapes. Then, these differences in their educational landscapes (institutional structuring, policies, rules, actions, and school offer) produce diverse effects in the management of school segregation. We found six new elements of the local school policies resulting from the comparison, that are suited for more than one Southern European city, or even for a different region. What we have learned is that some aspects are directly a responsibility of local policies and other aspects that are not directly a responsibility for them, but have an impact on the whole system and on the educational landscape. These new elements that are within the responsibility of local urban school policies are related to i) including the private school within the public realm, ii) constraining school choice in a flexible institutional framework and iii) restricting school autonomy in a controlled position of local governance to detect irregularities from the supply and demand side. Other structural aspects of the school system that has an impact on the local system are i) strengthening institutional coordination between governmental actors as a multi-level system, ii) improving cooperation and networking between school agencies, their communities, and city educational and urban planners as integrated planning and iii) supporting school innovation as a systemic

type and integrating into the public system through active territorial interventions directed at district and neighborhoods as well as local incentives combined with intensive accountability, meetings, exhaustive controls, training, and evaluations to school staff. In conclusion, this research highlights a largely underexplored Southern European context. The research evidence lays out two sub-themes from the institutional setting and territorial point of view: (i) local school policies; and (ii) local governance. These new elements or stylizations are policy devices available to regional and local governance to calibrate school segregation. We have strongly posited that part of these devices can work to enhance or reduce segregation practices. It is noteworthy that the success of these devices will also depend on the kind of political action and ideological interest of policymakers and city educational and urban planners.

CONTEMPORARY ARCHITECT GROUPS AND COLLECTIVES: DISCUSSING CHANGES IN ARCHITECTURE AND URBAN DESIGN PROFESSIONAL PRACTICE

Cristina Catalanotti - Supervisor: Carolina Pacchi

In coincidence with major socio-economic transformations or crises, architecture and planning went back reconsidering their social role and their ability to express public needs and demands, engaging in a critical review of norms and traditional behaviours. Acknowledging the rupture of the trust-based relationship between professionals and society, the research examines what it means to practice architecture and planning nowadays and how architecture and urban planning practices are reshaping and re-interpreting their role by exploring architect groups and collective professional practice.

Architect groups and collectives represent a growing section in architecture, urban planning and design that recognise (i) that architecture, as a practice and a product, is not the secure domain of just the architect and (ii) that to act through permanent physical transformation might not always be the solution. This socially engaged design culture operates through self-construction, temporary structures, opportunistic occupation of spaces, and the practice of residence to foster citizen involvement in the transformation processes of the city and create self-managed situations. As architect groups and collectives are often perceived as a new professional figure out of traditional behaviours, disciplinary borders and norms, the

research problematises this emergent phenomenon, and the main research question is: are architect groups and collectives changing the professional practice of architecture and urban planning? If so, how?

Since a profession is defined as a mode of organisation in relation to market dynamics and a discursive episteme whose reproduction and survival are made possible also through the constitution of schools, three sub-questions guide the research: how are architect groups and collectives organised in relation to market structures? What is the disciplinary core they use, what are their skills, what is their knowledge? How is the educational model changing according to the disciplinary episteme shifts and in the diverse approach to (everyday) practice? With a trans-disciplinary approach that crosses diverse fields of research and theories, the thesis examines the emergent movement of architect groups and collectives, questioning their alternativeness in the face of a disciplinary and professional tradition. A mixed qualitative methodology supports the analysis; moving from an ethnographic approach, it adds relevant information mainly through semi-structured interviews and builds a loop between the theory and the field, reflecting an abductive logic aimed at reconstructing the sense of an anomaly.

The professional dimension as a lens to question the phenomenon, unveil and describe complexity results as a valuable framework to question both the specificities of the groups at stake and what it could mean, nowadays, to practice spatial transformations, to practice spatial transformations, the traditional disciplinary domain of architecture and planning. The three levels that conceptually define professionalism, i.e. organisational structures, disciplinary knowledge and education, allowed the building of a framework that, with appropriate differences within the diverse sections, moves across (i) traditional theories on professionalism, (ii) explorations of professional practice in architecture and urban planning, and (iii) more recent theories that focus on relations between and beyond professional groups. What emerges through the three levels of enquiry is the rupture of boundaries that have traditionally defined professions toward new hybrid structures and associations based, in the case of architect groups and collectives, on shared values and situated knowledge.

More specifically, the exploration of architect groups and collectives highlights larger processes and dynamics that invest architecture and planning as professions and as disciplines: (i) the fragmentation of professional groups and of big organisations in favour of molecular

practices, in which individuals chose, from time to time, convenient associations; (ii) processes in which undisciplined expertise, which mixes diverse disciplines and non-codified forms of knowledge, develop in relation to a specific problem; (iii) the construction of new pedagogies that situate learning and conceive design as a complex activity in which drawing and planning are only a limited part of the process. Ultimately questioning the alternativeness of architect groups and collectives in relation to a supposed mainstream or traditional approach toward urban transformations, the research softens the idea of architect groups and collectives as 'opposed to', enlarging the spectrum of possible positions and acknowledging the existence of personal agendas and degrees of alternativeness.

Ultimately questioning if architect groups and collectives represent a paradigm shift in architecture and planning professional practice, the answer might be negative. Their emergence is undoubtedly related to recurrent anomalies; they represent a reaction against the growing commodification of architecture and urban spaces and to a decision-making protocol that is still perceived as authoritative and based on vertical hierarchies and top-down models, often using participation as an uncritical tool to obtain consensus. Despite that, the approaches that architect groups and collectives use are rooted in the larger debate that, within planning, has questioned for more than forty years participatory models and inclusive ways of constructing future cities and the roles professionals have.

In conclusion, this research remarks the connections of architect groups and collectives with the disciplinary tradition: architecture and planning cyclically questioned their role in the society and the trust basis on which professionalism survives, often opening up disciplinary boundaries and fostering collective sense-making processes. At the same time, the research highlights the risks, for a new group of practitioners, of reproducing limits and boundaries toward the non-experts in the attempt to legitimate their role and their market and knowledge niches. Sketching possibilities in regard to the institutionalisation process of architect groups and collectives, conclusions also raise questions concerning the institutionalisation processes of radical, alternative practices and the possibility of losing transformative stances in the process of formalising protocols and procedures.



Fig. 1 - The Floating University Berlin, 2018. Source: author