BEYOND THE BORDER. METHODOLOGIES TOWARD THE LEARNING AND PRACTICE OF AN INCLUSIVE URBANISM

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Abstract

In Euclidian terms [5], a border is a line dividing elements that meets specific requirements to the ones that do not. However, under the biological perspective the border is inferred as the space on interchanges are intensified and where influences among realities emerge. Thus, while can be interpreted as a limit that isolates and segregates, we rather consider any border as a catalyst that multiplies interrelations over a permeable and porous field¹. In the architecture discipline it is possible to identify areas that have been understood as evident borders: scales, age ranges, professors and students relationship, being -no matter their interdependence- particularly relevant the separation set between the architecture project design and urbanism.

Through 3 years of teaching based research in the course of Architecture Design and Urbanism (*Projectes i Urbanisme*) at the Reus Architecture School (ETSAR) it has been the endeavour to overcome the borders, both disciplinary and methodologically, working under marginal conditions, from the questions stated to the course program and the established working environments. As a teaching tool and fresh statement, the decision was to work under the conception of a hybrid environment in constant change, able to provide to students a holistic outlook to our conception of a multi-faceted urban reality. Workshops were made to empower students' leadership, autonomy and development driven by cross-sectional teaching and collaborative exercises. A methodology that required of the contribution of professionals of social and urban sciences, academics and local technicians who actively participated at different work stages of the course providing sharp insights onto the discussed and revealed topics going from economy to geography and anthropology.

That being said, the main goal of the course was to recognize the territory and the city like a single complex ecosystem of interdependencies between collective wills, private interests, economic developments, political interests, social problems, technological improvements, climate risks and ecological potentials, that demands for a cross-scale focus and a cross-sectional study. A city was conceived as a collective construction that relies in society as one of the mechanisms to transform our living places and the landscapes we dwell in.

This paper aims to sum up the experience gained through three years of academic work on the limits of the urban disciplines. By explaining the developed *learning by doing process*, we would like to highlight some of the results achieved, and the techniques implemented. Moreover, reorganization of the hypothesis, exercises, and works has been synthesized in form of handbook. A document that will be finally shaped as a digital open source tool able to improve cross interaction between students, professors and researchers from disciplines related to the urban environment. In other words, we propose a proactive tool to strengthen an integral approach to cities and territories through collaborative development among schools and disciplines hoping to happen an open and useful academic source.

KEY WORDS: holistic approach, discipline borders, inclusive city

1 INTRODUCTION. THE REAL CONTEXT OF THE EXPERIENCE.

This paper is the result of a careful thought over a three years' experience of teaching-based research in the course of Architecture Design and Urbanism (*Projectes i Urbanisme*) in 4th year of the Architecture degree at the Reus Architecture School (*ETSAR*). A course that, from its conception, had the interest to work on the limits of the urban disciplines, merging architecture and urbanism, subjects that traditionally have been independently taught. The strength has been on embedding architecture decisions in the immediate environment of *El Camp de Tarragona*, a standpoint born from the initial School philosophy. It is our goal to explain the *learning by doing* process, results and techniques with which to operate further from the strictly academic environment for both, students and professors. Teaching tools were conceived to work under the conception of a hybrid environment in constant change, with the attempt to provide students with a holistic outlook of a multi-faceted urban reality. Workshops were made to empower students' leadership, autonomy and development driven by cross sectional teaching and collaborative exercises.

Between 2014 and 2017, the course has been leaded by a multifaceted changing team² joined by people from different professional and academic backgrounds and with diverse cultural and geographical origins. In common, we kept the statement of conceiving both urbanism and architecture as useful tools to understand and deal with the complex spatial reality, and also the recognition of a more inclusive cross boundaries comprehension of the urban environment.



Image 1. The Francolí River, Collaborative workshop, 2014-15.

Architectural design was understood as a shared and open process developed through time and recognized as a powerful tool able to transform the built environment ([10], [15]), however the quality of the result and its popular acceptance and usefulness, depends on the capacity of architecture to provide a suitable answer to social demands. Success depends on the participation of citizens and all the stakeholders involved from technicians and politicians to neighbors and entrepreneurs on the process of transformation of the built environment. Therefore, architecture must be involved in social demands and should be fed on the debate between technicians, politicians, neighbors and entrepreneurs. A conviction that prompted us to foster a more inclusive way of working, taking into consideration people affected by the changes, researchers and practitioners, under the solid conviction that this way of working will provide better results in urbanism and architecture no matter the difficulties to achieve the goal. Being aware of the complexity and being prepared to deal with should be one of the most clearly defined goals of studying architecture. Therefore, teachers should be able to envision this objective and equip students with tools to face the coming future once they become professionals. This is a non-easy task that have to overcome multiple levels of complexity. On the one hand, there is the handicap of the traditional disciplinary content, the curriculum structure (isolated subjects, course organization by ages or the lack of contact with other disciplines and professionals) and the bounded conditions under which teaching takes place (determined spaces sometimes are not suitable for workshop methodologies). On the other hand, handicaps have to be overcome in relation to administrative conditions continue workforce changes, the limited economic resources

and an inadequate physical environment, together with the no-less important financial crisis in Spain that deeply affected the architectural profession itself.



Image 2. Building the Petit Cabanon in the Entrance of the Architecture School, 2014-15.

Through 3 years of teaching based research in the course of Architecture Design and Urbanism *(Projectes i Urbanisme)* at the Reus Architecture School *(ETSAR)* it has been the endeavor to overcome the borders, both disciplinary and methodologically, working under marginal conditions, from the questions stated to the course program and the established working environments.

2 AN HOLISTIC APPROACH: BEYOND THE BORDER

Once the complexity was accepted as the most influent factor of both, the urban reality and the teaching context, we needed a whole concept to be managed accordingly to the holistic approach assumed. For that, limitations were converted into opportunities by actively applying the proposed concept of "border" to both the disciplinary content and the methodology.

In Euclidian terms [5], a border is a line dividing elements that meets specific requirements to the ones that do not. However, under the biological perspective the border is inferred as the space on interchanges are intensified and where influences among realities emerge. Thus, while they can be interpreted as a limit that isolates and segregates, we like to consider borders as catalysts that multiply interrelations over a permeable and porous field.

From a philosophical perspective, Cassano [2] suggests that the very condition of the Mediterranean area - to which we belong - is to be in the middle: from here the terms "Meridian" and "Mezzogiorno". This concept does not refer to a quiet situation, but a border condition. The limit (*limes*) between two different worlds, sometimes in mutual contrast, is the line linking/dividing earth and sea, inside and outside, construction and destruction, modernity and tradition. The dual condition prompt to the dialogue to allow the cohabitation. The meridian thought emerges from the coexistence of voices, turning limitations into opportunities. On the border everyone finishes and everything is determined, defined. The *limes* units because it separates.

In the architecture discipline, intended both from the contents perspective and the methodological field, it is possible to identify areas that have been understood as borders: scales, age ranges or the relationship between professors and students, being particularly relevant the separation set between the architecture project design and urbanism (no matter their interdependence). According to our convictions based on three years experience, teaching in architecture and urbanism requires of cross boundaries methodologies to foster inter-discipline collaboration.

This paper aims to resume some learned lessons on teaching urbanism and architecture design, highlighting the participants' certainty that a more inclusive methodology is necessary to drive students towards a more realistic environment.

3 THE CITY LIKE A COMPLEX ECOSYSTEM

The main objective of the course has been to recognize the territory and the city as a complex ecosystem of interdependencies between collective wills, private interests, economic developments, political winds, social problems, technological improvements, climate risks and ecological potentials. A city is a collective construction that believes in society as the engine to actively and constantly transform our living places and the landscapes we dwell in. To study this complexity demands for a cross-scale focus and a cross-sectional look.

During the three years taught, from 2014 to 2017, exercises have been set to enhance students to work on the territory and urban complexity. The limits have been the tool to create scenarios of friction, evolution and opportunity. Thus, physical limits and its influence in the urban patchwork were explored through working on the Francolí River, a Mediterranean dry stream highly developed in its mouth and almost salvage in its birth. Water and land were treated during the first course, in an exercise on the limits, between the Port of Tarragona, the River Francolí and the Via Augusta [(15)]. The urban and rural limits were explored through working in the towns of Reus and Vila-seca and their surrounding fields. The tourism and industry conflict and the administrative, security and health limitations were treated along the axis connecting Vila-seca and La Pineda, its coastal counterpart. The energy concentrated provision and disperse demand and the limited access to the market and how this influence the territory setting was discussed over the River Ebro. By last, socio-economic limitations on housing provision were strongly discussed in Sant Salvador, a housing development from the 60's build under the Franco's regime to accommodate the accelerated demand for hosting the workers of the birthing industry in Tarragona that has been compared to Seseña, a recent and huge failed development about 50km far from Madrid resulting from the market boom previous to the economic crisis. [(6), (10)]

During this teaching experience, a set of concepts were intensively used for breaking previous established working methodologies with the aim of providing new points of view on a more inclusive perspective [(1), (7), (11)]. The concepts, strategies and used tools have been set afterwards emerging from the analysis of the course results, some reiterations in the presented exercises, some conclusions from the lectures and discussions. These factors have been the basis of the equation that has leaded the work of three years. By order, they were:

Concepts (*what*): territory, landscape, skin (referred to the finishing of the elements), urban comfort, habitat, culture, identity, community, complexity, time, resilient.

Strategies (*how*): recycling, refurbishing, restructuring, participation, temporality, learning by doing, language reform.

Tools (what with): scenario planning, risk mapping, interviews, debate.

4 THE EDUCATION LIKE A COMPLEX ECOSYSTEM

Architecture, like medical studies, needs of direct contact with the daily life. Our experience accompanying the students on the gradual way of becoming professionals and researchers confirms this statement. Practice is the core of the learning process in architecture and urbanism and there are many formats available to work with: through visits and experiments, sketching,

taking pictures, recording, modelling, building, reading, studying, etc. A huge task if we consider that architecture is concerned with a complex system of physical factors: geomorphology, climate conditions, geography, landscape, shape, etc. and also social factors like culture, identity, use, economy, etc. A reason that supports that, observing, taking contact, dialoguing and negotiating with the series of involved the stakeholders³ should be a fundamental requirement to obtain the architect professional qualification which provides students with the capacity to transform the environment through design and construction.

The curricula of the career of Architecture in Spain recognizes the design as the core of the learning process, a system based on a reiterative trial-error method. However, differently from medical schools where students are required to solve cases involving real patients by assuming a gradual and proportional responsibility, the exercises of architecture design and urbanism are only a simulation of the professional practice, lacking of all the inputs given by the experience of dealing with stakeholders' requirements and all kind of project conditioners.



Image 3. Recognizing the territory through modeling, Collaborative workshop, 2014-15.

Moreover, in the Reus School of Architecture, other factors also play a relevant role on the students learning process. Firstly, its small size and urban isolated or peripheral location. Secondly, the reduced and homogeneous number of students is organised in courses by age having heavy influence on the resulting critical mass. In addition, the recent Spanish financial crisis mainly caused by the outbreak of the building boom in 2008 drove the social image of the architecture profession to a critical point, considering architects as capricious professionals only concerned with aesthetics issues far from people every day needs.

In parallel, between 2008 and 2017 the inscriptions to the Architecture schools in Spain have decreased dramatically (more than 50% in the last five years in the specific case of Reus). This tendency drives to a general perception of the students who are forced to imagine new professional scenarios for their close future detached from traditional preconceptions of architects as specialised professional in design. Among others, one of the most common consequences is an increasing lack of motivation and self-esteem.

At the same time, this post-crisis period has hosted a wide range of local initiatives oriented on searching different community answers to collective needs (evictions, lack of social housing, sanitarian condition of urban voids, low quality and lack of public spaces or collective facilities, migration emergency responses, etc.). This series of initiatives, even facing the absence of any global plan or public administration support, have generated a spill over effect by increasing the opportunities for collaborative work, shared economy, community management and cooperative networks, participated design and self-building processes that reinforced the idea of the city as a collective construction. This resulting new stimulating context offers different opportunities to new professionals if they are skilled enough and provided with the appropriate tools to analyse, understand and work in the complexity.

Through envisioning education as a complex ecosystem we aim to build new models of learning strongly linked to our changeable reality.

Recent studies in teaching methodologies focus on reinforcing interdisciplinary approaches and the use of mechanisms of transversal collaboration (open curriculum approach, intercourse workshops, student leadership, self-evaluation, etc.) in order to enhance students' autonomy and management capacity, a valuable input for a lifelong education.



Image 4. Exploring the Francolí River. Cooking the course program 2014-15.

Our course teaching methodology is influenced by recent models of active and live education ([4, [8], [9], [12], [16]) and the use of tools like design thinking ([3]), the scenario planning ([13]) and live projects initiatives ([17], [18]). The active and live education paradigm considers the human being as a live organism. Its main goal is facilitating the individuals to satisfy their internal needs at somatic, emotional and cognitive level. Thus, the environment as the physical and social field of human live -the habitat- plays a key role for a harmonious development of the wellbeing perception. The way how the active and live education acts is firstly placing the children and youths in the middle of its own learning process, respecting their own capacities, needs and rhythms of development; secondly, considering the whole community as a responsible and active agent of the education process. In other words, the real learning is a live action based where gaming mechanisms that use trial and error work by incorporating the pleasure of experiencing while, in the other hand, it is necessary to break with the physical and mental stated barriers still rooted in the traditional educational field. Education takes place everywhere and everyone can be a teacher. In our field, this field-experimentation and holistic assumptions in terms of considering habitats and inhabitants as a whole is a giving value we should boost to definitely overtake barriers between roles, generations, ages or places.

From the perspective of the active education, students are not empty containers than can be filled with concepts but, in a Socratic sense, students already have the knowledge and they *only* have

to learn how to ordinate it, express it, share it, increase it and connect it. Teaching cannot be conceived as a top-down unidirectional dynamic but a task of critical support that engenders a bidirectional and multifaced channel of learning, open to a wide range of inputs. This is a system that requires of proactivity from students but also from teachers to make learning process possible and positive. Therefore, our main task is to build appropriate communitarian learning contexts to experiment together, students, teachers and others agents offering an exciting self-learning opportunity.

Our "teaching by learning" method became a field of experimentation and reflection that fed research into a constant retrofitting mechanism. Trying to define which kind of communitarian learning context have been built, four main aspects can be mentioned: the program; the working method; the space and the evaluation process.

The *course program* was organized in practical exercises of different length designed to foster real work on the field which attempted to incorporate the maximum number of experts and stakeholder's interests and opinion.

The design process always followed a similar structure: a complex ecosystem contained in a portion of reality was explored through a main course question; secondly, this context was interrogated through a wide range of socio-physical indicators; thirdly, a proposal was formulated according to a clear strategy including physical, energetical, economic and political aspects and developed from the general scale to the domestic detail; finally, the resulting transformed reality is re-examined in order to obtain a global perspective of the process and changes.



Image 5. Final Jury, 2014-15, 2015-16, 2016-17

The organization of the course by successive and related stages allowed to work on the concept of *time*. A multi-scenario approach was implemented to deal with this phasing concept facilitating the projection of flexible answers up to 10, 30 and 50 years from now. This approach is based on the assumption of design as an open and ongoing process.

Regarding the *working method*, during the deep analysis of the territory that questions its whole structure through recording and processing different types of data, students were divided in groups of 3 or 4 people and asked for self-organizing their tasks. At this stage, a wide range of

tools such as researching and consulting techniques, enquiring, collecting and analysing data methods or presentation, communication and dissemination skills were presented and intensively put in practice. Likewise, they were coached to comprehend the importance of sharing information and collectively work. In this line, they were asked to explore the power of collaborative and inclusive processes through different exercises that include individual designs that had to be coordinated according to a widen common conceptual framework.

During the whole process, theoretical inputs were given in different formats (master class; peers presentations; focus group discussions; role play; handmade manipulation; etc.) linked to the ongoing design process. The theory was generated and coordinated following the course daily practice and debate. With the interest of providing a cross discipline perspective to students, formal and informal lectures approaching varied inputs from different disciplines were given by local experts or colleagues from other faculties.

In relation to the practice, we let students free to choose between a wide range of formats (from sketches handmade to digital tools, CAD technical drawings, visualization simulations, collages, photo editing, audiovisual material production, models, sculptures, etc.) Professors supported their self-initiative to buy building materials and experiment with detailed models up to 1:1 scale and promoted communication and dissemination initiatives like blogs and web-sites.

Regarding the space, we worked around the idea of conceiving the classroom as an *operational centre* spending part of our time on reshaping the place and transforming the resulting space (moving and changing furniture, creating places for different uses, exhibiting their work results in form of pictures, models, fungible materials or bibliography.



Image 6. Visiting the projects sites, 2014-15, 2015-16, 2016-17

However, if the classroom became our headquarter, the street was our main action field. The course promoted the live experience of the city in a sliding scale going from the surroundings of Reus where the School is embedded to the Camp de Tarragona, the Catalan or Spanish territory as a whole or even Europe when the course considered it necessary.

Mobility (physical, mental and emotional) has been one of our main educational goals in order to broaden our students' world of crossed references. In order to force ourselves to abandon our academic comfort zone, we included a set of field visits, excursions, meetings with "experts", interviews with the inhabitants, collective mapping campaigns, identification of involved stakeholders, etc.

Finally, we would like to briefly mention our evaluation process. According to the Bologna criteria, we gave the utmost relevance to the continuous evaluation that include a progressive self-assessment. As a consequence, the traditional assessment in architecture schools through jury where students present their work (drawings, tables, etc.), is complemented with other marks along the semester. Thus, it was incorporated a periodical open evaluating session with experts coming from other disciplines or from the professional field. *Peer to peer* assessments between students were also promoted within a previous framework set by teachers, which gave the opportunity to suggest different ways to improve colleagues' work and proposals. Students were also enquired to do a teaching method assessment, results that were afterward discussed.

Thereby, following the upper description, the course learning process took place in an ordinary context of real practice (*learning by doing*), similar to what students will have to deal once finished their career.

5 CONCLUSIONS

Very often, it becomes difficult to summarise and extract some clear conclusions from an ongoing process. Particularly, if this is resulting from an experiment with several un-programmed aspects, unexpected events and non-systemic procedures. However, in general terms, it is supported the idea that today's professional needs to be used to complexity of a dynamic urban reality. As a consequence, education environments have to face the challenge to educate into an open and changing programme. Due to the relatively short time of a university course, students are forced to fully comprehend a complex reality in a very condensed period of time lacking, sometimes, of a linear narrative. From our point of view, however, this is not a handicap when the students have the chance to approach the context study from different perspectives and equipped with useful and contemporary tools.

We support the idea that the student as a future professional will have a higher ratio of success since he or she has the capacity to be more inclusive and flexible. According to the results, the career of architects educated under this basis confirm this hypothesis.

In order to facilitate an education of the complexity, the university may participate actively in the ecosystem where is physically and conceptually embedded considering both the immediate environment but also the global scale.

It is supported the adoption of the concept of border to blur the existing through the recognition of physical, disciplinary and methodological limits, no matter if this could imply to overcome the resistance from other teachers, students and people.

The results obtained during three years of teaching experience encourage us to continue exploring in this direction.

- the improvement of the communication and interchanging skills through the experimentation of different teaching formats increases the teachers capacity of innovation and their ability to generate applied technology.

- the encouragement of a teaching method based on fostering of a rich and complex learning environment and a role of supporting -instead of the traditional profusion of contents over a topdown format- changes the dynamics between teachers and students resulting in a stronger collaboration and co-responsibility in the learning process.

- an educational ecosystem that promotes students autonomy and a proactive attitude enables them to plan their own goals and tasks and even self-evaluate their results. As a consequence, we observed an increase of self-esteem, motivation and general commitment. Likewise, there was a remarkable improvement of the students' capacity of self-organization and their progressive co-responsibility with the course becoming deeply implicated in the whole learning process.

- the students became aware of the need for collaboration between them and with other professionals recognizing the challenges and opportunities with regard to their future professional life and increasing their empathy with the course.

- an applied teaching and a research approach based on this intense cooperation and coresponsible definition of the goals and tasks, makes the students feel part of a gear and encourage their active participation and proactive attitude.

6 OPPORTUNITIES

Despite the difficulties we faced, the obtained results emphasize the appropriate of the method.

Reorganization of the exercises, works and experiences has been synthesized in form of handbook. A document that will be finally shaped as a digital open source tool able to improve cross-interaction between students, professors and researchers from different disciplines related to the urban environment. A proactive tool to strengthen an integral approach to cities and territories through collaborative development among schools and disciplines. An useful academic source available for similar courses in the close future that here will be introduced.

For the specific case of the Reus educational environment, it is already an opportunity showing the results of the School approach of teaching together Urbanism and Architecture design and assessing the results by comparing works from other schools.

The generation of new tools (epistemological, methodological, communicational) gives the opportunity to perceive the complexity of urban sciences and incorporate it to academic programs and courses.

At the same time, the creation of an academic assessment tool of good practices in urbanism and architecture, will improve and increase the available references for teachers, students and researchers. A digital tool of this type contributes to filter through quality, at the same time that makes accessible big amounts of information that could otherwise keep unhandy.

Finally, an open platform to talk about all those issues will contribute to define a new shared language approaching not only professionals from different disciplines concerned with the city management like policymakers but also the inhabitants who rarely participate of the academic discussion about their own environments and their opportunities to be transformed.

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¹ Many languages have specific terms to describe this hybrid field. While English makes use of a more general term of interface, Italian adopt the term *bagnasciuga* to describe the hybrid and ambiguous field where the sea water finds the dry land. It is a place that belongs, at the same time, to the both realities that come along with.

² In 2014-2015 professors: D. Lorenzo, B. Noguerol, B. Rodeghiero, T. Salvadó, F. Santacana; in 2015-2016 professors: E. Ferrer, D. Lorenzo, B.Noguerol, B. Rodeghiero, F. Santacana, J.M.Solé; in 2016-2017 professors: E. Ferrer, D. Lorenzo, B. Rodeghiero, F. Santacana, J.M. Solé, D. Tapias.

³ We should evolve from the notion of "client" intended as a passive subject to an active subject. The word "stakeholders" seems to be more inclusive of all the wide and complex network of people involved in the designing and building process. A map of stakeholders is a good instrument to clarify roles and mutual connections, existing or desired.