From Propagation to Negotiation of Ideologies in the Architectural Design Studio

Critical Insights in student-centred strategies for Interactive learning

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Keywords:
Design studio, Pedagogy, interactive knowledge, professional education, learning by doing, architectural education.

Abstract

This paper investigates modes of active communications and propagation of ideas and ideologies in architectural education in general and the design studio in particular. Based on survey of students' opinions, modes of tutorials, assessment and production, it investigates the extent to which students enjoy freedom of choice, liberal thinking and ability to develop independently from their design tutors. While challenging current modes of one-to-one design tutorial paradigms, it experiments with alternative means of tutor-free and student-led workshops, where students are able to develop their conceptual ideas in the absence of their tutors at an early stage of design development. It analyzes the process of practical implementation of interactive tools in architectural education which places the diversity of students' cultural experiences, contextual awareness and individual interests as a crucial resource for design inquiry. The cyclical development of interactive learning strategy is examined through two settings: first, it discusses ideology-driven design tutorials that influence students' conceptual ideas; second, it reports on a liberal approach to the design studio, where students are given larger freedom to define their own position and intuition towards the practice of architecture, both in England and in Northern Ireland.

Learning through practice: Ideological perspectives in the design studio

As early as the late 1970s, loud concerns about the supremacy of standardised professional-led design studios over creative thinking processes were voiced across Europe and the United States. Porter (1979: 3) claimed that buildings start to fail to address important social problems due to the skills imparted in architectural education. '*New organization*', he stresses, provides buildings that '*compromise the traditional stance of the architect*'. More forces, such as technology, politics, commercial demands, get more power against the traditional conception of design as a socially interactive process. On the other hand, Peter Blundell Jones (1987) accused architectural practice, during the 20th century, of attaching architecture to theoretical and ideological thoughts such as functionalism and post-modernism, classicist and rationalist fundamentalists, ignoring its fundamentals as everyday building activity. The influence of high-architecture seemed to be drifting ever further from everyday building and grounded as *'vehicles for displays of individual virtuosity demanded by a market in images, and less and less concerned with habitation*' (Blundell Jones 1987: 62). The centre of his argument is that even though buildings have always been artifice they became more disconnected from their inhabitants and their socio-economic processes. Buildings lost their meaning and were reduced to the capacity of mere objects (Harris 1997; Dutton 1989)[1].

The question of how can architects work beyond the physical determination of space is however not new and these concerns echoed subsequently in educational contexts. The discourse of design ideology is largely grounded in the theoretical domains that determine the position towards the profession and the role of the profession within society. This is largely driven by the way in which architects are trained in the design studio. In 2004, Peter Cook argued that '*Architectural education is in great danger, and has been for the past 20 years or so, of being hijacked by those whose real interests are words rather than buildings*', in reference to the problem of ideological weight of design studios (Wood 2006: 5).

Design tutorship is arguably one of the most powerful political tools to form and shape the perspectives of future generations, through extended one-to-one conversations, debates and influx of ideas, case studies and precedents. Hence, the organization of the design studio has been interrogated comprehensively ever since the 1980s, when American Schools of architecture first came under scrutiny in a special issue of the Journal of Architectural Education (Spring 1981). Social dynamics, organization, and the discourse of power politics in the design studio as well as exploring one-to-one communication in small group teaching were the centrepieces of how the studio culture needed to be transformed. In response to such criticism and calls for change, Live Projects and engagement with real clients have emerged in the UK since the early 2000s as innovative practices of tutor-free studios, where students work with real clients on real projects and design tutors become mere observers. Yet, these practices remained peripheral, limited in scope and, more intriguingly, driven by each school's own ideology.

As a profession deeply grounded in a culture of individual tutorials and mentorship, architecture relies heavily on "Master-led" education, in which not only do students learn by doing, but in fact, acquire skills by watching and seeing more experienced designers talk, critique and debate concepts and ideas. From one point, it is subjective, open to interpretations and only offers viewpoints limited to those in the room. From another, it is insightful, critical and engaging to hear a group of experts and tutors debate students' work through direct conversations. In both instances, learning is grounded in this act of mentorship and the unparalleled political imbalances. Addressing these points, architectural schools operate on the basis of studio units, where tutors are grouped based on themes and ideological perspectives. Architectural education draws from an artistic and professional tradition and its dominant goal is the production of design practitioners (Porter 1979). From the basic knowledge to sophisticated details and philosophies are transferred from one generation to another through the experience of practice.

But, the notion of mentorship is not new in the practice of building. Historically, builders and artists learn their profession through a lifelong process of education, during which they acquire skills, knowledge, and experience. The process of learning by doing or as called by Teymur (1979) '*doing by learning*' through performing '*a professional function while learning it*' is the model of architectural teaching historically (Doidge, 2000; Anthony, 1991.) Today's practice, by contrast, is largely related to the ideological propositions, socio-political context and at times the city within which the institutions operate, such as London Schools, Dutch Schools, or Scandinavian Schools. Architects (professionals and tutors) are increasingly identified by their political and ideological orientation as well as their theoretical references. Jeremy Till acknowledges that many architectural studios are overwhelmed by the orientation of the leading tutors, for which they were appointed based on their ideological preferences (Till 2008).[2]

In this sense, Schools tend to work similarly to political institutions, with power and vision is filtered in hierarchical order, from top to bottom, which somewhat limits the studio culture's capacity for liberal thought. My aim in this article is to investigate the role of ideologies in influencing the design studio and viable methods to encourage liberal and diverse environments within design education. The target is to highlight the problems that students struggle with in developing autonomous decision making that is free from the influence of ideologies. This research is designed to explore patterns of ideology propagation in the studio through interviews, group workshops with students at both UG and PG levels. A series of experimental workshops have been conducted to explore the potential of student-led workshops at both Sheffield School of Architecture (2007-2009) and Queen's University Belfast (2011- 2014). In this paper, I report on the full-cycle of generating an influence-free studio culture that allows students to develop a liberal approach to architecture, critical thinking as well as context-based solutions. It is designed to record and observe a changing approach in students' ideological transformation in relation to the

influence of their tutors. To what extent students acquire ready-made ideas, replicate precedents and thereby become reflections of their tutors' and School's agenda and how a student-led approach could be capable of reversing these attitudes.

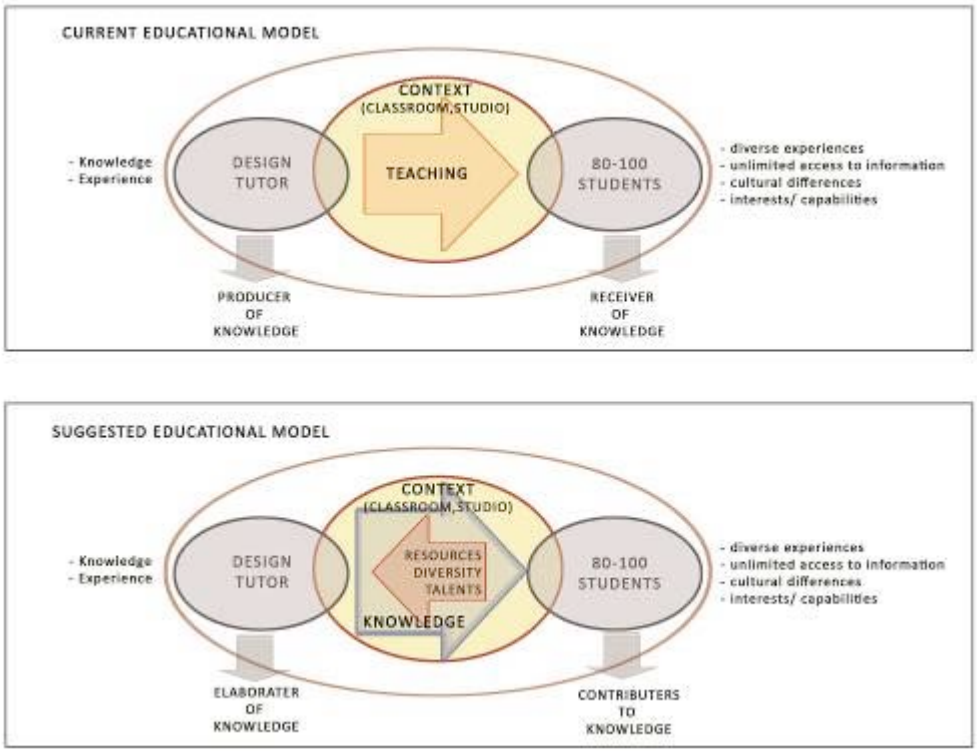

Figure 1: Models of teaching and communications in the Design Studio

The Mission of the Architecture Studio

Brian Lawson's book *How Designers Think* offers valuable insights on the design process as an inquiry about critical thinking as an objective and accumulative research task. (Lawson 2006). Lawson's questions about creativity, how deterministic and how it could be measured was central to shifting the attention of the design studio to the students' learning process (Lawson 2004). It resembled a departure from the perception of the studio as a machine for professional training, and where students are subject to systematic procedures to be granted a professional accreditation. In fact, Lawson started his argument by confronting the word design; considering it as '*a generic activity and yet there appears to be real difference between the end products created by designers in various domains*' (Lawson 2006: 4). As a verb, "*to design*" refers to '*the process of originating and developing a plan for a product, structure, system, or component with intention'* (Cambridge Dictionary). As a noun, "*a design*" is used for either the final (solution) plan (e.g. proposal, drawing, model, description) or the result of implementing that plan in the form of the final product of a design process[3]. Being defined so broadly, no limitations exist and the final product can be anything ranging from socks, cars, fashion designs, to web designs and charts. On the other side of the coin is *design* as an everyday activity being practised by everyone who arranges an office, room or decorates a home in a particular style (Lawson 2006: 3). Christopher Alexander considers

the process of design as '*the process of inventing physical things which display new physical order, organization, form in response to function'* (Alexander 1979: 1).

Architecture, however, is a situated process that takes place within a specific site and certain socio-cultural context that could not be isolated or limited in influence. According to Thomas Dutton, it 'is *never capable of completely reproducing its own existence, for it is a primary medium for dominant institutions to manifest forms and images through which their power will be communicated and legitimated*' (Dutton 1989: 8). Architecture is not like social sciences which limit their scope of inquiry to constructing subjectivity; rather, the built environment is a form of inter-subjective relations that is being generated and entrenched (Bickford 2000: 356). Linda Hutcheon (2002) argued that in architecture by '*its very nature as the shaper of public space, the act of designing and building is an unavoidable social act*' (p.180-181). She, moreover, confirmed that architecture reinstates a dialogue with the social and ideological context in which it is produced and lived. To practise architecture is to elaborate the environment that governs such social interaction and communication.

Such qualities of architecture seem underserviced in the broad process of design, which has to be customized to suit the complex process as listed by Lawson, of imagination and creativity or technical knowledge and expertise. Hence, the mechanism of socio-spatial processes related to architecture is more distinct in that spectrum of design. So, to what extent are contemporary currents of studio pedagogy delivering on this distinct, yet open-ended, agenda of architecture? To put it simply, the design studio anticipates getting students' intuition, interest and knowledge at the interplay of structured process of education in a forum of debate, exchange, critiques, and pedagogy. The studio is a unique venue of negotiation between the explicit and the implicit; the power of decision making between the initiator (the student) and the negotiator (the tutor). This reciprocal dialogue between ambition and critique helps the student's agenda to develop and progress (Abdelmonem 2013).

Architects, furthermore, are now more accountable to their society than most of their twentieth century counterparts. Participation of the public in decision-making for the built environment has become a priority in the political agenda and planning procedures. Despite being seen as a 'threat to the normative architectural values' (Till 2005: 23), it is the main field of operation and the support of the public end-users is crucial. These situations are more dynamic, unpredictable and continuously changing according to the nature and context of the project. This, moreover, implies that architects will need skills that enable them to comprehend the cultural and social aspects of their society and create strong connections between those aspects and their designs; hence the need for representatives of the public within its frontiers (Abdelmonem 2012).

On the other hand and in response to professional practice and market demands, the design studio has become more oriented towards mimicking the professional. The student's intellectual position within the wider theoretical discourses has, as a result, become a second priority behind the supremacy of professional skills of communications, drawings and representation. The apparent lack of active learning is best emphasised by Creig Crysler's (1995) criticism of biased architectural education as a *"transmission model" of pedagogy, where students are trained as a unitary body removed from ideological and material forces that influences their individuality as humans with different perspectives.* Students, according to Crysler, *are dealt with as empty containers ready to be filled with "unmediated transmissions of skills and information as delineated by experts".* Prue Chiles rejected the growing desire for students to be an undifferentiated body of professionals armed with a corpus of marketable skills; in her terms '*CAD Monkeys*' (Architect's Journal 2008).

Progressive deep learning methods are argued to offer students the opportunity to illustrate and reflect on different cultural experiences, ideologies and lead to the production of self-driven and initiated models of knowledge-generation. The studio agenda becomes a venue for different possibilities and diversity of unpredictable outcomes. Driven by those polar positions toward the mission of the studio, this essay interrogates such a cultural and social venue as space for inquiry that addresses exploration, analysis and the search for spatial language. It further reports on experimental strategy and empirical

work on active learning techniques. It argues that when students are given opportunities to explore and use their own experiences and cultural knowledge, creative and diverse ideas are the expected outcomes.

Creativity versus reproduction: Deep learning in perspective

Learning architecture is deeply rooted in the cultural and social context of each school within which architects are trained. Knowledge starts with uncovering notional understanding of the built-environment, components and dilemmas. The British Curriculum of Architectural Education is aligned to the attributes of the Architectural Registration Board that specify a range of skills, awareness and abilities that are required in an architectural graduate. It is designed to progress in complexity and creative experimentations across the three years of undergraduate and two further years of postgraduate courses. The undergraduate course starts with building knowledge and applying basic skills, developing into deep understanding and creative assemblage, and ending up with an intuitive position demonstrated through comprehensive design tasks (ARB Criteria 2011). Central to this process is awareness of the concurrent challenges in urban and rural conditions, socio-economic aspects of buildings and understanding how to deal with '*the effect of changes in trend, fashion, priorities and ideologies*' (Teymur 1979: 7).

Rigorous and structured as these requirements may appear, there is much flexibility to allow each school to curate a distinct agenda and sometimes embedded ideology that govern its own courses. However, all schools seem content with the conventional system of design studio that is built around the idea of 'learning-by-doing', as first introduced by the Ecole des Beaux Arts in Paris in the 1890s, and remains the prominent tool until today (Henderson &Till, 2000). In many accounts it is *'a practicum, a virtual world that represents the real world of practice but is relatively free of its pressure, distraction and risks'* (Schon 1988: 5). Design projects are the chief device of such learning-by-doing activities that progress in scale and complexity, each achieving gradual development of skills.

Peter Blundell Jones (1996: 68) rejects the application to architecture of such structured education that creates what he called the 'bucket' approach to learning, which '*implies passivity in the recipient. He or she is supposed to suck up knowledge like blotting paper, accepting not only the given facts, but also the patterns in which they are structured*.' As a field of creative thinking and strategic positions, Architecture does not lean to direct application of standard rules or formulas, which could be right and wrong, correct and false. Subjectivity is inherent and '*Objectivity is unachievable*' (Blundell Jones, *ibid*.) While scientific knowledge and practical applications are equal components of the student's learning process, Donald Schon (1984: 2) gives priority to the latter over the former, referring to architecture as the process of making things. He prefers the low-status practitioner to the high profile scientist.

Necdet Teymur, in his paper '*Learning by learning*', has made comprehensive criticism of this notion and the project. He sees this approach of imitation as immature attempts to turn schools into architectural practices on one extreme, or train architects without a *'critical and rigorous reference to the industry for which they are trained*' (Teymur, *ibid*.: 12). In line with Teymur's argument, Ömer Akin (2002) criticized precedent-led studios and the easy route of reproducing the past, through skillful imitation in new forms. According to Akin, Knowledge disseminated in the studio is often packaged in sets of precedents or generalizations drawn from a limited number of instances and not from basic principles. *'These precedents are very often past solutions to specific design* problems". (Akin, 2002: 408). The extensive use of precedents, in this sense, is a symptom of rigidity that does not address change in real life situations. The study of precedent remains, however, a valuable resource to gain insights into case studies of the creative process of design and to understand how architecture is made of complex layers of work and engagement with technology and materiality. In this sense, it is a technical knowledge or a good contribution to the theory and history of architecture. But, to recognize the duality of such instances, students need to be trained in critical mentality that questions, analyzes and elaborates, searching for alternative approaches not end products.

On either count, problem-solving skills remain crucial to the arguments around design education, in general, but differ in methodical application. Theoretically, they allow students to learn critical analysis,

placing the priorities, conceptual developments, practising creativity and developing skills as embedded and implicit knowledge in a deep learning paradigm. More recently, the design studio is often divided into small group units, led by a tutor or two, whose interests drive the agenda and programme to unconscious towards pre-determined outcomes. The dilemma between tutor preferences and student liberty could be detected in that the former emerges in students' production of certain typologies or design styles. My research equally identified predominant trends in different design units, exemplified by scale, style and references, and in some cases methods of representation, identifying problems with the studio concept when students are 'taught what to like'. Such a conventional model is no longer fit-for-purpose and is insufficient for training architects with the dynamic mentality necessary for coping with rapidly changing situations. Inquiry-based tasks that allow for independent as well as collaborative intuition and engage with the reality of everyday problems and conditions seem more relevant to students being trained as active learners.

Inquiry-Based Studio: Challenging the top-down teaching culture

Each school of architecture demonstrates its own line of education through the adoption of a set of ethos and a vision that represents a particular ideology. For example, some focus on the structural and construction as essentially integrated in architectural education, such as Nottingham School of Architecture (Wood, 2006); while socially-responsible architecture is a fundamental aspect of Sheffield School of Architecture (Blundell Jones 2008), the intelligence of digital design represents the basic character of what is termed the London School approach. These agendas have profound and underlying influence on the character of its graduates that is more overreaching than the mere choice of a course of study. Operating at Sheffield University (2007-2009), the leftist ideology was quite dominant and with emphasis on feminist and humanities theories, while community-based design briefs and projects are main items on the project menu. The reliance on social architecture and its capacity building approach was, however, criticized as utopian and idealistic in that it imagines architects as heroes who '*save the world*'[4]. According to Jeremy Till, the then Head of School decides the school ethos and agenda that translate into appointing similar-minded tutors, directing design projects, association with community groups, and stakeholders (Till 2008). While advocating a bottom-up approach, the vision remained authoritative and did not tolerate different approaches and at times did not make sense to students, who consequently had to leave.

During individual interviews with students and focus group discussions conducted at Sheffield School of Architecture (2007-2008) and Queen's University School of Architecture (2010-2011), students expressed confusion about the purpose of design assignments, finding their objectives ambiguous. They, however, appreciated tutors' broader knowledge of references, precedents, materials as a measure of their knowledge. Students suggested that flexibility, open mindedness, talent and experience are qualities they search for in good tutors. Moreover, students are thought to value tutors who have won design competitions as role models for successful designers. In return, tutors' subjective judgment on buildings, elements or urban patterns cultivate a culture of followers and admirers of their critiques. Tutors use comments such as "interesting, innovative, attractive or unpleasant, uncomfortable, closure, etc…" to instil examples of excellence and success that drive such perceptions and perspectives. At times, the interviewees declared their lack of understanding of these coded messages in their earlier years, but came to recognize them more profoundly through repetition and experience with each tutor.[5]

Carlo Argan emphasised that '*When one designs, consciously or unconsciously he is attached or detached to the existing typologies*' (Gulgonen & Laisney 1982: 27). These typologies constitute particular modalities and discriminate against less favourable alternatives. Implicitly, this denies the student access to broader knowledge that covers those alternatives and subsequently denies the chance to make informed choices. So, despite the initial sense of liberty in the studio, choices are quite limited. To '*succeed to design'*, students would reflect on successful precedents, make selective choices on style, materiality, and complexity framed in conceptual propositions. However, to *'design to succeed'* would mean critical understanding of why models, typologies and precedents were successful in the first place, studying their conditions and contexts, rather than their images. In this sense, architectural studios

became experimental labs where students need to be exposed to different approaches and experiences. The imposition of styles that do not match the personal desire of some of the students may affect their creative mentality. Whatever tactics they choose, students' progress is under the direct or indirect influence of their tutor's perspectives and mentorship, as passive receivers.

Design juries are formal venues that evaluate student projects whose form and mechanism differ from closed panels to the open forum of discussions. The Crit, in this sense, is a ritual yet transparent event that is designed as a 'rite of passage'- a process of critical insights that celebrate creative thinking diversity but also in reality can make or break. (Anthony 1991: 12) Hence, students take note of what tutors and jurors appreciate, dismiss, engage with, or against, helping them to foresee preferences, criteria and understand positions of those judging their work. According to the infamous architectural critic, Michael Graves, '*Juries are an extraordinary teaching tool because not only can you debate the work, debate the student, but you can debate your colleagues on the faculty as well. And the students can, in return, debate the faculty. That in itself is a great gift that we have in this field-when the language used by the jurors is understood. The juries that are difficult for students, however, are those where jurors speak a private language, where a faculty member might, in all candor, say "I like it' or "I don't, and I can't tell you why." This is not going to do anybody any good*.'[6] (Anthony 1991: 188)

Several models of alternative praxis have emerged in the last decade to alter these settings and offer more serious tasks with real clients, stakeholders and community groups, yet the crits were of more celebratory than of examinational format. Ruth Morrow's work with first years at Sheffield School of Architecture (2000-2003) was built around this strategy: '*to keep alive the memory of being the ordinary user*', concentrating on the house and home as the main territory of investigation and design (Blundell Jones 2008:92). She introduced the users, clients and community groups as real people in the studio. Morrow's approach of '*Creative engagement of reality*' was based on the assumption that 'architecture as a social process' was an inventive method of challenging the rigid dominance of the tutor's voice and authority. It turned the studio into a '*Game without written rules*' where the staff knew the rules but the students '*could only discover them by breaking them and being criticized*' (Doidge et. al. 2000: 110). In fact, this transforms the educational model into "learning by not doing", building inquiry and criticality as essential parts of the learning process that supersedes the critical view of the tutor. Early introduction to real world problems has two sides; first, it helps to understand and appreciate architecture as a user and not as a systematic professional; second, it informs students' perception towards the built environment and allows for being critical about what architects produce.

From Passive to Active: Students as learners

> '*Young students need to develop conscious, explicit theories of the cognitive and social processes needed for learning. Such awareness can enable them to engage in reflective conversations about the nature, purpose, and utility of these processes and to thereby come to understand them better, use them more effectively, and improve them*'.
> (White & et al. 1999: 151)

In response to such unbalanced conditions and to help students to develop social awareness, metacognitive expertise should be facilitated to encourage inquiry learning and collaborative work as means to gain intelligible learning and development of thoughts (White & et al. 1999). At the core of this process is creating active and exchange environments and communities that embody positive and progressive approaches to learning (Okada & Simon 1997). White's argument, above, suggests that in their early years students can easily develop a sense of learning, and can diversify the levels of communication, argument and reflective thinking based on their interest. Hence, design tasks have been oriented towards engagement with real clients in what is becoming known as Live Project. First hand exchange of views and discussion with real clients, (versus virtual ones in the normative design studio) was a process of training on public communications, negotiations and awareness of everyday life realities and contemporary challenges. Yet, it has its limitations with regard to the development of the students'

cognitive processes as interactive learners. Students' pre-knowledge and experiences could contribute significantly to their learning processes, according to studies in other educational fields (Butler 1999). This is handled through interpretation of socio-cultural contexts, which enables students to come up with innovative designs that are grounded in first hand experiences rather than seconded by tutors with preconceived typologies.

The use of theoretical debates and research as initiators of design intuition works as an active group production of knowledge and as a predesigned collective research activity with clear vision about the nature of the outcome. This organization builds on the 'reciprocal teaching' strategy, which has dramatically improved the student's comprehension as well as observational skills. In the workshop format, students were at liberty to explore resources and material of their choice as the medium of inquiry (Sheffield 2009). In a later experimental version, Year 3 students were asked to choose a textual material to correspond to their contextual analysis of a design project (Queen's University, 2013), and write a one-page pre-design statement about their position towards architecture as a practice. In both instances, students needed to construct views, reflect ideas, and present individual perspectives, that were independent of their tutors and discuss them during peer groups. Every essay includes a point of reference that represents the student's vision. This develops throughout the course of the project evolution to instil design ideals and own character.

However, such a proposition raises certain issues for serious consideration and debate. One strategy is to allow for student-led reviews to gain more weight in the evaluation process. This is a familiar approach of 'self and peer-assessment' which, according to Nicol and Pilling, helps students to develop their skills for lifelong learning (Nicol 2000). Although this serves to assess the outcome of the process, rather than liberating the process itself, it remains a serious attempt to balance power politics within the studio. Students will then learn that their own experiences, as active citizens, are rich material to bring novel vision and discourses to tutorials. When applied in first year studio at Queen's University (2010-2011), students were first given 10 minutes to discuss their peers' projects and raise questions and observations. Participant students were able to depict several of the fundamental issues similar to those given by tutors, while it served the purpose of raising confidence in their course and what criteria to use for evaluations. Other strategies, including student-led workshops that depended on the students' input and contribution, were also used. A project in which students served as agents for real clients in the city, mediating their demands and interpreting their requirements, followed with a refined format. In the latter format, designers are not allowed direct contact with the clients, but only ask their peer-agents, who report back to the clients.

The experimental workshops and projects helped students to understand the dynamics or real-life challenges, needs of clients, and how to assess and reflect on proposed designs. From the pedagogical perspective, as a cultural and technological artifact, architectural students should engage more effectively with cultural context and social reality and the only agency for that is their own everyday life and experiences. The design studio should no longer act as an isolated universe inside which students are trained as industrious professionals in isolation from the reality of their daily social world (Abdelmonem 2015).

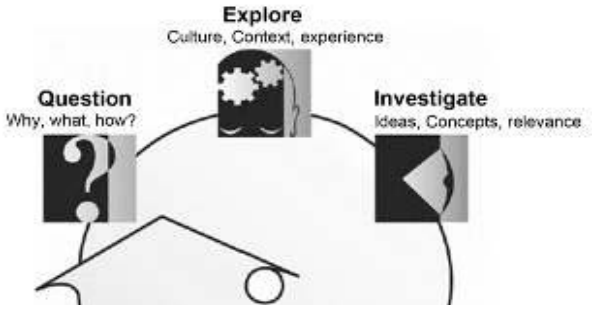

Fig. 2 The Inquiry-Learning Cycle in Architectural Education
(After White& et al. 1999: 154)

Interactive learning in action: Creative thinking workshops

Student-led activities aimed to test whether or not students' creative contributions to design ideas could be more diverse and unpredictable in the absence of the structure imposed by their tutors. What would happen if students could be empowered to become the source of knowledge? What are the gains if we flip the situation and use the students as informants, while tutors become elaborators and enhancers? This would hypothetically be progressive in the creation of a liberal and creative design environment driven by the student's interests. It would intertwine personal interest with academic training to provide, according to Craig Crysler, more engagement between the *human* and the *student* in the cognitive sense of the *interactive Learner*. In short, they need to be producers of knowledge rather than its consumers.

While Spiro Kostof defines architecture to include social, economic and political imperatives (Kostof 1977), Hannes Mayer, once the head of the Bauhaus at Dessau, defines it as a process of giving form and pattern to the social life of the community (Worthington 2000). Within such a strong relation between architecture and its context lies the provoking idea that conceives the human being as an informative resource for the architect within. This strategy suggests that uniting 'the personal' and 'the professional' would enrich and empower the process of training a creative, open-minded and socially engaged architect. As a result, a workshop utilizing inquiry-based learning initiatives was planned on the basis of using a real situation as a starting point for the acquisition and integration of new knowledge, denoting students as interactive researchers who channel their personal interests and knowledge into design research.

Small group workshops, in this context, prove a more effective tool in generating active communications, brainstorming, knowledge exchange and effective engagement that traditional lecture or design studio situations could not offer[7]. A similar, but more explorative setting was proposed for Second Year undergraduate students to focus on the design of a home, helping to envision the way society is organized around the notion of living and its traditions and rituals [27]. It aimed at cognitive processing of personal and common background to generate initiatives and thought provoking concepts. Soon after, other workshops were introduced to Year One students. The workshops in the first and Second Year at Sheffield School of Architecture were followed by more advanced creative thinking workshops at Queen's University Belfast, where students focused on understanding the role of architecture within the peripheral Northern Irish context. This involved issues of rurality vs. urbanity, ethnic and sectarian division that dictate urban and architectural discourse in the region. The workshops, in this case, confronted socio-political conditions that offer insights into own understanding of the built environment.

To put this strategy into action, certain pre-requisites and factors were instigated about the suitability of these activities to anticipated objectives: a. Students' level of study and appropriate subject; b. Type of projects that could relate to the students' previous knowledge and experience; c. How to relate the desired knowledge to the immediate context; d. How to make this workshop interesting enough to get the students involved actively; e. the way the workshop outcome could effectively inform inventive design approaches.

a. Book of ideas: Interactive production of knowledge

Based on an earlier experiment with Second Year students, working in small groups of 20-30 students and involving discussions and interrogation of home environments, a refined form of student-led workshops was developed. Initially, the workshop was split into three parts and was three hours long in total. It started with an introductory presentation to address the topic and its principal ideas, followed by an open discussion forum. During the second part, students were grouped into fives, and given a particular aspect to look at, investigate and explore. The third part comprised the review: students were to present their discussions to their colleagues - examiners. While the tutors were invited, they were to be no more than observers, not participants. Materials and examples across cultures and history were used to address the diversity of knowledge and its resources. Moreover, there were defined aspects for students to research and discuss across space (location, culture, language) and time (past, present, future). Students gave feedback in favour of more flexibility and freedom in the workshop: with which many students were not familiar. They particularly appreciated the variety of content, ideas and the interaction, branding it as relaxed and thought provoking. They did, however, find it quite vague, lacking in conclusions, specific detail and visual examples. They reflected the need to be prepared and to bring materials into the discussion.

Building on this feedback, the workshop was reconfigured into a set of prolonged activities that utilized inquiry-based learning initiatives, based on *the principle of using real-world problems as a starting point for the acquisition and integration of new knowledge* [28]. The refined format is based on autonomous research activity of each student: who needs to interpret his/her own cultural resources and experiences into a very limited text to present to his/her colleagues [30]. Students are free to utilize the source material they think suitable for the topic they discuss. Each student is requested to submit a single A4 sheet of critical and concise essay/text which presents his/her understanding of the topic through the investigated material. Every essay should, typically, include one picture (visual) that represents the student's view/used material. The material could be a book, a journal article, a movie, a painting, a statue, or a photo. Neither examples nor references were given. The essay-paragraph had to communicate why the selected material/space was relevant to the student and how it expressed the process of contemplation. Students were divided into sets of 25 for workshops, within which, groups of five students/groups were assembled. Every student was given one minute to speak about his/her selection and the rationale behind it. Then, groups swapped A4 sheets and analyzed different aspects through which students' materials addressed the notion of contemplation and shelter. At the end, every group presented their analysis of peers' work and the authors were given the chance to challenge/debate these analyses.

Workshop Summary

Fig 3 Students working on context analysis at Queen's University (2010)

Fig 4 Book of Ideas: a Workshop Output and Summary book. Sheffield School of Architecture (2009)

Discussions and debate were inclusive of a wide range of resources and concept-generative examples. With around 65 students attending, there were 65 different ideas and examples that crossed geographical sites from India and China in the east, to Norway (north) and England and the United States (west). Spaces explored ranged from recycled oil can structures, recycled bottle envelopes, spaces of infinity, drainage pipes as a resource for children and natural landscapes (trees, and gardens) as respite from the congestion of modern life. The range of products, critically and arguably, addressed the majority of contemporary architectural discourses, yet was produced by first year students with limited architectural knowledge (Figure 4). At the end of the workshop all student sheets were collated to form the *Book of Students' Ideas* that included their individual sheets, photos, and group discussion pin-ups. A hard copy of the book was kept in the studio for frequent consultation and a digital copy was loaded onto the course online resources. Anonymous investigation confirmed that students had frequently consulted it throughout the project, and their tutors had perused its contents. Having such a student-produced reference book contributed to the diversity and broadness of their visual and conceptual resources. The book summoned a range of influences, ideology-free, interactive research and communicative tasks and activities that helped students explore their cognition of spaces and people's experiences of those spaces.

b. Theoretical Encounters: creative thinking and the search for own architecture

The notion of inquiry-based learning focuses on '*learning stimulated by inquiry and driven by research problems*'. It is a '*structured inquiry*', where the author provides an issue or problem and an outline for addressing it. Following experimental workshops in SSoA and at Queen's University, a progressive approach was adopted in the graduation studio at Queen's University Belfast in the year 2012-2013, introducing Workshops on Theoretical Encounters, where students were required to elaborate on their inquiry into architecture and offer a concise and short essay to reflect their ethos into the practice. Tutors were largely observers and students debated their texts with their peers. Such an inquiry-based model

has defined the scope of studio for the North Irish Coast, a context that was alien to students' previous studies. Portrush here emerged as an important but peripheral setting to test and intrigue the students to respond to their inquiry about own position, response to constraints, context and character. It was a radical revisit to the mission of the design studio that tests the practical implementation of the inquiry-based studio that culminates in a full cycle of production, in which architecture and design are fields of investigation, debate and creative processes.

Hence, the task becomes a move towards deep understanding of what makes and what is behind architecture rather than how it is produced. Interactive Learning in this respect benefits from a semi-structured agenda; first, to prepare the students for more open, self-motivated discourse, in which the studio becomes a balanced setting and students get more ownership of own work and decision making as the initiator. Second is to encourage collaborative work and peer discussions, where students engage with and benefit from each other. According to Groat and Ahrentzen (1996), due to the overwhelming impact of the design studio, students' experience of its pedagogy is central to understanding their interpretations of architectural education as a whole. In planning an inquiry-based studio, fundamental theoretical investigations and analysis are required and students' intuition has to be explored before the design stage kicks off. A Theory Debate was designed to get students to define a text/architect, or approached as a point of reference, with further analysis and justifications. Peers are there to comment and reflect in a student-dominated forum. Throughout the design stage, this inquiry remains the point of reference. Integral to their design and presentation to the public, their own spatial language has been explored, developed and reached a point of reality. Reporting on their designs, students must make a case for their building as a statement for architecture, using their theoretical as a measure of progress or change.

The result of this project was a published book*, Portrush: Architecture for the North Irish Coast* (Ulster Tatler, 2013), where students' theoretical statements were compiled with selected elements of their design projects. Being an edited volume, it reports on the studio as a design inquiry into the socio-cultural Environment in Northern Ireland[8], of which Students are authors and contributors of Knowledge, not only by providing design drawings, but also, offering research-based textual contents that make the case for research-driven design education.

The way forward: Architecture and interactive participation in Learning

On the level of design outcome, students were able to provide a relatively wide range of concepts and developed designs that were in line with the diversity of resources exhibited in their book of ideas. While the design programme and sites were similar in several student groups, designs were diverse enough to be categorized under a few principal ideologies or conceptual orientations. Final designs ranged from integration with existing natural context to design of sustainable structures and consciousness of the importance of material. Most importantly, what was remarkable was that most of the projects addressed the experiences of the users as a central aspect around which their projects were developed. At the students' cognitive thinking level, testing suggested that practically-based strategies were informative in terms of allowing them the space to relate their autonomous reading of cultural and social contexts, which has benefited their learning and practice of architecture. In this respect, students' struggle to initiate innovative ideas, as reported in first and second year students' interviews, could be replaced by deep understanding of the mission of design as integral to everyday life and reality. Students are more interested in exploration and discussions than in listening to lengthy lectures or even watching a customized display of images, videos or buildings. In line with recent challenges and agendas for higher education, it has become a realistic target to revisit the current studio setting.

Fig 5 a. Model study of user-centred experience of a steam room in a proposed design for a Public Bath, by Colin McCleland; b. another Proposal for an innovative approach to the same building typology by Hayden Allen. Both projects are based in the Northern Ireland City of Portrush.

In reflecting on the impact of the workshops, tutors confirmed that students have become more confident, critical and thoughtful about what they propose or draw on paper. Students, on the other hand, were more explicit about how the new format helped them to discover the relevance of design tasks and architecture in general to their personal knowledge and everyday life experience. Having creative thinking workshops and meetings at the beginning of a project empowered less confident

students to be more adventurous and brave in pursuing innovative ideas to learn and develop their own approach without a sense of shame. There was an evident rise in autonomous, diverse and broader conceptual approaches, and a student was awarded the Bronze Medal of the Royal Society of Ulster Architects in 2013.

Architects struggle to situate themselves between two polar characters; architect as a *creator*, or architect as a *collaborator/facilitator* who draws on existing constraints and condition in everyday life and experiences. Similarly, Architectural education is facing similar partition. Do we teach students to be the sole creators, or as creative thinkers and strategists who elaborate on contextual conditions as grounded in users' and subsequently their own experiences? In the former, the architect is like a surreal painter in being the one who knows the meaning behind his creation (Lefebvre 1991), leaving others to make their own interpretation[9]. The latter, on the other hand, means the product is a group effort, a process, in which the architect is more like an elaborator.

The architectural studio context has been rich and inclusive of many social, educational and political contexts. It is the place where implicit and explicit knowledge are exchanged in the one-to-one tutorial process. While the studio is considered the place of implicit knowledge, it is criticized as the place where beliefs, attitudes, ideologies are transferred from a teacher to the student in a way similar to the master-apprentice relationship in old craftsmanship (Doevendans et al. 2002: 55.) The process of design practice, itself, is found to have great influence on the end product of a design project. Tutors direct discussions, references, project development and knowledge in certain directions using their professional skills, knowledge and experience.

'Is there such a thing as design knowledge?' Brian Lawson asked in *What designers know*, in an attempt to uncover the complexity of knowledge, expertise and practice that come into play in the design studio (Lawson 2006). There is a high level body of knowledge, according to Lawson, that facilitates the emergence of architecture. For Reyner Banham, it is a 'Black Box'; that is, a secretive profession, yet to be decoded (Banham 1996). While no prescriptive knowledge contributes to its production, the design process is attributed to a cognitive process that generates within the mind but mediates a broad range of processes that involve critical analysis, creative thinking and processing data; contextual or non-contextual. Throughout these inquiry-based workshops, during which tutors were sidelined, students proved their ability to generate and extend resources and ideas beyond the range expected to be promoted by their tutors. However, direction from tutors became crucial to help them develop these ideas into meaningful and accomplished design outcomes. This correlates, although indirectly, to the diversity and innovation that became visible in the final design presentations. Finally, students' interaction, learning environments and social engagement within the studio have considerable and lasting impact on their confidence and communication skills: both of which are crucial elements in improving their skills for independent learning in their post-university professional development as independent architects and learners in the long term.

New challenges and continuous changes in the professional requirements of being an architect are continuing at an unprecedented pace. The skills of independent learning, communication and self-motivation, are essential to future architects. Encouraging interactive learning in architecture will motivate students to operate outside the secure, closed box of rigid and prescriptive courses and push them towards more explorative, diverse and creative social environments. Changing or altering a deeply rooted system is not an easy task to accomplish and not to be undertaken in haste. To introduce flexibility and change within an educational context, different cycles of study, testing and modelling need practical investigation, testing and development. Attention should also be directed towards the student's personal development as a knowledge-seeker and as a researcher rather than information-holder. This disposition is essential to innovation and creativity in architectural education.

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Notes

[1] See for example: Schneider & Till, *Beyond Discourse* (spatial agency)*;* Harris*, Everyday Architecture; Dutton, Cities, Cultures and resistance* (socio-spatial practice)*.*

[2] During an Interview with Jeremy Till which took place on 11th April 2008 as a part of the interviews with studio tutors of the School of Architecture at the University of Sheffield

[3] Cambridge Dictionary of American English.

[4] The expression used by one of the interviewees in justifying the role of the architect within his social arena, and he refers to such criticism by other architectural schools, especially those based in London, which seems to be taking the opposite direction to this ideology

[5] Small group discussions were run at the department of architecture under the course "Reflection on Architectural Education", where students in the first and second years reflected on their studio sessions and their tutors.

[6] Michael Graves is one of the most famous architects of the second half of the 20th century and is a professor of Architecture at Princeton School of Architecture in the US.

[7] Interview with a second year coordinator at Sheffield School of Architecture, UK, during February 2009.

[8] In Northern Ireland, this is a particular concern, as political influence infiltrates the design of buildings and architectural practice in terms of character, style and even accessibility. Castle Court Shopping Mall and the University of Ulster's new campus are two such examples in Belfast.

[9] See Charles Jencks' exploration of different interpretations through critiques of Frank Gehry's Guggenheim Museum in Bilbao (1993-7), in which the building was seen by some as a fish, artichoke, or mermaid. Everyone tells their own version of the building. See: Jencks, *The iconic Building*. p9