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Re-adjusting the objectives of Architectural Education

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Abstract

Architectural Education remains crucial to establish progress and social development despite the fact that it continues to face important challenges. Detached from the epochal change in evolutionary and historic terms, the efficiency of pedagogy is under question. How well do we prepare students for a very difficult future in practice? This paper focuses on the 'great chances' given by various issues in the field to redefine the core of education for our future graduates. In this context, it is required to adapt within the current critical realities by "rethinking and redesigning the teaching and learning relationship" (Garrison & Kanuka, 2004, p. 99). We believe that teaching should grasp a critical momentum, by examining what really is the object of our studies, by generating a new approach to dealing with discords within and beyond the built environment. The aim of this paper is to explore teaching that engages students' active participation through practiced-based learning in the design studio, utilizes new methods and tools and nurtures beyond disciplinary types of knowledge production. The aim is also to encourage students to identify real-life opportunities, in which they can respond optimistically, alternatively and creatively, in the hope to improve their chances to establish their future career paths.

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1. Introduction

"Tell me and I forget, teach me and I may remember, involve me and I learn."(Xun & Knoblock, 1990)
Expectations to bring innovation into education rely on the question on identifying how syllabuses might be updated and how students will take active and pro-active participation in the learning process of their curriculum. Education

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plays a fundamental role in preparing students to reframe their role in the professional environment. It is required to establish better connections with the given professional realm. Not until recently, the on-going developments in the field didn't seem to influence educational approaches.

The challenges professional practice is facing today, have been identified by many as complex, due to the multiple layers that synthesize them. These are the phenomena of 'wicked' problems. (Burry, 2012). Wicked problems mainly concern issues about sustainability in terms of social, environmental and economic dysfunctions. (Jamieson, 2010, p. 8) In addition, the consumer's power and expectations have risen due to globalisation and increased standardisation and industrialisation of the market. There is a growing pressure to discover creative solutions that transcend the design of the built environment itself. These new circumstances all put together lead to a significantly increased in complexity design agenda for the architect. (Dorst, 2008) Yet despite the diversity, the main question that pokes of most architects when approaching the current crisis is what is the core of the design agenda today?

Meanwhile, there is in fact 10% increase in the Architects Registration Board in the last decade. (Architects Registration Board, 2009) Resolving the increasing levels of unemployment in architectural practise along with many other sectors is a complex challenge. These facts require the profession to face up to the profound reality that the market within which it now practices is continuing to change so dramatically that requires to embrace the on-going industry transitions in order to adapt in the new circumstances. What will be the future role for architects? Is there a possibility that architects are on the verge of extinction? Or is there a possibility that architects can grasp professional opportunities beyond the architectural field?

In this context, the educational process should be re-adjusted towards a mindset that cultivates the future generation of what is possible. Specifically in architectural education, the structure of the 'design studio', being the main topic of inquiry in this paper, offers the opportunity to introduce a more appropriate pedagogical agenda. What are we doing to prepare students for a highly disrupted industry?

2. The core of architectural education

The design studio has undoubtedly been at the core of architectural design education since its inception in the 19th century. (Schön, 1985) In most situations, although studio teaching is still based on the traditional models of design process, the mid-century "search for form" has been replaced by the development of new forms of research aiming at a redefinition of the landscape of architectural education and practice within the design studio. Rationale for this change is based on widely recognized transitions from industrial societies and their linear, hierarchical thinking to the emerging postindustrial era of deeply interrelated types of knowledge and complex system thinking. Advances of disciplines, specialization, material- and systems-science and digital data driven computation have brought a radical change in the contextual frameworks within which architectural design and production are normally placed. Such advances have been paving the way to achieve a type of practice that covers a mindset of collaboration and cross-disciplinary communication.

In this way, through the design studio there is an opportunity for students to test their abilities on real-life problems or/and scenarios. Students today should be encouraged not only to develop their design thinking, but to develop it 'responsibly' towards others and the environment. They should also be encouraged to develop management and collaborative skills in order to handle all different variables and stakeholders in their process of designing. (see fig. 1) Unfortunately, in many cases, architectural education is still structured to produce the 'solitary genius' (Krippendorff, 2005) rather than today's collaborator. Fundamentally though, the openness of the design studio structure may effectively accommodate the increasingly divided, complex and differentiated experiences of contemporary life through a series of different learning dialogues. What is required is to engage highly qualified and motivated teachers to run them.

3. Practice - Based Learning

The key indicator for evaluating methods of teaching is determined by the students' ability to learn. The state of individual status of learning is underlined in the relationship between information, knowledge and understanding. Understanding, in many cases in education suffers from the long lasting gab between theoretical knowledge

provided by tutors to students and the practical capabilities students require to develop in their future professional practice.

Due to the nature of architectural education, there is an opportunity to create more effective pedagogical models based on practice-based learning. (Cunningham, 2005) As Jeremy Till suggests: “practice has the raw data on which architectural knowledge is founded” (Till, 2005) Curriculums that embrace this notion have better chances to increase student’s motivation in learning and to foster student’s engagement.

Through the design studio, patterns of the design process occur, that demonstrate an explorative way of learning-by-doing, more specifically learning-by-making. This does not suggest the conventional way of understanding “making” as a way to represent or validate the “thinking process”, but rather suggest a more dynamic approach that elaborates the process of making as a process of thinking. Such a methodological approach, to make in order to think, entails observation, improvisation and execution. The biggest advantage is that it cultivates student’s ability to embrace failure by engaging them in a process of experimentation. Design studios that encourage experimentation strengthen student’s ability to think creatively in order to come up with solutions that didn’t exist before.

Nowadays, the plethora of cutting-edge technologies available, can provide an additional scope of pedagogical models that not only encourage learning-by-making but also learning-by-digital-making. Even though, advances in technologies have in many cases improved the quality and performance of the design process and design outputs, curriculums should expand beyond the informative training of digital skills and additionally support students to develop their own methods and techniques. The integration of existing and new forms of tools and techniques in the process of designing may be able to increase students’ cognitive ability and critical thinking. In that way, students are persuaded to validated and establish their theoretical and conceptual agenda through a systematic framework of practice-based research. If we extend this in a professional context, the specific pedagogical approach has the advantage to enhance students’ ability to develop a mindset that encourages innovation through prototyping and optimization.



Fig. 2. Student Project, “JUNK-e Rehab” in China dealing with electronic e-waste (2015).

These underlying pillars alongside with structured guidance enhanced students to create their own path of investigation by letting concepts emerge through their own research and design development. The point or departure of the students’ projects was an intensive period of learning to develop design methodologies and strategies to respond to real-time industry opportunities. Students were divided into groups and challenged to experiment in regards to materials and natural systems in order to build their own collective strategy. Then, by utilizing what they have learnt so far through the catalogue of design languages and experiments explored, and the digital techniques learnt, students were called to design a proposal that resolves crisis conditions, by incorporating additional elements of self-reliance, civic and social responsibility as well as adaptiveness and responsiveness. This framework encouraged students to position their design proposals to respond proactively and innovatively towards their topic of interest in order to constantly find out how to remake things and environments. Thus, it largely comes in alignment with the premises of the cradle to cradle approach, especially by embracing the notion of “remaking the way we make things concept”. (McDonough & Braungart, 2010) Analogue versus digital experiments, handmade versus digitally fabricated processes, low-tech versus high-tech solutions, and re-used/ salvaged versus new materials, are some of the juxtaposed or contradictory pairs that were used as main tools fueling the operation of research and investigation of students work. These “lenses” together with the binary conflicting aspect of the techniques themselves initiated a probing into the existing context and resulted in creating unprecedented spatial conditions.

This nonlinear and divergent approach to learning led to different and compelling results. This was elevated through the diverse use of media and experimentation techniques, the use of digital and hand crafted models, videos, collages, hand drawings and digital prints, installations, narratives, and 3D modelling techniques. Individual work was dispersed among group work and projects, and both personal and team decisions re-informed the projects on multiple levels. A series of carefully selected workshops were infused in the studio to enhance specific underdeveloped skills such as visual representation, communication skills and digital skills (including design development, fabrication process and design management).

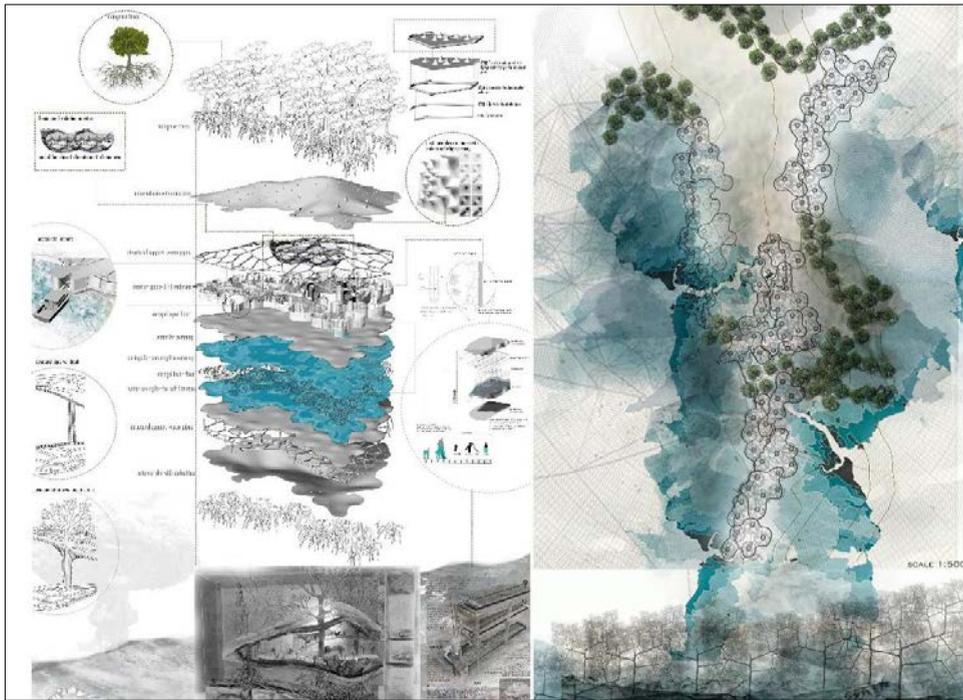


Fig. 3. Student Project, "A ring of salt will protect you" in Florida dealing with radiation (2015).



Fig. 4. Student Project, "Utopia lost things in the sand" in Mali dealing with protecting communities in Sahara from sandstorms (2015).

Through this highly demanding learning process students and teachers have come to the realization that integrative thinking should be at the core of a radically restructured education. The more understanding we develop about the way the world operates today the better design solutions we can invent for the future. If we are to frame and resolve complex issues, team work is required through inter-, multi- or even trans-disciplinary collaborations, transcending disciplinary boundaries that may unite segmented disciplinary parts of knowledge (Nicolescu, 2002), tools and skills. Only then we will be able to develop a more holistic approach to design and become capable resolving ‘wicked’ problems through design.

5. Opportunities in professional practice

There have been several-attempts for educators to discover ways for their university graduates to retain opportunities in the labour market. We argue that the failure to develop a comprehensive understanding of how graduates may grasp market opportunities, in part, could be because we have often focus on the design work in relation to completed ‘products’, leaving other areas in which architects could possibly discover more opportunities by applying their skills and knowledge.

Unavoidably, the way societies are driven by market economies today, challenge education with a new set of inquiries. Literature supports that design thinking for design ‘products’ should go beyond considering functionality, usability and beauty and consider marketability and communicability equally important. (Krippendorff, 2005) Of course, in every type of creative discipline the focus of design thinking will vary but this should not become a barrier to prevent identifying the skills designers should be additionally developing today, it should become the opportunity.

Literature mentions that if markets are inefficient in some way, if changes occur in a social, political, economic or demographic level, if new inventions are discovered that provide new knowledge, then opportunities can exist. (Venkataraman, 1997). How can we improve our pedagogical models to train students identify or even create professional opportunities and simultaneously provide value and yield a profit out of them is a scenario that deserves further future exploration.

Identification and exploitation of opportunities could also be embed as an important aspect of architectural curriculums. Our educational system, despite any discipline orientation should encourage students to see opportunities in situations that other people see risks and act on it by offering a different/new perspective for a current situation/ problem. This requires educators to support students trigger their entrepreneurial spirit (Richardson, 2011), which is not solely defined by business models and management skills. It is a mindset which can be cultivated through the learning process of education but also through the process of pursuing or even developing their own personal careers.

6. Discussion

Through the process of the design studio future architects have the opportunity to master the ability to become responsive to complex, ever-changing scenarios and transform them into emergent, unprecedented architecture that sheds light on a more promising and fascinating future.

Integrative and investigative learning-by-doing approaches could undertake an experimental paradigm in which students and professors alike collaborate to push the boundaries of the discipline, allowing the pedagogical context to become central in the development of new insights. Pedagogical objectives and learning outcomes should support students’ abilities to develop entrepreneurial minds in order to understand how to respond to market and professional opportunities. Educators should also aim at enhancing students’ communication and collaborative skills in order to help them perform better in a widening array of consultants and inter-disciplinary teams in their future professional practice. Through the design studio there is an opportunity to bridge potential gaps between academia and industry early enough, in order to network and channel students into the professional market.

Architecture is thus positioned to lead in the redefinition of education as action, following a methodology that bridges across epistemological, disciplinary and academic boundaries and combines scientific rigor with innovation and intuition. Thus, the value of integrative practice-based-learning relies upon students generating rather than

gaining knowledge, substituting disciplinary knowledge. These objectives can become a valuable pedagogical model efficient enough to address current as well as future issues.

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