Architecture Live Projects
acquiring and applying missing practice-ready skills

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ABSTRACT

This study concerns itself with examining the degree to which Live Projects can deliver learning experiences that enable architecture students to gain specific professional practice-ready skills and capabilities currently perceived to be lacking within the existing school curriculum - *(1) collaborative interaction within and between inter-disciplinary teams, (2) participatory engagement with clients & civic concerns and the (3) capability to manage emergent ambiguities in risk exposure & decision-making – and as a consequence examine (4) how embryonic Live Project assessment rudiments might contribute to this acquisition?*

Architects are under increased pressure to demonstrate the value of their contribution within the process of building design and construction. They are tasked with working effectively in teams, collaborating effectively with clients and end users and to cope with growing levels of risk and liability, uncertainty and ambiguity, often requiring greater creative leadership and commercial risk-taking in order to succeed. The need for architects to acquire three skillsets to cope with these conditions imposes changing expectations around the architect's role in practice and places increased pressure upon schools of Architecture to ensure their students are equipped with gaining these skillsets. The question emerges as to whether a less-established teaching model – Live Projects - might be able to deliver skills that will not only respond to, but also endure the ongoing changes within professional practice? And if so, in relation to what skillsets?

In contrast to other research enquiries concerning Live Projects and literature concerning architectural education in general, this thesis gathered evidence from a highly diverse range of sources – including data on emergent economic and industrial trends outside of the construction sector - as a means to define what the most valuable skillsets might be.

For schools of architecture, the specific challenge is to not only to work out how to teach these skillsets but to design and then assess learning activities that facilitate and reward their acquisition. Subsequently, this thesis also examines whether tentative assessment rudiments can play an enabling role in this respect.

Within a broader learning theory context, this enquiry supports a wider body of emergent evidence that Live Projects offer learning experiences consistent with much of the literature regarding effective pedagogy - one that involves authentic and active engagement with real situations being more effective at enabling learning more relevant to the nascent demands of wider industry. Subsequently, the main question being considered – as reflected in the title - is:

To what extent do Live Projects enable the acquisition and application of three 'practice-ready' skillsets?
This question is then operationalised by examining this efficacy in relation to four sub-questions.

1.   To what extent can Live Projects enable students to acquire inter-disciplinary teamwork capabilities?

2.   To what extent can Live Projects enable students to acquire client collaboration & civic engagement capabilities?

3.   To what extent can Live Projects enable students to acquire ambiguity tolerance & risk management capabilities?

4.   To what extent might Live Project assessment rudiments assist in the acquisition of the three skillsets?

In order to answer these questions, the enquiry employed qualitative as well as quantitative data collection methods. The qualitative evidence largely utilised grounded theory methods and analysis as a means to examine the perceptions of educators, architects and students. This involved the discovery of theory through the analysis of data and real world research, which focuses upon problem solving with a view to creating meaningful change. The mixed methods approach relied upon triangulation as a means to cross-examine evidence from the different data sets and to strengthen validity. The themes relating to the missing skillsets were then inter-related to highlight any interdependencies and to ensure a rigorous level of analysis and abstraction. Findings in relation to each skillset were isolated within focused chapters.

Mixed method or 'multi-method' analysis - involving a series of matrices - was used to compare both quantitative and (selected sections of) qualitative data. In line with practice-based research methodology, an extended and iterative period of data gathering and analysis allowed the researcher to consolidate observations regarding the acquisition of specific skills in both an academic as well as a practice context to consolidate into a concise set of learning concepts. The thesis subsequently used these learning concepts to define tentative assessment rudiments. The samples chosen for this study were situated in two distinctly different contexts; in practice and in education: encompassing architects, trainee architects, students and educators both with and without Live Project experience, to enable a clear set of variables for comparative analysis. The samples were also drawn from both the US and UK – a useful consequence of research funding in terms of providing quantitative data and comparable cohorts. These insights were then used to tentatively explore practical ways the acquisition of these skillsets could be assessed.

The conclusions of this study identify that Live Projects can enable students to acquire the three skillsets due to their ability to offer experiences that more closely align with professional practice. However it also pinpoints specific contingencies such as ensuring Live Project success is measured in terms of processes and not just outcomes - and - that keeping Live Projects as non-compulsory, extra curricula options or adjuncts to more established teaching models allows them to retain their inherently flexible, adaptive and responsive nature. Whilst there is general view that a lack of formal acknowledgement of Live Projects within the curricula-validating infrastructure of RIBA & NAAB has contributed to a collective sense that Live Projects are undervalued, the evidence suggests that the opposite is true – that Live Projects do have the ability to meet the criteria for validation extensively and effectively and can make the validation criterion more accessible and meaningful to students – and - because Live Projects encompass a hugely diverse range of projects by their nature of being holistically responsive to a set of site and community specific circumstances – assessment rudiments (rather than a design brief) might be the only unifying criteria.

Given the current crisis in underemployment and the rise of the unpaid internship, these capabilities are of increasing relevance and value. Furthermore, it is transposable skills – which all three of the skillsets are – as opposed to those that are exclusive and unique to architecture – that are most likely to best serve students in future, whether or not they choose to become professional architects. Traditional subject specific skills are undeniably important, but transposable skills deserve greater emphasis and investment given the economic reality of finite resources and demands for greater user participation. Finally, for architectural educators already engaged in or initiating Live Projects, this thesis provides theoretical as well as an applied-knowledge framework to draw from, encompassing a practical as well as passionate advocacy for their wider implementation.

The researcher wishes to thank

For Rudyard, Huxley & the others…

PART ONE: THE ENQUIRY

Chapter One
The Live Project Impetus: Drivers of change in the twenty-first century School of Architecture

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1.0 Introduction

The experience of engagement will become the pathway to a fresh interpretation of the 21st century. This conception rests on the rethinking of the core of the academy, namely, the nature of scholarship itself. (Judith Ramaley, 2005, p.175)

This study investigates the assertion that Live Projects – a form of proto-practice training can deliver learning experiences that enable architecture students to gain specific, professional practice-ready skills and capabilities currently perceived to be lacking within the existing architecture school curriculum. It begins by considering what skills seem most crucial to practicing architecture in the twenty-first century, drawing evidence from a diverse range of sources from within and beyond architectural education. What this chapter then considers is the extent to which these sources emphasise the need for emergent architects to work collaboratively between and within inter-disciplinary teams, to increase their engagement with clients and address wider civic concerns and to more effectively manage emergent ambiguities in risk exposure and decision-making.

The hostile professional context into which students of architecture are graduating – where architects fees are falling and students are increasingly expected to work for free (Wilding, 2012; Winston, 2013, Mark, 2013) - has forced a literal and philosophical 'reevaluation' of the practical as well as economic 'value' [1] of architectural education.

This chapter begins with an examination of the drivers for change acting upon architectural education. Specifically, it considers which skillsets are considered to be vital yet either absent or ineffectually taught from the perspective of industry.

1.1 Drivers for change: the external forces acting upon architectural schools and the operational context of the researcher

1.1.1 The industrial impetus

Determining the role of architectural education is increasingly a team activity, involving educators, professional validators, higher education quality assurance standards and architectural professionals. Trying to find or even agree the answers to the most fundamental questions regarding skills and knowledge, content and assessment has long proved

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[1] I use the term 'value' in the pluralist sense – which understands 'value' to be not only concerned with utility (in this case, the remunerative utility of a paid-for education) – but with value creation and non-monetary rewards (such as public well-being,

challenging. However, the case for changing the current curriculum to enable students to acquire professional, 'practice ready skills' (RIBA Building Futures, 2009) comes from industry, where a beleaguered profession and high graduate unemployment provide the most compelling evidence for change. As educators we are inevitably concerned by the lack of capacity of the architecture profession to offer graduates 'rewarding' employment, and forces the question; what exactly should we be preparing architecture students for? A fifty-fifty chance of a job? Unpaid internships? Isolated hours as CAD jockeys? A lifetime of long hours and poor remuneration? (Fisher, 2006; Cuff, 1991, p.4; Borson, 2010; Fees Bureau, 2009; Hopkirk, 2012; Saint, 2003). Or should we instead be preparing them for the industry by training them to acquire market-responsive skills in collaborative interaction between inter-disciplinary teams, participatory engagement with clients and civic concerns and the capability to manage emergent ambiguities in risk exposure and decision-making? [2]
As one practice director explained in a recent trade industry journal;

My own education prepared me for a fraction of the challenges that I face as an owner of a practice. A more rounded, more streetwise, savvy, service industry–led education would have been better than the esoteric, niche, quasi-monkish, introspective and frankly very expensive time I spent in la-la land. (Fulcher, 2013)

1.1.2 Drivers of change: the practice view of education

There is an established tendency for some practitioners to emphasise the failings of school-based architectural education to produce '21st century professionals with the right set of skills' (Building Futures, 2009; Nicolson, Nicol and Pilling, 2000, pxv11; Buchanan, 2012). However, many educators argue that the role of the school should instead focus upon creating, 'critical thinkers equipped with the sensibilities and skills to become architectural-minded problem solvers' (Ford, 2003, p.76) whereas many others struggle to define specifically what can be better learned in school than in practice (Polanyi, 1967; Eraut, 1994). In the midst of a recession, the debate over whether school or practice is responsible for acquiring key students takes on a new kind of urgency. Given the fact that practices are failing to sustain the established mode of practice as the role of the architect becomes increasingly transient and mutable, schools of architecture will inevitably find it difficult to set curricula that keeps pace with these changes. Similarly, practices lacking the kind of commercial

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[2] Stanford Professor of Sociology, John W Meyer argues that, 'It is generally understood that training people for jobs goes on most successfully if the training is linked closely to the job.' See: Meyer, John W (2006) (Professor of Sociology, Stanford), in the foreword to: Frank, David. D. John and Gabler, Jay (2006) Reconstructing the university, pp xi, xii)

capabilities needed to adapt and survive need graduates who can bring these skills with them. Addressing this issue should be the priority of both schools of architecture and the profession, but it is important to examine which skills are best acquired and in which context.

1.1.3 Drivers of change: learning in practice

The question of whether schools of architecture schools should be primarily responsible for teaching specific skillsets cannot be answered without reflecting upon what we expect students to learn during their period of compulsory, practice-based experience too.

In July 2012, the popular UK trade journal, Building Design reported that a recent survey by RIBA appointments and Newcastle University found that 79% of employers and 82% of students felt that more time should be spent learning in practice (Wilding, 2012, p. 5). The implication is that there is a collective ambition to increase the opportunities for students to learn under 'live' conditions. The reality of working in practice for a Part I or Part II student calls into question whether practices are actually able to give students the kind of learning experiences they seek (Quinn, 2003, p.4, Boyer and Mitgang, 1996, p.115). Students often claim that their Practical Training Year(s) are spent doing repetitive and isolated tasks, most typically trapped within a CAD cycle of production information and detailing, as the now ubiquitous phrase 'CAD monkey' (UK) or 'CAD jockey' (US) implies (Quinn, 2003, p.41). As practices struggle in the recession, the specter of unpaid internships has grown, rendering meaningful practice-based training, an elusive 'holy grail' with only one third of graduating students gaining placements (Fulcher, 2012). Although it has been argued that, 'it is the role of the profession, not the academy, to educate young architects to the realities of the profession,' (Ford, 2003, p.76) the profession apparently lacks the resources, skills or the will to do so. Instead, practices insist schools should be teaching 'real world' skills emphasising the acquisition of practical rather than theoretical expertise (Mars, 2015). This situation places increasing pressure on schools to provide learning experiences that address the shortfall in current practice-based key RIBA Workstage training (RIBA Plan of Work), pushing 'live' learning opportunities to the top of many schools' agendas.

1.1.4 Drivers of change; collaboration and interdisciplinary teamwork, client and civic engagement

Following on from the creation of the Architects Registration Board – in essence an independent arbitrator of architectural professionalism- the Latham (Latham, 1994) and

Egan reports (Egan, 1998) critically examined the role of the architect in relation to the public and also as members of the construction team. Both reports identified a shortfall in skills that this thesis examines in detail. Firstly, they identify a shift in the expectations of clients in relation to the role of the architect. The Latham report was strongly informed by the views of clients and both reports emphasise the importance of 'focusing upon the customer' and collaboration with clients as well as end-users; in other words those who inhabit the wider civic that architects are deemed responsible for (Kasim, 2007, p.2). Secondly, both reports criticise the ability of architects to work effectively in teams. Since architects are required to work both within and between teams, this has implications for a broad section of professional practice (Egan, 1998). For example, architects work within practice teams and within construction teams (which are interdisciplinary), but they also work between teams, for example in collaboration with client groups, sub-consultants or end users. Furthermore, the ability (or lack thereof) of architects to work within and/or between diverse teams becomes more acute with the rise in the number of multi-disciplinary design practices. Indeed many commentators identify this as an upward trend (RIBA Building Futures 2012, pps: 12, 13, 28, 29, 3; Allen, 2012; CBI, 2011). In terms of where this 'up-skilling' should take place, the Egan report maintained that the delivery of these improvements needed to be embedded within architectural teaching, in order to better enable a 'culture of teamwork,' within practice (Nicol and Pilling, 2000, p.2).

Part of the RIBA's response to the Latham and Egan reports was to commission the Burton report to establish a strategy for change entitled, 'Strategic study of the profession: The way forward,' (Burton, 1992) whose subsequent iteration was entitled, 'Constructive Change: A strategic industry study into the future of the Architects' Profession' (RIBA, 1992; White and Morgan, 2005). Both papers reinforce the concerns identified in the preceding Latham and Egan reports, that architects are not generally seen as good listeners, communicators or team players, (Nicol and Pilling, 2000, p.4) views which were upheld by many architectural commentators as well as a number of practitioners (Oppenheimer, 1998, p.52; Diver, 1995; Spence et al., 2001; Macmillan, 2007; Pressman, 2007; Blundell-Jones et al, 2005).

Furthermore the Burton report also emphasised the need to, 'reexamine what education ought to achieve from a client perspective,' (RIBA, 1992) implying that clients should be consulted when determining architectural curricula. Finally, the Constructive Change report argued that; 'The profession is perceived as having failed to capitalise on its core capability by not creating the range of skills needed to meet the demands of the modern construction

industry' (White and Morgan, 2005, p.9) recognizing that the responsibility for meeting this shortfall should be shared between both schools and practices (White and Morgan, 2005, p.10).

1.1.5 Drivers of change: law and liability and the missing skills of ambiguity, uncertainty and risk tolerance and management

Exposure to risk, litigation and uncertainty are established hazards of the trade in the practice of architecture (Greenwald, 2011; Imrie and Street, 2009). The UK's 'Part III' period of professional practice training goes some way to preparing aspiring architects for the challenges of running a practice but practitioners often argue that it is hugely insufficient in preparing them for running a successful business in an increasingly competitive market context (RIBA Building Futures, 2012, p.10, p.16).

Students are also keen to acquire these skills and are also anticipating careers where they will be expected to work 'outside the narrow definition of architecture', (Case, 2012; RIBA Building Futures, 2012, p.16) indicating their openness to what that might entail. How to develop 'ambiguity tolerance' and the commercial and professional benefits of doing so has been examined and theorised with the field of Business Management, providing accessible and compelling data. In brief, some of the benefits include: greater levels of personal and professional organization and psychological resilience, (Apter and Desselles, 2001) creativity (Kirton, 2004) and cross-cultural communication, intercultural competence and leadership capacity (Wilkinson, 2006) and also a predisposition towards 'generative', 'adaptive' learning and expertise (Bessant, 2005, p.38; Schwartz et al, 2005).

Architects in possession of 'risk governance' capabilities, would be better enabled by, 'a conceptual as well as normative basis for how to cope with uncertain, complex and/or ambiguous risk,' (Renn et al. 2011) which is undoubtedly a skill worth having in the current economic climate for any professional. This is particularly important given that an architect's relationship to risk is not limited to one of individual or practice exposure, but the expectation is for architects to manage their clients' risk effectively (Building Futures, 2012, p.26).

Business MBAs commonly have modules on risk management as an essential part of the curriculum. However, even with the best of intentions, architecture schools cannot necessarily be expected to pack an already broad and demanding curriculum with even more content,

particularly when there is a possibility that the UK training period for qualification – typically 7 years in duration – may well be shortened under EU imposed rules aimed at ensuring parity between member states. [3] To equip students with the ability to cope with ambiguity gives them the capacity to respond well to the current and forthcoming changes and avoids creating quickly-outdated curriculum obligations that are not sufficiently responsive to market trends.

1.1.6 Drivers of change: The Higher Education Institution impetus

As well as having a profound impact on the practice of architecture, the recent global recession has resulted in significant changes within the education sector, changes that pose formidable resourcing challenges for schools of architecture. Overall however, sector change long preceded the recent recession. In 1999, the UK government's Department for Trade and Industry published a report that stated, 'over the last two decades the university sector has undergone a paradigm shift from being a provider of teaching to a producer of learning,' (Skolnik in Thorne, 1999, p.52) encompassing shifts in both pedagogy and the resources needed to deliver it. As Professor Robert Mull, head of The London Metropolitan University School of Architecture puts it, 'within this... reality, there are opportunities and threats,' (Mull, 2011, p.3) and he identifies that the financial pressures have become the catalyst for, 'a more fluid relationship' between the architecture school and the student (ibid). How this more affordable model of 'fluidity' will be delivered in practical terms is certainly open to interpretation. Subsequently Mull encourages a 'preemptive approach,' in terms of the methodologies, administrative structures, assessment methods and responsibilities, that will need to be developed in order to enable this transition (ibid). Other commentators stress an urgent need for schools that are, 'detached from the ferment of epochal change [and] failing to engage with current critical realities,' to instead focus upon developing, 'a new, more fully human paradigm that engages with society and culture' (Buchanan, 2012).

Despite the somewhat polemic assertion that universities are entirely detached from these 'key issues', many have been working upon their commitment to engaging the 'human paradigm' as part of what is increasingly referred to as Community University Partnerships (Cox, 2012). Originating from Healthcare programs in US universities, CUP's were created to enable students to extend their learning opportunities beyond the membership perimeter of its

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3 The Bologna Agreement seeks mobility enabling parity across EU members architecture programs. The current proposal is to make UK architectural education align with the 5-year model prevalent on the continent. See: http://www.wg.aegee.org/ewg/bologna.htm [last accessed, 02/01/2015]

itinerant student cohort and out into the clinic or community context in which the institution sits (Holland et al, 1998). Similar to the world of private enterprise, universities face increasing pressure to act as conspicuous, 'social problem solvers,' (Boyer, 1998) by becoming more transparent in revealing their alignment to value creation in relation to broader social values and concerns. Indeed, it has been argued that it is the universities, not the banks that are the true, 'engines of growth' in the UK economy - an accolade that reflects the greater commercial competitiveness now expected within the sector in general (Starkey, 2012; Anyangwe, 2012). Subsequently, many universities are actively seeking models of learning that are community engaged and/or situated, and are therefore likely to be more open to enabling architectural educators to develop more socially responsive forms of design teaching. The difficulty facing universities however is that community engagement and partnership are almost entirely disregarded by the international 'quality' ranking systems which are largely focused upon the research (Schuetze, 2012). The challenge within community engagement programs within any discipline is that there are, 'few quantifiable indicators which could be used as proxies,' (ibid) to ensure consistency in the 'methodologies and assessments' that Professor Robert Mull referred to earlier.

1.1.7 Drivers of change: The operational context of the researcher

The description of these impetuses driving change in architectural education are by no means an attempt to devise a compendium. Instead, they are pressures that have been discerned through the experiential lens of the researcher – positioned within an institution as opposed to in practice, and whose daily preoccupations concern the delivery of nationally recognized teaching and learning criteria, rather than the critique or reinvention of it [4].
Yet, what is also noted is that within the seven years since the researcher was in practice (transitioning into full-time academia in 2009) the situation for architects has become notably more difficult (RIBA, 2010). From 2003-2007, the researcher ran a small practice called Design Heroine Architecture [5], a start-up business that focused on public participation in architecture and the co-creation of innovative and responsive spatial projects and design research publications. DHA also specialised in developing 'participation prototypes,' for a diverse range of public and private sector clients. We defined ourselves as niche market – a fact that was recognized by winning a creative pioneer start up funding award from NESTA

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[4] I refer here to the RIBA Criteria for Validation, 25 July 2011 – required by all schools of architecture wishing to hold accredited status.

[5] A more detailed account of the work of Design Heroine Architecture can be found on the practice blog-archive: http://designheroinearchitecture.blogspot.co.uk/ Last accessed, 30/12/2014

[6] – because few architecture practices at the time were explicitly concerned with getting the public to creatively and equitably contribute to the design process [7] focusing instead on consulting (rather than collaborating) with the public, allowing them to only select from pre-designed design options. During our time directing DHA, we felt we were operating on the periphery of the architectural 'establishment': comprised of a range of 'planet' practices orbiting the RIBA. This was reinforced by our largely public sector or charitable trust-based clients, as the bulk of our commissions came from public arts or more diverse design agencies rather than businesses or organisations within our 'own' field. This gave us the impression that 'innovation' in architecture was largely understood as material or form related rather than concerning new business models that widened public participation with and value of the built environment. DHA 's focus on pioneering and prototyping models of client engagement as a means to address civic concerns meant that through the course of everyday practice, the researcher observed first hand how most architects that worked with DHA generally seemed to lack skills in this area.

After transitioning into academia, the work of DHA was directly brought to bear on the researchers teaching practice – in both a mandatory and well as a discretionary program capacity. For example, within Design Studio, the brief required students to focus on redesigning public services with a requirement to design for communities in need. Within history and theory modules, lectures included participatory design methods, and civic projects. In terms of discretionary (non-compulsory) activities, the researcher set up and ran several projects involving collaborations between public sector organisations, architecture students and often students from other disciplines [8]. These projects gave students the chance to work in diverse, interdisciplinary teams, to work with real clients and to also take risks in coping with project challenges, requiring them to take leadership in identifying novel solutions. [9] Furthermore, the pincer movement of managing a masters program and daily teaching responsibilities and pursuing a doctoral research enquiry conflated the two activities. Whereas the original intention was to produce a thesis concerned with architectural expertise and its potential to impact on other sectors, the researcher took the decision to shift the focus from

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6 NESTA – The National Endowment for Science Technology and Art is a government funded initiative designed to fund innovation within the UK creative sector. Source: http://www.nesta.org.uk/about-us. Last accessed, 30/12/2014

7 Since the founding of Design Heroine in 2003, the book and online database resource, *Spatial Agency* (2011) has mapped a wide network of alternative forms of architectural practice. http://www.spatialagency.net/

8 In chronological order; Cultural Olympiad Live Project: collaboration between Diploma Architecture and Fine Art BA students (2010), DS2 Placenomics – six Live Projects involving UK architecture students (2011), Ping Pong Pavilion, an international design collaboration between architecture students at Montana State University and Oxford Brookes University (2012)

9 The pedagogic terms associated with these kinds of activities are discussed in more detail in Chapter 02.

practice to school behaviours - a pragmatists epiphany - in terms of meeting both obligations simultaneously. Arguably bringing together teaching and research turned a logistical challenge into a mutually enriching set of outcomes (Brew, 2013, p.xi). [10]

During the course of the PhD enquiry, a range of different activities and awards informed and arguably influenced both the trajectory and outcomes. In total, six different awards were used to resource the enquiry [11], two of which required several months' travel and then a 5-month residency in the USA. The US specific awards were contingent on making USA architectural education a focus of the enquiry, and provided a useful comparative cohort with UK education. The UK awards assisted in funding seminars and resourcing some of the teaching activities that were used as case studies. These are discussed in more detail in Chapter 5, Participant profiles and research methods.

The researcher therefore approaches this thesis as an observational enquirer, with a less than callow familiarity — on a practical and not just a theoretical academic level of the subject of study. Subsequently, in summarizing the impetuses considered by the researcher to be driving change in architectural education three general areas of concern for architectural educators begin to emerge:

1 – the ability of architects to work in more complex, interdisciplinary teams is of increasing importance (Vandell and Lane, 1989; Robinson, RIBA Building Futures, 2012, p.5).

2 – the ability of architects to serve the needs of an increasingly diverse society, within a wider context of greater public demand for more ethical and socially responsible professional behaviour (Spector, 2001, p.36 (Kasim, 2007; Spector, 2001,Burton, 1992; Eraut, 1994; Till, 2011).

3 - the ability of architects to cope with increased levels of risk and liability, uncertainty and ambiguity within everyday practice (Imrie and Street, 2009; Greenwald, 2011; Building Design, 2008).

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10 As Brew (2013) argues, there are multiple good reasons for bringing together teaching and research, including as a means to, improve 'the quality of the learning experience' (x) and, 'enhance the motivation of both academics and students' (ix)

11 Oxford Brookes Associate Teaching Fellowship (2010-2012) Winston Churchill Memorial Trust Traveling Fellowship (2011), 2012 Higher Education Academy (HEA) Internationalisation Award, Santander Staff Development Award and Santander Scholars Award (2013), Higher Education Academy HEA Seminar Award (2013).

From the perspective of an educator wishing to ensure that their programs do more than meet validation criteria, understanding what graduates need to know, not only to be employable by practices but also to lead tomorrow's sustainable practices seems of vital importance. This raises the question of whether the RIBA/NCARB validation criteria sufficiently direct school curricula towards prioritizing students acquisition of vital skills.

1.2 Drivers for change: criticisms of the current model of teaching

Despite increasingly vociferous criticism (Marr, 2015), undergraduate architecture students have one of the most richly diverse, academic experiences compared to other students. The established understanding of discipline specific knowledge is that there are five groups: natural sciences, formal sciences, humanities, social sciences, professional and applied sciences (Figure 7). Notably, it is clear that architecture curricula actually traverse all five of the disciplines, sub-disciplines or subject areas, offering students a potentially unrivaled spectrum of disciplinary knowledge and processes. One might assume that this broad exposure enables students to gain skills that could be applied to multiple professional contexts, far beyond the field of architecture. Yet, it is possible that the price of broadness is brevity, and students fail to gain deep and authentic expertise in relation to one or two, more important skillsets. Subsequently, the time for an appraisal of whether we are still teaching relevant skills and of those we teach, which should be prioritised is even more pressing.
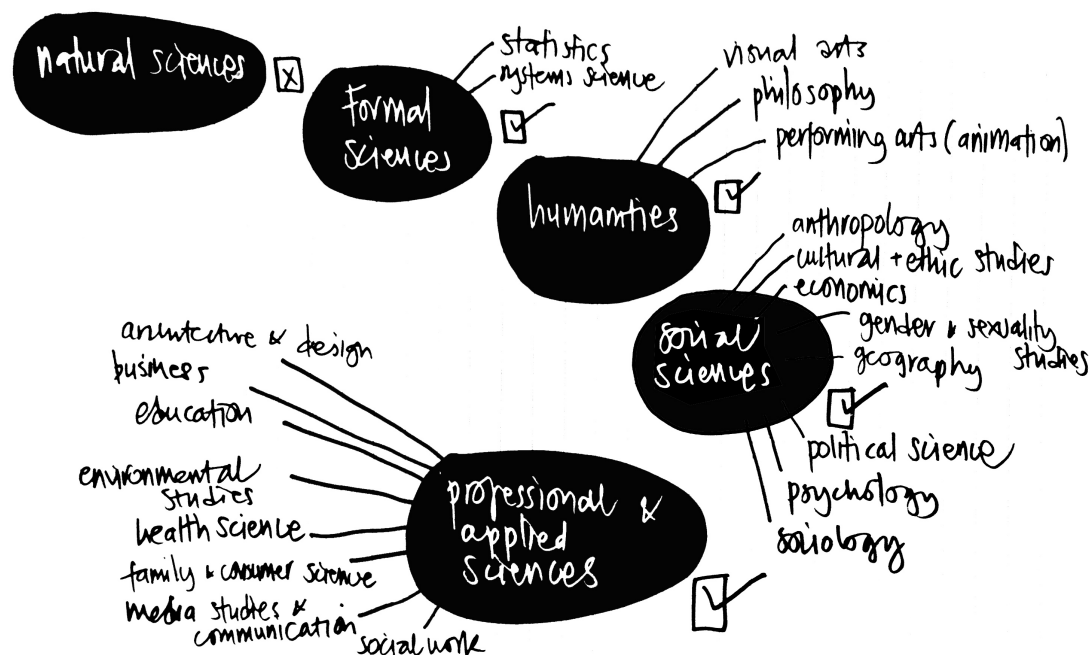
Figure 1: '*The Chaos of Disciplines*' **(Abbott, A', 2001)** Authors own illustration, derived from **Abbott, A., 2001; Oleson, A., Voss, J., 1979)**

Design Studio is the main component through which architecture is taught in the academy, a fact which is reflected in the greater weighting given to its associated outputs – typically the design portfolio (Webster, 2005)[12]. Consequently, much of the scrutiny of whether architectural education is able to address emergent or even long standing skill deficits inevitably involves focusing on what Design Studio does and does not succeed in teaching. Despite a 30% reduction in staffing within schools of architecture since 1988, (Milner, 2003) architectural educators have fought to maintain the tradition of the day long, small group intensive, Design Studio model of teaching. The inception of the Design Studio as the preferred vehicle for architectural training reaches as far back as the seventeenth-century stonemasons, (Smith, 1983) whose model of in-practice, apprenticeship-based architectural learning was superseded by the emergence of the 'academe,' where access to the 'core principals' and 'professional knowledge' of architecture became more exclusive (Alexander, 2008, p.4; Till, 2011, p.11-12; Chafee, 1977, p.69). Despite this, the master and apprentice relationship persisted as each studio continues to be led by a tutor or pairings of tutors whose experience of practice validates the ability of the studio's methods, processes and outcomes to be applied in the real world. Although the erudite capacity of the Design Studio has subsequently served to perpetuate its prevalence as the main learning vehicle for producing

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12 Within the researchers own institution – Oxford Brookes University - the proportion of assessment weighting for Design Studio in both the undergraduate and post-graduate programs is approximately 70% of the overall mark.

practice-ready architecture graduates, (Schon, 1984; Boyer and Mitgang, 1996, p.xvi) it has not been without critics nor has it avoided subversions.

Design Studio seldom affords students much opportunity off-campus, community-engaged learning (Holland et al, 1998) [13] the current Design Studio refers to both a model of teaching and a slice of campus real estate, which presents a unique problem for the campus location and provision currently afforded Architecture Schools. The Design Studio retains the status of where the greater proportion of teaching, learning and assessing of aspiring architects takes place. In a resource-strapped university however, all disciplines are likely and even expected to feel the squeeze on space and resources. Yet the possibility of appropriating what many institutions regard as an abundance of exclusive yet often under-populated Design Studio space may provide the impetus needed for universities to demand that schools of architecture expand their off-campus, community engaged learning provision.

Given that Design Studio retains much of the characteristics of the 'atelier' system established in the L'Ecole Des Beaux Arts 300 years ago, (Salama, 1995, p.39; Milner, 2003) a complete departure from this model of architecture teaching would be a radical move. After all, for any model of teaching to survive this long, seems indicative of its efficacy. Yet, before exploring whether the Design Studio characteristics of integrated and applied learning (Boyer and Mitgang, 1996, p.85) can prove effective when delivered within a community situated context, it is important to consider whether Design Studio is an enabler or an obstacle in ensuring that architecture students acquire the skills that are considered vital yet elusive.

<u>1.2. 1 The limitations of the Design Studio model: collaboration and teamwork versus the primacy of the individual</u>

Design Studio teaching continues to overwhelmingly emphasise what UCA Architecture and Planning Professor Dana Cuff describes as the 'primacy of the individual,' (Cuff, 1991, p.45 and p.121). According to Andrew Saint, 'individualism was [sic] so vital a part of the prevailing ideology,' that it has resulted in the emergence, 'prima-donna art-architects,' (Saint, 1983, p.154). This message has continued into practice with 'community architecture ….the attempt to teach students how to consider and consult the 'secondary' clients – users, passers-by, neighbours and society as a whole,' as, 'a threat to architects' (Crinson and Lubbock, 1994,

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13 Students are usually set a 'real' site upon which to base their speculative design proposals, but these rarely involve real clients or end users. The only other off-campus experience is likely to be the field trip – which usually involves a trip to a study site in a different country but the emphasis is upon engaging with the material culture rather than the people who inhabit it.

p.176) This is best characterised by Ann Rand's architect-narcissist, protagonist Howard Roarke in her novel, Fountainhead (Rand, 1943; Saint, 1983, p.66). Roarke is a man who, 'pursues at all costs his vision in the face of society's mediocrity,' (Cuff, 1991, p.3) a man who refuses to lose his architectural 'integrity' through collaborating with his clients or engaging in the even-more-terrifying activity of compromising or collaborating, because, 'artistry was associated with individualism' (Saint, 1983, p.66) Although it could be argued that this is a rather extreme characterization, there is evidence that many architects feel that, 'prostituting goals and standards is commonplace, consider their career, 'as a giant compromise.'

'How different, they to themselves in retrospect, than what they imagined when they first put pencil to paper in the Design Studio' (Lewis, 1998, p.34). Yet despite this crucial disparity between the reality of practice and the Design Studio it is this 'myth of the autonomous architect hero,' (Cuff, 1991, p.3) that Design Studio deliberately perpetuates, and not the ability to demonstrate the missing skills of collaboration and teamwork upon which this study is focused.

1.2.2 The limitations of the Design Studio model: community engagement and addressing civic concerns

One of the basic assumptions of architectural training is that it enables students to emerge from a program of learning not just as graduates but also as 'professionals'.

Although what characterises 'professional' enabling pedagogy is covered in Chapter Two, the word itself proves problematic for practitioners as well as educators. As former RIBA President Paul Hyett argued over a decade ago, 'the conditions for delivering a professional service…are becoming ever more elusive,' (Hyett, 2000, p.10) and this ambiguity persists. Sociological definitions of professionalism involving checklists of perceived or claimed characteristics (altruism, self-governance, esoteric knowledge, special skills, ethical behaviour, etc.) became less fashionable in the late twentieth century. [14] In terms of the defining characteristics of any professional, each is expected to have reciprocity between society and individual purpose, earning social status in exchange for honesty, trust, responsibility and accountability. This is enshrined within both the RIBA code of conduct, that requires members to, 'act with honesty and integrity at all times,' (RIBA, 2005) [15] and in the ARB Code of Conduct that states, 'Architects should only promote their professional services in a

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[14] Assuming Wikipedia to be the author of universal meaning: the definition of 'professional': http://en.wikipedia.org/w/index.php?title=Special:Searchandsearch=professional%3Bandprofile=default Last accessed (03/06/2014)

[15] RIBA Code of Conduct, Principle 01: Integrity (2005)

truthful and responsible manner' (ARB, 1999) [16]. However, is has been more recently and effectively argued that, 'architects conflate professional codes of conduct with an ethical stance,' (Till, 2011, p.171) and that a new, more ethically, socially and civically engaged and less 'uneasy' professional needs to emerge (Building Design, 2012; Spector, 2001, p.9). The general assumption is that schools are responsible for developing these new, more civically and socially engaged professionals whose commitment to the core principle of authentic professionalism – that of public service – should be embedded within the teaching programs offered and extended beyond the mere acquisition and application of a 'liberal knowledge base' (Spector, 2001, p.36). In order to do this, schools need to offer real time or, 'authentic learning tasks [that] develop professional competencies,' (Nicolson, et al, 2000, p.11) and position clients or users at the heart of true 'professionalism,' (Eraut, 1994, p.5). As Reyner Bannam once argued, to identify, 'the sources of …professional behavior one need to look no further than the space where architects are socialised into their profession, the studio,' (Banham, 1990). Therefore it is the socialising capacity of architectural education that also needs to be transformed.

1.2.3 The limitations of the Design Studio model: ambiguity, uncertainty and risk tolerance and management

Design Studio, whilst loosely modeled on a working studio, '…is intended as far as possible to provide a risk free environment for students to learn and experiment,' (Cuff, 1991, p.106) insinuating that real learning and creative experimentation can only occur if 'risk' is removed. Given the increased levels of risk exposure in practice (Nicolson et al, 2000, p.200; Lewis, 1998, p.32-33) enabling students to develop effective ambiguity management, entrepreneurial capacities could prove hugely invaluable given current state of economic as well as professional uncertainty (Lewis, 1998, p.261). It is therefore apparent that Design Studio is increasingly unable to provide the 'reflective-of-practice' experience for aspiring architects eschewed by Schon's explicit celebration of Design Studio as an exemplary vehicle for professional learning (Schon, 1984, p.79). Instead, Design Studio upholds the dominance of, 'questionable methods' that have prompted the emergence of challenges to these pedagogic practices (Mc Clean, 2008, p.102). Furthermore, many educators feel as sense of responsibility towards, "creating an academic culture where creativity, intellectual rigour and humility all thrive…rather than simply focus upon developing the next generation of starchitects," (Quale and Andrejko, 2008).

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16   ARB Code of Conduct (1999) Conduct and competence Standard 03

As even this short commentary identifies however, there is a range of literature focused upon criticisms of Design Studio within architectural education. Subsequently, a research enquiry that seeks to provide another critique might result in only a limited knowledge gap being addressed. As observed within the concluding part of Section 1.1 – the more intriguing question concerns identifying alternative teaching practice that facilitate the acquisition of elusive yet vital skills. Furthermore, most criticisms overlook one key issue – that Design Studio is principally encumbered with the responsibility of delivering validated curriculum from the approving bodies – the RIBA (UK) and NCARB (USA). Do these criteria constrain Design Studio from delivering particular skills, thereby potentially exonerating Design Studio for its failings in this regard? Or are the validating curricula to blame for not requiring or supporting the acquisition of particular skills?

Finally, in examining the fault lines in the Design Studio model what becomes more evident are where the opportunities for changing and potentially improving Design Studio might lie.

1.3   Drivers for change: the transformation mandate within the validating Criteria of the RIBA (UK) and the NAAB (USA)

For Schools of Architecture keen to pioneer new models of architecture education, - or indeed, for educators seeking to do the same within Design Studio - the architecture curriculum might not be so easily reinvented independent of the professional and peer validating bodies of RIBA and the higher education standards demanded of the Quality Assurance Agency (QAA). Embedded within these mandates are the agendas of The European Higher Education Arena (EHEA), The Bologna Process, UIA-UNESCO and the European Association Architecture Education (EAAE). In the US - where some of the case studies take place and the Design Studio model is indistinguishable from its UK counterpart, (RIBA, 2011; [17] Harriss, 2012; [18] - the National Architecture Accreditation Board (NAAB) and the National Council for Architectural Registration Board (NCARB) performs the same roles as the UK's RIBA in defining what the validating curriculum is. In theory, these criteria are designed to allow schools to set their own agendas in terms of how they meet these requirements. Yet the scope of this creative interpretation of the rules is sometimes considered to be limiting rather than enabling.

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[17]   RIBA Education Department (2011) The RIBA Criteria for Validation, 25 July 2011

[18] Proceedings from Oxford Brookes Architecture Live Project Symposium, (Thursday 25th May, 2012)

Scrutiny of the RIBA, NCARB and NAAB criterion identifies that whilst desirable skills ('graduate attributes') are listed, there is no mention of the learning vehicle through which their acquisition should occur. In theory, this should amount to a mandate for educators to interpret the curricula framework in different ways, and experiment with progressive teaching models. This lack of specificity could even offer schools the kind of 'nimble' flexibility and freedom needed to just as go as far as to specialize, just as any pioneering architectural practice might (Till, 2011, p.164) [19]. But why then do most schools offer similar learning models? If the role of any validation criteria is, '…to be an agent in a process that is increasingly nimble, inclusive and evidence based,' (Caruso and Vanky, 2008, p. 425) then surely alternatives to Design Studio are likely to be more proliferous than many might imagine? Whilst limitations evidently exist, it is evident that the validation curricula cannot be wholly blamed.

If - as the evidence suggests - the RIBA and NCARB criteria endorse the acquisition of specific skillsets that also align with the nascent demands of practice, this then places the responsibility upon schools to address the skillset shortfall. This provides a mandate for schools to facilitate and support emergent forms of architectural teaching, as a means to not only 'preempt change,' (Mull, 2011, P.3) but perhaps to lead it. For some education commentators, 'the not very good architecture of our era and the not very good teaching in our schools [that] maintain a symbiotic stranglehold,' (Alexander, 2008, (p.3). Many therefore feel that there is still a need to innovate rather than stagnate architecture curricula to respond to twenty-first century practice demands.

1.4 The thesis opportunity: the Live Project as an effective alternative?

If the prevalent model of teaching architecture might not best enable students to acquire specific skills, what other models might do so? Furthermore, if the literature on architectural education is principally concerned with Design Studio, a meaningful enquiry would need to involve primary research into the most popular or emergent alternatives. Within the constraints of the educator-researcher obligations however, these live case studies would need to be achievable within an established teaching program. In other words, even if the validating criterion seem to permit if not explicitly support alternative learning formats – any experiments with alternatives still need to align with the ambitions and obligations of the researchers host school. This immediately established a bias – since exploration of more

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19 'What practice really needs is nimble ways of thinking.' (Till, 2011, p.164)

'radical' or progressive alternatives cannot be achieved. But this constraint also highlights an important assumption - that improving the current architecture education system needs a radical alternative, when the solution might instead require only subtle tweaks or adjustments to what exists already.

1.4.1. The discursive phenomenon influencing the formulation of a research question

As outlined in section 1.1.7 the researchers own teaching practice has consistently featured adjunct, non-compulsory projects. Self-reflective scrutiny of the researchers motivation for doing this highlights key concerns. Firstly, even as a student the researcher was involved in projects that involved working on non-mandatory, off-campus construction projects [20]. The reason these activities were pursued was due to the researchers principal motivation for choosing a career in architecture in the first place - because I had understood architecture as being fundamentally concerned with people – a socially and civically - rather than commercially - focused profession.

As an educator – who joined academia when Higher Education could still be considered part of the public rather than private sector [21] - the researchers own learning disability had informed an understanding of how meeting the needs of the more diverse learner can be aided by setting assignments that involve learning by doing – in essence kinetic, practical, tactile, problem-solving in three-dimensions. Because running these kinds of learning experiences within a campus environment proved difficult, the researcher established projects that offered these opportunities – requiring extra work outside of mainstream teaching obligations. These assignments fall within the bandwidth of an increasingly popular model of architectural education known as 'Live Projects,' incipient definition needs a more than cursory consideration.

1.4.2. Introducing and defining the Live Project

Whilst the history of Live Projects is examined in Chapter Three, a working definition of a contemporary Live Project can be distilled from a range of sources as featuring:

- Client and/or community engagement (Sara, 2004, p.5; Chiles and Holder, 2008, p.

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[20] Constructing a 1:1 scale 'phenomenological folly 'in Wales as a BA Year 02 Live Project (1998), building a community clinic (timber frame , stone and adobe) with the Nepal Trust in the Himla region, NW Nepal (1999).

[21] As Julian Conan argued in his Oct 2014 Guardian article, England's universities have been privatised by stealth, and face the same profit pursuit obligations of commercial sector organisations (Conan, 2014)

1; Watt and Cottrell, 2006, p. 98)

- 'Liveness' or real world activity (Watt and Cottrell, 2006, p. 98,

- A social or ethical element or commitment (Charlesworth, Dodd and Harrison, 2012)

- Collaboration and/or teamwork with other students, tutors and stakeholders (Sara, 2004, p.5; Anderson and Priest, 2012).

- Operating largely outside the academy (Sara, 2004, p. 133; Watt and Cottrell, 2006, p. 98; Harriss, 2012, p.1).

- Featuring elements of uncertainty and ambiguity (Sara, 2004, p.5)

What is also noted is that no definitions appear to commit Live Projects to a built outcome, although some involve producing a built structure. Furthermore, as Chiles and Till observe, Furthermore Live Projects can, 'vary enormously from place to place," (2011, p.2) which means that identifying points of comparison in terms or process or outcomes ban prove challenging.

Perhaps one of the most important observations concerning the accepted definitions of Live Projects can be made in relation to the one put forward in Rachel Sara's Live Project PhD (2004). As highlighted below, Sara's definition places emphasis on activities that closely pertain to the enquiry's preoccupation with three specific skillsets:

'Live Projects are a type of studio project which is distinct in its engagement of real clients or users...resulting in students producing something that is of value to the client/user group,' [client collaboration and civic engagement], *'…which might range from ideas, feasibility reports, or to a completed design scheme, a construction or other intervention.'* [inter-disciplinary processes], *whose remit is, 'typically worked out in collaboration*, [teamwork each other and the community] *..and is externally focused, which, 'introduces a contingency* [ambiguity and uncertainty] *to the projects, which makes Live Project work stand apart from the necessarily more abstract projects of the traditional Design Studio (Sara, 2004, p.5).*

Finally, it is noted that the terms and themes used to describe Live Projects – for example the emphasis on community and client-engagement, collaboration and teamwork etc. - resonate with terms used to describe effective pedagogy in different disciplines. In other words, pedagogy that involves authentic and active engagement with real situations is considered to be more effective at enabling learning. Examining the pedagogic integrity of Live Projects

from outside the discipline of architecture – specifically from the field of educational theory – is considered in Chapter Three: Section 3.5 *The Pedagogic integrity of Live Projects.*

1.4.3. Measuring Live Project efficacy

Determining which skills Live Projects prove effective at enabling students to acquire involves examining how skills acquisition is measured within the projects themselves – in other words, the point of assessment. As suggested previously, specific Live Project activities are context dependent, and can therefore differ immensely based upon the learning outcomes or objectives set by the school, the tutors and in some cases the students and the community too. (Anderson and Priest, 2012) [22]. Agreed assessment outcomes can therefore be similarly subjective. This presents a specific challenge for the research enquiry, since the question then becomes to what extent the three tentative skills sets can be acquired regardless of context, process and outcome contingencies? And were these to be identified, what are the implications for established, contemporary definitions of Live Projects?

Furthermore, the prevalence of, 'outside of the academy' Live Projects, (Sara, 2004, p. 133; Watt and Cottrell, 2006, p. 98; Harriss, 2012, p.1) does not only infer geographical proximity but can sometimes involve a separation from the obligations of achieving conventional 'academic' objectives too. Firstly, the students (and by implication tutors) may find that the needs of the client don't always align with meeting the school curricula, with the clients needs sometimes taking precedence. Secondly, many Live Projects operate as an optional adjunct to the in-school program and do not face the same (accreditation aligned) assessment obligations. This peripheral position can sometimes enable greater creative freedom and influence the way in which the students engage with the project, including setting their own learning objectives (Boud, 1999). With this in mind, the researcher took the decision to use negotiated briefs within the primary research Live Projects (described in detail in Chapter Five), and did not stipulate common assessment outcomes. Furthermore, no summative marks were attributed to the activity. The negotiated briefs required students to take leadership over tutors and in collaboration with clients in determining their Live Project processes and outcomes. The researchers aim in doing this was to see whether – regardless of their context specific proclivities – all Live Projects can deliver the three skillsets – as Sara's Live Project definition identifies – or whether they need to be set as specific objectives.

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22 Assessment outcomes are often set within the, 'negotiation of a brief' (Anderson and Priest, 2012).

1.4.4. The main research question

Subsequently, the main question being considered—as reflected in the title—is:

To what extent are Live Projects effective in enabling the acquisition and application of three, specific practice-ready skillsets?

This question is then operationalised by examining this efficacy through examining each skillset in isolation.
The sub-questions are therefore:

1. To what extent are Live Projects effective at enabling students to acquire inter-disciplinary teamwork capabilities?
2. To what extent are Live Projects effective at enabling students to acquire client collaboration and civic engagement capabilities?
3. To what extent are Live Projects effective at enabling students to acquire ambiguity tolerance and risk management capabilities?
4.To what extent might Live Project assessment assist in the acquisition of the three skillsets?

1.4.5 The original contribution of the research

The research question above defines the specific and unique focus of this enquiry. However, the original contribution that this research enquiry makes to the wider discussion about Live Projects and to the literature concerning architectural education can be detailed as follows:

First, it addresses a specific gap in existing knowledge concerning what are some of the most pressing skillsets that students should learn in school but are of increasing importance to practice – and beyond. The primary momentum for this thesis was a deep, personal concern about the future of architectural education because of its current pathological failures and dysfunction due - in no small part - to traditional educational practices.

Yet, many commentators believe architectural education fails to provide practice-ready, employable students and that skills schools currently teach are distressingly irrelevant. Yet in the researcher's view, the more important question is whether they are relevant for a future

world of practice, which may have moved beyond the construction and instead involve activities within other sectors too. Despite trends discussed earlier, the future remains unknowable. Yet the future's 'unknowability' shouldn't be allowed to be an excuse for curricular inertia – or even laziness. Subsequently, we can be highly confident, however, that some skills are more likely to be valuable and more relevant than others. It is these transposable skills – as opposed to those that are exclusive and unique to architecture - that this researcher chooses to emphasise. Transposable skills deserve greater emphasis and investment given the economic reality of finite resources and demands for greater user participation. This enquiry is the first attempt at building an evidence-based case for a greater emphasis on these skills being taught in architecture school.

Second, this thesis gathers evidence from a highly diverse range of sources – including emergent economic and industrial trends outside of the construction sector - as a means to determine desirable skills for new architects entering practice. This contrast with comparable Live Projects literature, where most of the literature reviewed is drawn from architectural discourse alone.

Third, unlike any comparable literature on the subject of Live Projects, this thesis makes a concerted attempt to straddle the disciplines of architecture and education, using learning theories as both a critical lens and a legitimising criterion, against which to judge the value of Live Projects. This is done through a process of alignment with established and proven learning theories that require a more than basic understanding of contemporary educational theory and literature.

Fourth, the study identifies the limitations of Live Projects, which provides useful insights into why maintaining other learning strategies within architecture programs is also important. Whilst there might be evidence to suggest that the changes facing architectural education might be substantial, it is the researcher's view that it would be false to assume that everything schools teach is fundamentally wrong or fails to prepare students for current or future practice.

Fifth, this thesis contributes to new knowledge by not merely demonstrating how 'Live Projects' methodology creates and contributes to new skills and capabilities but by identifying ways in which meaningful skills assessments could be performed. This thesis has not divorced innovative means from measurable ends but has, in fact, aligned them.

Sixth, and perhaps counter-intuitively, this thesis examines whether many of Live Projects' virtues exist best when they are not compulsory but chosen as exercisable options by students and faculty. Options and their exercise are revelatory of information and value both in finance and architectural curricula. By not making Live Projects compulsory, it is easier and less expensive for them to maintain a level of responsiveness and adaptiveness to market conditions. Ironically, Live Projects may well do best for students and curricula alike as mandatory options.

Seventh, this thesis explores for the first time the relationship between the curricula-validating infrastructure operating in two comparable regions – the UK (RIBA Criteria) and the USA (NAAB criteria) and whether a lack of explicit acknowledgement in the criteria has contributed to a collective sense that Live Projects are undervalued or whether that allows useful, learning model freedoms.

Eighth, this thesis addresses a gap in knowledge by establishing whether enabling students to take greater risks and creative leadership decisions, Live Projects succeed in fostering a culture of professional initiative and the potential for leadership in practice. Given the current crisis in underemployment and the rise of the unpaid internship, these capabilities are likely to be of increasing relevance and value.

Finally, for architectural educators already engaged in or initiating Live Projects, this thesis provides new theoretical perspectives as well as an applied-knowledge framework to draw from, encompassing a practical as well as passionate advocacy for their wider implementation.

1.5 Strategy and methods overview

In order to answer these questions, the enquiry will employ qualitative as well as quantitative data collection methods. The qualitative evidence will utilise grounded theory methods and analysis. This will involve the discovery of theory through the analysis of data and real world research, which focuses upon problem solving with a view to creating meaningful change.

Whilst the researchers potential bias is discussed in 1.1.7, 1.4.1, **and** later in Chapter Four; The Design of the Study, it should also be noted that despite being a 'passionate participant,' (Lincoln, 1991) in Live Projects, the researcher seeks to avoid any unfounded advocacy or assuming a protagonists position in relation to the findings, and that objectivity is of the

highest importance to the study.

The thesis qualifies as 'real world research' (Robson, 2011; Bass, 1993, p.69) because it is concerned with using the findings to increase the levels of understanding about the efficacy of Live Projects in teaching specific professional skills as a response to the current problems facing the academy as well as the profession (Robson, 2011, p.3). The intention is that the findings will emphasise the direct impact on peoples' lives and on evaluating a model of teaching rather than trying to add to it or expand it (ibid, p.4).

1.6 Chapter structure overview

The following section provides an indicative outline of the contents and purpose of each chapter.

Chapter One has provided an introduction to the central issues and positions the study as an urgent response to the drivers of change from practice, universities and the validating boards own criterion.

It identifies how industry and legislation emphasise the growing need for the acquisition of specific skills relating to:

1) Teamwork and inter-disciplinarity
2) Client collaboration and civic responsibility
3) Ambiguity, uncertainty and risk tolerance and management

It demonstrates the relationship between the drivers of change and the framing of the research questions. It suggests a methodological approach and provides a guide to the chapter structure and contents of the thesis.

Chapter Two explores the history and development of Live Projects within the broader context of Architectural Education in the US and UK, linking the skillsets to the wider validating criterion of the NAAB, NCARB and RIBA. It also presents a comparative analysis between the origins of and influences upon both Live Projects and the Design Studio.

Chapter Three examines Live Projects in relation to a broader learning theory framework and

will explore the pedagogic integrity of Live Projects through a process of alignment with existing learning theories. It seeks to understand the apparently peripheral positioning of Live Projects in relation to the campus-situated curriculum and whether this positioning proves advantageous in aligning Live Projects with philosophies that argue that 'border pedagogy' enables a more critically engaged learning experience. It will also consider the latent potential or active contribution Live Projects are making to 'good' pedagogy.

Chapter Four describes the design of the study in more detail, outlining the qualitative research methods that were used for both the questionnaires and interviews and how they specifically relate back to the principle enquiry, as well as their relationship to the theoretical framework.

Chapter Five details the delivery of and response to the study, describing in detail how the different participants engaged with the methods of data acquisition used and the differences and similarities in their responses, discusses the new insights provided during the enquiry, from each of the different research cohorts; architects in practice, students and also educators.

Chapter Six is the first of four chapters where the data focused upon examining and analyzing the primary data. In this chapter, the emphasis is upon examining the extent to which Live Projects are effective at enabling students to acquire inter-disciplinary teamwork capabilities.

Chapter Seven examines the primary data as a means to consider to what extent Live Projects are effective Design Studio at enabling students to acquire collaboration and civic engagement capabilities.

Chapter Eight examines the primary data as a means to consider to what extent Live Projects are effective at enabling students to acquire ambiguity tolerance and risk management capabilities.

Chapter Nine considers the relationship between the acquisition of the skillsets and how Live Projects are assessed. It also critically examines the relationship between assessment, validation and accreditation in light of the primary data: questioning assumptions about their interdependency and examining arguments both for and against assessing Live Projects. It then explores what the implications and applications might be, of a basic set Live Project

assessment 'rudiments'– incipient and undeveloped learning principles [23] for students, educators and the accrediting agencies of the RIBA and NAAB. The chapter concludes by identifying opportunities to deepen and expand the original ambition of this thesis.

Chapter Ten concludes the study by reflecting upon the thesis as a whole, in terms of the design of the study, methodologies and the conclusions relating to the main question. This question being: to what extent are Live Projects effective at enabling the acquisition and application of three 'practice-ready' skillsets? It also acknowledges the limitations and flaws within the enquiry as well as highlighting areas for further research. It considers the potential for the findings to impact upon teaching and professional practice and provides recommendations on both good practice and 'good' pedagogy.

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23 rudiment. (n.d.) Collins English Dictionary – Complete and Unabridged. (1991, 1994, 1998, 2000, 2003). Retrieved February 16 2015 from http://www.thefreedictionary.com/rudiment

PART ONE: THE ENQUIRY

Chapter Two
Live Projects: context and characteristics

2.0 Introduction
2.1 Architectural Education and routes to qualification in the UK and US
2.2 Validating Criteria and the RIBA, NAAB and NCARB
2.3 Validating Criterion and the Live Project: ongoing resistance or incremental integration?
2.4 The origins of the British Live Project
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2.6 Consolidated characteristics: emergent terminologies
2.7 Summary of conclusions

2.0 Introduction

Although Live Projects are becoming increasingly popular, they have a long history under a variety of different synonyms. This chapter examines the evidence from literature of both the origins and current situation of Live Projects in the UK and the USA. As outlined previously, this thesis is concerned with examining the extent to which Live Projects are effective at enabling students to gain specific twenty-first century skillsets—those that are driven by a range of different drivers, drawn from evidence inside the field of architecture but also in light of the recent economic, social and political trends considered in Chapter One. This chapter also identifies that these skillset 'gaps' far supersede the recent global economic shifts and, as the literature review highlights, have long preoccupied educators during the twentieth century. This chapter also features some reflections upon the persistence of established education models of architectural education, of which Design Studio is the most prevalent. This is because understanding why Live Projects are popular relies upon examining what they are attempting to be a departure from or a substitute for. Subsequently, this chapter seeks to

provide vital context concerning how some of the early proto-Live Projects may have articulated an inherent acknowledgment as to the limitations of Design Studio in enabling students to acquire certain skillsets. It is worth noting however, that this enquiry is not structured as an either/or, comparative analysis between Design Studio and Live Projects. As stated in Chapter One, the explicit purpose of this thesis is to consider whether Live Projects are a highly efficient pedagogic vehicle for delivering some of the most important skillsets. Whilst this focus means the efficacy of other models of learning cannot be fully scrutinised, the Live Project limitations that are identified provide useful insights as to why maintaining other learning strategies within architecture programs is also important.

Furthermore, this chapter examines the challenges presented by the validating criterion provided by the UK's RIBA and the US' NAAB and NCARB in relation to validation and accreditation of Live Projects. Finally, it identifies the key points of comparison between UK and US Live Projects as a means to identify their shared characteristics but also, to examine whether one or the other criteria provides a more explicit advocacy for Live Project teaching and learning.

2.1 Architectural Education and routes to qualification in the UK and US

In order to understand and put into context the current drivers of change within twenty-first century architecture schools, we must first begin with a short reflection upon the formation of architectural education in both the UK and US. This thesis focuses its analysis on primary and secondary evidence drawn from two regions, the UK and the US for several reasons. As outlined in Chapter One, the research funding required contingencies involved undertaking a significant proportion of the primary research phase to take place in NYC, USA. Secondly, the majority of discourse is produced by and based upon case studies situated within these two regions. However, Live Projects are increasingly a global activity [1] and the limitations on the available literature at the point of writing give a false impression of their wider proliferation. What is also noted is that there has been considerable cross-pollination between schools in Europe, the UK and US over the last 100 years. In order to better understand both the transpositions and points of differentiation, this chapter therefore incorporates some evidence from European architecture schools.

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1 A fact evidenced by the case studies listed on the Live Projects Network website, which features an open invitation for anyone to list their Live Project activities, regardless of region. Available at: http://liveprojectsnetwork.org/

Architectural education in Britain only began to fully integrate into an academic, university context after the 1958 conference on architectural education petitioned for it to do so, whereas previously more non-academic, skills-based routes were available. Yet it has largely retained its commitment to apprenticeship as enshrined within the Practical Training, where students are required to experience all of the architectural skills outlined in the RIBA Plan of Work [2] and take a minimum (note there is no maximum) of twenty-four months working in practice in order to do it. It has been argued that the US system involved a coupling of both traditions through its commitment to the practical, hard work (upon which the country was founded) aligning with the UK apprenticeship system, and the need to develop national institutions for professional learning – aligning with the traditions of France and Germany (Stevens, 1998).

In both the US and UK, the changing expectations around the architect's role has place increased pressure upon schools of architecture to ensure their students are equipped with relevant skills and capabilities needed to meet the current challenges. Yet as this thesis later details, the majority of UK and indeed many US schools of architecture continue to uphold the Design Studio as the dominant model – as reflected in the greater proportion of qualifying credits and time assigned to it within the curriculum than teaching and learning architecture. The Design Studio model, superseding the in-practice tutelage system (Saint, 1983, p.66), originated in the nineteenth-century Ecole des Beaux Arts architecture curriculum and has endured more or less intact until today (Salama, A., 1995, p.44; Gibbons, 2007; Saint, 1983, p.57; [3] Stevens, 1998).

According to Andrew Saint, 'the American architectural profession commenced more rudely than its counterpart in Britain,' a statement based upon his estimation that only 10% of buildings constructed after the First World War involved architects rather than builders (Saint, 1983, p.72). Saint explains this in relation to the emphasis that American culture places on practical skills, having so essentially required them for the country's early development and that many Americans believe that there is, 'nothing superior about the status and skills of an architect as opposed to a builder' (ibid, p.72). The first American architecture school was founded at 1867 at MIT (ibid, p.76) two decades after the first UK

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2   Available from: http://www.ribaplanofwork.com/ (last accessed, 11/04/2014)

3   Saint identifies that from 1660 onwards there were 2 classes of architect: 'talented amateurs with architectural proclivities' and 'the higher building craftsman.' After 1750, new industrial processes meant that, ' the practical craftsmen became the master builders and the amateurs professional architects.' (Saint, 1983, p.57)

School of Architecture was founded—The Architecture Association—'founded in London in 1847 by a group of young articled pupils as a reaction against the prevailing conditions under which architectural training could be obtained' (Bottoms, 2010). The AA was founded by two recently qualified but wholly disillusioned young architects-Robert Kerr and Charles Gray (aged 23 and 18, respectively)-whose critique of the established system of articled pupilage, 'whereby large premiums were advanced to private architects in return for imparting an education and training,' due to the fact that it was, 'rife with vested interests and open to abuse, dishonesty and incompetence,' was published in the Builder 1846 (Crinson and Lubbock, 1994, p.60). Instead they advocated a system whereby students could develop a systematic course of training (as the state was failing to) which led to the founding of the Architectural Association, some 20 years before the MIT School of Architecture was founded (Ibid). [4] Whilst the AA was founded in 1847, the Royal Institute of British Architects preceded it by over a decade. Founded in 1834 as a professional institute, it created the first compulsory qualifying examinations for members in 1882, with the first, full-time academic course of architecture established in 1895 (Crinson and Lubbock, 1994, p.3). The latter ended what seventeenth- and eighteenth - century architects had experienced as multiple routes of entry into the profession—from the gentry's 'grand tour' to the master builder apprenticeship and tutelage or pupillage routes used by those of lesser means (Crinson and Lubbock, 1994, p.42). This professional mobilisation was—according to Crinson and Lubbock's compendious history of architectural education in Britain—a response to the industrial revolution, with architects responding by using education as a means to limit access to, control and protect their market (Crinson and Lubbock, 1994, p.3).

By the 1930's, the RIBA had achieved near-total control over both education and qualification whereas, in contrast, the American Institute of Architects (AIA) founded in 1857 (Saylor, 1957) had maintained its primary role as a professional members association, leaving education validation to the National Architects Accreditation Board (NAAB). [5] Whilst the NAAB shares similar curriculum-validating capacity to the RIBA, it is not a part of the AIA. In the US, accredited architectural education began in 1897 in the state of Illinois and followed the same regulatory enactment as medicine and law. It moved from a state system to a national system in 1912, via the Association of Collegiate Schools of Architecture (ACSA). [6] The formation of the NCARB—the National Council of Architectural

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4 'Architecture as a University course was first offered in 1869.' (Crinson and Lubbock 1994, p.60)

5 Source: http://www.naab.org/about/naab_history (last accessed, 12th April 2014)

6 National Council of Architecture Registration Boards (2004) 'The History of NCARB.' NCARB (Available from:

Registration Boards—in 1919 was intended to regulate architectural registration across different states (although only 13 participated in the founding meeting that took place during an AIA AGM). [7] In contrast, the UK equivalent, ARCUK—the Architects Registration Council UK—was formed by two acts of parliament ten and twenty years later; the Architects Registration Acts of 1931 and 1938, perhaps a reflection of the US' more tenacious response to the commercial opportunities that professional exclusivity could offer (Crinson and Lubbock, 1994, p.61). However, in 1940 the AIA, NCARB and ACSA elected to create a separate state-wide entity to accredit the schools nationally, known as the National Architectural Accrediting Board (NAAB). The NAAB's founding agreement makes clear a commitment to allow schools with, 'varying resources and circumstances to develop according to their particular needs.' [8] The NAAB describes itself as an accreditor of programs and not schools, suggesting an even bigger commitment to school specific self-determination.

Back in the UK, the 1958 Conference on Architectural Education proved a significant turning point in the education of British architects. The key outputs were a determination to shift architectural education exclusively into a university (and by implication academic) context, which in turn meant understanding the science of buildings (rather than just art). This would mean ending the domination of the L'Ecole Des Beaux Arts tradition, as well as a commitment to research (Crinson and Lubbock (1994, p.152). Whilst the idea of a uniform system had certain benefits in terms of consistency, what it also meant was a further 'retreat into the academy,' (Ewing, 2008, p.122) away from arts colleges, making access to training more exclusive than it was previously. Elizabeth Layton was charged with putting the findings of the Oxford Conference into effect. In her *Report on the training of Architects*, produced for the RIBA in 1962, she criticised the 'remoteness' of students from the realities of architectural practice and also compared the professional learning experiences of architecture students unfavourably with those from other professional disciplines, such as medicine and engineering (Crinson and Lubbock, 1994, p.146).

Whilst the US continues to follow the European model of four-year training programs, the UK has maintained the tripartite system of Part I (BA/BSc), Part II (PG Diploma) —the latter more recently superseded by Masters— and Part III, (professional registration exams largely based upon (contextualizing) professional practice experiences) since it was first

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Last accessed: 12/04/2014

7 National Council of Architecture Registration Boards (2004) 'The History of NCARB.' NCARB (Available from: Last accessed: 12/04/2014

8 Available from: http://www.naab.org/about/naab_history Last accessed: 12/04/2013

founded at the 1887 RIBA international conference on education (Crinson and Lubbock, 1994, p.61). This is currently under review following on from SCHOSA's 2013 report that advocated for a shorter route to qualification and the abolition of the tripartite system, (SCHOSA, 2013; Fulcher, 18-04-2013) bringing the UK more closely in alignment with the US system. Whilst, the 'collateral organisations' (NAAB, 2014) [9] of the ACSA, AIA and NCARB worked together to create the NAAB, it could be construed that the UK had a validation infrastructure imposed upon it. ARCUK (Architects' Registration Council of the United Kingdom) [10] was created by an act of parliament to both protect both the architects and the public against the use and misuse of the title of 'architect'—was abolished in 1993 following on from the Warne Report (Warne, 1993) and replaced with the Architects Registration Board (ARB), operating under the Architects Act 1997, was hugely controversial and wrought such severe criticism on the ability of architects to self-regulate their professional behaviour that the government passed legislation (The Construction Act, 1996) to create an independent regulator, known as the Architects Registration Board (ARB). [11]

What the UK's ARB and the US's NCARB have in common is that they both protect the title of 'architect'. Where they differ is that only NCARB protects the professional activity of the architect—in other words only a qualified architect can offer architectural services. Arguably, this might account for why US architects are better able to command higher fees than UK architects. The ARB is soon to be absorbed into the RIBA due to the widely held belief that it is costly and duplicates the services of the RIBA and due also to a series of high profile errors regarding prosecutions (Mark, 2014). If this goes ahead, this will mean that the RIBA reclaim the statutory maintenance of architects' title register, which it last held in 1932, returning the profession to a position of self-governance that was largely lost as a result of the Latham and Egan reports. At present, education validation criteria are jointly held by the RIBA and the ARB, however the ARB are not involved in any of the validation committees attending schools every four years. The NAAB validation procedures involve teams of at least four individuals representing one of the four constituent organizations of the NAAB: the AIA, AIAS, ACSA, and NCARB (NAAB, 2010, p.53). In contrast, the RIBA send a board of usually four members that includes one 'lay person' (the term used to describe a non-architect), a student member, a practitioner and one academic (RIBA, 2011). Whereas a UK architects journey to qualification is presided over by the RIBA and ARB (although the latter

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9 Available from: http://www.naab.org/about/collateral_organizations Last accessed: 12/04/2013
10 ARCUK Source: http://en.wikipedia.org/wiki/Architects'_Registration_Council_of_the_United_Kingdom
11 (Crinson and Lubbock, 1994, p.61) Formerly these stages were known as 'preliminary, intermediate and final'.

is soon to be dismantled) and involves the tripartite stages, the US route to architectural licensure includes only two—the completion of a NAAB accredited degree program and the completion of an Intern Development Program administered by NCARB (NAAB, 2009).

2.2 Validating Criteria and the RIBA, NAAB and NCARB

In 2013, the RIBA recognised a Live Project amongst its annual awards for student work. However, NCARB regularly and consistently rewards Live Projects with the Creative Integration of Practice and Education in the Academy Prize. [12] Furthermore, the ACSA's Design Build Award is specifically intended to, 'honor the best practices in school-based Live Projects or 'design-build' as they are more commonly entitled in the US,' [13] as well as a Collaborative Practice Award aimed at recognizing, 'programs that demonstrate how faculty, students, and community/civic clients work to realize common objectives.' [14] Interestingly, this award encourages interdisciplinary submissions as well as projects involving participation from professional practitioners. Notably, it has been reported that there are approximately 100 design-build programs throughout the 123 NAAB accredited architecture schools (Gjertson, 2011). In comparison, the evidence suggests that UK schools offer far fewer Live Project opportunities than US schools. Furthermore, the distinctions between Live Projects— in terms of content, but also in terms of whether they are or are not integrated into the curriculum and by implication assessed—varies significantly between different schools (Chiles and Till, 2011, p.2).

Unlike in the US, where there over fifty Community Design Centers that are NAAB accredited [15], there are only three equivalent project offices: The Bureau of Design Research (BDR) [16], ARU at London Metropolitan's CASS School of Architecture [17] and the University of Portsmouth. [18] However, the majority of Live Projects in both the UK and the US are not delivered through either Project Offices or Community Design Centers but are more informally aligned with, or offered in addition to, Design Studio. [19]

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[12] NCARB Prize Program 2001-2011. Available from: http://www.ncarb.org/Studying-Architecture/NCARB-Award/Prize-Grant/NCARB-Prize.aspx>. Last accessed: April 19th 2014, (p.9)

[13] Available from: http://www.acsa-arch.org/programs-events/awards/design-build Last accessed: 14/04/2014

[14] Available from: http://acsa-arch.org/programs-events/awards/CP Last accessed: 14/04/2014

[15] Available from: http://www.ncarb.org/Experience-Through-Internships/IDP2-Experience-Settings/IDP2-Supplemental-Experience-Core/Community-Based-Design-Collaborative/Design-Collaborative-List.aspx Last accessed: 14/04/2014

[16] Available from: https://www.shef.ac.uk/architecture/research/bdr/index Last accessed: 14/04/2014

[17] Available from: http://aru.londonmet.ac.uk/ Last accessed: 14/04/2014

[18] Available from: http://www.port.ac.uk/portsmouth-school-of-architecture/project-office/ Last accessed: 14/04/2014

[19] The Live Project Network - http://liveprojectsnetwork.org/ Last accessed: 14/04/2014

Although Live Projects popularity and prevalence continues to expand in the UK more than the US, [20] the researcher identified no cases (at the time of writing) where they are offered as an alternative to Design Studio. Instead, they are most commonly offered as an adjunct to Design Studio or sometimes as an optional extra. In the latter circumstance, few offer credits towards a final qualification—evidenced by the fact that they are rarely listed as separate modules within architecture programs. [21] In the US, there are two rather than three routes to qualification: completion of an NAAB accredited undergraduate program (equivalent to the UK's RIBA accredited Part I and Part II) and the completion of an Intern Development Program (equivalent to the practice office based, RIBA Part III) that falls under the certification jurisdiction of NCARB (NAAB, 2013) [22]. Like RIBA Part III, IDP requires students to log and reflect upon their professional practice experience as part of the qualification process.

More recently, NCARB revised its Intern Development Program to allow students to count Live Project experience towards their professional accreditation. These include Live Projects undertaken at undergraduate level, provided they did not offer credits towards the final degree award. This in some ways could be construed as a disincentive to offer credits for such activity. Quite what the impetus was for this decision is hard to ascertain, however, a speculative assumption is that it might be motivated by the high levels of graduate unemployment, which is holding students back from gaining the mandatory professional practice experience. Whilst the UK Professional Education and Development Record (PEDR) makes no reference to Live Projects, the evidence suggests that a Live Project would meet some but not all of the requisite 'categories of experience' – depending on the scale and scope of the project in question. [23] Neither NAAB nor the RIBA specify that Live Projects should form part of the curriculum, preferring instead to let individual schools self-determine their curriculum formats (Sara, 2006). [24]

Whilst the evidence above suggests that Live Projects' are used by many schools to meet the relevant accreditation criterion, the majority are inclined to blend Live Projects with the simulated activities of the traditional Design Studio model. In some ways, the Design Studio

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[20] Till, J., (2012) Keynote speech, Oxford Brookes Live Project Symposium, (Thursday 25th May, 2012) *conference focusing on live projects would not have been possible 10 years ago.'*

21 This assertion is based upon a web survey of Architecture School prospectuses in comparison to the number of Live Projects listed on the Live Project Network (www.liveproject.network.org). A few schools – for example, Heriot Watt, Plymouth and Sheffield do offer Live Project 'modules' with credits attached.

22 NCARB Intern Development Program (IDP). Available from: http://www.ncarb.org/Experience-Through-Internships.aspx. Last accessed: 15th April 2014

23 PEDR available from: https://www.pedr.co.uk/Guide/EmployerEligibility Last accessed: 14/04/2014

24 NOTE – both Sara and Viljoen advocate a more formal assessment criteria.

experience is analogous with the lab—conditions are stable and predictable. Variables (such as the brief) are relatively fixed. To some extent this makes the achievement of specific learning outcomes straightforward. In contrast, Live Projects cannot always guarantee that learning outcomes can be met with the same degree of certainty. The 'liveness' of Live Projects, such as site conditions, the needs of stakeholders, participation and resource levels, are often mutable. Whereas Design Studio assessment largely rests on the finished outcome (the design portfolio), Live Projects outcomes are not always certain or achievable within the constraints of an academic timetable. This often inclines Live Project educators towards assessing processes (such as teamwork, client collaboration and so on), with less emphasis on outcomes—for example, a building.

An additional challenge is the diversity of Live Projects, which again would make a specific accreditation requirement challenging to fulfill. Whilst the RIBA PEDR and NCARB IDP is largely comprised of a students' professional self-appraisal, the Undergraduate/Part I and Part II validation boards of the NAAB or RIBA might find it difficult to evaluate Live Projects in all their forms as easily as they can Design Studio portfolios. However, Live Projects offer a kind of feedback loop for educators regarding how much of the instruction being given in lectures and within Design Studio is actually being taken in by student, by measuring their ability to apply it. In this way, Live Projects evidence how effectively validating curricula is being taught, shifting the accreditation emphasis away from the scrutiny of the student and towards an assessment of the school and educators, program and school efficacy instead. Arguably, these are issues best addressed within the schools than involving external accrediting bodies.

2.3 Validating Criterion and the Live Project alignments: ongoing resistance or incremental integration?

Live Projects meet the validating criteria for some but not all of the qualifying criteria defined by The RIBA and NAAB. The NAAB Criteria is structured into three 'realms' of which each has a series of subsets. These Realms loosely align with the RIBA Criteria for Validation Graduate Competencies (generally referred to in acronym).
For example, 'GC1' concerning, 'the ability to create architectural designs that satisfy both aesthetic and technical requirements,' and RIBA GC2: 'Adequate knowledge of the histories and theories of architecture and the related arts, technologies and human sciences.' RIBA GC6, 'Understanding of the profession of architecture and the role of the architect in society,

in particular in preparing briefs that take account of social factors.' RIBA GC7,

'Understanding of the methods of investigation and preparation of the brief for a design

project.' (RIBA, 2011, p.51) broadly align with Realm A.

Realm A defined by the NAAB as 'Critical Thinking and Representation' requires that:

> *Architects must have the ability to build abstract relationships and understand the*
> *impact of ideas based on research and analysis of multiple theoretical, social, political,*
> *economic, cultural and environmental contexts. This ability includes facility with*
> *the wider range of media used to think about architecture including writing,*
> *investigative skills, speaking, drawing and model making* (NAAB, 2013, p.21).

Whilst this could as easily be applied to Design Studio, the matrix illustrates that Live

Projects can potentially meet more of the sub-categories of NAAB Realm A and those of the

RIBA GC1 than Design Studio. [Figure 1]

Realm B concerns, 'Integrated Building Practices, Technical Skills and Knowledge,' and

requires that:

> *Architects are called upon to comprehend the technical aspects of design, systems and*
> *materials, and be able to apply that comprehension to their services. Additionally*
> *they must appreciate their role in the implementation of design decisions, and the*
> *impact of such decisions on the environment* (NAAB, 2013, p.23).

This loosely aligns with RIBA GC4, 'Adequate knowledge of urban design, planning and the

skills involved in the planning process.' RIBA GC8, 'Understanding of the structural design,

constructional and engineering problems associated with building design.' And RIBA GC9,

'Adequate knowledge of physical problems and technologies and the function of buildings so

as to provide them with internal conditions of comfort and protection against the climate'

(RIBA, 2011, p.52).

Live Projects involving a client and a built outcome are most inclined to meet the criteria.

Interestingly, one of the most conspicuous design-build Live Projects in the US is the Solar

Decathlon. This national competition makes technological innovation the principal ambition

and involves full-scale construction projects, built on the lawn outside the White House. [25]

Realm C: Leadership and Practice concerns the responsibilities of architects related to client

negotiation, collaboration and management and says that, 'Architects need to manage,

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25 Available from http://www.solardecathlon.gov/ Last accessed on 16/04/2014

advocate, and act legally, ethically and critically for the good of the client, society and the public. This includes collaboration, business, and leadership skills.'

This is broadly aligned with RIBA GC5, 'Understanding of the relationship between people and buildings, and between buildings and their environment, and the need to relate buildings and the spaces between them to human needs and scale.' RIBA GC10, 'The necessary design skills to meet building users' requirements within the constraints imposed by cost factors and building regulations,' and RIBA GC11: 'Adequate knowledge of the industries, organisations, regulations and procedures involved in translating design concepts into buildings and integrating plans into overall planning' (RIBA, 2011, p.53).

Since the majority of Live Projects are off-campus and community situated, they are very likely to offer students a chance to work with clients or community stakeholders. [26] However, the Realm C sub-categories refer to experiences pertaining to practice management and law. Depending upon the scale and complexity of the project however, many of the long term Community Design Centre-or Project Office-situated Live Projects would fit most of the criteria, for example the Portsmouth University Live Project Office or the Tulane Design Center in New Orleans. [27]

As outlined previously, the process of validating courses—as opposed to simply using the criteria to determine the instruction and assessment of students'—can present problems for RIBA and NAAB validation panels when faced with determining whether the Live Projects are meeting the criterion they are charged with assessing. NAAB validation teams return every seven years. In contrast, the RIBA Visiting Board returns every four. Whilst the RIBA makes all of its school validation records available to the public online, also known as 'Visiting Board Reports,' [28] the NAAB does not. Instead, in the US, individual schools are able to self-determine whether to make their validation reports public or not by choosing whether or not to display it on their website.

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26 Calculations based upon the case studies available on the: liveprojectsnetwork.org website. Last accessed on 16/04/2014

27 Tulane City Center: Available from: http://www.tulanecitycenter.org/programs/universitycommunity-design-partnerships and Portsmouth Project Office Available from: http://www.port.ac.uk/portsmouth-school-of-architecture/project-office/ Last accessed on 16/04/2014

28 RIBA Visiting Board Reports available from:
http://www.architecture.com/EducationAndCareers/Validation/VisitingBoardReportsA-G.aspx#.U057aeZdWQw Last accessed: 14/04/2014

In 2012, the RIBA Visiting Board validated the researcher's own program—the MArchD Masters in Applied Design in Architecture. Since Live Projects take place at every level within the school (including the undergraduate program led by Jane Anderson) it is interesting to note their comments on Live Projects in the validation report, in terms of considering how receptive the RIBA seem to be towards a more integrated approach to Live Projects.

Firstly the visiting board reported that the Live Projects were, 'championing self-directed and practice orientated learning,' [29] noting that the, 'globalised agenda and the authenticity of the Live Projects …contribute to the life and culture of the university', [30] and are, '… a distinctive aspect of the School.' [31] In addition to this, the report provided key insights into how Live Projects are further valued noting that, 'with regard to the level of complexity, the examiners considered that it is difficult sometimes to achieve the required complexity in built form. Live projects may be complex in other ways.' [32] This comment addresses concerns that many critics as well as protagonists often have regarding the simplicity of the structures that sometimes emerge within the constraints of a one-semester Live Project. [33] The report continues to recognise the recent moves to develop Live Projects and, 'the emerging pedagogical theory which underpins them,' [34] and also acknowledges that they offered, 'good part III case studies' [35] enabled a, 'new vigour' in model making [36] and prove popular in the community [37]. The Part II students who were interviewed by the validation panel generally felt that a move towards Live Projects would, 'improve their preparation for practice' [38]. Of the twenty RIBA validation Reports produced in the last two years [39], Oxford is not alone in being acknowledged for their Live Project achievements, with half of

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[29] Report of the RIBA Visiting Board to Oxford Brookes University, 16/17 February 2012, Item 10: commendations. Summary of the Recommendations, Advice and Commentary Contained in the Full Report. p.3

[30] Report of the RIBA Visiting Board to Oxford Brookes University Item 13.6.3, p.11

[31] Report of the RIBA Visiting Board to Oxford Brookes University (2012) Item 13.6.3, p.11

[32] Report of the RIBA Visiting Board to Oxford Brookes University,((2012) p.13, commendations.

[33] (Chiles and Holder 2008, p.199) 'Live projects should progress beyond the six week academic framework.'

[34] Report of the RIBA Visiting Board to Oxford Brookes University Item 13.6.3, p.11

[35] Report of the RIBA Visiting Board to Oxford Brookes University p.13

[36] IBID

[37] Report of the RIBA Visiting Board to Oxford Brookes University Students comments Item 13.10 p.14

[38] Report of the RIBA Visiting Board to Oxford Brookes University Students comments Item 13.10 p.14

[39] At the moment this sample is from January 2011-October 2012 – statistics therefore to be updated to reflect precise 2-year bandwidth when data is available

the validated schools since January 2011 specifically and explicitly commended, acknowledged or further encouraged to continue their Live Project programs [40].

To some extent, the RIBA's positive response to Live Projects contained in this report seems to suggest that there is an openness to the Live Projects' ability to meet the validation criteria. Arguably, the RIBA curriculum is sufficiently 'flexible' to at least tolerate if not conspicuously advocate for Live Projects as a vehicle for curricula fulfillment. Evidently, Live Projects can align with the validating criterion of the NAAB and the RIBA, but whether they *should* become more formally integrated and accredited within RIBA and NAAB curricula is less easily defined. Furthermore, it is worth noting that not all the Live Project programs taking place within this time frame of school validations have been commended, which suggests that the validating panel members can exercise the 'flexible' criteria to assume a different position. In the case of Queens University Belfast for example, their established Live Project program was not at any point referred to in their validation report. [41] Presumably, the panel considered it to be extra-curricular, and beyond the remit of their scrutiny. Had all the various validation boards chosen to acknowledge all the Live Projects positively within the two-year time frame, the figure of acknowledgements would have shifted from 50% to 70% [42].

The RIBA Criteria for validation could be considered as empowering board members to selectively acknowledge Live Projects through administering a, 'validation process… [that] seeks to maintain and enhance the quality of architectural education and to encourage experiment, innovation and contemporary relevance in course delivery and teaching methods,' (Sara, 2004) [43]. However, it also advises that, 'variations in educational practice and innovations in academic programs must not compromise the delivery of the essential content of these requirements' (Sara, 2004) [44]. Given visiting boards validate schools every four years, this gives educators very little time to embed 'innovations' into teaching - whether these are within Live Projects, Design Studios or elsewhere in the program.

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[40] University of Brighton, University of Portsmouth, Manchester School of Architecture, London Metropolitan University, Oxford Brookes University, University of East London, University of Lincoln, Leeds Metropolitan University, University of Dundee.

[41] QUB's live projects - street society: http://streetsociety.webs.com. Similarly, Birmingham City University live projects: http://www.bcu.ac.uk/biad/architecture/industry/live-projects last accessed 15/10/2012

[42] Queen's University, Belfast run a live project program although this was not mentioned in the report. Instead see: Morrow, Ruth (2011) 'Street Society: a live project at Queens University Belfast.' (Chapter 4, pp. 21-25) in Mull, Robert (Ed) (2011) Intercultural Interactions in Architectural Education, The London Metropolitan University.

[43] RIBA Validation Criteria, (2003) p.2 CITED IN: Sara, Rachel (2004) Does The Live Project Have a Future in Architectural Education? Conference Paper

[44] RIBA Validation Criteria, (2003) p.3, CITED IN: Sara, Rachel (2004) Does The Live Project Have a Future in Architectural Education? Conference Paper

Live Projects offer educational experiences that align with key NAAB and RIBA criteria for qualification. Arguably, they do this more effectively than Design Studio particularly at Undergraduate (RIBA Part I) or Post-Graduate (RIBA Part II) level. However, the RIBA Part III and NCARB's Intern Development Program, both of which require practice situated experience, are more likely to involve the kind of scale and complexity of projects that more effectively engender developing capabilities in practice management and law—NAAB Realm C: Leadership and Practice and RIBA GC5, GC10 and GC11.

The relationship between Live Projects and the accreditation criteria is a subject worthy of further investigation. The Architectural Program Reports prepared by US schools, the RIBA Reports and the subsequent visiting team/board reports to the schools over the last few decades, if scrutinized, are likely to prove an invaluable resource in terms of identifying challenges in the way schools articulate the value of Live Projects. In extension, how the RIBA/NAAB recognize the role of Live Projects and the development of recommendations and strategies for improvements to the accreditation processes.

2.4 The origins of the British Live Project

Although there are a growing number of Live Projects taking place in various UK institutions their pedigree spans over half a century. In 1958 and 1961, Architecture and Building and Architect and Building News, commissioned a journalist operating under the pseudonym 'John Doe' (meaning the average architect) to visit all seventy-three schools of architecture and report on what was then a six-routes-to-qualification, architecture training system (Smith, 1958). Although his findings were inevitably critical, his report on Birmingham University captures the Live Project program, driven by the philosophy, 'to do a little, thoroughly, rather than a lot, superficially' (Smith, 1961). The outputs included scale models and prototypes and later bungalows and terraced housing that remain standing today. These Live Projects preceded the 1958 conference on education, which proved pivotal by establishing higher entry qualifications that tipped the custodianship for architectural into the Universities and away from the technical colleges and schools of art where most RIBA validated courses were formerly delivered (Brown, 2009). One of the legacies of this decision was the increase in 'academic' rather than strictly 'vocational' outputs such as research, (Musgrove, 1983; Parnell, 2008), although not everyone supported this departure from the pupillage model of the Beaux Arts tradition (Crinson and Lubbock, 1994). Subsequently, it

has been argued that 'the Birmingham Live Projects are an underexplored series of experiments in mid-twentieth century architectural education,' (Brown, 2009). Yet, despite a general endorsement of the Head of School, Douglas Smith's architecture school teaching at Birmingham University, the RIBA validation board visiting in 1952 was less than sympathetic to Douglas' 'experimental' teaching of Live Projects and reported the following:

> *There is too much group work throughout the school. Whilst justification can be found for certain projects being handled in this way, most of the student's efforts should be directed in solving his own problems.'* [45]
>
> *Where 'Live Projects' are included in the course they must be genuine representations of everyday practice and be ancillary and not alternative to normal studio design work.* [46]

Arguably, the board's decision to situate Live Projects on the periphery, insisting that, likely sounded cautioned against such initiatives taking place elsewhere. Jones' response to the report was intransigent, arguing that amidst the 'chaos' and 'complete uncertainty' that prevailed in architectural education and that:

> *The desire to train useful assistants but also to train people who will one day make good architects with vision and initiative…[but that]… nobody has yet discovered whether these two things are entirely compatible.'* [47]

In the sixty years since this report and response were issued, Live Projects remain ancillary to Design Studio activity, forcing the assumption that RIBA's preference for 'normal' rather than 'innovative' design studio teaching remains intact.

2.5 Design-Build and Community Design Centers: UK and US comparisons and characteristics

The literature suggests that the American community design movement of the 1960's instigated Community Design Centres—the US equivalent to UK Project Offices (Pearson,

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[45] RIBA, 1952. Report of the RIBA Visiting Board upon the School of Architecture, the College of Arts and Crafts, Birmningham. London: RIBA. CITED IN: Brown, James (2009) Be Bold and Proceed: live projects at the Birmingham School of Architecture. 6th annual AHRA PG Conference, Welsh School of Architecture, Cardiff, 12.12.09

[46] RIBA, 1952. Report of the RIBA Visiting Board upon the School of Architecture, the College of Arts and Crafts, Birmingham. London: RIBA. CITED IN: Brown, James (2009) Be Bold and Proceed: live projects at the Birmingham School of Architecture. 6th annual AHRA PG Conference, Welsh School of Architecture, Cardiff, 12.12.09

[47] RIBA, 1952. Report of the RIBA Visiting Board upon the School of Architecture, the College of Arts and Crafts, Birmingham. London: RIBA. CITED IN: Brown, James (2009) Be Bold and Proceed: live projects at the Birmingham School of Architecture. 6th annual AHRA PG Conference, Welsh School of Architecture, Cardiff, 12.12.09

2002, p.12). However, the design-build tradition—a term more commonly used to define Live Projects with constructed outcomes in the US—preceded this by some thirty years. The following section considers historical exemplars drawn from the US and the UK but also from Europe, and provides a basic summary of the characteristics that seems to be common to Live Projects in both contexts.

Characteristic One: Learning by doing

In 1914 the Bauhaus movement in Germany (Gropius, 1968) was in part a philosophical as well as practical response to increased levels of industrialisation (Volkmann, de Cock, 2006). The Bauhaus school's emphasis upon a return to craft—a view not dissimilar from those expressed within the preceding UK based Arts and Crafts movement—engendered a renewed commitment to hands-on prototyping and inter-disciplinary practices (Stevens, 1998).

Characteristic Two: Interdisciplinary practice

Frank Lloyd Wright's Taliesin Studio (1931-), that began when twenty-three students came to live and learn Lloyd's former studio home, followed the Bauhaus commitment to learning by doing, whilst also embracing a broad, inter-disciplinary agenda. It placed architecture at the centre of a creative development process that encompassed painting, sculpture, music, drama, and dance, 'in their places as divisions of architecture.' [48] Today, students are still required to build and inhabit their own shelters on the prairie. [49] An example of how these two themes of inter-disciplinarity and learning by doing crystalised within practice can be found in the EAMES office of 1940-60s. In partnership with his wife, Charles Eames - an architect and later teacher at the Cranbrook Academy of Art in Michigan - established an inter-disciplinary studio in Los Angeles and collaboratively generated a wide variety of architectural, furniture, fabric, product and filmic outputs and even government reports, medical devices and magazine covers (Cohn and Jersey, 2012). Design for them was a process, not the attribute of a product…rarely did they start out with the intention of making a particular object, rather the objects were the by-product of design explorations, that had the potential to go in any number of directions,' (Fisher, 2000).

Characteristic Three: Learning from each other

Preceding this, architectural education was taught as, 'a system of 'articled pupilage' whereby private architects were paid substantial sums to impart education and training. This model of

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[48] Source: The Taliesin School website. Last accessed 05/10/2012 http://www.taliesin.edu/history.html

[49] Taliesin Student Shelters Available from: http://taliesin.edu/shelters/shelters1.html Last accessed 15/04/2014

exclusively practice-based learning was the only model available outside of the Parisian government controlled, L'Ecole des Beaux Arts and was, 'rife with vested interests and open to abuse, dishonesty and incompetence,' despite the fact that it seemed to offer 'live' practice experience Crinson and Lubbock (1994) [50, 51]. As discussed previously, this prompted a teenager and a twenty-three year old to publish an article in the Builder magazine of 1846, 'proposing that if the state could not interfere with the private interest of architects by providing a systematic course of training, then perhaps the students themselves could,' (Bottoms, 2010) [52] and whose core values were those of 'trust' and 'self-reliance.' These two young men then went on to found the Architecture Association School of Architecture, emphasising learning through 'peer learning' and 'problem based learning', as design problems would be brought to weekly sessions for mutual criticism. This system later evolved into a, 'systematic study tested by examination', that later became the RIBA's Voluntary Examination in 1862, (Bottoms, 2010) finally removing the monopoly that practices held over architectural qualification.

Characteristic Four: Learning off campus, in context

Taliesin's remote prairie location (as opposed to campus context) proved very effective in this regard. Students or 'fellows' as they were known, would design and develop their ideas through a prototyping process not dissimilar to philosophy and methods used within the Bauhaus school. During the great depression of 1933, when there were few real commissions to design for, they focused upon their immediate community, maintaining and expanding their working and living environment, which included designing and building innovative structures in the surrounding landscape. It was the focused integration with and in response to context that was similarly investigated by Venturi, Scott Brown and Izenour, who migrated their Yale Studio Project of 1968-1970 to Vegas, along with 13 students, to focus on a situated response to the architectural contradictions of the Las Vegas Strip. (Venturi et al, 1977) Even today, these 'field trips' are considered mandatory in all schools, tracing their origins back to the 'grand tour' of Europe that the pre-AA School British gentry would take to learn first-hand from historic 'order'. To learn off campus beyond the parameters of the institution has long been enshrined within formal architectural education.

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50 Abridged version of an introductory lecture to Archives For London andand the Twentieth Century Society, February 2010 by Edward Bottoms; AA Archives

51 (Crinson andand Lubbock, 1994) Chapter TWO defends the practice of pupillage.

52 Abridged version of an introductory lecture to Archives For London andand the Twentieth Century Society, February 2010 by Edward Bottoms; AA Archives

Characteristic Five: Learning through civic engagement

The contrast between Yale, an 'ivy league' university situated on a leafy and semi-rural campus and housed within a classical vernacular template and the neon temporality of the Vegas Strip, could not be more acute. However, the privileged isolation of these schools proved creatively dissatisfying long before this point and early twentieth-century America witnessed the rise of city-based universities. These 'city as campus' schools were stimulated by the opportunity to develop education programs that directly connected to the exciting new possibilities inherent in industrial expansion, cultural diversity and environmental complexity. (Haar, 2011, p. xiii) This was most explicitly realised in the development of Chicago universities, whose 'founding premises and historical trajectories rest on their relationship to the city with it's unique conditions be they social, cultural, physical or economic.' This expresses their commitment to produce 'urban citizens' who will address, 'social, and urban forms that will lead to new ideas about …urban reform, and ultimately new models of urban planning and design (Haar, 2011, p. xiv), within and beyond their 'diffuse and ill-defined campus boundaries' (ibid, 2011, p. xiii). In this way, the city served as, '…a site of pedagogy and a viable location for the larger purpose of the academic community: the production of knowledge…' (ibid, 2011, p. xiv), offering further students the opportunity to participate in a model of responsive, co-authored learning. For many architecture schools in US cities, engaging with the urban fabric inevitably involved working directly with its inhabitants.

It is worth noting that the civically engaged, city as campus approach compares starkly with Beaux Arts model – whose influence on the Design Studio was considered in section 2.1 – where the emphasis was placed learning through mimicry. Rather than generate new urban forms, students were instead routinely required to produce dozens of rigorously detailed architectural drawings to a high level of accuracy (Noffsinger, 1955). It is likely therefore, that the burgeoning growth of American cities provided students of the period with an unparalleled opportunity to participate in shaping the cities in which their Universities were situated, setting a precedent for civic engagement that the war damaged and bankrupted countries UK and the rest of Europe could barely compete with.

A similar commitment to civic engagement was reflected in practice, for example the European ICAM (International Congresses of Modern Architecture) encapsulated the broader ambitions of the modern movement through the explicit aim of utilising what were considered the core concerns of architecture (landscape, planning, urbanism, industrial design, planning and so on). In 1960's America, legislature enabled 'community design centers' to

proliferate in both urban and rural schools [53] (Pearson and Robbins, 2002, p.12), [54] (Boyer, 1996, p.18) with the stated purpose of focusing on the revitalisation of poorer neighbourhoods. Not all CDC's were campus based, and many were run as non-profit organisations. Although community design has evolved over the years, it has been understood to encompass, 'community planning and architecture, social architecture, community development, community participation with emphasis upon the involvement of local people in social and physical development of the environment they are living in,' (Sanoff, 2000, p.310; Knevitt and Wates, 1987, p.310). The UK schools lacked the legislative enablement of the US schools [55], the parallel trend was to establish Community Technical Aid Centres (CTACs) that shared the same ambitions as the CDC's yet were usually linked to the more progressive academics and teaching programs, such as the Architects Revolutionary Council, who emerged from the Architectural Association in 1974 (Awan et al, 2011). [56, 57] The shared characteristics between the UK and the US Schools was their commitment to offering both community-engaged architectural teaching, whilst serving the needs of the community.

In the USA, one of the most renowned examples; Rural Studio in Alabama, emerged from a practice established in the 1970s that emphasised solving community problems with environmentally as well as socially sustainable solutions. The studio's founder, the late Samuel Mockabee, argued that, 'If architecture is going to nudge, cajole, and inspire a community to challenge the status quo into making responsible changes, it will take the subversive leadership of academics and practitioners who keep reminding students of the profession's responsibilities' (Oppenheimer and Hursley, 2002, p.13). Mockerbee's pedagogical approach required students to, 'leave the classroom of the university and enter the classroom of the community,' (Mockbee, 2002) which shared a similar commitment to the social responsibility of the profession as that engendered by Charles Moore at the Yale Building Project during the 1960's (Awan et al, 2011).

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53 More often those that were enabled via the US Land Grant Acts (Morrill Act of 1862, the Morrill Act of 1890 and the Agricultural College Act of 1890) a land endowment system that enabled State Universities to fund, 'liberal and practical education of the industrial classes in the several pursuits and professions in life,' quoted in "7 US Code (USC) 304 - Investment of proceeds of sale of land or scrip."

54 Community Design Centers are formally organized under a national network – Association for Community Design ACD

55 Note also that in 1958 there were 'six roads to professional qualification' and 73 different RIBA listed architecture schools. The 1958 Conference on Architectural Education aimed to address this. Reported in Parnell, 2008.

56 SEE ALSO: http://www.spatialagency.net/database/architects.revolutionary.council.arc Last accessed 09/10/2012

57 * CTAC's were not the first practice-based community engaged architect-led endeavours; in the 1950-60's, Le Corbusier (through CIAM) as well as Gropius were committed to a similar program of architecture as a tool for greater social equity.

2.6 Consolidated characteristics: emergent terminologies

Until quite recently, teaching practices that consolidate most if not all of the five characteristics have transcended an agreed and single defining terminology. Whilst the definition of Live Projects is considered in Chapter One, 1.4.2, it is important to note that between the UK and the US, there are different terminologies in use to describe the same activity. In the US, the at-scale prototyping that typified the Bauhaus and Taliesin Studio would fall under the title of design-build projects which is characterised by the delivery of both the design and construction by one entity and a tendency to, 'prioritize educational, community, and aesthetic objectives as equally valuable components of the design process (Pearson and Robbins, 2002, p.14; Gjertson, 2011, p.23). In the UK, the parallel approach to design-build that emerges in the early 1960s was often evident in what was typically defined as university based, 'Project Offices,' (Smith, 1962). The Welsh School of Architecture was one of many that established a Live Project office to undertake the practice from a position within the academy. However this, as well as others, did not survive. Those associated with the Welsh School have argued that it became untenable to offer, 'bona-fide design practice from within architecture school,' (Forster et al, 2008, p.363) arguing that, 'the fall (some may say failure) of the Project Office in UK Schools of architecture was paralleled by the rise of the subject specialist over the architect generalist as the demands of returnable outputs pressured research based schools of architecture to 'academise' the discipline,' (Forster et al, 2008, p.366). However this assessment of the failure rests on two assumptions, one that the activities of a school project office should be indistinguishable from 'real' practice and that the academic interest of 'research' is at odds with practice. In comparison, the more successful project offices were and are those who have successfully integrated research into their activities, and emphasise brief defining and process as core activities of equal value (Morrow and Brown, 2012, p.278; Chiles and Holder, 2008, p.197). [58] Although the 'project office' was the obvious platform through which to deliver projects which engendered most of the characteristics, many similar projects have taken place outside of any formalised portal. The colloquial term for these endeavours is Live Projects, a term that is becoming more established. Although Sheffield University's School of Architecture appears to lay claim to it, [59] the School of Architecture at Birmingham University was the first to conspicuously use

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58 'From a tutors point of view, the live project is not just about the product it is more about process. Failure is expected and even welcomed but is sometimes difficult for the students to accept. ' Chiles and Holder, 2008, p.197

59 According to their website, 'live projects are a pioneering educational initiative run by the University of Sheffield School of Architecture,' http://www.ssoa.group.shef.ac.uk/ Last accessed 09/10/2012

the term, in reference to a row of terraced houses that the students built themselves in a small town known as Water Orton (Brown, 2009). Although in this case the designs were based upon the designs of a contractor rather than their own ideas, Birmingham had been successfully running a variety of Live Projects for almost a decade at this point, encompassing most of the characteristics previously explored (Architect and Building News, 1951, p.734-735; Architects' Journal 1951, p.701; Builder ,1951, p.830-831).

In the battle for precedence of terminology, it seems reasonable to assume that the UK preference for the term 'Live Project' over 'design-build' might be explained by the need to distinguish it from the professional practice meaning of 'design and build' which refers to a form of procurement and a type of contractor-led project (Chappell and Willis, 2010, p.170). Furthermore, Live Projects places explicit emphasis on 'live' activity – differentiating it from the more static mimicry associated with Design Studio.

2.7 Summary of Conclusions

This chapter examined the evidence from literature concerning the development of Live Projects within UK and US-based architectural education, examining how Live Projects have evolved in parallel within the two locations with a view to understanding both the key similarities and differences between them, particularly in relation to the different social, economic and cultural context in which they operate. The purpose of doing this is to examine whether Live Projects do indeed have 'universal' characteristics – within the limitations of a two-country and criteria comparative analysis - but also as a means to identify the extent to which contextual factors such as curricula and legislation influence the extent to which they are adopted as a learning vehicle for architectural education. Furthermore, this chapter made direct comparisons with Design Studio teaching; firstly, as a means to better identify what Live Projects are potentially reacting against, and secondly; as a means to identify that whilst both Live Projects and Design do deliver NAAB and RIBA requirements, neither one nor the other can deliver all of the skills needed. This highlights an interdependency between the two learning vehicles. Finally, after an appraisal of the NAAB and RIBA criteria in relation to the emergent skillsets identified in the first stage of the literature review (Chapter One), this chapter took the first step in examining to what extent Live Projects are able to enable students to learn interdisciplinary teamwork, client interaction and risk taking and

management; identifying the shared characteristics between UK- and US-situated Live Projects and how these align with the NAAB and NCARB criteria.

Subsequently, the key findings from this section of the enquiry are as follows:

- In general, multifarious aspects identify that there is greater endorsement for Live Projects in the USA than in the UK. These include; (1) that the agencies involved in higher education are more inclined to recognise and reward Live Projects, further highlighting their status and importance and inevitably encouraging wider adoption; (2) the validating criteria of NCARB, whose Intern Development Program allows students to count Live Projects experience towards their professional practice accreditation – an option which is not available to UK students; (3) the legislative endorsement via the Land Grant system provides US institutions with a funded vehicle for civic engagement that encompasses Live Project activity – an resource that is not unavailable to UK schools; (4) the US cultural tradition of emphasizing the value of practical skills, which were essential to the country's early development and have influenced a general perception that a builder is of roughly equal status to a builder; another factor which accounts for the wider proliferation and acceptability of Live Projects in the USA.

- The UK's decision to shift architectural education from Building Colleges into Universities resulted in a greater obligation towards 'academic' outputs. Whilst this has some benefits - such as increased opportunities for an acknowledgement of research outputs, the more 'vocational' and practical aspects of architectural training were reduced. Whilst Live Projects could therefore be construed as an attempt to reengage these practical activities it is worth noting that the contemporary perspective is that the boundaries between 'real' practice and the academic interest of 'research' are increasingly considered to be either invented, invisible or undesirable.

- Live Projects in both the UK and the US do share core characteristics, despite the contrasting circumstances in which they are delivered and even though they were until quite recently often defined using other terms. It is also noted that whilst there are regional differences (as outlined above) the general diversity of Live Projects appears to transcend location.

- Whilst the term Live Projects is relatively new, there are examples of teaching that date back almost 100 years that share the qualifying attributes of Live Projects, but were defined differently.

- The literature evidence suggests that the validating criteria provided by the RIBA and the NAAB and NCARB can be effectively met within Live Projects. Yet, at the time of writing, the researcher could not identify a school in either the UK or US where the Live Project had entirely superseded Design Studio. Whilst this could be construed as an advocacy for Design Studio, it might instead be a simple matter of institutional constraints. It is therefore hard to draw any firm conclusions on the efficacy of Design Studio. The scale and scope of analysis needed to make these judgments would require an entirely separate enquiry. However, the question remains as to whether it is preferable for Live Projects to retain their autonomy from design studio since this offers certain freedoms and allows them to maintain their responsiveness to the communities in which they are situated and by implication offer more relevant learning to architecture students.

- Three missing skillset 'gaps'—concerning interdisciplinary teamwork, client interaction and risk taking and management—far supersede the recent global economic shifts. Instead, their acquisition has been a preoccupation for educators for several decades.

The next step will be to consider what learning theories are in action within a Live Project—in other words the pedagogic integrity of Live Projects. This will be the focus in the following chapter.

PART ONE: THE ENQUIRY

Chapter Three

The pedagogic integrity of Live Projects

3.0 Introduction

The literature evidence examined in previous chapters suggested that Live Projects – a working definition for which is provided in Chapter 1: Section 1.4.2 *Introducing and defining the Live Project* - might provide learning experiences that effectively enable students to gain skills in interdisciplinary teamwork, client collaboration and civic engagement and risk and ambiguity management. Part one of the literature review (Chapter Two) considered how they meet key RIBA, NAAB and NCARB validation criterion although the extent to which they are assimilated into their host institutions has regional contingencies, leaving the UK at a disadvantage to the USA in this regard. However, Live Projects in both contexts are more often treated as an adjunct to Design Studio or a non-compulsory option en route to professional qualification rather than a learning activity at the heart of the curriculum. Subsequently, the literature review identified that one of the issues that this enquiry will need to consider is why this might be the case. This chapter therefore examines Live Projects in relation to established, multi-disciplinary derived learning theories as a means to consider their pedagogic integrity. It will also consider the latent potential or active contribution Live Projects are making to 'good' pedagogy. It then examines the debate over the peripheral positioning of Live Projects in relation to more established models of learning, the school and the university, and whether Live Projects constitute a form of 'border pedagogy' that better enables a more critically-engaged learning experience.

By aligning established selected learning theories with the core characteristics of Live Projects, the aim is to establish to what extent some learning theories can support or explain why, because of their very nature, Live Projects are likely to support and/or improve certain kinds of learning that are broadly aligned with the missing skillsets.

3.1 Live Project theorisation

Since Birmingham School of Architecture (now domiciled within University of Central England in Birmingham) first pioneered a Live Project program (although mention of any Live Projects is notably absent from their most recent RIBA validation report, despite evidence of a healthy and

active Live Project program) [1] many other UK schools have followed suit. In terms of the theorisation of Live Projects however, Sheffield University's School of Architecture Live Project office is arguably the most active [2]. During the last decade, renowned academics based at Sheffield University [3] have developed a highly successful model of iteration between the practice of and research into Live Projects, contributing to Live Project discourse that has proved instrumental in both establishing the terminology and initiating the development of a tentative pedagogic framework. The Live Projects have for the most part been spearheaded by Professor Prue Chiles, (Chiles, 2004, 2008, 2012), whom identified that the resistance to Live Projects is in part due to the avoidance of, 'institutions [to] muddy their ivory towers with the mess of real life practices' (Chiles, 2004, p.200). The 'mess' that Chiles refers to is not only logistical but also philosophical and political, and raises the issue of how to overcome these problems.

In contrast to Sheffield's Live Project office, London Metropolitan University's 'ASD Projects' acts as a university located, fully RIBA chartered architectural practice, focusing on offering architectural services to a diverse range of community clients [4]. Their 2012 RIBA Report mentioned a 600-student strong, interdisciplinary Live Project publication [5] —by far the largest scale Live Project the researcher has been able to identify in the UK. Less successful, is their attempt at theorising their work. Interestingly, ASD Projects has strongly integrated research capacity yet their 2011 publication, 'Intercultural Interaction in Architectural Education' (Mull, 2011) that captured fourteen Live Projects from schools across the UK, contained a cursory attempt at theorisation since each case study confined these opportunities to loose-fitting concluding paragraphs entitled 'reflections' or 'comments'.

3.2 The positioning of Live Projects

Although this thesis does not attempt to construct a comparative analysis between Design Studio and Live Projects, an understanding of what other literature identifies as their peripheral positioning in relation to other models of learning requires a level of consideration. For example,

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1 Birmingham City University Live Projects: http://www.bcu.ac.uk/biad/architecture/industry/live-projects (last accessed 15/10/2012)

2 www.ssoa.group.shef.ac.uk/ Last accessed on 10-10-2012

3 Jeremy Till, Rosie Parnell, Prue Chiles, Rachel Sara, Carolyn Butterworth, James Benedict-Brown amongst others.

4 http://www.londonmet.ac.uk/architecture/asd-projects/overview.cfm Last accessed 12-10-2012

5 Report of the RIBA Visiting Board to London Metropolitan University (2012) p.6

Sara's post-doctoral papers specifically attempted to tackle some of the issues concerning the positioning of Live Projects in relation to Design Studio, the school of architecture and also the relationship to the RIBA, (Sara, 2004) and questions whether the periphery is in fact the best place for Live Projects. In order to illustrate the attraction of the periphery, she cites Bakhtin's definition of 'carnivalesque', (Bakhtin, 1965) as a place where, '…temporary liberation from the prevailing truth and from the established order; it marks the suspension of all hierarchical rank, privileges, norms and prohibitions…The utopian ideal and the realistic merged in this carnival experience, unique of its kind' (Bakhtin, 1965, p.7). Sara's contention is that this detachment affords students the opportunity to, 'both critique and develop both their experience and their education, and ultimately the profession,' (Sara, R., 2004 p.2) inspiring (or perhaps grandiose) claims that unfortunately are not then subsequently substantiated, as the paper is intended only to, 'stimulate discussion' (Sara, R., 2004 p.1). However, her paper makes a valid point about the assumed value of placing Live Projects at the heart of the curriculum, since the desire to do so cannot be motivated by resources (or lack thereof) alone (Sara, R., 2004 p.3).

Instead, it is Live Projects' ability to 'escape the influence of the modernist and cognitivist epistemologies,' (Till, 2005) of Schon and Kolb that have long been eschewed in schools of architecture and maintain the status quo (McClean, 2008) that has been more recently criticised as too narrow a description of architectural learning (Webster, 2008. p.66). Yet, this could arguably be attributed to the inherent tendency of Live Projects to, '…work in marginal communities where there is both a willingness to accept alternate modes of practice,' (Charlesworth et al, 2011) rather than their positioning in relation to the Design Studio, the school or the RIBA curriculum, is a crucial differentiation that is later identified through questionnaires and interviews.

3.3 The periphery and criticality

Sara's point about the inherent 'criticality' of Live Projects is an important one and touches on the question of Live Projects as a form of 'critical pedagogy' explored by former University of Sheffield academic, Parnell in a paper co-authored with Morrow of Queen's University Belfast and reinforced by others (Brown et al, 2001). It is therefore possible to extend Chiles' previous insight into the 'muddying of ivory towers with the mess of real life practices,' (Chiles, 2004, p.200), to refer not to the towers of the academic institution, but of the pedagogic framework

therein. For this reason, it is possible to argue that Live Projects might be considered the 'Trojan horse inside the pedagogic 'ivory tower,' which as Brown, McAllister and Morrow argue, 'brings into play Henry Giroux's concept of a Border Pedagogy as a site of resistance in education,' (Giroux, 1991). Their paper entitled, 'Back to the edge: reconsidering Live Projects as border pedagogies in architectural education,' considers how Giroux's largely neglected contribution to architectural theory [6] provides a vital tool for Live Project design educators, 'to really think about what role theory might play in their lives.' (Morrow et al, 2011) By occupying a position off-centre, Giroux argued that, 'critical pedagogy can reconstitute itself in terms that are both transformative and emancipatory,' (Giroux, 1991) '…equating learning with the creation of critical rather than merely good citizens,' (Giroux, 2006). That Live Projects can therefore act as a vehicle for criticality for both educators and students in relation to the established modus operandi of teaching and practice, would suggest they are best positioned between the centre and the periphery. As Harrison explained in her paper on a year-long Live Project in a post-industrial neighbourhood in North Philadelphia, US, 'by entering the space between what is studied and what is lived,' we are better able to interrogate, '…the disjuncture between the content of design education and the real physical situation in which it occurs,' (Harrison, S., 1998. pp. 5). Live Projects therefore, '…occupy a unique position at intersection education, practice and theory,' (Butterworth, 2011) enabling students to assume a more 'critical' position in relation to all three.

Finally, given the small numbers of female architecture academics, it is worth noting the dominance of women theorists on the subject Live Projects, and it led the researcher to consider Tuttle's definition of feminist theory as asking, 'new questions of old texts,' (Tuttle, 1986, p.184) in much the same way that Live Projects ask new questions of established ideas and methods in architecture. The proposed ability of Live Projects to enable 'criticality' is later interrogated within the primary data, particularly in relation to the missing skill of civic engagement.

3.4 Theories of criticality

'A boundary is not that at which something stops, but …is that from which something begins its presencing.'

Martin Heidegger, *Building Dwelling, Thinking* (1975, p.152)

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[6] Brown, McAllister and Morrow ran a reverse citation search for Giroux's 1961 paper on Google Scholar - it lists only eleven references to the paper in more than twenty years.

The section aims to contextualise the notion of the peripheral positioning of Live Projects within a wider theoretical framework. Whereas it is Giroux who coined the term 'border pedagogy,' his idea is broadly based upon Friere's ideas on 'critical pedagogy', whose seminal text, 'pedagogy of the oppressed' contextualises if not underpins many of the theories explored in relation to the six defining characteristics (Forrest, J., 1988). Friere emphasised the importance of students assuming a 'critical' position in relation to their education experience in order to achieve 'consciensization'. Like Schon, he advocated 'reflection' before action, emphasising that, 'critical reflection is also action,' and not a passive process (Freire, 1968, p.109). Without engaging in critical reflection—for example if students are otherwise consumed by focusing on simply acquiring and iterating the expert knowledge imparted to them—Freire contended that students would be unable to, 'develop the critical consciousness which would result from their intervention in that world as transformers of that world' (Friere, 1968, p.51). For students to take reflective 'action' within a Live Project enables them to develop the 'critical' competencies needed to aspire to both make an impact and lead lives of consequence, displaying the graduate attributes desirous of any forward-thinking, higher-education institution [7]. And as others argue, enabling students to be actively critical proves transformative in learning situations as it enables them to prepare for responsive practice (Bruffee, 1993; Mezirow, 1990). Finally, one of the criticisms of Live Projects is that their connection to the everyday limits the extent to which they can be considered creative. According to Homi Bhabha's Third Space or Hybridity Theory, the periphery is situated at the interstice of different forms of knowledge and discourse that can be simultaneously creative and constraining as well as inherently unstable (Bhabha, 1994). Bhabha subsequently argues that, positioning students in such an 'interstice' engages 'hybridity and liminality' (thresholds) that result in a form of, 'cultural production that is most productive where it is most ambivalent and transgressive' (Bhabha, 1994, p.410). The primary research enquiry subsequently considers whether students feel that working with constraints enables or disables creativity (Sternberg, 1988) [8].

3.5 The Pedagogic integrity of Live Projects

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7 Brookes Strategic Vision 2020   http://www.brookes.ac.uk/about/structure/mission2020

8 Whilst the subject of critical pedagogy has been concisely examined in this thesis, a more rigorous analysis is provided within the PhD thesis of architecture lecturer James Benedict-Brown whose stated intention is to explore Live Projects as a means to identify, 'opportunities for architectural educators to experiment with the discipline and its pedagogies' (Benedict-Brown, 2012, p.10). His thesis therefore provides an invaluable reference for a more detailed scrutiny of critical theory in relation to Live Projects.

As Benedict-Brown's enquiry demonstrates, reframing the value of Live Projects using Giroux's insights into architectural education offers a measure of pedagogic alignment that goes some way to demonstrating the under-articulated efficacy of Live Projects (Benedict-Brown, 2012). Within this thesis, Chapter One identified that the core characteristics of Live Projects that have emerged over the last 100 years—that have been more recently reinforced by contemporary Live Project theorists—were intentionally loosely defined.

The table below seeks to demonstrate how these key characteristics can be aligned with established learning theories:

	Characteristic	Learning Theories
1	Learning by doing	Action learning, simulated learning, experiential learning, self-directed learning, research-based learning
2	Learning from each other	Peer learning, collaborative learning
3	Learning through inter-disciplinary processes	Interdisciplinary learning, problem-based learning, research-based learning
4	Learning off campus	Situated learning, practice-based learning, work-based learning
5	Learning through civic engagement	Engaged scholarship, action research

Table 1: Learning behaviours and their associated learning theories

As cogent as this illustration may seem, there is a plethora of possible further alignments that can be made. [9] A level of preemptive discrimination has therefore been applied and the residual selections have been chosen for their ability to bring this enquiry closer to its overriding objective: to identify whether Live Projects can enable students to acquire the 'missing' skills of collaboration and teamwork, civic responsibility, and ambiguity tolerance and risk management, as described in Chapter One. The next section therefore demonstrates the alignments between established learning theories and Live Projects that are concerned with effective learning. In

9 These include links between relevance and motivation, issues around the problems of transferability between contexts, authentic assessment and so on.

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doing this, the pedagogic literature does to some extent predict the ability of Live Projects to enable students to acquire the missing skills.

3.5.1 Learning by doing; action learning, simulated learning, experiential learning, self-directed learning, research -based learning

Action Learning

According to Confucius, 'I hear and I forget; I see and I remember; I do and I understand' (Creel, 1949). Similarly, it is accepted that Live Projects allow students to apply their skills in real time, crossing the 'threshold' between knowledge and understanding (Meyer and Land, 2005). However, as the primary data later reinforces, Live Projects also provide students with the opportunity to acquire certain knowledge and skills that cannot be as easily acquired through mimicry, such as the missing skill of client consultation capability. By acquiring knowledge through action and practice, students engage in a process of 'action learning', whereby students work together to, 'tackle real problems or issues in order to get things done, reflecting and learning from their experience and from each other as they attempt to change things' (Edmonstone and MacKenzie, 2005). The 'reflective of practice' experience that the Design Studio offers was heavily eulogised by one of the first and most established architectural education theorists, Donald Schon (Schon, 1985; Schön, 1987). The limitations of Design Studio's ability to enable reflection-in-action, and most critically, reflection-on-action through professional simulation, was later successfully critiqued by Helena Webster as merely offering students an opportunity to realign their thinking with the expert thinking of their tutors (Webster, 2008, p.63).

Experiential Learning

Instead, the ability of Live Projects to enable groups of students to 'make meaning' from direct experience (Itin, 1999) challenges the dominant tutor-as-expert role. This involves an openness to what 'knowledge and expertise' is, and represents a move away from the traditional educational hierarchies of tutor-as-knowledge-holder due to the requirement of student interaction with multifarious forms of 'expertise' including that of the community participants (Vygotsky, 1978; Reber, 1989).

Simulated Learning

Simulated learning shares characteristics with experiential Learning, however what it does not do is involve a precise replica of the activity of professional practice or the, 'imitation of the operation of a real-world process or systems' (Banks, et al 2001, p. 3). Arguably Design Studio provides a closer example of simulated learning than Live Projects do, however some Live Projects do not involve an external client or end user, nor do students assume the role of a project architect, but are instead required to perform tasks—such as working out costs (quantity surveying) or solving structural detailing problems (structural engineering)—that would be outside their professional remit in practice. On this basis, it is likely that much of the literature on simulated learning reflects upon the inter-disciplinary value of this model of learning (Kenaszchuk et al, 2011; van Soeren, 2011).

Self-directed learning

Acting independent of their tutors expertise, Live Projects afford students the chance to experience self-directed learning [10]; a process defined by Malcolm Knowles as when individual students, 'take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes' (Knowles, 1975, p.18). This corresponds with the 'live' nature of Live Projects, where unanticipated events require students to take the initiative and find solutions – whether as individuals or as a team.

3.5.2 Learning from each other; peer learning and collaborative learning

Perhaps a natural extension of self-directed learning is learning from each other; peer learning and collaborative learning – intersecting learning behaviours that emphasise collaboration and enterprise through teamwork; another of the missing skillsets this thesis is concerned with.

In common with experiential learning's focus upon challenging the role of the Design Studio tutor is 'peer' and 'collaborative' learning. Peer learning is understood to take place when students interact with other students to attain educational goals (O'Donnell and King, 1999). As constructivist educational theorist John Dewey argues, education is, 'less about telling and being told, but an active and constructive process,' (Ballantyne, 2005, p. 61; Dewey, 1916, p.38). If

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10 'Live Projects … have the possibility to be student led or led by others.' Chiles and Holder. (2008, p.198)

knowledge is therefore co-authored by the student and community participants, new forms of knowledge construction and not just knowledge acquisition take place—which also applies to research-based learning (Lave and Wenger, 1991). The emphasis on knowledge generation rather than just sharing is more closely associated with collaborative learning. Furthermore, collaborative learning is heavily rooted in Vygotsky's views that the learning process is inherently a social one (Vygotsky, 1978). Research into the efficacy of collaborative learning is inclined to be limited to studies of students working together or students and teachers, rather than students and community members or interdisciplinary teams working together (Smith and MacGregor, 1992).

3.5.3 Learning through interdisciplinary processes; interdisciplinary learning, problem-based learning

Interdisciplinary learning

Interestingly, one of the least theorised areas of education is interdisciplinary learning—which Sara maintains Live Project inherently are—despite many academies recognising that they enable complex problem solving (Wagner et al, 2012). The evidence of this comes largely from the field of health but also in social work, where it has been established that interdisciplinary teaching and learning in social work education can improve service user outcomes by promoting collaborative working between professionals (Cooner, 2011, p.312; Selle et al, 2008). Furthermore, interdisciplinary learning (Augsburg, 2005, p.56) [11], is understood to be more effective at solving 'complex' problems (Dearborn and Harwood, 2011) particularly once the students graduate and enter their respective professional fields (Sternberg, 2008, p.12). Generally, the research indicates that the ability to 'solve complex problems' is the measure of the efficacy of interdisciplinary learning (Majeski and Stover, 2005). A 2002 study of Central Michigan University's humanities program identified that interdisciplinary learning also, 'enhanced critical thinking ability,' and 'knowledge transfer' between disciplines that are useful skills within industries such as architecture where knowledge is often transient or evolving (Ivanitskaya et al, 2002). The disadvantages of the vast majority of the studies of interdisciplinary learning is that few are situated within 'live' or community contexts. Furthermore, there are some ambiguities

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[11] Note that there is an important distinction to be made between multidisciplinary and interdisciplinary ways of working and thinking. The term itself is scrutinized later in this chapter. In the context of this section of the commentary however, note that according to Augsburg, multidisciplinary involves collaborative that, "may be mutual and cumulative but not interactive.' In other words, the disciplines maintain their own expertise but apply it in a collaborative way to achieve a common solution or aim, 'while inter-disciplinarity blends the practices and assumptions of each discipline involved." (Augsburg, 2005 p.56)

about the true meaning of inter-disciplinary and whether we need to be aware of a more diverse range of possibilities to explain the relationship between disciplines. Astrophysicist Eric Jantsch argues (Jantsch, 1972, p. 106) identifies five key types:

1. *Multi-disciplinarity*: When a problem is subdivided and the participating disciplines use their expertise to work on component elements. The limitations include a lack of cooperation, difficulty in defining what the problem actually is and a lack of learning or sharing as no one steps outside of their discipline-specific behaviours or knowledge, presumably to avoid losing a sense of expertise. Arguably, this is how most construction teams operate.

2. *Pluri-disciplinarity:* Is meant to refer to a degree of cooperation but no coordination. For example, there is likely to be an agreed common outcome and an openness to sharing process information, but no real sharing of ideas or working together to develop or advance the brief or to solve the problem.

3. *Cross-disciplinarity:* According to Jantsch this is when one discipline takes precedence over others and the other disciplines define their contribution within the dominant disciplines terms— or viewing or observing one discipline from the perspective of another (Meeth, 1978).

4. *Inter-disciplinarity*: According the Jantsch, this simply involves 'higher level' disciplines taking leadership over others. For others such as Geoffrey Bennington argue that the term 'inter' has associations with joining of disciplines –for example intercourse, inter-collate and so on (Bennington, 1999, p. 104). Inter-disciplinarity has therefore been considered to be a 'slippery' and 'ambiguous' term (Moran, 2010) and that this ambiguity is what has prompted terms such as anti-disciplinary and trans-disciplinary. Yet these terms are often not defined closely or used interchangeably, they suggest that being interdisciplinary is not quite enough, that there is another intellectual stage where disciplinary divisions can be more radically subverted or even erased.

5. *Trans-disciplinarity:* Eric Jantsch's view is the trans-disciplinarity is the optimum configuration. He defines this as,

> *'…the co-ordination of all disciplines and inter-disciplines in the education/innovation system on the basis of a generalized axiomatics (introduced from the purposive level down) and an emerging epistemological pattern,'* (Jantsch, 1972, p. 106).

In other words, his view is that trans-disciplinary practice or teams agree on possibly several different objectives but that they are coordinated toward a common aim.

Whilst Janusch favours trans-disciplinarity over inter-disciplinarity, there are conflicting views on what inter-disciplinarity is. That Live Projects can offer interdisciplinary experiences is evidenced within the literature review and later scrutinized in the primary research. That they are always 'trans-disciplinary' is harder to establish as participants often want very different outcomes but are willing to share the same process. For example, a student seeking credits and experience wants a different ultimate outcome to a community member wanting somewhere to play with their children but they both work 'cooperatively' and use their different disciplines or experience-specific skills to build a play park.

It is also important to explain why the former of the two terminologies has been selected over others within this thesis. To begin with, inter-disciplinarity is the term most consistently used within the key literature (for example, the Latham Report, Egan report, RIBA Future for Architects Report and so on) and the skillset shortfall of architects that these reports identify. Within these reports it could be argued that inter-disciplinarity is treated as an all-encompassing term used to describe all possible 'relationships between disciplines,' (to return to Jantsch's description). However, more resent discourse on the term proposes that inter-disciplinarity is the new 'critical idiom.'

Sociologist Joe Moran explains it thus:

> *Inter-disciplinarity interlocks with the concern of epistemology – the study of knowledge – an tends to be centered around problems and issues that cannot be addressed or solved within the existing disciplines, rather than an all inclusive synthesis,'* (Moran, 2010, p.65).

For the purposes of this enquiry, the study therefore examines interdisciplinary behaviours, characterised by Moran's definition:

> *It can suggest a forging of connections across the disciplines; but it can also mean establishing a kind of undisciplined space in the interstices between disciplines or even attempting to transcend disciplinary boundaries altogether,* (Moran, 2010, p.15).

Whilst some Live Projects involve other disciplines in an overt way — for instance an architecture and art student collaboration run by the researcher and a fine art educator (Black and Harriss, 2010) — many Live Projects involve students performing activities—such as joinery—that are not normally part of professional practice. However it could be contended that like the term inter-disciplinarity itself, there are in inherent ambiguities in Live Projects due to the scope of the definition and variable factors (such as site conditions or the needs of clients) that often demand tenacious and 'undisciplined' solution finding. Therefore it is Live Projects' transient nature that predisposes it to occupy 'interstitial' space between disciplines and most closely aligns it with inter-disciplinarity over other terms.

Problem-based learning

Problem-based learning (PBL) is a more widely established pedagogic tool that has been adopted across a range of disciplines. It has been defined as a, 'constructive, interactive and student-centered form of learning process,' usually involving small groups where the emphasis is on knowledge sharing and collaborative learning based around 'exploring a diverse range of complex problems pertaining to their chosen area of study' (Clouston, 2010) [12]. Furthermore, problem-based learning has, '..a long history of advocating experience-based education…students learn through the experience of solving problems, they can learn both content and thinking strategies' (Hmelo-Silver, 2004, p.235). Not only do students learn to problem solve, but also to 'work collaboratively,' (Ibid). In addition, most of the problem given the students lacks a 'single correct answer', requiring them to work through uncertainty to, 'identify what they need' to attempt to solve the problem. *(Ibid)* Furthermore, effective PBL can only take place within, 'a learning environment that simulates a professional setting' (Savery and Duffy, 1995). This means that in theory at least, PBL can to some extent take place within a Design Studio context.

The benefits to PBL as evidenced by research within other disciplines point to 'greater student engagement, application of knowledge to realistic scenarios' and the development of 'transferable

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12 Encompasses variations such as inquiry-based learning and most recently research-based learning, as outlined in earlier sections.

skills' (Woods et al, 1997). Research into PBL within the field of medicine has arguably led the way in moving to PBL as a way of practically bringing the medical sub-discipline together. Whilst much of the good medical PBL pedagogy could transpose to construction learning contexts, there is a limited amount of research into PBL within community contexts as opposed to 'learning' or 'instructional design' communities (Savery and Duffy, 1996, p.213). PBL learning in architecture schools is not new. In the early 1990's Delft TU made a determined attempt to make PBL a core part of their teaching as well as emphasising interdisciplinary models of learning. The limitations of this model however, were that they were limited to construction-related disciplines such as real estate and planning (Bridges, 2006). Later in this thesis, Live Projects that are more broadly interdisciplinary are examined.

3.5.4 Learning off campus: practice-based learning and work-based learning, situated learning, research-based learning.

Practice-based learning and work-based learning

Practice-based learning (Barrows, 1994) is kindred to such terms as work-based learning and practice-based learning (Boud and Solomon, 2001) and is primarily concerned with the co-production of new knowledge or the renewing of existing knowledge and/or professional practices based upon their efficacy at the point of application. Typically, the bulk of research literature within this cluster is based upon clinical or social care contexts, however the points of direct comparison with Live Projects focus on the partnership between universities and the businesses or public agencies where the learning is generally situated (Boud and Solomon, 2001, p.6).

Situated learning

Connected to Dewey's ideas on the co-creation of knowledge is situated learning, which authors Jean Lave and Etienne Wenger argue is, '… not an educational form, much less a pedagogical strategy' (Lave and Wenger, 1991, p.40). As the title of their preliminary enquiry 'Situated Learning. Legitimate peripheral participation,' situated learning takes place outside of both the university campus and the established pedagogic practice emphasising 'social learning' —which like collaborative learning, resonates with Vygotsky's views on learning as a social activity (Vygotsky, 1978) —where knowledge creation not just knowledge acquisition is taking place (Lave and Wenger, 1991). In Live Projects, the changes in tutor-student relationships facilitate a

departure from 'established' pedagogy, enabling students to reflect on the content of their training (for example the importance and relevance of their architectural knowledge thus far) and also the pedagogic infrastructure that determines how this knowledge was imparted, such as the Design Studio and lecture hall formats. This 'freedom' to reflect and critique allows students to both identify and palliate the gaps in their own knowledge (Biggs, 2003).

Research-based learning

Research-based learning (RBL) is an umbrella term used to describe a range of approaches to learning that are, 'driven by a process of enquiry' (Hutchings, 2007). Live Projects ability to encompass problem-based learning with field-work and undergraduate research is what qualifies it as research-based learning; research carried out as part of the curriculum by undergraduate students that concerns the testing of discipline epistemologies such as the architectural skills they have been taught and by implication to consider their value/relevance in practice (Healey and Jenkins, 2009, p. 23).

3.5.5 Learning through civic engagement: engaged scholarship, action research

Engaged scholarship

Within a Live Project, students are first required to develop an understanding of the, 'pressing social, civic [and] economic… problems,' (Boyer, 1996, p.11) facing a community before taking responsive action. As the late American Architect, Louis Kahn asserted, 'a good question is better than a brilliant answer,' (Kahn, 1961). Similarly, it has been argued that students can often develop more responsive design solutions than those offered by professional design practitioners, by working with community members within a 'civic mandate' (Boyer, 1990, p.16) to enable problem defining (Bentley et al, 1985). This kind of engagement requires Live Project students to invest a greater proportion of time and intellectual capital in the process of brief defining rather than merely focus on generating traditional architectural outcomes or 'solutions' (Harriss & Widder, 2012, p.78). This approach is most commonly described as 'service learning' or 'engaged scholarship,' (Holland, 2005) both of which are grounded within a number of learning theories including those of academic heavyweights such as Paulo Freire (Freire, 1968) and the modernist epistemologies of John Dewey and David Kolb (Kolb, 1984) whose influence on experiential

learning and collaborative learning has been considered previously (Stanton et al, 1999). [13] Live Projects are not the only means by which students engage with the community. Some Design Studio based projects involve focusing on issues that matter to the community as a means to, 'bring a heightened realism to the studio,' (Davies and Lifchez, 1987) although it might not always involve 'live' contact with real clients. In any of these scenarios, the risk remains that community members can be limited to the role of unpaid informants of unimplemented needs and desires, rather than collaborators. Authentic, engaged scholarship on the other hand, is increasingly focused upon what Freire and others term 'reciprocal benefits' that are both mutually contingent and mutually rewarding benefits (Peterson, 2009; Miron and Moely 2006, p.545). This shift was quite possibly prompted by Amy Driscoll's observation in 2008 that, '..most institutions could only describe in vague generalities how they had achieved genuine reciprocity with their communities,' Driscoll, 2008, p. 41). Since then the increasingly large body of pedagogic knowledge on 'engaged scholarship' has placed increased emphasis upon the institutional policies that reward community engagement as well as benchmark standards for effective assessment (Peterson, 2009; Saltmarsh, et al 2009; Ward, 2005; Weis et al, 2007). These institutional drivers increase the appeal of Live Projects across a broad range of disciplines.

Action Research

The emphasis on a scholarly approach to problem-solving within a 'community (of practice) context, aligns with action research (also known as participatory action research), which similarly 'stresses the active role citizens can play in the production of academic knowledge' (Barker, 2004, p.130). The principle emphasis, however, is upon a 'social' research approach that leads to social action, (Mordock and Krasny, 2001) implying a tangible intervention as well as the co-creation of knowledge. As well as its obvious alignment with the emphasis on 'participatory' action proposed by Freire, one of action research's major theorists is Chris Argyris, who examined how people design their actions in response to difficult or challenging situations, describing these personal as well as organisational behaviours as 'single loop' and 'double loop' learning (Argyris, 1977, Argyris and Schön, 1978). Whereas single loop learning involves suppressing conflict in favour of achieving a specific outcome, double loop learning involves simultaneously achieving a specific

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13 A contextual note on service learning: whilst Dewey's focus was on the learning that resulted from the mutual exchange taking place between people and their environment, Freire expanded this to concept to consider shifting power dynamics between tutor and student emphasising the co-creation of knowledge and reciprocity whereas Kolb's work emphasized the observation, reflection, and analysis play in enabling students to take charge of their learning and engage in cycles of continuous learning.

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outcome whilst at the same time engaging a more 'open' or 'questioning' approach, as Kahn would describe it. It is also important to note that much of Argyris' 'loop' system research was done in partnership with 'reflective practice' theorist Donald Schon (Argyris and Schön, 1974; 1978, 1996) and subsequently, 'reflection' on action forms part of the double loop cycle (Senge, 1999, p,182-183) [14]. Finally, Argyris also made a clear distinction between 'theory-in-use' and 'espoused theory,' (Argyris, 1980) perhaps providing one of the most poignant distinctions between Live Projects (characterising the former) and Design Studio (characterising the latter).

In summary, these learning theory alignments demonstrate that Live Projects can offer learning experiences consistent with much of the literature regarding effective pedagogy - one that involves authentic and active engagement with real situations being more effective at enabling learning and more relevant to the nascent demands of wider industry. Arguably, this represents an endorsement of Live Projects as a learning model, one that is seldom explicitly recognized within architectural discourse on education.

3.6.0   The missing skillsets in relation to Live Project pedagogy

As outlined in Chapter One, the principal concern of this study is to examine whether Live Projects can better assist students in gaining the three key skillsets of interdisciplinary team-working, client collaboration and community engagement and risk and ambiguity management than the more established teaching model of Design Studio. Within Chapter Two, it was established that Live Projects have a long history and align with the validating criteria of the NAAB, NCARB and RIBA more effectively than Design Studio, however they continue to retain more peripheral position in relation to mandatory curricula than their counterpart. So far, this chapter has identified the pedagogic alignments between Live Projects and established learning theories. However, whilst the exercise of theoretically aligning Live Projects to established learning theories has proved useful in establishing where the gap in knowledge in relation to pedagogy is, the exercise is tautologically limited. This is because most of the learning theories examine whether learning is taking place and do not focus specifically on the relationship between the students and the skills they are trying to attain. As Cross defines it:

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14 Peter Senge was a student of Argyris.

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> *Most existing learning theories are more easily applied to how things are learnt rather than to who is doing the learning. Generally speaking, humanistic theory appears relevant to learning self-understanding; behaviorism seems useful in teaching practical skills; and development theory has much to offer the goals of teaching ego, intellectual or moral development. Thus the theoretical orientation of the teachers may be related more to the characteristics of their subject matter than to the characteristics of their students* (Cross and McCartan, 1984, p.15).

Subsequently, the next step is to consider the connections between the 'good pedagogy' of Live Projects and the acquisition of the three skillsets in more detail.

3.6.1   Pedagogic alignments in skill-set one: collaborative interaction between and within inter-disciplinary teams

As identified in Chapter One, the Latham Report (1994) and subsequent others emphasised the importance of architects' ability to work effectively within interdisciplinary design teams [15]. Although the established learning theories considered in Section 2.7 (such as PBL, action learning, collaborative learning, peer learning, interdisciplinary learning to name a few) are focused upon learning that takes place within group situations, the subjects of their studies are invariably students and educators, discounting the participation of clients. Furthermore, the few studies that focus upon inter-disciplinary teams unsurprisingly concern other subject areas such as medicine or social care. Of a small but representative sample of the literature considered, there is general support for interdisciplinary team-working, as it is not only reflective of practice, but enables students to gain vital skills in dealing with increasingly 'diverse' community members (Sternas et al, 1999; Ogrinc et al, 2003, Leipzig et al, 2002; Camp, 1996). One piece of research on design-related discipline teamwork featured an interdisciplinary assignment involving architecture and engineering students. The findings from this study appeared to indicate that more can be accomplished in 'cross-functional' teams, through a process of breaking down the 'functional silos' between architecture, engineering and construction (Allen et al, 2011) a view that has been supported elsewhere (Shelton et al 2010).

Peer versus public critic

The limitations of these studies are that they do not consider more qualitative aspects of teamwork, such as the integrity of the design process and outputs. Although the research on this

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is scant, Gabriella Goldsmidt's study into whether architects work better in teams or alone, identified that there was no difference in 'productivity.' However, this study only concerned itself with standard architectural outputs and not the more complex demands that architects are increasingly required to respond to in industry. So whilst she maintained that architects, 'varied knowledge and outstanding capacity for mental integration and synthesis,' (Goldschmidt, 1995, p.189) predisposes them to efficiency in both team and individual work environments, the expanding specialisms associated with construction make it hard for architects to synthesis quite so many skillsets. Furthermore, although her study concluded that the contrasting outputs from the sole practitioner and the team were of comparable quality, these outputs were judged not by end users but by peers, and does not therefore respond to the demand for a more 'customer or client centered approach' contained within the Latham and Egan reports.

3.6.2 Pedagogic alignments in skill-set two: participatory engagement with clients and civic concerns

Professional versus public

As explored previously, research into community-engaged scholarship provides a substantial pedagogic framework for Live Projects, yet it has largely been limited to medicine and social care. The missing research on community-engaged architecture projects has an added complexity, in that the profession as a whole has a troubled history regarding their ability to serve the interests of the public. As reflected in the title, this thesis argues that Live Projects are able to educate the twenty-first century architecture professional. Yet what we mean by architecture professional is increasingly contested (Duffy, 1998). As Jeremy Till points out, 'Architects conflate professional codes of conduct with an ethical stance' (Till, 2011, p.171), and instead argues that professional identity, '…is actually dependent on others for its development and transformative enaction' (Till, 2011, p.165). It is this emphasis on the participation of others that has a potentially significant impact on how the public may perceive architects. Live Projects address this by enabling students to work with the public in order to address civic problems at a crucial stage within their development, rather than only after they have qualified, which is often the case. As the late architecture educator and critic, Reyner Banham once noted, 'a professional is a man with an interest, a continuing interest in the existence of problems' (cited in Till, 2011, p.166). Therefore professionalism is acquired through the process of responding to 'authentic' social problems or

challenges, which Piling and Nicholson argue is what is needed to, 'develop professional competencies' (Nicolson et al, 2000, p.11). For many commentators, (Forsyth, 2009; De Carlo, 1980) clients or end users, participation in the design process is essential to providing a more responsive form of architecture—to achieve new spatial conditions as well as new types of architectural practice (Blundell Jones et al, 2005). As American industrialist and entrepreneur, Andrew Carnegie, described it, 'teamwork is the fuel that allows common people to attain uncommon results,' in other words, results that are innovative, progressive and entrepreneurial. In Live Projects students most often work with end users and clients who 'bring diverse experiences, views and needs into the design process,' (Andrejko, 2008, p.8) [16] which not only enables them to, '…develop an understanding of client and user needs,' (Sara, 2004, p.2) but they experience the kind of, 'interdisciplinary working that characterizes professional life, '(Nicolson et al, 2000, p.11) enabling a significant culture shift away from the position of cultural privilege that architects were traditionally educated to occupy (Banham, 1990).

Emergent professionalism

The transient nature of architects' professional identities is not limited to the field of architecture. A 2010 General Teaching Council sponsored DEMOS report identified that:

> *Across society, professionalism increasingly refers to an individual's attitude and behaviour rather than to a group's formal status and collective identity. Someone in almost any line of work can do a 'very professional job'. This is more than simply a corruption of the term – it is part of a broad shift in the way life is regulated…society increasingly relies on the power of informal norms and ethics, which we call 'soft governance*, (Craig and Fieschi, 2007).

This represents both a challenge and an opportunity to move away from what Burton Bledstein called the professional, '…culture of elitism…a separation from the public that the profession serves,' (Bledstein, 1976) and what Michael Eraut similarly described as, 'profession-centered rather than client-centered,' behaviours (Eraut, 1994, p.5) in order to move towards a new professional identity that is co-defined by both architects and the public. For this reason, it is contended that professionalism cannot be engendered without civic engagement and

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16 "The AIA's Public Policy on Diversity and Inclusiveness states, "Architects must encourage and celebrate the contributions of those who bring diverse experiences, views and needs to into the design process….yet neither the AIA not the profession in the U.S. is the mirror of the society it serves." (Andrejko, 2008, p.8)

participation, a position that is advocated by theorists, educators and practitioners (Tovivich, 2008; Sara, 2004; [17] Caruso and Vanky 2008; Albrecht, 1988) [18].

Civic participation and humanistic planning theory

Although civic participation in architecture schools is significantly under-theorised, it is distinctly less so within architectural practice. There have been a number of architectural theorists who have explored the importance of public participation (Sanoff, 1978; Blundell Jones et al, 2005; Jenkins and Forsyth, 2010; Jonathan, 1998; Ellis and Cuff, 1989) although the nucleus of this was the 1960's planning movement. Historically, this body of knowledge is broadly defined as humanistic planning theory (Albrecht, 1988) and it has subsequently been argued that these theories can serve as a transposable theoretical and practical framework for participation in architecture. However, there are limitations. According to Johann Albrecht, 'The more the architect is willing to live up to the demands of the current model of participation, the more he (sic) becomes a mere facilitator and coordinator, relinquishing the essential features of architectural activity' (Albrecht, 1988). This reflects an anxiety often cited in arguments against increasing participatory design in architecture (Serageldin, 1997).

However, Albrecht argues that this can be avoided by an emphasis on, 'social transformation and development,' where any architectural interventions using a vocabulary that can be used by people since, 'through appropriation, imitation and transformation [the] creative authority of both architect and the inhabitants is upheld' (Albrecht, 1988, p.30). Absent from this theoretical position is the distinction between the 'upholding' of roles and the more open and transient roles assumed by both students and public participants in a Live Project. Given that the students have yet to qualify as professionals, their focus is not on asserting or maintaining their professional status since they do not have one at this stage in their training. As this identity is skills based, it needs to be negotiated and earned, in some respects through a 'soft governance' process where 'norms' and 'ethics' are informal and negotiated or, to return to Till's terminology, involves the public in a process of 'transformative enaction.'

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[17] According to Sara, "community situated project 'motivates' students and increases, '…the level of enjoyment and responsibility."

[18] Giancarlo De Carlo, Ralph Erskine, Lucien Kroll, Charles Moore have also helped nurture public recognition SEE: Albrecht, (1988).

An analysis of how Live Projects offer students the opportunity to develop and even co-author 'professional' behaviours and skills through a process of engaged negotiation, without simply assuming or imitating professional 'authority' would therefore make a significant contribution to theories of participation and humanist approaches. This is in addition to the pedagogy of community engagement.

3.6.3 Pedagogic alignments in skill-set three: managing emergent ambiguities in risk exposure and decision-making

Ambiguity tolerance as professional asset

As outlined in Chapter One, the levels of ambiguity in being an architect are greater than ever before (Gutman et 2000, p.200; Dall'Alba, 2009; Imrie and Street, 2009). In response to this, learning from ambiguity is a theme that the researcher has previously explored in her own research involving the design, implementation and analysis of an interdisciplinary collaboration between architecture students and MBA students (Cassells, and Harriss, 2010) Similar to Ivan Shibley's findings from his research into interdisciplinary collaboration, the researcher has also observed that there are notable pedagogic differences within the learning styles preferred by the students. Within the two comparative case studies, the researcher discovered that MBA students were more focused upon descriptive instructions for the collaborative assignment whereas the architecture students were more able to work with more 'open' briefs. The aim of testing how well both sets of students responded to ambiguity was determined in response to evidence from both industries as well as other learning studies identified that there were strong correlations between leadership skills and the ability to recognise, explore, and profit from ambiguous and chaotic situations in a world of constant change (Shibley, 2006; Wilkinson, 2006; Prince, 2002). Similarly, cognitive theorists have attributed higher problem-solving, decision-making and creative abilities to those more able to tolerate ambiguity, positioning them as 'innovators' who transcend existing paradigms rather than 'adaptors' who prefer to work within clearly defined parameters (Kirton, 1978; Rouse et al, 2011). The available studies are limited in that they do not feature interdisciplinary learning experiences that are situated within the real time context that characterises a Live Project; which involves unanticipated and often changing ambiguities and uncertainties. The primary research enquiry therefore examines how students are often required

to alternate between innovative and adaptive behaviours, depending on their suitability to address this gap in knowledge.

The relationship between risk and ambiguity

As discussed in Chapter One, levels of exposure to risk in architecture and the commercial world in general, is ever increasing. The causational link between ambiguity tolerance and risk taking have been explored in a number of studies within business education as well as clinical studies, (Epstein and Schneider, 2007), and suggests that those more able to cope with ambiguity are also less risk averse. Although not all risk aversion is necessarily an asset (as a number of studies concerning the recent banking crisis have identified) more often the value of risk taking within a learning context is that it exposes us to failure that later improves our ability to effectively calculate and respond positively to risky situations. As Chiles and Hodder argues, 'Live Projects should value failure….and be an opportunity to take risks' (Chiles and Holder, 2008, p.197). The benefits of experiencing risk exposure within a comparatively 'safe' academic as opposed to commercial context is that it enables 'crisis-preparedness' (Carmeli and Schaubroeck, 2008), resilience, resourcefulness and leadership, deemed essential skills in an increasingly uncertain world (Hyatt, 2001, p.13). As captured in the popular business maxim credited to Bill Moggridge of global product innovation company IDEO, 'Fail early, fail often; succeed sooner.' Early failure is viewed positively within business management as well as entrepreneurship and innovation circles (Schrage, 1999). Furthermore, evidence from studies of teaching risk management emphasise that risk management is most effective when modeled in 'cross-disciplinary' situations (Rasmussen, 1997).

Unsurprisingly, the importance of developing learning experiences that involve a level of risk taking is not an area that has been theorised in architecture, given the limitations of a Design Studio in trying to mimic an authentic sense of exposure to 'risk.' Within both live practice and Live Projects, the third party participants such as the clients are the most likely source of risk, as the production of any architectural process or outcomes is entirely contingent upon their wishes. Alan Chandler, from the University of East London therefore makes an important point in arguing that, 'risk management is another name for social responsibility,' (Chandler, 2011) since how architects handle the risks presented by the client and furthermore how we manage risk or

establish risk governance of behalf of the client is key to defining our own professional competencies and identity (Power, 2004; Green, 2012, p.176).

3.7 Summary of Conclusions

This chapter has explored the pedagogic alignments between Live Projects and established learning theories with a view to demonstrating the pedagogic integrity of Live Projects.
It has also helped to identify connections between Live Projects' 'good pedagogy' and the acquisition of certain skillsets assisting further in framing questions regarding the three skillsets around which the primary data gathering can be structured. However, what it also highlighted is that much of the discourse on learning behaviours in Live Projects has been captured in research generated by other disciplines and not architecture. There is evidently a gap in knowledge – and an obvious opportunity – for architectural discourse to take up the slack on this issue. But this also reveals a further possibility – that Live Projects could help generate new pedagogic theories; theories that might then resonate in disciplines outside architecture.

Furthermore, if good research is defined by its impact, then the added value of demonstrating the pedagogic integrity of Live Projects is that this exercise offers a resource to educators seeking to set Live Project activities with a clear set of pedagogically informed learning outcomes. This is usually a mandatory requirement when the projects are formally assessed.

Some of the most cited literature on Live Projects identifies them as a form of 'border pedagogy'; one that better enables a more critically-engaged, reflective learning experience. In nurturing students to become critically active, they are understood to prove transformative in learning situations, not least because they allow students to question, challenge and recognize the value and relevance of what they are learning. However, Live Projects' peripheral positioning relates to practice as much as the academy – positioned as they are on the margins of both. For this reason, they are able to take a critical position in relation to practice too, one that may prove transformative in imagining practice alternatives for the future. This is supported by the skillset alignment exercise, which identified that gaining the missing three skills of *(1) teamwork and inter-disciplinarity, (2) client collaboration and civic responsibility and (3) risk tolerance and ambiguity*

management is not only pedagogically grounded, but enables students to engage with challenges facing practitioners and the pressing concerns of practice.

Within this chapter, the pedagogic alignment and analysis helped ensure that the terms used to frame the research questions were conceptually sound. This is best illustrated in the example of how the term inter-disciplinarity was cross-examined.

With the literature review completed, the next phase of the research (Part Two) focused upon primary data collection and analysis. Subsequently, Chapter Four describes how the study was designed to ensure that data was collected and analysed in order to answer these questions. This involved identifying suitable research methods for data gathering and theoretical framework to examine the findings and also further explicated the research questions, whose relationship to the findings provided by the literature review were clearly aligned.

PART TWO: METHODOLOGY

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4.0 Introduction

Chapter Four examines the design of the study, detailing the rationale behind choosing
qualitative as well as quantitative research methods employed for data gathering and the use
of a Grounded Theory framework. As Grounded Theory does not involve beginning with a
hypothesis, it provides a useful tool for interpreting qualitative data from a range of sources
for theory building. The study examined the perceptions of educators, architects and students.
The samples chosen for this study were situated in two distinctly different contexts; in
practice and in education and encompassed architects, trainee architects, students and
educators both with and without Live Project experience, to enable a clear set of variables for
comparative analysis. The samples were also drawn from comparable cohorts in both the US
and the UK, the rationale for which is outlined in Chapter 01, Section 1.1.7. They included
evidence from students working on interdisciplinary Live Projects as well as those that
exclusively involved architecture students. In order to establish whether Live Projects can
deliver on the three key 'missing' skill sets; collaboration and interaction within
interdisciplinary teams, participatory engagement with clients and civic concerns and finally
the capability to manage emergent ambiguities in risk exposure and decision-making, both
primary and secondary data is cross-examined.

4.0.1 Contextualising the study: research questions and objectives

As discussed in Chapter One, this study is concerned with questioning to what extent are
Live Projects are effective at enabling the acquisition and application of three specific skillsets.
The intention behind constructing the research question in this way is to identify that a Live
Project efficacy cannot be considered in isolation but that it can be done more effectively if it
includes some cross-comparison with more established, campus situated learning experiences.
The decision to assume a critical position in relation to both Live Projects and Arguably, any
learning program that fails to directly engage the subject that students are learning from
simply ensures - as Joe Kinchiloe puts it, 'qualitative research [that] frames its purpose in the
context of critical theoretical concerns [and] still produces, in our view, undeniably dangerous
knowledge' (Kincheloe, J., (2004). In light of this insight, it is therefore important to
acknowledge that the researcher's intention was to use the research to frame a direct
'challenge' (although not necessarily a 'dangerous' one) to the way that architectural education
currently prioritises some models of learning over others, as indicated by the credits or grades
each are attributed.

Through the literature review chapters (1-3), this thesis identified three kinds or groups of 'practice-ready' knowledge, which are categorised as skillsets – *(1) inter–disciplinary teamwork capabilities (2) client collaboration and civic engagement capabilities (3) acquire ambiguity tolerance and* risk management capabilities and thereby operationalised the main focus of this thesis into separate elements for investigation. Chapter Four therefore begins by outlining how the framing of these questions has informed the choice of theoretical framework underpinning the research enquiry, and subsequently how this choice assisted in explicating the research questions into those used within the questionnaires.

4.0.2 Research methods and philosophy overview

The theoretical framework underpinning the research enquiry assumed a mixed methods approach in the analysis of qualitative and quantitative data. The qualitative evidence broadly used Grounded Theory methods and analysis. This involves the discovery of theory through the analysis of data (Yancey et al, 1986; Faggiolani, 2011; Glaser and Strauss, 1967) and real world research, which focuses upon problem solving with a view to creating meaningful change (Robson, 2011), which in this case applies to better understanding and improving architectural learning. Ground or Grounded Theory (GT) also emphasises data gathering before framing a specific hypothesis. It is important to note however, that this thesis is an atypical example in two ways. Firstly, the intention to identify and examine key skillsets within Live Projects is a very specific – rather than findings driven – tentative hypothesis. However, the researchers past experience of Live Projects preceded this thesis by some 15 years. It could be argued therefore that it is this previous experience – albeit one where data was not formally collected - that was used to inform the initial hypothesis. Although the data gathered helped frame the initial enquiry, the validity of this enquiry relies on data from independent sources – in this case, other architects, students and educators.

4.0.3 Analysis and interpretation overview

In terms of analysis, the mixed methods approach relies upon triangulation as a means to cross-examine evidence from the different data sets. 'Triangulation' described by Cohen et al as, 'the use of two or more methods of data collection,' (Cohen, 2011, p.141) is also understood to improve trustworthiness (Lincoln and Guba, 2000, p.109). Statements identified from the more experimental forms of qualitative research are interrogated within

the quantitative data enquiry (Creswell, 2008). In line with practice-based research methodology, this extended period of data gathering has enabled the researcher to consolidate observations on the acquisition of specific skills in both an academic as well as a practice context to consolidate into a concise set of learning concepts that the thesis process transforms into a theory (Glaser and Strauss, 1967). In terms of objectivity however, it is important to acknowledge that the longevity of the researcher's experience of Live Projects has inclined the researcher towards assuming the role of advocate, protagonist or, 'passionate participant,' (Lincoln, 1991). In an attempt to mitigate potential researcher bias in relation to both the methods of collection and interpretation, the researcher has declined to include referencing Live Projects where she was participant as a student as part of the auto-ethnographic data, and instead includes only the students' auto-ethnographic contribution via the use of online blogs.

4.0.4 Learning in real time, 'real world' research

This thesis qualifies as 'real world' research because it is concerned with questioning why Live Projects sit on the periphery of architectural teaching and curricula and considers what impact, if any, addressing this issue might have upon the current problems facing not only the academy but also the profession (Robson, 2011, p.3). Subsequently, it intends is to impact positively on architecture teaching but also practice and the communities that Live Projects seek to contribute to (Robson, 2011, p.4). By implication, the findings - and how they are communicated - need to be accessible and applicable to situations pertaining to every day life in both practice and in schools.

4.1 Rationale for research methods

4.1.1 Advocacy and participatory worldview

The potentially 'critical' or 'peripheral' position of Live Projects explored in previous chapters, predisposes the research methods and analysis to theories that consider marginalised groups and issues of social justice. This worldview is most commonly identified with more qualitative research, however it can often provide a foundation for quantitative research. Therefore, to use a 'mixed methods' approach is generally assumed to improve the overall strength of the study (Creswell, 2008). The ambition of the thesis—to examine whether integration of Live Projects within mainstream architectural curricula merits greater recognition—means that it

assumes an advocacy and participatory 'worldview' or paradigm (Guba, 1990, p.17; Mertens, 1998; Crotty, 1998). The assumed worldview positions the research as 'social constructivist,' which is based upon the assumption that individuals seek to develop subjective understanding of their experiences and therefore the tactic of the research, 'is to rely as much as possible upon the participants views of the situation being studied,' and well as pay attention to the interactions between participants and the context in which these interactions take place (Creswell, 2008, p.478). Using this tactic, researchers should be sensitive to their own influence in the research particularly in terms of interpretation and when generating or inductively developing a pattern of meaning (Creswell, 2008, p.478; Crotty, 1998). Social constructivist paradigms are inclined towards mixed methods. Within this research enquiry, data collection therefore combines evidence from case studies of Live Projects—both those of the researcher and others that are told from the perspective of a range of participants. The participants include: students, community participants and educators. The quantitative data also includes evidence from a larger range of participants including architects and those without Live Project experience.

4.1.2 Auto-ethnography and narrative research

As outlined within the foreword, the researcher had been involved in Live Projects as a student, an educator and as an independent researcher. According to Bass, 'the key to qualitative research analysis is immersion in the data until you learn to speak the same voice,' (Bass, 1993, p.80), which given the researcher's experience of Live Projects, was already predisposed to. It is anticipated that during the analysis process, the researchers assertions are likely be informed by evidence from her own experiential narratives within the research and analysis a methodology known as 'auto-ethnography' (Etherington, 2004, p.139; Scott-Hoy, 2002, p.276). Making explicit where the researcher's own subjective views lie in relation to the other sources of data is an act of transparency aimed at increasing the research integrity, and is made transparent in the analysis chapters, 6, 7 and 8. The use of 'narrative research' in essence used the 'stories' of students. This information was then organised sequentially and sometimes involved overlaying perspectives from different students participating in the same Live Project, as well as narratives from educators and the researcher's own participation (Clandinin and Connelly 2000). The 'stories' were 'phenomenological' in so far as they captured what Diekelmann describes as, 'the lived experience of students,' (Diekelmann, 1988; 1991) whilst at the same time identifying patterns in the way they experienced the same

phenomena —or in this case within the same Live Project (Creswell, 2008, p.606) Moustakas, 1994). The student narratives reflect a range of different insights including views about tangible and intangible outcomes, relationships with other participants, the challenges they faced and the lessons they learned. As with the educator interviews, the students' insights were used to refine and improve the efficacy and the validity of the data gathering processes.

4.2 Designing qualitative, practice-based research

Both the origins of the study and the primary data collection are located within practice and focus on the perceptions and experiences of participants. Subsequently, this enquiry is broadly defined as 'practice-based' qualitative research. 'Practice based research' refers to studies conducted within the practice setting and often involves a diverse range of participants: for example educators, students and practitioners (Bass, 1993, p.69). Although some questionnaire material was included, the principal methods used to gather data are qualitative, encompassing a diverse range of methods including interviews and observations. Findings were subsequently 'interpreted' rather than 'discovered,' therefore an, 'inductive' rather than 'deductive' approach is assumed (Ibid). Furthermore, qualitative research is context sensitive in all areas of the investigation, from 'conception to dissemination' of results (Bass, 1993, p.70). As Bass extrapolates, 'the researcher and the methods are considered to be embedded in the findings, and the concept of objectivity is replaced by 'subjective reflectivity' (Ibid). Although the objective of the research was to answer questions detailed in relation to the three skillsets or specific research questions, the overarching aim was to gain insight into a pressing issue that could make a positive difference in the lives of students and the community in which the Live Projects are situated—the main research question driving this enquiry (Berg, 1986 p.70).

Qualitative research allows for a degree of flexibility regarding methods in order to adapt to unanticipated evidence or other factors (Marshall and Rossman, 2006), for example, the more open-ended interviews and focus groups are inclined towards new information emerging that was not anticipated, yet include this content in the data analysis. According to Lincoln and Guba, quantitative research should include a specific focus, outline of phases and plans for gathering and analyzing data, and for ensuring the integrity or 'trustworthiness' of the results (Guba and Lincoln, 1981).

4.2.1 Inclusion of quantitative data

The overriding purpose of the questionnaire was principally to test the key assumptions of this thesis: in essence whether Live Projects prove effective at delivering the missing skill sets. Although the mixed methods approach draws from a range of different qualitative sources, the researcher deemed it necessary to include some form of easily quantifiable data. For this reason, she took the decision to add a series of quantitative, fixed response questions to the online questionnaire, requiring respondents to indicate the extent to which they agreed or disagreed with the statement presented along a 5-point continuum. This allowed the variable—i.e. the 'validity' of each question's inherent proposition—to be captured upon a scale and effectively measured. Within psychology, the preferred term is construct as it, 'carries the connotation of a more abstract idea rather than a specifically defined term,' (Creswell and Plano 2007, p.1336) however the tendency amongst social scientists is to use the term 'variable' to encompass behaviours, attitudes, contextual information such as gender and wider issues such as political infrastructure. Since this study concerns both behaviours as well as the context in which they take place (the school of architecture and the relationship between behaviours and architects in practice) the researcher chose to work with the term 'variable.' The efficacy as well as the limitations of the online questionnaire is discussed in more detail in Chapter Five, where the participant profiles are discussed in detail.

4.3 The rationale informing participant choices

4.3.1 Context comparisons between US and UK participants

This study gathered the core of its primary data from architecture students and educators in both the UK and the US. Architects in both countries were also interviewed, and contributed to the online questionnaire. Although the rationale behind choosing these two locations is discussed in Chapter One, Section 1.7.1 the key points to consider here are firstly; that both the UK's RIBA Criteria for Validation (RIBA, 2011) and the US equivalent—the National Architecture Accrediting Board (NAAB) curriculum (NAAB, 2009) —do not make explicit mention of Live Projects, nor the more popular US term encompassed by Live Projects— design build. Secondly, in relation to the 'missing skills', both the NAAB Conditions of Validation (2009, 2014/pending) and the RIBA Validation Criteria (2012) emphasise the importance of gaining the 'missing skills' of collaborative interaction between inter-

disciplinary teams [1,2], participatory engagement with clients and civic concerns [3, 4] and the capability to manage emergent ambiguities in risk exposure and decision-making [5, 6]. This curricula parity therefore enables a wider cohort for the collection of quantitative data.

Thirdly, as outlined in Chapter Two, the US Land Grant System has better enabled Live Projects to take place typically through the vehicle of Community Design Centers (CDC's) predisposing US schools to develop larger and more renowned Live Project facilities and programs. There are 123 architecture schools offering professional degrees in the US and approximately 42% of these have CDC (Rios, 2006). The researcher's early PhD research subsequently involved spending six weeks touring CDC's during the summer of 2011 thanks to a Winston Churchill Fellowship as a means to prototype some research pilots involving staff and students in these centers. [7] Finally, there is always the risk that the contextual differences could potentially distort the findings and make comparisons or general claims difficult. In order to address this, all respondents to the online questionnaire were required to state not only their geographical location but also whether they studied under RIBA or NAAB criteria, to identify whether there were any distortions. This is discussed in Chapter Five [See also Appendix Nine].

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[1] '2009 Conditions for Accreditation.' National Architectural Accrediting Board (NAAB) ITEM "Realm C: Leadership and Practice: Architects need to manage, advocate, and act legally, ethically and critically for the good of the client, society and the public. This includes collaboration, business, and leadership skills." ALSO 'Discerning the diverse roles of architects and those in related disciplines.' (p.23-24) ALSO 'C1: Collaboration: Ability to work in collaboration with others and in multi-disciplinary teams to successfully complete design projects. (p.24),

[2] RIBA (2012) 'PC4 Practice and management: A successful candidate will be able to... achieve stated goals, either individually or within a team.' (p.57) ALSO '.PC5.3 Demonstrate...collaboration in construction and provisions for team working;'

[3] NAAB (2009) 'Realm C: Leadership and Practice: Collaborating and negotiating with clients and consultants in the design process' (p.23) ALSO 'Integrating community service into the practice of architecture.' (p.23) ALSO 'C. 3 Client Role in Architecture: Understanding of the responsibility of the architect to elicit, understand, and reconcile the needs of the client, owner, user groups, and the public and community.' (p.24)

[4] RIBA (2012) PC2: '...understanding of client needs.... and delivering those services in a manner prioritising the interests of the client and other stakeholders. (p.56) ALSO GC6 Understanding of the profession of architecture and the role of the architect in society, in particular in preparing briefs that take account of social factors GC6 The graduate will have an understanding of:
.1 the nature of professionalism and the duties and responsibilities of architects to clients, building users, constructors, co-professionals and the wider society; .2 the role of the architect within the design team and construction industry, ALSO the need to appraise and prepare building briefs of diverse scales and types, to define client and user requirements and their appropriateness to site and context;

[5] NAAB (2009) 'C.5 Practice Management: Understanding...risk management (p.24)

[6] RIBA (2012) 'PC5.2 .2 knowledge and understanding of ...the effect of different procurement processes on programme, cost, risk and quality. (p.57)

[7] The findings from this are contained within the researcher's report:.Harriss, Harriet (2011) 'Learning Architecture through Live Projects: Building community university partnerships for teaching and learning excellence and community enhancement.' Winston Churchill Trust Fellowship Report (8500 words) Report link: www.wcmt.org.uk/reports/927_1.pdf   Blog: http://harrietharrisschurchill.wordpress.com/2011/03/01/hello-world/

4.3.2 Context of the US participant profiles

The Churchill Fellowship enabled the researcher to visit nineteen different Live Project programs across the US. Pilot interviews were conducted with educators within these programs. Subsequently, the researcher developed a successful research proposal to spend four months in New York where there is a high concentration of architecture schools, whose programs are sufficiently diverse yet run similar Live Project programs upon which to build a contrasting analysis. In summer of 2012, the researcher was awarded the UK's Higher Education Academy Internationalisation Award, aimed at supporting academics committed to the internationalisation of the curriculum and students' academic mobility with a view to improving their employability [8]. Under the auspices of this award, the researcher spent four months in New York and used sample participant groups from a diverse range of architecture/design schools; City University New York (CUNY), the New York Institute of Technology (NYIT), Columbia University and Parsons New School.

4.3.3 City University New York (CUNY)

The Architecture School at CUNY—known colloquially as The Spitzer School of Architecture—has been running Live Projects for some time, although through the department rather than through a CDC [9] Formally a city college (CCNY) it was founded by the Catholic church and intended as an education resource for students from poorer backgrounds, a characteristic that has remained following it's transfer into a public university [10]. Of the universities within the interview participant sample it is the most diverse, with one quarter of the students from Black or Hispanic backgrounds [11]. As a public institution, CUNY has a CDC, enabled by the Land Grant System (Boyer, 1996 p.18) known as The City College Architecture Centre. [12] However, CUNY like many US architecture schools has participated in the Solar Decathalon: [13] a Live Project competition that incentivizes

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8 http://www.heacademy.ac.uk/resources/detail/Harriet_Harriss

9 CUNY School of Architecture website http://ssar.ccny.cuny.edu/ last accessed 21st November 2012

10 In the US, Public Universities are funded by either a National or State award.

11 Source: http://en.wikipedia.org/wiki/City_University_of_New_York - last accessed 21st November 2012

12 City College Architecture Center http://www1.ccny.cuny.edu/ci/ccac/ - Last accessed 21st November 2012

13 http://en.wikipedia.org/wiki/Solar_Decathlon - Last accessed 21st November 2012

schools to design and build sustainable, family home prototypes on the lawn of the House of Congress in the nation's capital, Washington D.C. [14]

4.3.4 Overview of New York Institute of Technology (NYIT)

New York Institute of Technology (NYIT) is both private (rather than state funded) and non-sectarian (i.e. lacks religious affiliation) and, 'places strong emphasis on technology and applied scientific research,' [15] which has translated into a commitment to partnering structural intelligence with social intelligence within the school of architecture. Although is private rather than publicly funded (and therefore does not benefit from Land Grant subsidy) it does maintain its own community engaged Live Project program known as 'sLAB' (Student Led Architecture Build). sLAB is a relatively recent addition the school, and was founded out of NYIT's successful 2005 and 2007 Solar Decathlon projects.

4.3.5 Overview of Rhode Island School of Design (RISD)

RISD is situated in a town called Providence, in upper New York State. The school modus operandi emphasises 'making and re-making, which are inextricably linked to architectural thinking' [16] and has a long history of Live Project activity, including also participating in the Solar Decathlon. The workshop was run as an afternoon, collaborative event involving students and staff working together in teams.

4.3.6 Overview of Parsons New School, School of Design Strategies

Due to a research funding award, the researcher was a visiting professor on the *MFA in Trans-disciplinary Design* program within the School of Design Strategies, at Parsons New School from August-December 2012. The MFA in TDD is a post-graduate program that is explicitly focused upon using Live Projects as a vehicle for enabling students to address

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14 CUNY's Decathlon entry: http://inhabitat.com/nyc/sneak-peek-city-college-students-unveil-roof-pod-for-solar-decathlon/cuny-solar-decathlon-2011-home/ - Last accessed 21st November 2012

15 http://en.wikipedia.org/wiki/New_York_Institute_of_Technology - Last accessed 21st November 2012

16 http://architecture.risd.edu/ Last accessed 30/07/2013

pressing social issues using participatory tools and methods [17]. Students work in cross-disciplinary teams—any of whom previously studied architecture, planning, landscape and interiors—to consider issues from multiple perspectives, gain insight from industry leaders and emerge with a portfolio of projects showcasing design as a process for transforming the way we live in the twenty-first century. The choice of a sample from a 'trans-disciplinary' cohort was to include evidence on whether interdisciplinary or trans-disciplinary teams are similarly able to acquire the 'missing skills' as architecture students. During the fall semester of 2012, the researcher shadowed students and educators working on a Live Project that involved creating civic engagement toolkits for Partnership for Parks [18] as a means to foster engagement and stewardship between a Bronx community and their local park and waterfront asset [19]. Participating in this project without leading it (i.e. through letting the students set negotiated briefs as discussed in Chapter 01, but also by running community engagement activities) allowed the researcher to make observations of both students and community participants. In effect, this involved a hand-off, mentoring role allowing the students to assume leadership roles in working directly with clients. In addition to this cohort, interview participants were also drawn from educators and students on the Masters in Architecture within the School of Constructed Environments at Parsons, [20] who run a series of different Live Projects, including some that have been given national awards such as the Solar Decathlon [21] and the Splash House project [22].

4.3.7 The UK participant profiles

There are three groups of qualitative participants in the UK; architects in practice, students and educators. Whereas the participating US students were involved in either pilot interviews or workshops, the wealth of the data came from UK based students, either through one of the five Placenomics Live Projects the researcher ran, with the focused intention of analysis for the purpose of this enquiry, or via the questionnaire, of which the greatest proportion of respondents were from UK schools of architecture. Some of the students were participants in Live Projects she designed and ran. Some of the online questionnaire respondents were

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17 http://www.newschool.edu/parsons/design-strategies-school-sds/ - Last accessed 21st November 2012

18 Source: http://www.nycgovparks.org/opportunities/volunteer/community-groups (Last accessed: 6/06/2014)

19 http://amplifyingcreativecommunities.net/ - Last accessed 21st November 2012

20 Parsons School of Constructed Environments, Masters in Architecture:
http://www.newschool.edu/parsons/masters-architecture/ - - Last accessed 21/11/2012

21 Solar Decathalon: http://parsit.parsons.edu/ - Last accessed 21/11/2012

22 Splash House: http://sce.parsons.edu/designworkshop/ - Last accessed 21/11/2012

involved in a Live Project the researcher set up and ran in summer 2012, entitled the Playful Pavilion. This was a two-week interactive ping-pong pavilion designed to engage the public in sport that took place from June-September in 2012 and involved students from both Montana State University and Oxford Brookes University. [23, 24] Participating students completed the online questionnaire when reflecting upon their experience. At post-graduate level (on what was the Diploma but is now the MArchD program) the students interviewed were involved in one of five Live Projects the researcher set up and ran within the Placenomics Design Studio in autumn 2011. Divided into small ateliers of two or three people, the Live Projects were student-led and required students to develop their design solutions through co-design, user-consultation and prototyping. As these Live Projects explicitly constituted, ' a small-scale intervention in the functioning of the real world and a close examination of the effects of this intervention,' (Cohen and Manion, 1994) the student narrative broadly constitutes action research. Thankfully however, there was no issue with experiential mortality (Walliman, 2006, p.107), – where subjects drop out due to death (or other reasons) – despite the levels of risk associated with construction work (Boffey, 2014). Furthermore, the students completed questionnaires and also kept blogs of their experiences, both of which were used to inform the data. Within the UK situated projects, the ability to maintain an objective position in relation to the activities being examined proved harder than in the US. This is because the researcher was required to assume the role of Design Studio lead tutor as well as researcher. To some extent, the decision to use negotiated briefs – where the students led the discussion on brief forming in collaboration with the clients, rather than the tutors) helped mitigate against this. However, it should be acknowledged that the ability to intervene when required – which did occur in one of the Live Projects discussed later – has implications regarding the potential influence on the outcomes, if not findings.

4.3.8 Ethics challenges associated with the Oxford Brookes Placenomics sample

The community-based project was one of three short, formative projects run within the Placenomics Design Studio module. As a formative project, it does not form part of their portfolio assessment, however ensuring that the Live Projects did not interfere with 'real', assessed work and the issue of ensuring that the role of researcher, tutor and assessor did not come into conflict meant that the ethics particulars of this research needed to be cleanly

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23 http://playfulpavilion2012.blogspot.com/ - Last accessed 21/11/2012

24 http://www.lfa2012.org/events/view/the-playful-ping-pong-pavilion-101 Last accessed 21/11/2012

resolved. Although the data was gathered during term time, analysis could not take place until after the assessments were completed and the marks had been awarded. Although the Live Project took place within Design Studio it had to be made clear that it was of value to the students rather than contrived to fit the agenda of this research. The ethics requirement was therefore to simply observe and collect data for analysis during the Live Projects and not to direct, influence or bias the project (or the students' success or failure) in any way. Given these Live Projects were intentionally student-led, this proved a reasonable role to assume.

4.3.9 The online questionnaire participant sample

As outlined previously, the purpose of the questionnaires was to capture a greater sample of data from a wider range of architecture students, architects and educators than covered within the interview cohorts. Basic demographic data from each participant was captured and tabulated. In summary, the respondent ratios were 53% male to 47% female and 36% student to 64% non-student.

Interestingly, only 23% of respondents had qualified as architects at the point of taking the questionnaire, yet 99% had been to architecture school. One third of those responding were involved in teaching architecture and 50% of respondents were based in the UK, with 34% of the remaining respondents coming from the US, and the remainder from EU and elsewhere. Additionally, respondents were asked, 'have you ever participated in a, 'Live Project' – broadly defined as an off-campus design project that responds to real-time client community needs that involve 'architectural' processes or outcomes?' 77% of those that responded had, with only 2% not certain (Appendix Nine, Question 33).

In the case of practitioners, the questionnaires were sent to six architecture practices in both the UK and three in the US. In addition to being asked whether they had studied under RIBA or NAAB criteria, each respondent was asked to identify the name of their practice (although this was optional), and the city in which they worked (not optional) in order to draw out any issues in regional comparisons. Similarly, the architecture educators and students were sourced via the network of attendees at the Live Project Pedagogy Symposium [25] and through the Live Project Network, [26] providing access to over sixty different

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[25] http://architecture.brookes.ac.uk/research/symposia/liveprojects2012/index.html - Last accessed 21/11/2012

[26] http://liveprojectsnetwork.org/ Last accessed 21/11 2012

schools of architecture. In the case of the students in both the UK and the US, it was the researcher's intention that not all respondents had had experience of Live Projects, and they were asked to identify whether this was the case nor not. This provides comparative evidence, regarding the perceptions and attitudes of students regarding the missing skills. The online questionnaire solicited 179 responses from architecture students, educators and architects— not all of whom have any Live Project experience (the response rates are covered in more detail in Chapter Five). The sample size is crucial for a number of reasons. Firstly, it aims to ensure that the assumptions are rigorously tested and supported or rejected. Secondly, it allows for reasonable margin of error in the sample. Thirdly, it ensures that there is sufficient data available to propose unanticipated findings or outcomes, rather than simply record a null hypothesis. In other words, if the data identifies that Live Projects do not deliver the three missing skillsets identified, there is sufficient material to allow the researcher to ascertain what alternative skills they might deliver (Hair et al, 1998).

4.4 Data collection procedures and design

4.4.1 Instrumentation and collection in relation to representation

The key instrument used to collect questionnaire data was Survey Monkey: an online facility that automatically and accurately tabulates responses within comparable visual illustrations and tables. [27] The survey monkey link was e-mailed to schools in the US and UK via their tutors and to practices via contacts. The link to the survey was also made available using the Live Project network website amongst others. The questionnaires enabled anonymous responses, limited only to revealing gender, identification of school/practice and age. This information was required in order to ensure the sample was broadly representative, as only 17% of architects in the UK are female (De Graft-Johnson et al, 2003, p.1) [28] compared to 20% in the US – and architecture educators fare similarly [29] whereas 40% of UK Architecture students are female (Waite and Corvin, 2012) which is closer to 50% in US Schools (Graham, 2011).

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27 http://www.surveymonkey.com Last accessed 29-12-2012

28 Women in Architecture, RIBA Campaign: http://women-in-architecture.com/index.php?id=39 - last accessed 24th November 2012

29 Sinha, Sumita (Unknown) Diversity in Architectural Education: Teaching and learning in the context of Diversity [Unpublished paper] Available: http://women-in-architecture.com/fileadmin/wia/pdfs/WIA24092010/DIVERSITY_IN_ARCHITECTURAL_EDUCATION.pdf - Last accessed 21st November 2012

4.4.2 Pilots and prototypes

The questions used in both the final qualitative and quantitative research enquiries were tested in three different piloting exercises involving educators and groups of students. The pilot interviews were conducted in the US during the Winston Churchill Fellowship and the responses summarised in the researcher's report (Harriss, 2011). The student pilots took place in February 2012 and involved participating students from three US universities; New York Institute of Technology (NYIT), Rhode Island School of Design (RISD) and City College New York (NYIT) through a series of short workshops, enabled by a Brookes Teaching Fellowship. Data was collected using questionnaires and through open discussions that were recorded. Since students from NYIT and CUNY form part of the final sample, the profiles of these schools are covered in Chapter Five, *'Participant profiles and research methods.'* The focus groups were semi-structured (in essence, qualitative) allowing students to experience the workshops as open conversations where they could frame and prepare their responses in teams, uncovering their perspectives.

4.4.3 Ethics and consent for all respondents

All of the participants were required to complete a consent form for participation and supplied with information regarding the nature and purpose of the study, as a means to comply with the research ethics standards of Oxford Brookes University. The online questionnaire also explains how the data is to be used for the exclusive purpose of the research project, that the identities of the participants remain anonymous and their privacy protected. This constraint also extended to photographs of the students participating in the Live Projects. All consent forms (pilots, interviews and online) explicitly asked respondents to agree that their information be used to inform this research but not any other enquiry. In order to ensure strong response rates, the completion time for the questionnaire is deliberately restricted to ten minutes. The last section of the questionnaire invites respondents to add any further comments should they wish, adding a qualitative element to the content. In terms of data analysis, it has been established that 'missing data' is not an easy problem to resolve (Hair, 1998) and increases the risk of biases or inaccurate correlations. Partially complete questionnaires are therefore not included in those considered within the final analysis. Names were also changed within the appendices. All interviews were recorded. In terms of interviewee ethics, access to the transcripts for these was limited to the research team (the

researcher, her supervisors and her advisor) and the contributors' identity remaining anonymous. A sample of the consent form and research information sheet is in Appendix One.

4.4.4 Purposive-iterative strategies—educators

The interviewees—educators involved in running Live Projects—were involved at multiple stages in the data collection. This will be covered in more detail in Chapter Five. Educators not involved in Live Projects were also invited to participate in the online questionnaire. Pilot interviews were used to refine the questions within the questionnaire but also to extrapolate statements and assertions to use within the quantitative data collection questions, where only one of five possible responses are offered. As a means to illustrate this, during one of the early pilot interviews, an educator interviewee ventured that, 'The future of architecture practice is more transient,' whereas another observed that there were, 'increased levels of professional uncertainty about the future.' (As illustrated in the 'pilot educator interview matrix' in Appendix Three). By contextualizing these statements with evidence from within the literature review, the researcher then developed the following for inclusion in the online questionnaire: 'Architecture students should be taught to anticipate an uncertain professional future.'

Online questionnaire respondents were then invited to choose to respond with either, 'strongly agree, agree, disagree, strongly disagree or decline to answer/don't know,' with statements such as these – in essence within a constrained 5-point response scale (discussed in detail in Chapter Five). Indeed, all of the original educators interviewed during the pilots were asked to complete the questionnaire (many of them confirmed that they did, perhaps compelled to do so out of an interest to see which of their insights were featured) and would have been invited to confirm their own assertions. This process is described by Glaser and Strauss as a part of a 'purposive–iterative' process of 'theoretical sampling,' (Glaser and Strauss, 1967). Furthermore, Strauss and Corbin describe this as a form of, 'sampling on the basis of concepts that have proven theoretical relevance to the evolving theory. Relevance means that concepts are deemed to be significant because they are repeatedly present or notably absent when comparing incident after incident and are of sufficient importance to be given the status of categories' (Strauss and Corbin, 1990, p.176).

Subsequent interviews were conducted in both the US and the UK and continued to iteratively evolve the phrasing as well as intention of the enquiry. The interview questions

were intentionally designed to be discursive and allow for interviewees to qualify their responses, therefore blending structure and semi-structured formats. In addition, educators were asked to share copies of their assessment frameworks for Live Projects, since these identify which skills they prioritise. The interviews were intentionally scheduled to take place before the online questionnaires. This was to allow the more open interviews to generate insights using the iterative data cycle of collection—analysis and data collection—that typifies qualitative research (Bass, 1993, p.80). These were considered in relation to the missing skillsets, and illustrated in table format.

4.4.5 Purposive-iterative strategies—students

The first round of student focus groups involved students from three US Universities; New York Institute of Technology (NYIT), Rhode Island School of Design (RISD) and City College New York (NYIT) and took place during March 2012. Each focus group took one hour and involved asking students to respond to some questions collectively as well as facilitating a more student-led discussion. The intention of these workshops was to refine the questionnaire content used when gathering data from UK Live Project students involved in the Placenomics Design Studio from October to December 2011, as a means to improve the online questionnaire launched in the Spring of 2013.

4.4.6 Auto-ethnography student blogs

As detailed in the UK participant profile section, students involved in the research narratives were those directly involved in Live Projects the researcher had designed and run in the UK. These Live Projects were intentionally designed to enable students to lead the Live Projects themselves. The data they produced was collected using two tools; online blogs [30] and a school publication needed for the purpose of school validation entitled, *'Oxford Architecture Live Projects, 2010-2012'* (Harriss, H., 2012). The publication contained all of the Live Projects that took place within our school between 2010-2012 for the purposes of the RIBA visit. As editor, a consistency was required in presenting 25 Live Projects. Each

30 Placenomics student blogs: Thame Fire and Police Oxfordshire, http://fireandpolice.blogspot.com/
Oxford Probation Service Oxford, UK http://yutingcheng.blogspot.com/
Sumatran Orangutan Society (SOS) Oxford/Sumatra http://dhirenpatelds2.blogspot.com/
Oxford Hub http://willjgamble.blogspot.com/
Oxford Academy School http://natashalofthouse.blogspot.com/?zx=d0c88aae1ea15a44 (All last accessed 19/07/2013)

respondent/group of respondents were asked to define what the 'key learnings' were in their own terms. This included those who formed the sample of research narratives. In contrast, the content of the blogs was entirely self-determined by the students, relying upon the narrative research conventions of, 're-storying the participants stories using structural devices, such as plot setting, activities, climax and denouement' (Clandinin and Connelly, 2000).

Auto-ethnography allows the researcher-participant to explore past and present experiences (Butler, 2009). According to Chang, auto-ethnography should be ethnographic in its methodological orientation, cultural in its interpretive orientation and autobiographical in its content orientation (Chang, 2008, p.48). It is important to note that although the option presented itself, no auto-ethnographic data was included from Live Projects that the researcher had previously been involved in, such as building a clinic in Nepal in 1999 where the researcher participated as a student and in the Oxford Live Projects where the researcher participated as an educator. What was noted, was the greater levels of critical self-reflection captured in the blogs that in the questionnaires used to inform the school booklet. However, these Live Projects are recorded here as a means to acknowledge their influence on the researcher's choice of enquiry, which to some extent constitutes an act of auto-ethnographic contextualization. Arguably, the ability to examine Live Projects from an informed perspective is of value to the enquiry, as part of a deeper knowledge and understanding of the thesis' focus.

4.4.7 Architecture Live Projects Symposium workshop: The Manifesto

The final participatory, qualitative method used was the Architecture Live Project Symposium Workshop that the researcher designed and ran on the last day of the symposium, May 26th 2012 [31]. The workshop functioned as a focus group and involved the participation of all the delegates at the symposium including the audience, presenters and students. The session ran for three hours and invited delegates to work in teams to generate a 'Live Project Manifesto' in essence an exercise in benchmarking focused around building a pedagogically grounded curriculum and used as a means to develop a tentative set of assessment rudiments, which evolved as part of a deeper questioning of how and when we

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31 http://architecture.brookes.ac.uk/research/symposia/liveprojects2012/index.html

measure that specific skills are being learned [32]. This exercise in co-authorship is the subject of Chapter Nine, *The Question of Assessment.*

4.5 A brief overview of the challenges in interpretation and analysis

Whereas this chapter describes the thinking that informed the choice of methodologies, theoretical frameworks and analytical processes, Chapter Five considers the different challenges that presented themselves during the data collection process and also details how these challenges were addressed. It is worth noting however, that since no methodology, theory or analytical process is flawless, many of these challenges could be anticipated. This section (4.5) therefore contains a concise overview of the strategies chosen in the design of the study and includes the researchers reflections upon the anticipated challenges associated with the data collection, theorization and analysis.

4.5.1 Formats for data codification

The data was coded—organised into responses grouped in themes in relation to the three skillsets or research questions — before beginning the process of interpretation (Rossman and Rallis, 1998, p.171). The themes relating to the missing skillsets were then inter-related to highlight any interdependencies and to ensure a rigorous level of analysis and abstraction (Creswell, 2008, p.3834). Findings in relation to each skillset are isolated within focused chapters. Mixed method or 'multi-method' analysis typically involves using a matrix or series of matrices to compare both quantitative and (selected sections of) qualitative data. The general assumption is that this tactic can help overcome some of the limitations or inherent biases of both approaches by using 'triangulation' to achieve convergence (Jick, 1979)—in this case substantiating qualitative quotes from the interviews and from case studies and narrative research (1) with statistical data drawn from the online questionnaires responses (2), auto-ethnographic evidence (3) as a means to reinforce the key findings (Creswell and Clark, 2007, p.628). Subsequently, what makes the mixed methods approach 'transformative' in terms of insight is the way in which, 'the researcher using a 'theoretical lens' to substantiate an 'overarching perspective' (Ibid).

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32 This will feature as a chapter within the researchers forthcoming publication: Harriss, H., Widder, L., (2014) Architecture Live Projects: Pedagogy into Practice. Routledge

4.5.2 Credibility in qualitative research

Qualitative methods, particularly those more often considered to be 'experimental' such as auto-ethnography and narrative research, face specific challenges in relation to proving validity. In order to ensure the findings are valid, multiple strategies for analysis and interpretation are employed, structured as a timeline process detailed below. According to Guba and Lincoln, (Lincoln and Guba, 2000, p.43) the trustworthiness of qualitative evidence can be better ensured if 'transferability, dependability, confirmability and credibility', part of what they define as proving naturalistic processes, are substituted Lincoln and Guba, 2000). The strength of the argument contained in the findings is a key feature of demonstrating transferability as well as credibility and is best evidenced by the integrity of the findings (Strauss and Corbin, 1997). Transferability refers to how transferable the findings are between the different participant 'control' groups as well as the wider population of students, educators and practitioners. More detailed descriptions also enable the reader to make their own assessment of how transferrable the data is. Dependability of results requires the conditions of the enquiry to be stable over time. Both dependability and confirmability are strengthened if the number of inaccuracies in data collection is reduced (Maxwell and Thompson, 1997). Confirmability also relates to whether there is a clear correlation between what the researcher inferred and what the participants understood. The intended tactic for ensuring confirmability was to allow interviewees to view their own transcripts and sign an agreement in which they provide an accurate description of their perspectives.

4.5.3 Trustworthiness

Trustworthiness was also ensured by making use of multiple and different sources of data, by employing a diverse range of research methods and use of theory (Patton, 1990), by acquiring data from a large sample and a diverse range of study sites, and finally by ensuring both the participants fully informed regarding the research ambition and use of data and that the data is collected, catalogued and correctly and securely stored. Within this study, this was achieved by stating the purpose of the research, the entitlement to anonymity and the intended use of the data collected within both the participant consent form and the research information sheet. Copies of this are provided in Appendix One. Composite matrices were used to identify both similarities and differences between the different respondent cohorts, a method advocated by Miles and Huberman (1994). The skillsets are then linked to Live

Project activities, which is the first step in identifying how they might be assessed. Although qualitative practice-based research methods provided invaluable detail to the enquiry, they are inherent challenges associated with this choice of method.

4.5.4 Maturation

Maturation is usually considered an undermining factor in qualitative research, as the views of participants can change during the course of an extended period of study. Of the research narrative participants, 'maturation' (Walliman, 2006, p.107) proved to be a useful asset to the research, since the students involved had graduated and were working in practice. One way to address this is by interviewing and/or sending questionnaires to recent graduates, who participated in Live Projects up to three years ago. This allows their reflections on Live Projects to 'mature' as well as being able to consider how their Live Project experience has impacted on their professional practice experiences.

4.5.5 The Hawthorne effect

In a study on Live Projects, it is to some extent inevitable that participants' responses may be influenced by knowledge of the subject of enquiry. This is known as the Hawthorne effect, where it is understood that respondents can react differently when they are aware that they are being studied (Walliman, 2011, p.204). However, the questions used within the research did not exclusively focus on the three missing skillsets, but also included questions relating to other skills that were identified in the pilot investigations, including those covered within the Churchill Fellowship report (Harriss, H. 2012, WCMT).

4.5.6 Analytical timeline

Within qualitative research, collection and analysis of data should take place simultaneously (Merriam, 2009, p.50). The Summer 2011 pilot interviews and February 2012 focus groups were used in this way to inform the missing skills categories underpinning this thesis' core enquiry, initially by identifying key phrases and recurrent themes. In the second round of focus groups (Winter 2012) the categories and themes were tested again. Elements that did not apply to all the responses were eliminated. According to Marshall and Rossman, 'qualitative data analysis is a search for general statements about relationships and underlying

themes [and] it explores, describes and builds Grounded Theory' (Marshall and Rossman, 2010). Furthermore, Bass argues that, 'Analytic strategies in qualitative research are as diverse as the issues studied . Stretching along a continuum from the objective, scientific, deductive, technical, and standardized to the subjective, intuitive, inductive, context dependent, and interpretative,' (Miller and Crabtree 1992; Bass, 1993, p.80-81). Both of these insights reflect the fact that the more tacit insights need to be captured, not only material, which make explicit reference to Live Projects.

Within the subsequent chapters the findings' validity, including critical reflections upon choice of methodologies, are interrogated. They are then cross-examined against the pedagogic evidence from the literature review. Next, their alignment with existing learning theories is reconsidered in order to identify any 'missing' alignments or interdisciplinary comparisons. The Live Project activity profile is presented as a matrix, providing possible rudiments for assessment and/or a benchmark checklist for operational use by educators. Theoretical propositions are developed which demonstrate the pioneering pedagogic integrity of Live Projects. The propositions also provide the foundation of a pedagogically-informed assessments for Live Project educators and students. However, it is 'andragogy' (adult learning) as opposed to pedagogy (child learning) that is the more accurate term used to describe how University level students engage with the learning experience (Knowles, 1996). This considers the findings in relation to issues of motivation—in terms of why it is important, and other motivating factors and the relevance to their professional life (Knowles, 1996; 1983). Although understanding motivation is not a specific research question per se, it is important to acknowledge it when contextualizing the findings in relation the three 'skillset' questions within chapters Six, Seven and Eight. A discussion on the participant assumption in relation to andragogy is therefore included within the analysis. The quantitative evidence was captured and illustrated using Survey Monkey; an online data collection tool used for the quantitative questionnaires that can systematically aggregate, analyze and visualise data using a range of different visual illustration formats for representing the findings, such as pie charts and bar graphs, which serve the purpose of consolidating large amounts of data in highly accessible forms [33]. These illustrations can also make the relationship between the different skillsets and the participant groups more legible. Qualitative data was captured and examined through thematic matrices that link the findings to the aims and objectives in relation to the missing skillsets.

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33 http://www.surveymonkey.com/ - Last accessed 25/11/2012

4.6 Summary of conclusions

This chapter has detailed the rationale behind choosing a theoretical and methodological framework in order to examine the principal research question: *to what extent are Live Projects effective at enabling the acquisition and application of three 'practice-ready' skillsets?*

It identifies why qualitative as well as quantitative research methods were employed for data gathering and why a Grounded Theory framework served as a foundation framework for interpreting qualitative data.

The subsequent chapter – Chapter Five – focuses upon providing an overview of the empirical process and details the research participant profiles drawn from two regions: North America and the UK – an essential intermediary step before codification, verification and analysis could take place. Whereas Chapter Four outlined the rationale for the design of the study, Chapter Five reflects upon how the design decisions worked in practice and considers in detail the advantages and limitations – anticipated or otherwise – that affected the data gathering processes and findings. The intended framework for analysis – Grounded Theory – also comes under greater scrutiny. This is further interrogated within Chapter Five; when the design of the questionnaires, interviews and online surveys elicit information within different learning contexts are examined. Without this information, the researcher would not be able to convincingly address the three skillset research questions regarding collaboration between interdisciplinary teams, participatory engagement with clients and civic concerns, the capability to manage emergent ambiguities in relation to risk exposure. As discussed in Chapters One, Two and Three (the literature review) the peripheral position of Live Projects carries with it an implication that this positioning is either intentional and/or political, or at least a result of conservative inertia within the academic institution. However, it might be because the very characteristics of Live Projects that make them effective at delivering the three skillsets are exactly what makes them difficult to assimilate into conventional structures and curriculum requirements and even assessment requirements. For this reason, answering the research questions regarding the three skillsets requires the meta-enquiries – those that are used to frame the participant questionnaires – to undergo both scrutiny and further development.

PART TWO: METHODOLOGY

Chapter Five

Participant profiles and research methods

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5.2.2 Live Project Two: Oxford Probation Service public-private street-service interface
5.2.3 Live Project Three: Oxford Hub Mobile Satellite Unit Student Volunteering Agency
5.2.4 Live Project Four: SOS Sumatra
5.2.5 Live Project Four: Oxford Academy

5.3 Educator and practitioner pilot interviews: USA 2011

5.4 Student workshops, USA Feb 2012

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5.11.1 The structure of the online questionnaire

5.0 Introduction

This chapter focuses upon providing an overview of how the empirical process was designed to elicit sound data from the different participants in relation to the principal research question: To what extent can Live Projects enable students to acquire the three 'practice-ready' skillsets of *(1) inter-disciplinary teamwork client collaboration and civic engagement and; (3) ambiguity tolerance and risk management capabilities.* It describes how the questionnaires designed and implemented in a way that would ensure meaningful responses to these sub-questions. It reflects upon how the design decisions worked in practice and considers in detail the advantages and limitations —anticipated or otherwise—that affected the data gathering processes and findings. The limitations of Grounded Theory during the data analysis process are therefore examined. Given the efficacy of Live Projects is under scrutiny, the questionnaires, interviews and online surveys are designed to elicit information on these and other learning models. Without this information, the researcher would not be able to convincingly address the three skillset research questions regarding collaboration between interdisciplinary teams, participatory engagement with clients and civic concerns, the capability to manage emergent ambiguities in relation to risk exposure. Furthermore, the literature review chapters identified that the peripheral position of Live Projects carries with it an implication that this is either intentional and or political, or perhaps the result of conservative inertia within the academic institution towards alternative models of teaching and learning architecture. However, one other possibility identified in the literature review is that the defining characteristics of Live Projects are what make them difficult to assimilate into conventional structures and curriculum requirements, and even assessment requirements. As has been stated previously, it is not the intention of this study to advocate for Live Projects or against Design Studio, but instead it seeks to understand the conditions under which certain kinds of professional skills are learned better than others, and then to consider what the implications are for the format for teaching architectural education in general.

Subsequently, this chapter provides evidence that demonstrates the integrity of the data upon which this enquiry depends. This is necessary because it is not just the data that needs to have integrity but also the methods of analysis need to be both appropriate and effective. This chapter also explains in some detail how the researcher collected and analysed the data in practice, in contrast to Chapter Four, which detailed the theoretical framework upon which the practice or methods are based.

This chapter also considers how the mixed research methods need to be both internally and externally valid and provide meaningful and transferrable data suitable for comparison. It does this by examining the profiles of research participants with Live Project experience – also known as the 'professional informants' (Lee, 1993) as well as those without Live Project experience in relation to the contexts in which the data was gathered. The contextual information better enables the reader to cross-reference the findings in relation to the different participants. The participants profile diversity encompasses a broad spectrum of emergent and established architects and educators operating within contrasting programs and a diverse range of Live Projects. The regional distinctions between projects taking place in the UK and the USA are also discussed. Each of these points of differentiation—context, experience, location etc—help to ensure that the data is, 'sufficiently rich, thick and (includes) detailed descriptions,' (Creswell, 2013).

Furthermore, as the literature review identified, the lack of Live Project theorisation means that there is no definitive consensus on what is within, on the edge or outside of the meaning of a Live Project. Whilst different definitions of Live Projects are considered in Chapter One, the researcher took the decision to include evidence from Live Projects taking place in other subject areas (such as the MFA program at Parsons) and within Live Projects that are operating outside of the University context altogether [1]. Subsequently, both the diversity of methods and sources contribute to 'triangulation' which also strengths internal validity (Merriam, 1988). As Lofland reports, although qualitative methods of collection and analysis are often similar, the way they are reported is both, 'diverse and un-codified (Lofland, 1974, p.101). For this reason, matrices are used to position the participants' responses in relation to their professional status and the research aims and objectives, and presented in a richly descriptive and holistic, 'narrative' format, rather than as a scientific report (Creswell, 2013) and is therefore what Miles and Huberman define as a 'naturalistic study' (Miles and Huberman, 1994, p.9). The more qualitative responses and insights are discussed in relation to their ability to extrapolate, evidence and sometimes challenge the assumptions within the aims and objectives. These responses are organised within thematic matrices. Each of the participant profiles is considered chronologically, making clear how the focus of the enquiry became more refined as the primary research progressed. Scheduling the data gathering periods needed to be worked around the constraints of a full-time teaching role and was often

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[1] As one example, Team Build is a cross-disciplinary construction competition, held over a weekend in November every year as a residential Live Project. Team build is a charity independent of any School. teambuilduk.com

enabled through acquiring internal and external awards. The illustration below provides an overview of the data gathering timeline.
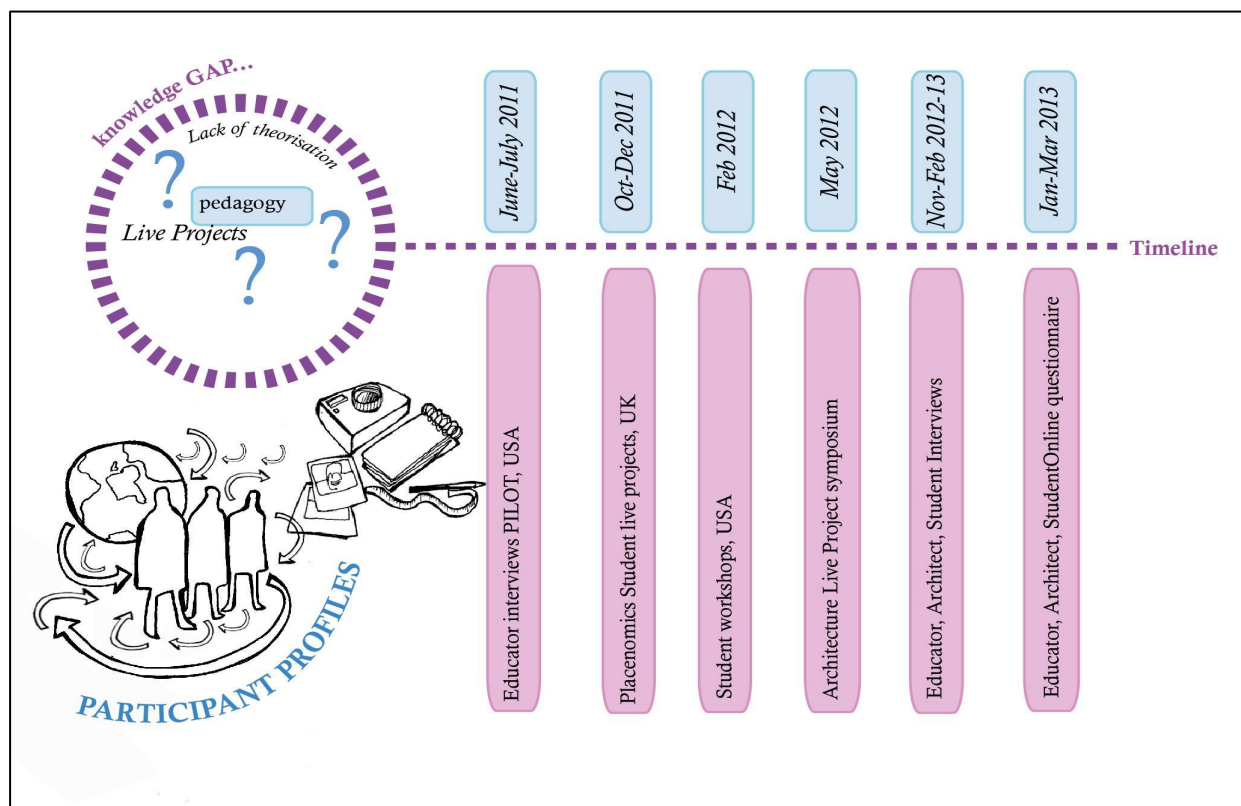
Figure 1: Data gathering timeline: a structure that needed to accommodate academic timetabling and funding opportunities

5.1 Summary of the data gathering process – developing the enquiry

Expanding on the mixed methods strategy discussed in Chapter Four, the aim was to acquire data from a diverse range of respondents. This enquiry therefore captured data no less than eight separate groups of respondents as a means to inform the research. The profiles featured below enable the reader to identify and contextualise the eight different data sets.

As an architectural educator with several years' experience as both a participant and an instigator/facilitator/designer/manager of Live Projects, the researcher was already in a good position to leverage a range of connections to ensure a sufficiently diverse sample of respondents. Although theorists such as Guest et Al (2006) have argued that a sample can be sufficiently rigorous and that 'theoretical saturation' can be achieved with as few as twelve

respondents others have argued that that a sample size needs to be of sufficient size in order to make meaningful generalisations that capture conflict as well as consensus (Walliman and Buckler, 2008). Within such a homogenised group of those interested or involved in Live Projects, it seemed essential to aim for a sample of at least sixty different respondents— including those with no experience of Live Projects (which accounts for 22% of the 179 respondents to the online questionnaire)—to be included in the data sample, as a means to highlight any concerning biases in the findings. As far as students, educators and practitioners are concerned, the researcher was also mindful of the inherent hierarchies of this group taken as a whole and how these hierarchies might influence the findings.

As John Cresswell (2013) identifies, the level of threat to internal validity increases exponentially with 'experimental' research affecting the researchers ability to make 'correct inferences.'

According to Walliman and Buckler (2008) choosing data participants involved 'non-random sampling,' such as 'accidental sampling', which would describe the choice of using students based within the researcher's own teaching. For example, the students' participation in the five Live Projects was not contingent on their participation in the research, and some students exercised the choice not to contribute to the data. The larger sample size is therefore aimed at reducing the risk of external validity.

An adapted version of De Groot's model (1961, p. 233) is used for explaining the five stages of empirical research as illustrated below [Fig 2]. This diagram positions the different data sources in relation to the five processes of; (1) 'observing' (2) 'inducing' a tentative hypothesis – both of which are situated within the 'literature review' phase of the research (the larger blue circle), (3) 'deducing' the consequences of the researchers hypothesis - which is illustrated as an activity that involves both the literature review and data collection (methodology)—and then 'testing' it with new empirical material intention to evaluate the data and involves codification and verification. As the hand icon illustrates, this then enables the evaluation process within subsequent chapters.
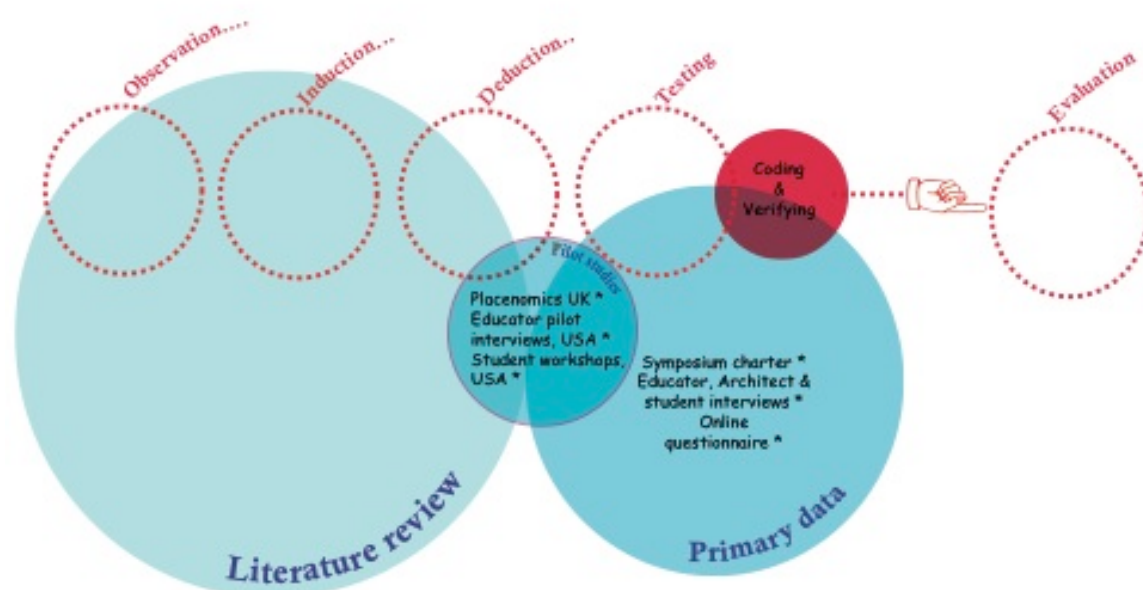
Figure 2: De Groot's five stages of empirical research

5.2 Student narratives: Placenomics (blogs) 2011

Given this study focuses on Live Projects, it seemed essential that the first data sample should involve student participants in a 'live,' Live Project. Once the complexities and constraints of ethics approval had been successfully negotiated, the researcher designed and implemented five Live Projects running in parallel and involving a group of fourteen Diploma in Architecture students who were within the researchers own Design Studio known as Placenomics.

The five separate Live Projects involved different Oxford-based clients from either charitable or public sector organisations. Students worked in groups of between two and four with different clients, each of whom wanted different outcomes. These ranged from a feasibility report, to a Work Stage D design proposal [2]. Within the constraints of the academic timetable, none of the Live Projects involved construction work, however these projects are

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2 RIBA Plan of Work, Stage D is identified as, 'Development of concept design to include structural and building services systems, updated outline specifications and cost plan.' (RIBA, 2007)

characterised as Live Projects by the fact that they take place within 'real world' contexts and involve, 'dialogic and inclusive… engagement with of real clients or users, in real-time settings,' [3] recalling the definition(s) of Live Projects interrogated in more detail within Chapter Two. The following section provides a brief profile each of the five projects, which involved two different forms of data collection. The first was the content of students' blogs – in essence providing a form of auto-ethnographic data, as detailed in Chapter Four, and the second were questionnaires. The intention was to identify whether the questionnaires results contradicted any statements made in the blogs. The limitations of these two methods are discussed in detail in section 5.6 Refinement of the Enquiry.

5.2.1 Live Project One: Oxfordshire Fire and Rescue and Thames Valley Police

Within this Live Project, two students worked directly with Oxfordshire Fire and Rescue and Thames Valley Police to create a co-locational facility within the existing village fire station. Thames village has a resident population of 11,000. Cuts to public services have meant that local authorities are required to work with less capital investment and are seeking practical ways to reduce revenue expenditure. The proposed co-location of the fire and police station was intended to significantly reduce overheads on premises and presents an opportunity and a challenge in terms of sharing resources whilst maintaining services. The students worked with all of the various stakeholders—ranging from council planning officials, the police and the fire people—to gain a better understanding of their collective needs and aspirations, although they graduated before the construction project began [4].

5.2.2 Live Project Two: Oxford Probation Service public-private street interface

The Oxford Probation Service had recently moved to a new location opposite the courts, having battled a formidable local challenge against relocating their services closer to the courts and city centre. The resistance from local residents was prompted by fears that the probation service clients will conduct criminal activities in the neighbourhood surrounding the new facility. Formerly an administrative building, the new facility has a purpose-built, secure

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3 Rachel Sara defined Live Projects as, *'a type of design project that is distinct from a typical studio project in its engagement of real clients or users, in real-time settings. Students are taken out of the studio setting, and repositioned in the 'real-world' … the process is more dialogic and inclusive than traditional studio projects, allowing and embracing alternative voices in the studio environment.'* (Sara, 2006)

4 Thame Fire and Police Station Blog: http://natashalofthouse.blogspot.com/?zx=7108a264d2e0c63e Last accessed 06/07/2013

reception area where clients await meetings with officers, in privacy. The frosted glass used to ensure this privacy, separating the public from the clients has not improved the visual presence of the service at street level. The students design brief therefore sought to improve this by creating an engaging façade and entrance to the building, with a view to improving the waiting experience for the clients and to also allow the passing public an attractive street level design feature to engage with, reducing the levels of tension experienced by the local residents. The students met with the lead client off-site due to the sensitivity of the assignment. Together, they discussed evidence gathered by the probation service on user needs, both in terms of the service providers and service users. The students were then able to visit the site and act as observers, discreetly considering how the space was being used by the clients and also the way in which the public tended to approach the building. Due to the health and safety risks, students were not able to meet with any of the probation service clients and instead could only meet with the probation service providers [5].

5.2.3 Live Project Three: Oxford Hub Mobile Satellite Unit

Oxford Hub is part of the umbrella organization, Student Hub; a growing network of student volunteering hubs in university cities throughout the UK, which inform, inspire, support and connect students and student-led charitable groups. Oxford Hub is the focal point for charitable activity at Oxford University, connecting students with causes—whether local, national, or international. The brief required that the students design an Oxford Hub Satellite, to be either based on one of the campuses or as a mobile unit capable of touring between several campus sites. The students participated in a range of meetings and workshops with the clients and the users. This gave them the chance to develop capabilities as co-designers. The idea that they developed requires on-going, interactive engagement even after it has been built and pushes the idea of flexible, responsive and participatory design to its limit. The final design is in essence a kit of parts that slotted together, to be built by the student community, who would then take ownership over the hub. The walls of the hub slot into place and articulate in different directions to create tables or individual spaces. The surfaces of these walls are made from different materials, including blackboard or corkboard, allowing the students to write and pin items to them. The hub then creates a story during its time at a certain site that captures the contribution of all involved [6].

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5 Oxford Probation Service Blog http://yutingcheng.blogspot.com/ (last accessed 07/07/2013)

6 Oxford Hub Blog http://willjgamble.blogspot.com/

5.2.4 Live Project Four: SOS Sumatra

SOS is an Oxford-based charity focused upon protecting endangered Orangutans in Sumatra. SOS tasked the students with designing an Eco Lodge in Sumatra that focuses on promoting awareness of conserving the local habitat for the Orangutans, as well as providing a base camp for the SOS conservation volunteers and researchers in partnership with the local indigenous community. Although the charity was based in Oxford, the site was in Sumatra. This meant that the students had to schedule Skype consultation sessions with the team on site that were often debilitated by the lack of a reliable internet connection [7]. They chose to organise their group as if they were running a small practice office and worked collaboratively. In their own words they, 'worked to our strengths' and 'perhaps most importantly we learned a lot from each other by sharing our skills' (Harriss, H., 2012, p.59).

5.2.5 Live Project Four: Oxford Academy

Oxford Academy, a state school for 11-18 year olds located in Littlemore, on the outskirts of the city, was built in the 1960s and had been undergoing partial redevelopment. However, there were a number of smaller projects that urgently needed design input but were outside of the budget. These included a welcome sign for the school and a warm up/cool down space (known as a trim trail) between the playing fields and the sports changing rooms. The client insisted that these elements needed to be affordable, practical and deliverable. Past attempts to meet these requirements by designers had proved unsuccessful due to financial and spatial constraints. There were a number of stakeholders including the City Council, school staff, pupils and the project architects that influenced the project development. In essence, the students were asked to work on sections of the school that the architects involved in the redevelopment did not consider a priority. The students chose to consider these 'neglected' elements as small-scale projects with big impact potential. This was most effectively demonstrated in how they handled the trim trail, transforming the ambition of the brief into an outdoor classroom facility for the whole school, providing spaces to learn, socialise, spectate, relax and reflect. This gave them the chance to develop their capabilities as co-designers. The limitations of the site and constraints of the budget created the impetus for the

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7 SOS Sumatra Blog http://dhirenpatelds2.blogspot.com/ (last accessed 07/07/2013)

students to secure external funding, turning the project from a Concept Design project into a build project [8].

5.3 Educator and practitioner pilot interviews: USA 2011

In summer 2011, a Churchill Fellowship Award enabled the researcher to spend six weeks in the US, visiting a wide range of community design centres across the US and interviewing educators about Live Projects. The eighteen different interviews involved only four fixed questions around the efficacy of Live Projects—not dissimilar to those asked during the student workshops—and produced qualitative data that proved crucial in informing the questions used during the subsequent data gathering activities. The interviewees also affirmed much of the content of the literature review, particularly with regards to the broad definition of Live Projects and the need for a theorisation process as a means to enable an assessment framework [See Appendix 4].

The funding criteria required that a report was produced and made public in summer 2011 (Harriss, 2011) although only general observations were captured in this report, as a means to protect PhD-relevant data. The most crucial aspect of these early dialogues were the discussions we had around skillsets—a subject that would frequently emerge as a consequence of exploring the idea of pedagogy in general, but more often accreditation specifically. This general insight gave the researcher the impetus to start to try to pinpoint specific skillsets – particularly those that were both pedagogically informed, aligned with validation criteria, but also resonated with industry and the world of practice.

5.4 Student workshops, US Feb 2012

As a means to develop the content of the student questionnaires and consider parity between the UK and US student Live Project participants, the researcher ran three different Live Project workshops at New York Institute of Technology (NYIT), Rhode Island School of Design (RISD) and City University New York (CUNY) in February 2012. Each workshop invited students with Live Project experience to reflect upon their experiences as well as generate their own propositional pedagogy [see Appendix 4].

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8 **Oxford Academy** Blog link: http://natashalofthouse.blogspot.com/?zx=7108a264d2e0c63e Last accessed 06/07/2013

5.5 Live Project Symposium and workshop, May 2012

Moser and Kalton (1971) caution that using an established research technique when gathering and assessing data can ensure greater validity and reliability.
However, the researcher identifies strongly with sociologist Laurel Richardson's view that an original approach to research can help, "…reveal epistemological assumptions, discover grounds for questioning received scripts and hegemonic ideals – both those within the academy and those incorporated within ourselves, find ways to change those scripts, connect to others and form community and nurture our emergent selves," (Richardson, 2006, p.1).

Since most architecture educators are predisposed to be sensitive to the theorisation imperative that informs and validates their teaching, the researcher decided to harness this as a data source. Subsequently, in May 2012 the researcher chose to use the vehicle of a self-initiated, international colloquia entitled, 'Architecture Live Projects Pedagogy International symposium' in Oxford in May 2012' as a means to elicit data that was explicitly pedagogically focused. This was in part motivated by the fact that the literature had identified that Live Projects were largely un-theorised, a view that is persuasively argued in James Benedict-Brown's thesis entitled, 'A Critique of the Live Project' (Benedict-Brown, 2012). Benedict Brown's basic premise is that assuming a critical stance forms a precursor to pedagogic theorisation.

The intention to use a symposium as a qualitative data tool presented certain challenges. Firstly, the call for papers narrative set broad parameters as to the kind of paper that would qualify for inclusion [9]. The symposium invitation identified themes that had come out of the literature review—themes or pedagogic behaviours, many of which had already been written about—as part of Live Projects. These included: problem-based learning, community-engaged scholarship, co-design, peer-based learning, tacit knowledge, threshold concepts, practice-ready skills, professionalism and ethics, diversity, critical citizenship, education futures, deep and surface learning, Live Project methodologies and paradigms, architecture curriculum, assessment and validation.

5.5.1 Thematic precedence

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9 http://architecture.brookes.ac.uk/research/symposia/liveprojects2012/index.html Last accessed 05/07/13

Over 100 abstracts were submitted using a template that invited those submitting to identify the themes or keywords that their submission highlighted [10]. From this data, a distinction could be made about (a), which of the literature review themes the educators most consistently identified as important, and (b) any themes that were not picked up in the literature review that the educators deemed important.

Subsequently, the researcher was able to create a series of sessions that distilled both literature review themes and emergent themes. The sessions were subsequently titled: practice ready capabilities, critical citizenship, student perspectives, community engaged scholarship, methodologies and paradigms, situated knowledges, validation and accreditation, live practices, engagement narratives. There were forty-six different presentations at the symposium, contained within the twelve thematic sessions that ran in parallel [11].

5.5.2 A democratised enquiry

In order to protect the integrity of the research enquiry the symposium's status ambition and thematic content did not make any explicit or tacit reference to the three skillsets—interdisciplinary team-working skills, participatory engagement with clients and civic concerns, and ambiguity and risk management—that the researcher has examined in this thesis. Not only did this approach remove the risk of biasing the results, it democratised the research process by, 'basing judgment of research on members' perspectives rather than those imposed by the researcher,' (Porter, 2007) and well as inviting Live Project experts to act as 'peer examiners' (Creswell, 2013). An additional rationale for this was the significance of the peer experience. Many of the presenters have been involved in running and writing about Live Projects as much, if not more, than the researcher. She therefore anticipated that the collective expertise would be of huge importance to this enquiry. Given the strength of character of many of the educators, exposure to dialogical arguments acts as a tool for interrogating the validity of the three skillsets.

Furthermore, addressing the gap in knowledge regarding the theorisation of Live Projects would be better enabled by a more democratic approach where learners (i.e. students) as well as other educators are actively involved in constructing knowledge within the community of Live Project practice (Lave and Wenger, 1991; Vygotsky, 1978). In essence, students who

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10 See APPENDIX 01 for abstract template

11 See APPENDIX 01 for symposium presentation schedule

have participated in Live Projects have not only practiced expert knowledge, but also acted as experts to solve emergent problems (Olson and Clark, 2009; Hakkarainen, 2004).

Furthermore, the symposium was intentionally international [12] with approximately 50% of the delegates from the UK and 25% from the US. The intention was to both engender a level of diversity that would help tease out any regional biases and/or alignments and create a, 'networked community of expertise,' in essence, a peer group whose competencies and insights would, 'arise from social interaction, knowledge sharing, and collective problem solving' (Hakkarainen, 2004).

5.5.3 Session reporting and co-design workshop manifesto

The first activity was for each session chair to report back on the emergent themes within their session from the previous day. The session chairs were instructed to, 'identify alignments within the presentations as well as any emergent thinking.' The reporting was captured using wall posters (See Appendix 5 for example). This data was then added to a codification matrix (see Appendix 5 manifesto matrix) and positioned in relation to six different categories; three of which are the skillsets that this enquiry is concerned with. The Charter/manifesto session was described to all delegates as an opportunity to identify, Live Project 'best practice', as a means to propose an, 'emergent pedagogy for Live Projects' – best practice that could form the basis of a tentative set of assessment rudiments [13]. Again working in small groups of 4-5 delegates, charters and manifestoes were captured in posters and presented to the delegates in a round up session. (See Appendix 5 for an example). Although the researcher designed and facilitated the session, she did not participate directly in any group. This was to ensure that she did not influence any of the propositional material being generated (Jorgensen, 1989).

5.6 Refinement of the Enquiry

In pursuit of greater internal validity, the researcher decided to continue to collect additional data from two sources. Firstly, she determined that more in-depth (qualitative) data was needed and secondly, decided to expand the quantitative validity of the data by using an

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12   2 Indian, 2 Indonesian, 2 UAE, 3 Canadian, 2 Irish, 1 Australian, 1 Chinese, 1 Thai, 1 German, 9 American, 22 British (7 of these were students), 2 Scottish delegates presented.

13   http://architecture.brookes.ac.uk/research/symposia/liveprojects2012/index.html Last accessed 08/07/13

online questionnaire that attracted 182 respondents of roughly equal gender balance [14].
Before taking this step however, data from the first four groups - (1) Placenomics, (2) US
Educators, (3) Student workshops US and (4) the educators Symposium Manifesto - was
scrutinised and cross examined as a means to establish identify themes that formed the basis
of the first attempt at codifying the data. What could be discerned was that much of the
commentary could be associated in one or more of three research questions or concerning the
skillsets of collaborative interaction between disciplines, participatory engagement with clients
and the ability to manage emergent ambiguities in decision-making. The data also tested the
framework for analysing all subsequent interview data. Not only was the researcher
scrutinising all data to see whether it aligned with the three skillsets, but she was also seeking
to examine in detail on the granular aspects of each three skillsets in terms of what they were
comprised of, how they manifested in Live Projects (for example, was this distinct/exclusive
to Live Projects?) and whether there were more tacit insights available on why these skillsets
were of particular value. It also provided the codification framework for analysing all
subsequent interview data.

5.6.1 The limitations of the Placenomics blogs and questionnaires

According to Australian sociologist Nicholas Hookway, blogs could be considered to
'facilitate a type of postmodern realisation of the 'de-centred' and 'disembodied' self,' and act
as a democratic and even a revolutionary form of bottom-up news production (Hookway,
2008, p.91). Although this seems to advance Donald Schon's original 'reflection in action'
hypothesis, (Schön, 1987) the blog content didn't offer any greater insights than those
submitted in the final questionnaire. In fact, it is possible that the 'public' nature of the blogs
meant that they provided a largely positive overview of the experience. In contrast, the
questionnaires captured more critical and insightful commentary. Where this mixed method
strategy did prove useful was in ensuring the validity of responses in relation to their authors,
since there were no conspicuous discrepancies in data reporting between the two formats.

Furthermore, the blogs were produced during the Live Project and in essence treated as
diaries, whereas the questionnaires were completed once the Live Projects had concluded.
The limitations of the Placenomics questionnaires are that the questions the students
answered were broader than those used in the final student, educator, architect interviews and

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Appendix 9, Question 01.

online questionnaire (5.7, 5.8, 5.9 and 5.10) since the former was used to refine the latter. The limitations of questionnaires in general are discussed in detail later in this chapter.

5.6 2 The limitations of the student workshops US

Generally speaking, the student workshops that took place in the US could be positioned under methodological umbrella of 'focus group,' broadly defined as a group of individuals brought together to discuss the research topic enabling, 'the rich details of complex experiences and the reasoning behind [a participants] actions, beliefs, perceptions and attitudes (Carey, 1995, p.413). The data produced by this group was used as a means to; 'identify potential areas of enquiry or to clarify subject matter that, by its nature, eludes other research instruments,' (ibid) which is exactly what the 'pilot' nature of the student workshops were designed to do.

Although the advantages of focus groups are that they allow for an open debate, they can easily result in the more articulate members steering the discussion, and a tacit pursuit of consensus. This may mean that the same participants might offer completely different answers if interviewed on an individual basis. A solution to this is to use what is known as Nominal Group Technique (NGT) —which like focus groups allows the dialogue between researcher and respondent to extend to one between respondents and democratically elicit ideas from a group of people but where participants can still assume 'nominal' or individual perspectives (Hogan, 1985). Nominal group technique restricts the influence of the researcher, it encourages participants to use their own categories for framing and summarising their responses, it sustains the autonomy of individuals in the face of group pressure, providing an evaluation context in which all participants are aware of the full range of possible responses (Lomax and McLeman 1984). Within the student workshops, NGT techniques were put into practice by asking the students their ideas as individuals (which the researcher recorded separately) and then asking them to work as a team to create a group presentation. The distinctions between these two types of information are highlighted within the Appendix Four matrix. It has been documented that NG's produce a significantly larger amount of ideas than respondents in focus groups (De Ruyter, 1996).

5.6.3 The limitations of the symposium workshop

The Symposium Charter, or as it later became 'manifesto' session, [See Appendix Five] which also formed the basis of a chapter in the researchers forthcoming book, 'Architecture Live Projects, Pedagogy into Practice—shared many focus group and Nominal Group Technique principles as the student workshops, US (Harriss and Widder 2014). However by acting as an expert peer group tasked with completing a manifesto, the methodological ambition was intended to be more pioneering. Educators and students create a manifesto—a written statement of the 'rights' or behaviours that would characterise their community or network and facilitate wider engagement in the 'specified activity' of Live Projects [15]. That Live Project participants already form a fledgling network community is captured the substantial case study based membership cohort developed by Anderson and Priest's online Live Project Network, whose stated intention is to, 'promote the use of Live Projects in education, share best practice, encourage dialogue and also contribute to the establishment of a theoretical basis for the study of Live Projects' [16]. Secondly, the insights of the Live Project educator 'community' is also framed as what Scott and Carrington define as a 'social network' (Scott and Carrington, 2011) a term which is commonly misunderstood to have evolved in relation to the relatively recent rise internet-based communities but emerged in the 1930's through the work of Moreno (1934) and Lewin (1936). Both sociologists were separately interested in understanding how the structures of small groups influenced the actions and choices of their individual members, and investigated the 'field' or space of social relations and its characteristics as a network (Scott and Carrington, 2011; Moreno, 1952; Lewin, 1936). In terms of the implications for the data produced, Scott and Carrington argue that, 'Social network analysis conceptualises social life in terms of the structures of relationships among actors, rather than in terms of categories of actors' (Scott and Carrington, 2011, p.6). In other words, the focus is on understanding interactions between Live Project participants – rather than focus on the established hierarchies inherent within the relationships between educators, students and community members.

However this approach is not without risks. As Porter argues, this approach can be problematic even if it involves a, 'commendable democratization of the research process (Porter, 2007, p.84). The limitations of this approach in relation to the integrity the data is considered in Section 5.11, 'Methodological limitations.'

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15 Definition of 'charter' from Oxford Dictionaries online: http://oxforddictionaries.com/definition/english/charter (Last accessed 18/07/2013)

16 Live Project Network http://liveprojectsnetwork.org/ Last accessed 18/07/2013

5.7 Educator interviews

The questions used in the second stage data gathering interviews and online questionnaire were developed from a combination of statements from pilot interviews and evidence from the student workshop and manifesto session and literature review, as discussed in Chapter Four and also see the Appendix 3 pilot interviews matrix.

The survey monkey questions were also mapped in relation to the skillset or area of enquiry that they are intended to directly inform within the Appendix 9 survey monkey questions matrix.

Table 1: Questionnaire to skillset mapping. Appendix 9 matrix positions each survey monkey question (44 in total) in relation to the purpose of the enquiry.

The educator interviews captured the views of fourteen different educators located in either the UK or the US. Based upon the evidence of the early stage primary research and data gathering, the logical next step was to use the interview format as means to interrogate why these skills assume a position of eminence. Both Sara (2004) and Benedict-Brown (2012) Live Project theses relied heavily upon interviews for key data.

One potential limitation with the educator sample is the regional proportions, since only five of the fourteen educators interviewed are UK based. This unintentional bias is due to the fact that the researcher was based in New York, US as a requirement of her research funding

during the data-gathering phase. However, the Live Project Symposium manifesto involved the reverse proportions of British or American educators, mitigating this issue to some extent. It is worth noting that the original intention was to interview equal numbers of UK and US educators, however it proved extremely difficult to arrange meetings with UK educators outside of a full-time teaching schedule—both theirs and the researchers. For this reason, some of the interview questions were completed remotely and were treated as questionnaires by some of the UK educators. This also applies to some of the architects and students too. These distinctions are made explicit within the data tables.

All of the educators that were interviewed were involved in teaching Live Projects, however not all of them were teaching within an architecture program. Five of those interviewed taught within an interdisciplinary Masters program within which the researcher spent a five-month, research data-gathering period as a visiting academic/professor for the autumn semester, 2012 [17].

5.8 Architect interviews

The architect interviews captured the views of four architects—two from the UK and two from US. Although the intention was to include a larger sample of at least ten architects, of the twenty architects approached, only four responded. In response to this, the interviews were extended, and used to gather as much detail as possible. However, the size of this sample presents a problem in relation to the validity of the research. It is noted that forty-one architects responded to the online questionnaire (discussed in more detail in 5.10), which does much to redeem the otherwise small interview sample, not least because the same questions were asked in both mediums. The four architects the researcher interviewed were from four different practice contexts. Two were from the US—one of whom worked for a large, mainstream firm of over 200 employees— whereas the other was setting up as a sole practitioner. The remaining two were UK based—one of whom works in an interdisciplinary practice and the other in a medium size firm with a public sector agenda. Their basic profile information is featured within the data matrix.

5.9 Student Interviews

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17 http://www.newschool.edu/parsons/mfa-transdisciplinary-design/ Last accessed 16/07/2013

Similarly, the student interviews captured the views of only six students based in either the UK or the US. The students were drawn from four different schools: two from New York Institute of Technology (NYIT), two from Parsons New School, and two from Oxford Brookes University, UK. The two Parsons students cohort were drawn from the MFA Interdisciplinary Design, as outlined previously. All but one of the students was post-graduate. Their basic profile information is featured within the data matrix. They had all experienced more than one Live Project.

5.10 Quantitative Data: online questionnaire

The link to the questionnaire was sent out to a range of practices in both the UK and the US, via the Architecture Live Projects Symposium delegates and also announced via various social media outlets such as Facebook and Twitter. All respondents on the online questionnaire were anonymous. The questionnaire began with a definition of what a Live Project is – using the same evolved terms as captured in Chapter One – as a means to enable what Creswell describes as, 'construct validity' which can be called into question if a researcher uses inadequate definitions and measures of variables (Creswell, 2013). There were 179 respondents to the online questionnaire. Of these, 29% were involved in teaching, 41% were qualified architects and 64% were students of architecture. Note that there is an overlap between educators and architects, since many educators are qualified architects (including the researcher. The distinctions between these categories are discussed in more detail in Chapter Six.

5.11. Methodological limitations
5.11.1 The structure of the online questionnaire

The interview format and the online questionnaire involved the same questions. Within the online questionnaire, two response formats were used. For the basic profiling data regarding gender and occupation, a simple dichotomous yes/no format was used. The second section of the questionnaire contained statements derived from or based upon the early stage research (profiles covered in 5.2, 5.3, 5.4, 5.5, prior to the refinement of the enquiry) which respondents were asked to respond to using a five point 'attitude scale,' also known as a 'Likert Scale' after it's originator or interval scaling (Likert, 1932). According to Mosser and Kalton, this allows, 'individuals to be assigned a numerical score to indicate their position on a dimension of interest,' (Moser and Kalton, 1971). By using a five point summated rating scale

that allowed the respondents to indicate their degree of agreement, disagreement or neutrality to each statement, the responses can be score in terms of directionality as well as more broadly considered in terms of the respondents total attitude score towards the subject.

Under each of these scaled questions, respondents were encouraged to extrapolate on their responses (Spector, 1992). The most accessible format for summarising the Lykert scale responses is to use a median or mode. The summaries are captured in Chapter Six. In terms of displaying the responses, the preferred format is to illustrate the distributions using a bar or pie chart. These are used to illustrate selective questions in Appendix 09.

5.11.2 The limitations of the Lykert scale
The limitations of the Lykert Scale are that it assumes attitudes are linear (from agreement to disagreement) and that attitudes can be accurately measured (Fishbein and Ajzen, 1974, p.59). Furthermore, the issue of social desirability also presents a problem due to the tendency of subjects to attribute to themselves statements that are seemingly desirable for either their own reasons or because they may intuit certain biases in the way the question is framed (Edwards, 1957) According to Paulhus' 1984 study, offering anonymity on the questionnaire (which was an obligatory element) remedies social desirability. The only demographic data collected related to global location, gender and occupation (Paulhus, 1984).

Furthermore, the questions were organised using Thurstone scale of Equally—Appearing Intervals—which share fundamental similarities with the Lykert scale (Edwards and Kenney 1946, p.72) but features includes cross-referencing responses or uni-dimensional scaling (McIver and Carmines 1981) rather than Guttman's (1944) cumulative scaling strategy where scaling relies on a one-dimensional continuum for measuring a concept. This approach risks respondents assuming that agreeing with every statement puts them in a specific category as it relies on correlations between item scores and therefore can increase the risk of social desirability or influence researcher bias in the data.

5.11.3 The limitations of the interview format

The interview format is a hugely time-consuming undertaking. Often interviews were cancelled or curtailed. One even took place on a train and another in the coffee break during a

design review. Attempts were made to use Skype [18], however the internet access limited our ability to sustain the discussion and hampered concentration. Despite this, the efficacy of face-to-face interviews over other methods including telephone interviews is well recognised (Dillman, 1978). Of the many documented advantages, the obvious and most pertinent to the researcher's enquiry was the possibility of allowing for deviation from the set questions to elicit deeper meanings—in essence enabling more qualitative data that the online questionnaires were able to provide. The challenge with capturing fifty (plus) interviews containing this kind of free-range information comes at the point of analysis, when attempting to categorise or systematise the deep but at times also broad range of material that can often later seem off topic. The interviews therefore aimed to balance a mix of fixed, or 'closed quantitative' questions aligned with those in the online questionnaire, and some 'open-ended' and even informal/unstructured discussion (Cohen et al, 2007). Subsequently, only 'free-range' data that related to the three skillsets is included in the matrices.

5.11.4 The limitations of questionnaire format

Questionnaires—even when they are online—are generally known to elicit a low response rate (Beiske, 2003, p.4; Deutskens, 2004) [19] and the researcher's invitation to response ratios aligned with this (Sara, 2004, p.177) [20]. Although the online option simplifies the process for both researcher and respondent, online questionnaires are particularly impersonal and can over-simplify the respondents' views (Gillham, 2000, p.4). Even when a facility for extrapolating on a response is offered, time pressures and the lack of scope for discussion or querying limit the appeal and efficacy of this option. By asking many of the same questions in the interviews as provided in the online questionnaire, the aim was to achieve 'convergence' as a means to build confidence in the findings (Gillham, 2000, p.1) as well as allow for more complex and nuanced responses.

5.12 Data analysis—methodologies within comparative research enquiries

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18 SKYPE is a messaging, video and voice enabled facility that allows users to communicate with peers over the internet. https://en.wikipedia.org/wiki/Skype (Last accessed 17/07/2013)

19 Deutskens et al reported a 17% response rate using online questionnaires, in comparison with postal questionnaires that typically illicit a 15% response rate.

20 Note also that Rachel Sara had a decidedly poor response rate. Only 5 of 12 UK architecture schools that were running Live Projects at the time, responded to the postal questionnaire.

As mentioned in the Literature review, previous doctoral research into Live Projects (Sara, 2004; Findlay, 1996) focuses upon identifying Live Projects as an effective vehicle for learning architecture. Moving on from this, Benedict-Brown's 2012 thesis tries to assume a more 'neutral' position, and instead considers how Live Projects can instead offer a kind of 'feedback tool' for educators to experiment with the discipline and its pedagogies (Findlay, 1996).

As the skillsets themes and specifics began to emerge, an iterative process of cross referencing with existing research became essential, not least as a means to ensure the subject of the research enquiry remained original (and avoid duplication), but also to ensure both internal validity and as a means to ensure external validity, by avoiding repeating errors that occurred in comparable research enquiries.

Whereas Findlay also collected data from UK as well as US based participants, he focused exclusively on the student experience rather than consider data from educators and architects, whilst Sara and Benedict-Brown used data from students and educators only.
In terms of the three skillsets, Findlay's PhD was largely focused upon collaborative working which he scrutinised through the lens of cognitive theory, whereas the chosen framework for this analysis is Grounded Theory (Glaser et al, 1967) [21]. Whereas Findlay's overriding ambition was to create ideal 'team profiles' for use within, 'collaborative learning in environmental Design Studios,' (Findlay, 1996) the researcher's interest in collaboration is only in relation to one of three skillsets being examined. Furthermore, the emphasis in this enquiry is not upon collaborating within teams in general, but upon interdisciplinary team collaboration. A more comparable PhD enquiry into this aspect of team-working forms the focus of Andrew Whyte's 1996 PhD thesis entitled, 'Design Team Communication: Practice and Education' examined building design team relationships. Methodologically, Whyte was similarly concerned with sample size, and sought to improve upon Higgins and Jessops' 1965 pilot study that examined communications in the building industry (Higgin and Jessop, 1965) and Faulkner and Day's 1986 study into the image and status of design team professionals (Faulkner and Day, 1986) both of which used relatively small sample sizes. However all three of these studies considered how a perceived or actual sense of status within a design team, including stereotyping, contributes to conflict by studying peer behaviours. Of interest to this enquiry is Whyte's assertion that, 'communication gaps require educational

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21 WHYTE also notes that, 'it is recognised that the link between attitude and behaviour does not have blanket support in the field of social psychology.' (Whyte, 1996, p.234)

initiatives able to bridge cultural differences instilled by vocational traditions in the educational process,' (Whyte, 1996, p.i) and proposes several strategies for how to address this. How these strategies compare with the researcher's own research informed proposals are examined in Chapter Eight—teamwork and inter-disciplinarity collaboration. Returning to methodological comparisons, Whyte acknowledges that his interest is in enabling interdisciplinary learning in undergraduate situations, which he considers to be more effective to address the problem of, 'design team latent conflict and communication difficulty,' than post-graduate programs (Whyte, 1996, p.235), whereas the data used within this enquiry is taken from students at both levels. In terms of methodological comparisons, Whyte drew his data from what he described as 'case studies' —interdisciplinary, collaborative team projects that typically spanned a semester and were situated in different universities, and involved an impressive cumulative total sample number of 726 respondents, compared to the researcher's own figure of approximately 330 respondents (Whyte, 1996) [22].

In terms of the second skillset —participatory engagement with clients and civic concerns— none of the theses discussed above involved clients in their samples, which is the case in terms of the researcher's sample also. This is not an intentional omission on her part, rather that all of the community clients involved in the Placenomics project had originally agreed to participate in the research. However, only one person returned their questionnaire, despite repeated requests. Without a comparable data set, it was not possible to include this sample. Finally, the researcher could not identify an architecture thesis that addressed the third skillset —ambiguity and risk management—although there were some available data produced within business management courses.

5.13.0 Data Analysis: codification, categories and concepts

As far as the researcher is concerned, the choice of methods of analysis was one of utility. In other words, the methods chosen were used selectively rather than holistically, as the most fit-for-purpose tools to leverage data that other approaches might not. In previous sections, the advantages and challenges associated with the theories informing the data collection were

22 This PhD enquiry respondent rate is; educator USA pilot interviews (16), Placenomics students (10) charter participants (57), Student focus groups (14, 12, 18), online questionnaire (architects, students, educators) (168), educator interviews (14), Architect interviews (4), student interviews (6).

considered. This section is devoted to examining the theories informing the data analysis process.

As outlined previously, this study intends to assume a Grounded Theory approach to data analysis and theorisation. However, it is important to note that Grounded Theory in its pure form can prove an extreme process, since it supposedly begins from a position where the dynamics of the situation are not understood. Given the researcher's experience with Live Projects, this is not strictly the case. A Grounded Theory approach was therefore reverted to when seeking to define and interpret behaviours or data outcomes where locating an explanatory theory proved difficult. As a means to position this enquiry within the umbrella of Grounded Theory, the researcher used some of the mapping methods captured within the 'Situational analysis' approach outlined by Adele Clarke, who advocates that differences as well as commonalities need to be considered. This means that the researcher included data that involves, 'partialities, contradiction, heterogeneities… fragmentation… complexities,' terms that she uses to describe the nature of situational analysis, (Clarke, 2005) and not only data that entirely supports this thesis. Furthermore, Grounded Theory hybridises two 'competing traditions' in sociology as represented by each of its originators, Columbia University positivism of Glaser and the Chicago School pragmatism of Strauss (Charmaz, 2006, p.7). Whereas Glaser emphasised, 'dispassionate empiricism, rigorous codified methods, emphasis on emergent discoveries,' in contrast with this Strauss's contribution involved, 'notions of human agency, emergent processes, social and subjective meanings, problem-solving practices and the open ended study of action' (ibid) For this reason, a completed Grounded Theory should, 'explain the studied process in new theoretical terms, explicates the properties of the theoretical categories, and often demonstrates the causes and conditions under which the process emerges and varies, and delineates it's consequences' (ibid). Since this enquiry is concerned with the learning 'conditions' under which specific skills 'emerge' as a 'delineated consequence' of Live Project participation, the analysis trajectory subsequently aligns with the Grounded Theory method.

5.13.1 Challenges associated with Grounded Theory (GT)

There are several problems associated with using GT that need to be considered here. According to Bryant and Charmaz the term, Grounded Theory can lead to 'confusion,' (Dey, 2010 p.2) because it can be used to describe both a research outcome as well as a process. Secondly, and in regard to the process itself, GT is most commonly used when the researcher

has no clear plan of action or tentative hypothesis as a means to help define one (Bryant, 2010, p.xxviii) which is – as discussed in Chapter Four – not strictly the case with this enquiry. Subsequently, GT purists might argue that this study is not using GT, since the researcher began the enquiry with a view to examining what made Live Projects an effective vehicle for learning skills that were or were becoming increasingly important to the architect in practice. However, GT methods proved indispensable when determining what the three research questions around skillsets actually were, for example, when the researcher emphasised, 'emergent discoveries' when scrutinising the literature and also captured, 'social and subjective meanings' during the early, open-ended pilot interviews. Furthermore, the literature review and the pilot data collection phase were deliberately designed to overlap, as a means to enable to researcher to work iteratively between, 'data collection, coding, analysis, writing design, theoretical categorization, and data collection' (Hood, 2010, p.172). It was this process of 'theoretical saturation' that enabled the skillset questions to be formed through cross analyses of evidence, rather than relying upon the 'demographic representativeness' of the larger data samples that followed (Pratt, 2012).

Within, 'De Groot's five stages of empirical research,' illustrated earlier, 'deduction' is illustrated as the third stage of the process, taking place after 'induction.' Within GT however, Glaser emphasises is 'deduction', rather than 'induction,' an approach which Bryant and Charmaz commented can result in the collection of, 'a limitless number of seemingly identical observations…[And that] one has no certainty that generalizing from these observations produces a valid conclusion' (Bryant and Charmaz, 2010, p.45). For this reason working iteratively between induction and deduction offers a potential solution to the problem of relying upon deduction alone engaging a wider 'body of arguments' to help interpret the data and advance theories (Bryant and Charmaz, 2010, p.45). Subsequently, how GT views relationship between existing and emergent theory is one of the greatest limitations in relation to this study and proved to be a point of departure between Glaser and Strauss. Whereas Strauss argued that, 'theoretical pre-knowledge flows into the data's interpretation,' (Reichertz, 2010, p.215). Glaser insisted that the codes and categories emerge directly from the data (Holton, 2009). The advantage of Glaser's preferred process is that it supports the generation of theory(ies) where there are none—arguably a useful tool when attempting to define emergent skillsets that may feature characteristics not previously examined or articulated.

Subsequently, the researcher proceeded with using GT as there is a balance to be struck between allowing the emergent theorisation process to be too heavily influenced by 'authoritative perspectives' (Holton, 2009) and avoiding a either deduction or iteration to result in mere rhetoric. Mindful of these dynamics, the researcher used GT to inform but not constrain each stage of the data analysis, as outlined in the following section.

5.13.2 Data codification

Step One: As outlined previously, the first stage data—Placenomics, US student workshops, educator interviews and educator manifesto —facilitated the development of a matrix that was used as a basic framework for beginning to codify insights that were used to refine the second stage data collection process. Working iteratively between deductive (observations) and inductive (affirmations), the assignations were based upon the researcher's own judgment. She also identified two other areas where most of the commentary fitted in. As Cresswell explains, codes 'help sort information that will be useful when writing the qualitative study,' (Creswell, 2013). Within the second stage interviews, the researcher also captured the commentary that aligned within the matrix that had been developed through the pilot enquiry stage. [See appendices 03 and 04].

5.13.3 Data Categorisation

Step Two: The categorisation process seeks to establish 'relationships' between different codes, for example between the different research questions relating to the three skillsets (Creswell, 2013). The second stage data —educator, student and architect interviews—were collected and processed using the matrix template. The quantitative data from the online questionnaire collected using survey monkey was exported into indicative visualisations (see Appendix Nine). In addition to these visualisations, comments submitted were also coded and categorised. The qualitative data from the online questionnaire was transposed directly into the matrices.

5.13.4 Creating concepts

Step Three: The next layer of analysis involved a technique called in-vivo coding, where additional labels were added to sections of data, in essence highlighting short words or

phrases (Miles and Huberman, 1994, p.61). These codes were not altered or edited, and remain original to the respondent. This meta-layer of codification is then used to form concepts around each of the three skillsets —explained and examined in separate chapters—to move them beyond mere affirmations (that they align with the three skillsets originally informing the research questions) and into something more informative and instructive—in essence, form 'concepts'. In research, 'concepts' are understood to capture generalisations from 'particulars' such as anger or intelligence (Cohen, 2011, p.14). As Cohen et al define it, 'a concept is the relationship between the word (or symbol) and an idea or conception…..concepts enable us to impose meaning on the world….through them reality is given sense order and coherence,' (ibid).

The data was first transcribed into matrices, with a view to adding it to NVivo, one of the data organisation and codification packages available. After transposing some of the data into it, the limitations of in this package were noted, since it cannot discern nuance or context, limiting its codification and categorisation capacity to 'terms' – i.e. words or phrases that are understood in isolation and not in relation to a bigger idea. Metaphor and euphemism also proved problematic elements. For this reason, the researcher chose to code the data herself, using Excel spreadsheets to better enable hierarchies and matrices, and Illustrator to produce concept illustrations.

Step Four: Once the concepts were identified using in-vivo coding, the next step was to categorise them. As captured in the matrices, there are a total of six categories. The first three pertain to the three skillsets, the fourth relates to the future professional practice (as discussed in Chapter One and Four), the fifth is in relation to the school of architecture, including curricula and assessment. The sixth category is defined as open, but is often used to position data that either applied to multiple categories or none in particular, but that seemed important to the respondent.

Step Five: The final stage in this process is to use Grounded Theory to improve upon the original, tentative hypothesis by using it as a means to transform codes, concepts and categories into a theory or theories concerning Live Project skillsets and efficacy. Using Kathy Charmaz's template for this process the qualitative, Grounded Theory approach allows the researcher to, 'follow leads that emerge … increase(s) flexibility and simultaneously … quickens the speed of gaining a clear focus on what is happening in [the] data without sacrificing the detail of enacted scenes' (Charmaz, 2006, p.16). Subsequently, Chapters Six,

Seven and Eight use 'situational analysis' processes as outlined previously to evaluate the 'fit' between the original research sub-questions relating to each skillset individually, and ask to what extent are Live Projects effective at enabling students to acquire: (1) inter-disciplinary teamwork capabilities, (2) collaboration and civic engagement capabilities, (3) ambiguity tolerance and risk management capabilities? The emerging data then allows for, 'leads that define the data,' whilst pursing ideas that the respondents deemed important (Charmaz, 2006. p.17). The terms used within the questionnaire was informed by the literature review. The relationship between each questionnaire question and the relevant skillset is captured in Appendix One.

5.14 Research rigour: credibility, transferability and auditability

According to Lincoln and Guba (1985) research rigour is determined by credibility, transferability and auditability. An example of this is at the theoretical verification stage, when credibility can to some extent be ascertained by comparing the findings from one data group to another, or to the results of previous studies, assuming there are comparable variables (Morse and Field 1995).

Transferability is the ability to generalise the results to other, similar situations. i.e. by establishing whether the lessons learned are not only relevant to the cases the researcher examined, but can be applied elsewhere. For transferability to be authentic, the researcher is required to provide a lot of detail on points of comparison (i.e. contextual information about the locations, settings and so on that are being studied), before transposable 'applicability' or 'fittingness' can be ascertained (Twycross and Shields 2004). In other words, transferability is performed by the readers of research, who can draw from their own knowledge and understanding of Live Projects to determine whether the results "transfer" the results of a study to another context. The obligation of the researcher is that they as much detail on the data and methods used to elicit it in order for the reader to 'transfer' it.

According to Twycross and Shields (2004) 'auditability' can be achieved by providing a richly detailed account of the research process to ensure the reader can make an informed decision about the integrity and dependability of the study and to enable an exact repeat of the research made for verification. This has been described by Morse and Field as a 'decision trail' or 'audit trail' (Morse and Field, 1995) In alignment with the 'situational' Grounded Theory approach, this chapter has detailed all decisions regarding methods and processes, including

the 'partialities, contradiction, heterogeneities… fragmentation… and complexities,' that Clarke refers to as characteristic in this approach (Clarke, 2005).

5.15 Concluding summary

This naturalistic, mixed-methods, qualitative and occasionally inventive approach to data collection, whilst intended to be rigorous, tries to frame some interesting insights via codification and analysis. In brief, this chapter has aimed to capture the range of respondent profiles deemed essential to ensure the findings can be effectively contextualised. Considering all respondents data in relation to the three skillsets provides clear points of comparison. Differences and similarities between cohorts (i.e. students in different regional contexts) as well as the same cohort (i.e. Live Project educators) become more starkly apparent, and comparisons can extend to two or more cohort groupings. Chapters Six, Seven and Eight focus upon the findings in relation to each of the three skillsets as related to the three research questions - interdisciplinary team-working skills, participatory engagement with clients and civic concerns, and ambiguity and risk management, that the researcher am examining in this thesis—one chapter per skillset.

As outlined in the introduction to this chapter, transferability is considered essential to the success of this thesis. Whilst the enquiry aims to progress beyond the established and even fledgling discourse on Live Projects, it is noted that any respondent to an enquiry on Live Projects is likely to have participated because they have views on the subject. Where the enquiry feels limited is in regards to how much data could be derived from those who feel they have no insights on architectural education or preparedness for practice. In an ideal scenario, the findings might have been different had a larger sample of architects responded or had the views of the clients of architects as well as clients of Live Projects been included. It is the conviction of the research that an enquiry that focuses upon these two groups, particularly the latter, could prove of great benefit to those interested in more progressive forms of inclusive and co-authored architectural curriculum, which might well prove to be the post-doctoral research trajectory for this enquiry.

PART THREE: FINDINGS

Chapter Six
Skillset One: Collaborative interaction within interdisciplinary teams

6.0 Introduction

This thesis is concerned with examining to what extent are Live Projects effective at enabling the acquisition and application of particular skillsets. The skillsets in question have been identified as being important by a diverse range of sources. Chapter Six is concerned with the first of three being examined - that of collaborative interaction within interdisciplinary teams. In order to do this, the chapter identifies the key emergent themes within the responses, and contextualises them with reference to the literature review.

As the literature review identified, there is evidence to suggest that effective teamwork has often eluded practicing architects (Binkley et al, 2012; Kiernan, 1993; Mc Campbell et al, 1999; Brass and Krackhardt, 1999; Chickering and Kytle,1999). The reprimand for this missing skill (as well as other deficits) was issued in government commissioned reports: The Latham Report and Egan Report, as discussed in Chapter One (Latham, 1994; Egan, 1998). The secondary evidence suggests that construction projects have become more complex and demand collaboration within larger and more diverse teams or interdisciplinary teams. Whilst Chapter Three established that 'inter-disciplinary' proved the most effective categorization of Live Projects discipline engagement, it was also noted that this thesis is concerned with collaboration that takes place *within* rather than between teams. These two points are important to recognise in terms of how they helped frame the subsequent analysis of the findings.

Analysing the respondents' data involved a degree of reflection upon what characterises good teamwork—as a means to contextualise the specific requirements regarding architecture (Hoegl and Gemuenden, 2001). An extensive body of literature indicates the importance of teamwork to the success of innovative projects (Hoegl and Gemuenden, 2001). Organisational scientists, Martin Hoegl and Hans Georg Gemuenden argue that good teamwork—the quality of interactions within teams rather than team members' (task) activities—is solely based upon the following six Quality Team Work (QTW) characteristics:

1. Communication: Is there sufficiently frequent, informal, direct, and open communication?
2. Coordination: Are individual efforts well structured and synchronised within the team?

3. Balance of Member Contributions: Are all team members able to bring in their expertise to their full potential?

4. Mutual Support: Do team members help and support each other in carrying out their tasks?

5. Effort: Do team members exert all efforts to the team's tasks?

6. Cohesion: Are team members motivated to maintain the team? Is there team spirit?

(Hoegl and Gemuenden, 2001, p.436).

Whilst this offers a useful framework for determining the key characteristics of teamwork (rather than providing a definition), it is being referred to in isolation as a means to making an important point about the broadness of the term, and how it can mean different things to different people. For example, it is noted that not all the terms listed above to define teamwork were necessarily referred to by the respondents. For example, whilst 'support' was not discussed, 'communication' was a core preoccupation of many respondents.

Subsequently, one of the concerns of this chapter is to consider how the respondents extrapolate upon what teamwork means to them in relation to architectural learning and practice. The researcher acknowledges that some of the terms the respondents use to express their thinking about teams are not exclusive to teamwork per se. For example, the term 'collaboration' features heavily in respondents views about effective teamwork yet collaboration is also discussed as part of client interaction, which is the explicit focus on skillset two: client interactions and civic concerns, examined in Chapter Seven.

In pursuit of clarity, the researcher chose to focus on exploring collaboration in relation to team skills, to reflect the fact that within both the primary and secondary data, collaboration was discussed in relation to skillset one more often than skillset two. However, it should be noted that there are subtle yet important distinctions to be made between team skills and team behaviours—the latter of which is more commonly discussed in relation to pedagogic literature. Secondly, collaboration is itself characterised by sub-divisions that encompass subtly different skills, such as team interaction, facilitation and engagement. This accounts for why some of the data used to inform the analysis does not make explicit use of the term 'collaboration,' yet specifically addresses it. It should also be assumed that any respondent data that explicitly discusses collaboration in relation to clients is discussed in Chapter Seven.

Many respondents identified 'communication' as a key team skill. However, communication is a broad term and cannot be exclusive to teamwork as it pervades all skillsets. An example of how transient collaboration and communication skills are in relation to the skillsets is neatly captured in the following response from one of the students.

> *Apart from architectural design the skills I think are most important to learn for working in practice are communication, listening, questioning and presenting then collaboration and formulating the brief [and] have built upon my practical and team working skills as well as ways to communicate to people outside of architecture.* (Appendix 8, G19)

Interestingly, some respondents identified that teamwork even facilitates communication. As one student explained, teamwork helped them to, "extract design ideas through having extensive conversations," (Appendix 2, D20). Whereas an educator noted that teamwork improved, "their ability to communicate design ideas which compares favourably with the kind of fraught dialogues typical [of] Design Studio reviews" (Appendix 4, C16). These comments affirm that communication is a core element of teamwork and also of successful client interaction.

As one architect interviewee explained, "teamwork is essential for all aspects of practice life, both for teamwork within an office with colleagues and design team, and then as sole practitioner for team work skills with client and consultant" (Appendix 7, D16). Although skillset one focuses specifically on design team interactions, it should be acknowledged that clients are often part of the design team and not just employers [1].

The naturalistic, mixed-methods and qualitative data broadly confirmed that architects do indeed face certain challenges in relation to effective team-working. As one architect interviewee explained, "project teams are becoming incredibly complex. Even in a fifteen-story building you can have two pages of consultants involved—it's incredibly specialised, you have to deal with a huge team now" (Appendix 7, D10). This change marks a shift away from the traditional, more 'integrated craft' team structure (Lewis, 1998, p.149) of Architect, Quantity Surveyor and Engineer that can occasionally still be observed in smaller projects. As one educator noted, "the profile of the traditional team has expanded to include sponsors,

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[1] Over 50% of the construction value of UK architects' workload is for contractor clients, rather than domestic, private and/or end user clients. Source: RIBA (2012) The Future for Architects, RIBA Building Futures

government agencies, charities and so on," (Appendix 3, D53) stakeholders whose expertise does not include design and construction but who have a significant role to play in shaping the architectural outcomes of a project.

6.1 The characteristics and interdependencies of effective teamwork

Roles are increasingly fragmented. The architect is really a relationship manager between all of these different consultants... and a diplomat... a bed warmer...oh, wait...that's just the interior designers.
(Architect interviewee, Appendix 7, D10)

As the literature review identified, teamwork is comprised of a series of skill subsets or competencies. As Binkley et al hypothesise the most crucial skills for twenty-first century architecture practice include, "Decentralized decision making, information sharing, teamwork, and innovation are key in today's enterprises," (Binkley et al, 2012). Broadly, the research data descriptions from educators, architects and students alike, not only reflected these skillsets but also supports the idea that these skills are inter-related and even inter-dependent, quite simply in the way they used such skills as adjectives to describe their team work.

As identified in earlier chapters, the architect's role within the design team has become increasingly 'decentralised' and less likely to assume a traditional leadership role as the client's representative. Perhaps portentously, as the title of Latham's 1994 report, 'Constructing the Team,' implies, the emphasis is less on 'leading' teams and more upon facilitating them or as Latham defined it, 'partnering' (Latham, 1994, p.62). Without centralised control over decisions—or as the RIBA Building Futures report describes it, 'slipping down the pecking order' (RIBA, Building Futures, 2012) —architects are required to share and collaborate more, in order to achieve meaningful impact on design outcomes. The architect is therefore required to be a less conspicuous 'leader' of the team and instead should assume a strategically important role in not only 'constructing' or enabling team relationships but in sustaining and managing them effectively. As one student explained:

> *My view of collaboration is that the architect is the key player – you are the central point for everyone – and in this role you need to collaborate but to also see things from everyone else's perspective.* (Appendix 8, E15)

From a client's perspective, the literature review identified that effective teamwork is often measured in terms of efficiency, particularly when it concerns meeting cost targets [2]. The idea that effective teamwork is evidenced by improved efficiency also resonated for various respondents when reflecting upon their Live Project experiences. As one student explained, "we worked together as a team effectively and I was surprised to how efficient we were in terms of progressing through the design process" (Appendix 2, D37). In this respect, efficiency might therefore be considered a measure of effective teamwork in relation to learning outcomes and assessments [3].

6.2 The value of inter-disciplinarity

Within an increasingly under-resourced higher education context, interdisciplinary assignments can appear to offer a 'quick win' for HEI's looking to stretch increasingly limited resources (Jacobs, 2009). There are also many learning theorists who extol the value of interdisciplinary assignments. Within Chapter Three, the case for Live Projects' inherent inter-disciplinarity was established. What the literature review also evidenced was that architecture practice is becoming increasingly inter-disciplinary and that there is a current shortfall in architects able to, 'take advantage of in the realm of 'interdisciplinary leadership'—embracing their skills and putting them to use in senior positions within construction firms or as clients, developers or policy makers,' (RIBA Building Futures, 2012, p.13).

Furthermore, the primary data also prompted a re-examination of what the literature review identified as Live Projects inherent inter-disciplinarity. In other words, the commentary moved beyond establishing whether Live Projects were—or even need to be—interdisciplinary and instead invited a reflection upon whether Live Projects simply raise awareness or offer expertise in interdisciplinary working, whether they are more or less interdisciplinary when they involve students or collaborators from other disciplines, and whether there is a potential problem that needs to be considered that Live Projects because

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[2] The1979 Report by the National Economic Development Office suggested that nearly one in five clients were dissatisfied with the service they had received from the industry. Industrial Relations in Great Britain: A Guide to Inward Investors, HMSO, 1979). Latham also identified that, 'partnering can bring significant benefits by improving quality and timeliness of completion whilst reducing costs." (para 6.45, p. 62)
[3] As discussed within chapters Three and Five and in reference to the evidence of clinical studies in efficiency considered previously. See also: Hoegl and Gemuenden, (2001).

they are inevitably unpredictable may not actually deliver as good an experience as a cleverly designed, school situated, interdisciplinary assignment?

The evidence from the data [Appendix 9] suggests that respondents broadly agreed that Live Projects are inherently interdisciplinary. Some respondents also discussed the importance of inter-disciplinarity in relation to today's practice environment. In the words of one of the US-based educators, "Interdisciplinary practices are the future. Experiencing inter-disciplinary collaborations in school is therefore essential." (Appendix 3, D18). A view echoed by another educator, who explained that, "architecture practices are increasingly diverse." (Appendix 3, D27), indicating that inter-disciplinarity not only refers to the design team, but to practice based teams too. Of the 187 respondents to the online questionnaire, 47% reported that they either work in or have worked in an interdisciplinary practice (Appendix 9, Q10), evidence that further supports the claim that architecture is becoming more interdisciplinary. There is one note of caution regarding what an interdisciplinary practice might involve however. As with many of the questions in the online questionnaire, the optional comments section invited respondents to give examples of interdisciplinary practice. Of the twenty-six examples listed, the majority of these were still largely construction related trades from cabinet making to web design and international development. Question eighteen of the online questionnaire also asked the respondents whether to what extent they agreed or disagreed with the statement that, 'Professional practice is becoming increasingly interdisciplinary.' Of the 187 respondents, 50% agreed and 28% strongly agreed, with only 5 % either disagreeing or 1% strongly disagreeing. As one of the respondents explained;

> *The world is becoming more and more complex. Increasingly, architects do not have the knowledge base to complete every tenet of every new building or space. New architects must have more knowledge of other disciplines and be willing to learn and collaborate with other design and engineering disciplines to make modern day buildings a reality* (Appendix 9, Q18).

As implied in this insight, the key concern with inter-disiciplinarity is that architects need to acquire an awareness of and ability to work with professionals from other disciplines and on interdisciplinary projects with potentially more diverse outcomes. This is an interesting point, since as the literature review identified, there are some who feel that the emphasis upon interdisciplinary is a threat to the importance of discipline-specific expertise (Benson, 1982).

However, there are others who argue that the 'value' of inter-disciplinarity is in its ability to produce more 'complex' or richer outcomes. There is a financial value for architects in gaining these skills too, insofar as less conflict within teams means goals are likely to be more efficiently achieved (Moore and Wang, 2005; Turner, 1990; Bennett and Jayes, 1995; Schneider and Schoenberg 1999, p. 14). As one respondent to the online questionnaire explained, inter-disciplinarity is a means to develop, "better market reach," without which they would be "commercially compromised." (Appendix 9, Q18) Another respondent ventured that, "architecture has always been interdisciplinary, since the beginning of civilization," (Appendix 9, Q18) suggesting that it is less about architects acquiring new skills, but instead concerns how architects might better leverage their existing skills.

Not everyone would agree that it is a simple case of leveraging inherent skills however. Arguably, if these skills are already embedded within architecture teaching and curricula, are they sufficient to meet the demands of an increasingly diverse inter-disciplinary world? As one respondent—when reflecting upon the contested nature of the term 'inter-disciplinarity'—explained:

> *I am irked by how much the term interdisciplinary is used to refer to firms that have landscape architects and graphic designers working there. I think truly interdisciplinary should collaborate with scientists, mathematicians, artists, historians... etc* (Appendix 9, Q18).

A more covert attempt at asking the 187 respondents about inter-disciplinarity involved phrasing a question thus, 'Architecture needs to expand its professional parameters and realise new opportunities.' (Appendix 9, Q20). 55% of respondents strongly agreed and 38% agreed, suggesting that current openness to embracing new forms of practice is shared by the majority of practitioners and future practitioners.

The view that architecture is becoming more interdisciplinary was supported by one of the architect interviewees who explained that, 'the rhetoric has certainly shifted and it's not seen as a weird freaky thing anymore' (Appendix 7, D12).

It was also felt by one educator that, interdisciplinary teams can, "envision a broader range of solutions," (Appendix 3, D23) which will, as the literature review identified, enable architects

to think, 'beyond buildings' (RIBA Building Futures, 2012, p.29) or as one educator explained:

> *LPs are inherently inter-disciplinary because projects develop their own shared 'language'*
> *culture....[and] 'gets students to stop thinking about the outcomes being buildings*
> (Appendix 6, C30).

Interdisciplinary team-working capabilities do not imply that architects should or can contribute to any sector necessarily, but as one educator explained, "we need to learn to differentiate between whether the problem is an architectural one, or a policy issue" (Appendix 3, F22). In other words, this is just as much about understanding the limitations of architectural expertise as it is about pushing beyond current practice boundaries, within what one educator described as, "your remit of knowledge." [4] In addition, an online respondent to the online questionnaire explained, "the discipline of architecture is on its way out, refusing to change with the tides of interdisciplinary collaboration," (Appendix 9, Q11) a view reflected in the literature view as part of the 'survival' of the profession (RIBA Building Futures, 2012, p.29). All the architect respondents interviewed appeared to share this view. As one stated:

> *Should architects become more interdisciplinary? Absolutely. I have no doubt about this.*
> *Architects need to diversify, as individuals and from a commercial perspective. We cannot*
> *survive using the traditional fee model for designing and constructing buildings so we need*
> *to be able to promote other skills successfully. Architects are generally very good at working in*
> *teams and adapting* (Appendix 7, D14).

As one student - a serial Live Project participant - explained during his interview:

> *I learnt how to manage people… we had to assume roles, it wasn't effective for everyone to*
> *do everything. The great thing about architecture is that everyone is really talented and*
> *some have different skills than others, so we can learn from each other. You learn that you*
> *need to include experts to get the advice you need on Live Projects. It's important to be*
> *interdisciplinary – that's the nature of architecture, you have to know a little bit of*
> *everything to know what you're talking about – architecture touches many fields. The role of*

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[4] For the quote to be understood in context: *'Learning when to say things that are in your remit of knowledge. When you don't know something, be honest. Students with gift of the gab can be the worst offenders.'* (Appendix 6, E12)

> *the architect is bringing together all of these disciplines. Live Projects are a volunteer effort –*
> *they do it because they are passionate about it, so the collaboration is authentic* (Appendix 8,
> D17).

6.3 Is inter-disciplinarity overrated?

Whilst the data supported the view that Live Projects are "inherently interdisciplinary,"
(Appendix 6, C30) it is important to question the potential disadvantages of this
characteristic. As one of few respondents who assumed a more critical view of inter-
disciplinarity argued, "disciplines are seen as disconnected silos that stifle innovation and
restrict inquiry," (Jacobs, 2009). What inter-disciplinarity is not, is a rejection of the
distinctions between different forms of expertise, nor a rejection of architectural expertise—
Live Project educators do not necessarily, "expect students to become interdisciplinary
triathletes," (Appendix 6, E12) but instead it is understood that, "inter-disciplinarity co-exists
with [rather than supersedes] scholarly specialization" (Jacobs, 2009). As one educator
suggested:

> *Probably all disciplines are inherently interdisciplinary, but for convenience sake they've all*
> *been chopped up into little pieces. One of the benefits of a Live Project is that it can*
> *foreground the limitations of thinking of these pieces as being distinct, but instead see the*
> *overlaps in disciplines – for example, financial management and so on. In the interests of*
> *sustainability for example, it's important for all disciplines to step-back from their usual*
> *ways of working and think about how might these practices change if they were predicated*
> *on the need to communicate? LP's provide the forum to test and practice that* (Appendix 6,
> C26).

As this insight suggests, the potential of Live Projects to act as an interdisciplinary 'test bed'
would allow aspiring architects to explore not what inter-disciplinarity really means, and how
their expertise sits in relation to emergent market forces and global trends, and learn to value
their expertise rather than necessarily diversify. As Jerry Jacobs writing in the Chronicle of
Higher Education argued, 'any promise [inter-disciplinarity] holds depends on the presence
of strong disciplines' (Jacobs, 2009). As one educator-practitioner noted:

> *Inter-disciplinarity is about maintaining the distinctions between disciplines but allowing the flow between them, not about breaking down boundaries...so maybe trans-disciplinarity is the way to describe it...if the world does dissolve down into 'built environment producers' even though theoretically the term is a useful one, it's important that people acquire specific skills but with that they acquire the skills to communicate that expertise...and to empathise with people from other disciplines, and to bring that together in a really productive way – sparks fly when hard things hit each other – but if everyone goes into soft mush, then we just get more soft mush. Positive conflict is better than consensus* (Appendix 7, D12).

6.4 Live Projects and critical inter-disciplinarity

Taking forward the assertion that, "Live Projects 'bring out' inter-disciplinarity in students." (Appendix 6, C32) the notion of a more critical view of inter-disciplinarity was echoed not only by other educator respondents but also by architects. One architect interviewee who was also a part time educator said:

> *My concern about inter-disciplinarity is less to do with arch education specifically, but more to do with education as a whole. When we were students we were a blessed generation – encouraged to think critically, to challenge, to go to original sources, to not learn by rote, which set me up for life. In my teaching I observe that many post graduate students have no experience of critical thinking, and you can't design without it, to be bold enough to challenge the way of the world* (Appendix 7, D12).

This value of this 'criticality' in enabling students to discern what is useful and valuable in their learning activities is echoed in literature discussed in Chapter Three, Sections 3.4 and 3.5. Furthermore, other educator respondents agreed that Live Projects should enable students to "develop a language of criticality" (Appendix 5, D10). In order to do this, the design of Live Projects should perhaps consciously help students to assume a critical position as a means to navigate the interdisciplinary academic and practice landscape, not least because there are risks associated with not addressing inter-disciplinarity within architecture teaching. One albeit exceptional view about inter-disciplinarity was expressed by an educator who explained:

> *Inter-disciplinarity could be empowering for the profession, or in the worst case it could terrify everyone back into the discipline specific rabbit holes of academia, that aren't valued at all once you leave that context* (Appendix 6, F26).

This view assumes that architecture practice isn't inter-disciplinary, going against the evidence presented earlier in this thesis and in the data. The researcher's reason for including this more extreme and exceptional view is to raise a point about how an educator could easily perpetuate the view that interdisciplinary 'isn't valued' outside of architecture school, a view that could prove to be a professional hindrance to students. What Live Projects can do is enable students to challenge the views of the academy and their educators by, as one educator explained, "examining one's authority, to assume a critical and reflective position—one that is open to criticism, open to intervention from people who are not of the same academic culture" (Appendix 6, C14).

As interdisciplinary as architecture might inherently be, there is still a case for designing Live Projects that involve students from other disciplines. According to one educator, "our LP's became inter-disciplinary when we realised we couldn't do it ourselves and had to involve others" (Appendix 6, C34). This also suggests that maintaining discipline distinctions encourages collaboration—both in terms of the design team and other collaborators. From a student perspective, one individual noted that their Live Project achieved, "stronger outcomes in relation to society" (Appendix 8, D21) when the group of students involved were interdisciplinary, in comparison to a Live Project that involved only architecture students.

Whilst this suggests that deliberately interdisciplinary Live Projects are better able to highlight discipline boundaries that those that involve inter-disciplinary skills or behaviours, all interdisciplinary learning can help students discern what the limitations of their own expertise is, or as Salter and Hearn explain, 'an understanding of disciplines sets the context for an appreciation of inter-disciplinarity,' (Klein, 1999). According to one educator, "in the public sphere there's a question about how we avoid losing the idea of specialisation - so we still need to be experts." (Appendix 6, C30). In doing this, Live Projects help students recognise the "limitations of their expertise", (Appendix 6, C24), ' by, 'identifying the strengths and weaknesses of particular theories and methods allows students to be better judges of expert arguments… [to] better prepares students for democratic citizenship,' (Szostak, 2003, p.49). This sentiment is echoed in the words of one educator, who described

the need for, "optimistic citizenship," (Appendix 5, E46). Furthermore, within an increasingly litigious world—statistics from the US suggest that just under one quarter of architecture firms face legal action each year [5]—understanding the limitations of ones training is not only useful in terms of team-working but has implications for the third skillset, risk exposure and management, implying a potential interdependency between some of the skillsets.

6.5 Collaboration, negotiation, barter

Compared to other Architecture learning models such as portfolios and essays, Live Projects both facilitate and even necessitate collaboration. In explaining why Live Projects enabled teamwork, some respondents identified what skills characterised 'good' teamwork behaviour. As one US educator argued, "Live Project value comes from students learning to negotiate." (Appendix D13) or another identified, 'students learn that there isn't just one way of doing things' (Appendix 5, D23). Similarly, some of the architect respondents shared this view. As one architect interviewee explained, "In practice, you have to deal with all kinds of consultants, you have to design with other architects and you have to collaborate in order to get project specific information… you need to be flexible." (Appendix 7, D10) Being flexible isn't enough however. As one group within the symposium workshop put forward, "Live Projects involve creative barter," (Appendix 5, D13) and, "decision-making and sharing and negotiating ideas all feed into collaboration." (Appendix 6, C20) Arguably, the interdependency of these skills in terms of achieving collaborative teamwork raises the question of whether it is possible to separate out these skills as a means to teach and assess them. This assumes that they can even be actively taught rather than an educator simply setting the conditions within which they can be acquired. One of the issues the data identified was the perception of architects, architecture students and educators themselves, in terms of their own team working capabilities. Of the 187 respondents to the online questionnaire – most of whom were architects, architectural educators or students of architecture - 66% (approximately two thirds) of respondents felt that architects already made good team collaborators (Appendix 9, Q13). Yet how does this tally with the Latham 1994 report, which

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[5] The USA and UK have similar litigation rates. Condominiums/domestic jobs are reported as the most susceptible. 'According to the insurer CNA/Schinnerer, each year between 1994 and 2005 there were between 15 and 21 professional liability claims filed for every 100 firms.' (Pealer, 2007)
5 'According to the insurer CNA/Schinnerer, each year between 1994 and 2005 there were between 15 and 21 professional liability claims filed for every 100 firms.' (Pealer, C., 2007)

strongly criticised architects for their failure to effectively work as a team? Perhaps architects are unaware of their limitations in regard to this skillset, or their team skills have substantially improved since the report was written some 14 years ago. So could it be the case that Live Projects emphasis on teamwork could in some ways prove to be a useful, self-awareness raising, diagnostic tool for teamwork skill building? One respondent explained:

> *As a construction director, I find that most architects are likely average in their collaboration skills. They do enough to get by and placate the client, but little more. Many times, architects bicker over turf with other design disciplines – interior designers, graphic designers, engineers, etc. – rather than working hand and hand with them to achieve the best possible outcome for all involved* (Appendix 9, Q13).

Another respondent shared similar views as to whether architects were good team collaborators:

> *In some cases yes, and in some cases no. I feel that a lot of the time architects are in competition with one another rather than being concerned with the greater good. If you can find an architect that will collaborate, I find that they are team oriented* (Appendix 9, Q13).

Respondents broadly agreed that there is still scope for improvement in relation to collaboration capabilities. So what other sub-skills inform good collaboration?

6.6 Challenging 'worldviews': creating conflict

LP's also make you work within a larger team, working with people outside of the architecture world (Appendix 8, D19).

According to one educator, "working with communities often moves people beyond their own class, ethnicity, language or religion and this is one of the biggest pedagogical and developmental benefits of working in civic engaged projects" (Appendix 6, E28). As discussed in earlier chapters, Live Projects are often the only opportunity architecture students have during their university training to meet or work with other student or professional collaborators or clients, to learn about other worldviews, and to have their worldview

challenged. Whilst we are yet to see whether the university fee increase in the UK will impact upon the undergraduate demographic in terms of economic and (and by implication) ethnic diversity of students, (Clarke, 2013) in the US—where the fees system is more established— only 14% of undergraduates are from low income families [6]. Subsequently, Live Projects may be one of the few opportunities for a largely middle class student cohort to interact and collaborate with people whose perspectives and experiences are radically different from their own before entering professional life. What the data highlighted however, is that many students are sensitive to this issue:

> *Live Projects give students access to different viewpoints. Over the years, the students are increasingly choosing projects that are more of the 'save the world' variety than it was before—when they wanted to reconstruct a slice of the deck of the intrepid spaceship. Students have an innate wish to do something for society* (Appendix 6, D38).

As this educator's response captures, students interest in beyond-the-academic-community learning experiences reflects a general increase in undergraduates seeking, 'face-to-face contact with diverse people,' (Swain, 2013) from their university programs. Subsequently, teamwork also enables collaboration, not just 'contact', amongst more diverse people than an academy situated learning experience might offer. One student explained that, "Learning with others despite having different ideologies proved invaluable," (Appendix 2, D39) demonstrating the ability of Live Projects to enable an openness to the differing perspective of others.

This view was shared by some students who describe inter-disciplinarity in terms of perception, not skills:

> *Live Projects are inter-disciplinary because you need to get a variety of different experts contributing. Being an interdisciplinary designer means I don't have such a narrow view of the world* (Appendix 8, D11).

This perception resonates with wider studies on interdisciplinary 'perception,' which is defined as freeing, 'the individual from following the traditional choices of his social group

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6 Low-income students account for 14% of the US University population. (Walton-Radford, 2013)

[and] liberate a person's thinking from the limiting assumptions of his professional group, and stimulate fresh vision' (Milgram, 1969).

Other students also described how they learned to manage conflict between other team members; "We were expected to design, manage and actively facilitate the collaboration between the police and fire service clients, who often had needs that were in conflict," (Appendix 2, D9) including, "arguments and arbitration," (Appendix 4, C18). It is interesting to note the alignments in the views of a student and then a tutor below:

> *The conflict in Live Projects, for example when there are social or economic differences and issues with language – is not in terms of region but in terms of how we frame a problem or an opportunity – makes teamwork experience valuable. Confronting people with challenges to their own world view and how they see a problem and that involves a kind of collision of two different conceptual frames or world views, and having to recognise your own position is part of this* (Appendix 6, C28).

> *Students have to learn to work with other professionals – this is excellent preparation for practice. Only 'starchitects' work in a void. Interdisciplinary skills are needed in the workplace. Students aren't treated as experts in school, but the minute they graduate everyone expects them to be one. The profession is stuck in a bubble, we speak our own language, we get criticised for this. Architecture is such a 'tight' profession – we share a language and a sense of purpose…it's actually quite beautiful, but as far as the public are concerned we are simply floating away from the world rather than really responding to it* (Appendix 6, F38).

6.7 Teamwork and the school

As one respondent to the online questionnaire posited, "I think that many [architects] are [good team collaborators] but many need to learn the skills to do this efficiently. This needs to happen in education" (Appendix 9, Q13). This view—that the school needs to take a more proactive role in designing learning experiences that facilitate collaborative team-working capabilities (and by implication the sub skills of barter, collaboration, de-centralised team management, flexibility, criticality and so on)—clearly requires further scrutiny.

If architects are required to become better interdisciplinary team collaborators, what are the implications for the school of architecture and the validated curricula? Within the online questionnaire, a total of 70% of respondents disagreed with the statement that, 'schools of architecture should become less not more interdisciplinary' (Appendix 9, Q26).

This finding resonates with similar insights identified in literature review. As captured in Chapter One, there is a compelling case for increasing the interdisciplinary offer within schools (Molloy, 2013) not least because this reflects the realities of contemporary practice (RIBA Building Futures, 2012) yet the overarching ARB/RIBA and NAAB criteria does little to acknowledge or enable it. As one of the respondents explained, "You have to work in a multidisciplinary environment on projects, there should be more interdisciplinary liaison at schools of architecture with other professional courses" (Appendix 9, Q26). Whereas another identified that, "the Design Studio unit system creates tribes, but not teams. But in our practice we are very team oriented" (Appendix 7, D12). As examined in the literature review, the validation criterion of the RIBA/NAAB make cursory reference to the importance of teamwork, but provide no advice on the kind of teamwork experiences students are required to have.

Interestingly, the literature broadly identifies 'tribalism' as a threat to successful teamwork, as well as synonymous with hierarchical structures of traditional business structures, (McGee-Cooper, 2005) which architecture practice – in part due to its training infrastructure - continues to be (Fano et al. 2012; Hunter, 2012). What tribalism also amounts to is an inability to move beyond a limited way of thinking, or as one educator explained, "the main problem in architectural teaching is that we approach each problem conceptually, and conceptual thinking is intimate and usually something we do in isolation" (Appendix 6, C34). And whilst the school situated 'tribe' or studio group could function very effectively internally, its inability to move beyond the median of its members can contribute to limited (i.e. non-interdisciplinary) outcomes - resulting in criticisms about 'house styles' or Design Studio unit agendas.

6.8 Teaching and learning

Within the online questionnaire, 41% agreed and 19% strongly agreed that, 'architecture schools should place greater emphasis on team assignments, whereas only 3% strongly disagreed and 10% disagreed (Appendix 9, Q27). It was noted however that this question elicited a significant number of contributions to the comments box. Many of these comments concerned the role of the school in fostering 'individual' ability and resilience, or as one respondent described it, "the ability to stand on their own two feet," (Appendix 9, Q27) suggesting that some of the respondents seemed to take an either/or view of teamwork versus individual development. In some ways, these comments seem indicative of the concerns regarding 'tribalism' and the limitations of non-interdisciplinary thinking in relation to world-view development, as discussed in section 6.6. However, it could simply reflect the view expressed by a few respondents, that whilst essential, teamwork is something is not always taught well in schools (Appendix 9, Q27). This implies that schools' current teamwork exercises are not only underperforming but are having the opposite effect. Whereas the majority of respondents felt that architects were (or needed to be) good at teamwork (Appendix 9, Q13) they did not seem to think it was something that the schools should take primary responsibility for, per se.

In terms of inter-disciplinarity, the responses also sustained the finding from the literature review that there is a general misapprehension concerning collaboration amongst disciplines, and that there are those who perceive inter-disciplinarity collaboration as a breaking down of, or threat to, discipline specificity rather than a means to better achieve shared goals collaboratively. As one architect explained, 'practice itself needs to change - education should not perpetuate the status quo, but this could be more focused on architecture's strength, rather than becoming interdisciplinary', a view supported by another respondent to the online questionnaire, who felt that, "architecture is still a profession in its own right and should be regarded as such" (Appendix 9, Q26).

Of course, there is a general assumption that school-based learning should be educator led rather than a collaborative or collective endeavour. Yet, the evidence suggests that Live Projects can prove more effective at reducing this. As one respondent explained:

Students are part of teams, they are learning but they are also teaching each other – that is how they make the Live Project work – it's a shared responsibility to assume these roles, not

> *just to take but to give also…this is what happens in professional practice, it's all about*
>
> *reciprocity and co-design'* (Appendix 6, C36).

It is therefore worth considering how teamwork can negate the default to educator as 'leader,' and better engender more autodidactic, student-centered forms of teaching and learning. If, as one architect argued, "you only get better at teamwork if you actually do it," (Appendix 7, D10) then the onus is upon schools to offer interdisciplinary learning experiences. This will mean finding ways to enrich, hybridise or move beyond the current tutor-student hierarchical templates.

6.9 Summary of conclusions

This chapter captured an examination of the first skillset—collaborative interaction within interdisciplinary teams—and asked to what extent Live Projects are effective at enabling students to acquire collaborative, inter-disciplinary team-working capabilities. The key findings were as follows:

One of the greatest challenges associated with the findings analysis are the ambiguities over the terminologies – collaboration, inter-disciplinary and even teamwork itself. Teasing out the distinctions could easily extend into a stand-alone doctoral enquiry. The researcher therefore acknowledges the limitations of this chapter in resolving these ambiguities and by implication, the broader significance of the research findings.

That Live Projects involve teamwork does not automatically mean that they offer 'good' team-working experiences. Similarly, being in interdisciplinary teams does not necessarily, in itself, bring about greater interdisciplinary understanding. These calibrations presented certain challenges for the framing of the research questions.

The respondents' descriptions identified an overlap and possible interdependency between some of the skillsets. For example, terms such as, 'collaboration' and 'engagement' featured in the responses pertaining to skillset one but also skillset two – client engagement and civic concerns.

Scrutiny of the data identified that gaining skills in one skillset can also impact positively on others. For example, inter-disciplinarity expertise cannot only help students' understand the limitation of their professional remit, but can help them better understand risk exposure and management. This suggests a degree of interdependency between some of the skillsets.

There was a general concern that whilst many schools offer some form of teamwork learning experience the range of possible formats for teamwork make it hard to determine how effective different models are.

Designing interdisciplinary teamwork exercises – which brings with it the chance for educators to collaborate with peers from other disciplines – provides an opportunity for co-designing teaching, learning and assessment infrastructure, sharing good teaching practice and develop research outcomes.

Finally, these findings seems to suggest that determining whether Live Projects are effective at enabling students to gain interdisciplinary teamworking skills has inherent limitations – not least because as the literature review also identified, measuring successful teamwork is itself challenging. Whilst the literature review indicated that some studies use measures such as efficiency to determine successful teamwork, the primary data indicated that a process (rather than outcomes) focused assessment framework could also be used to measure success. Furthermore, simply putting students into teams does not necessarily ensure they become better team-workers. For this reason, there is still a role for teachers to play in facilitating 'good' teamwork. This could involve a range of strategies, including encouraging individual and group reflection or through tools, such as assessment.

What these findings also indicate is that whilst the literature review established that the need for inter-disciplinary teamwork is encouraged (although arguably not emphasised) within the validating curricula of the RIBA and NAAB, schools need to offer more teamwork focused learning activities is they are committed to ensuring students gain these skills before reaching practice. As the literature review identified, to take this step does not require a more explicit mandate from the RIBA/NAAB curricula, but instead requires schools to simply commit themselves to delivering more relevant and applicable-within-practice ways of teaching or

learning. Almost without exception [7], all schools of architecture are situated in universities offering other discipline and epistemological opportunities for interdisciplinary collaboration. Educators and researchers therefore have an opportunity to play a vital role in designing interdisciplinary collaborations in schools that offer mutual benefits to all participants. The next chapter considers the second of the three skillsets—participatory engagement with client and civic concerns.

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[7] At the time of writing (January 2014) he Architectural Association School in London is the only UK institution to teach architecture exclusively. There are no known Architecture-only schools in the USA.

PART THREE: FINDINGS FROM THE RESEARCH

Chapter Seven

Skillset Two: Participatory engagement with clients and civic concerns

<u>7.0 Introduction</u>

This chapter seeks to examine to what extent Live Projects can enable students to gain the second of the three skillsets: participatory engagement with client and civic concerns. As the literature review identified, architects are tasked with serving the interests of the public – a role that increasingly involves the ability to collaborate and communicate effectively with clients and end users. In order to answer this question, the enquiry employed qualitative as well as quantitative data collection methods as described in detail within Chapter Four: the design of the study. Emergent themes within the responses are organised into sub-chapters. As outlined in Chapter Six, there is some cross over between terminologies and behaviours in relation to skillset one: design team collaboration. Care has been taken to extract comments that specifically relate to client collaborations and client-integrated teamwork within this chapter, although there are comments made in relation to client engagement and civic concerns that resonate with the other skillsets. For the majority of student respondents, the Live Project gives them their first, and possibly their only, experience of client interaction during their University situated architectural education. In fact, the majority of students do not have any contact with real clients until after they have graduated. As discussed within the literature review, the opportunity to work with clients was often cited as a reason why students chose to participate in Live Projects. Although client interaction is highly valued, both students and educators identified a number of challenges that arose during different Live Projects. How these challenges were addressed reveals the significance and (learning) value of Live Projects as a vehicle for developing client interaction capabilities and is subsequently considered in more detail within this chapter.

As discussed within the literature review, 'civic concerns' is used to expand upon clients, and include end-users, the wider (but non-participating) community and other present and future end users and stakeholders. As an educator explained, "LP's help students learn how to be able to make distinctions between the characteristics of different clients - community groups, public sector agencies, private companies etc." (Appendix 6, F36) In essence, this also encompasses behaviours that demonstrate an understanding of the importance of meeting community needs as well as considering a Live Project's legacy and impact.

7.1 Managing client relationships

As many respondents identified, the practice of job running—which encompasses design teamwork as well as client interactions—is becoming ever more complex.
This complexity and understanding how to manage it, is arguably an increasingly important skill for the aspiring architect. As one educator explained, "managing the expectations of all participants and stakeholders is the most demanding aspect of the role." (Appendix 3, D40) Similarly, many students working on Live Projects reported difficulties with their client interactions that paralleled those likely to be encountered in practice. As one student explained, "the client took too long to inform us of what they wanted." (Appendix 2, E10) Although a few Live Projects don't offer real client interaction, those that do offer students the chance to gain skills in managing client relationships that their Design Studio situated counterparts cannot.

Interestingly, many student respondents identified working with clients as one of the most important aspects of Live Projects, as these two student responses illustrate:

> *Live Projects are all about learning to manage clients. It's really challenging to design and build something that everybody likes, that solves the problem but is also something that meets all of the requirements.* (Appendix 8, E15)

> *I think this was the most valuable project I have done at university so far – being able to get away from the fantasy world of architectural education and work with real people was a refreshing chance to gain different skills.* (Appendix 2, E49)

One of the sub-themes identified by the respondents was that managing clients is generally 'challenging' and 'complex.' Subsequently, many respondents often described how they managed these 'challenges' and described proactive tactics that could be broadly construed as managing and even leading client interactions. As one student explained, "Learning how to manage a client is invaluable to the success of the project, you need to be both persuasive and informative whilst being considerate towards the client's needs." (Appendix 2, E35)

Whilst the theme of complexity is examined more specifically in Chapter Seven in relation to ambiguity, it was also discussed in relation to the challenge of managing clients. According to one educator:

> *Live Projects are much more complex than Design Studio Projects. Students need to deal with political, social, resources issues and challenges, they realise that everyone has an agenda in the community groups, and they learn how everyone is pushing their own agenda, they have to learn to work out who holds the power, who is telling the truth in other words complex social dynamics.* (Appendix 6, D38)

The importance of trust is one that was shared by students. However, this concern with complexity is similarly expressed in relation to design team complexity discussed in Chapter Six. Interestingly, student respondents with Live Project experience demonstrated a keen awareness of client group complexity—in one instance, by making distinctions between, "the client team and the community," (Appendix 4, D22) when describing client stakeholder groups. Another example captures how this diversification presented problems for students as they struggled to address the needs of more than one client or 'agenda. ' In this case, the student(s) were working with a client with a difficult and highly sensitive end-user group within a legal/criminal context. Frustrated by the client's resistance to involving end-users in the design process, the student explained that, "we acted against the instructions of the lead client resulting in a security compromise that caused the project to fail," (Appendix 2, E18), relating to their attempt to contact end users without the clients consent. Again, this highlights the issue of trust that the earlier educator respondent mentioned and is similarly echoed by an educator who felt that in Live Projects, "there is no one 'truth' or at least 'truth' is negotiable." (Appendix 6, D34) What this scenario also illustrates is that even when client and student share the same end aspiration, they have different priorities. The client's priority was safety. The students' priority was a commitment to an inclusive design process, however both client and student quickly learned that a projects success is entirely dependent on mutual trust and communication. As they explained, "Very limited access to the client had contributed to the problem," but that, "the sensitive nature and underlying complexity of the project provided glimpses of the role of the socially responsible designer." (Appendix 2, E22)

Listening to what the students would do differently next time called into question whether simply explaining it to them via a hypothetical exercise within Design Studio would have proved as effective. For example, one student explained that, "Next time I would make certain of arrangements made with the client and have details set out explicitly." (Appendix 2, E27) Even though most Live Projects demand that educators establish the client relationship and the brief, many of the students described their relationships with clients as being direct, rather

than mediated by the educators. One student described how, "we had the responsibility to lead [client] meetings and I feel I thrived on this and was able to enhance my communication skills with the client." (Appendix 2, E37) An added insight on the importance of students taking a lead role in client interaction came from an educator:

> *Live Projects' debunk master–student roles as they help students find knowledge bases outside of teachers' expertise and usual hierarchies, including peers or people from a different educational track. More successful architects can interface with their clients as peers, as party to the same powers. Live Projects increase consciousness of the social structures in which we operate.* (Appendix 6, D26)

This contrasts with the RIBA Practical Training and the NCARB IDP program, both of which preside over the mandatory work placement in an architecture office. Even during this period, few students report being given the chance to work with clients. At best they can hope to 'shadow' the lead architect in client meetings rather than deal with them directly. Acquiring the requisite client experience needed to take the Part III examination (legally required to register as an architect) is often reported as extremely difficult (Pealer, 2007; Archinet, 2013). Yet the majority of the students reported that they took the lead in developing, if not brokering, the client relationship during a Live Project. [Appendices 2, 4, 8] This also resonates with evidence highlighted in the literature review regarding the value of developing leadership attributes (Chapter One, Section 1.1.5 Drivers of change: law and liability and the missing skills of ambiguity, uncertainty and risk tolerance and management).

7.2 Communicating with clients

For many students, communicating with clients involved coming up with their own (rather than taught) strategies to do so effectively. As one student explained, Live Projects made them realise, "the importance of the way the design is presented to the client and public." (Appendix 2, E26) As discussed in Chapters One and Two, architects have previously been criticised for their lack of ability to communicate effectively with clients. As Evans succinctly argued, 'having sat on many interview panels to select architects for community based projects, I am continually astounded at the language that most architects choose to use. Jargon and technical terminology…do nothing but alienate, and confuse, the eventual users,' (Evans, 1995).

Some of the students' responses reflected the fact that they are still struggling with this legacy. As one student contended, "we had a lot of complex ideas, but I don't think we communicated them as effectively as we should have." (Appendix 2, E25) Whereas another insisted that, "I will try to improve my communication skills and prepare a convincing presentation for the projects to come." (Appendix 2, E28)

The perception that architects still lack the ability to communicate effectively with "different types of people," (Appendix 6, C12) was also shared by some of the architect respondents. As one architect interviewee explained, "Most architects are pedantic, opinionated, stubborn idealists...they have a hard time listening. From a client's perspective hearing this, they might be alarmed to know that there's no predictability about what they can expect in terms of behaviour from a professional architect." (Appendix 7, D10)

Interestingly however, many students described the ways in which they had developed their communication techniques to make their ideas more accessible. Whereas one student countered that, "a diagram is worth a thousand words," (Appendix 2, E12) two others had, "learned to discuss our design ideas with clarity so that our client could understand our design thinking and participate in the design development." (Appendix 2, D33) Other students outlined how they, "learned news tools for consultation and ways to gather information from community members using a simplified language and various activities. This was one of the projects mentioned in the interview for my current job." (Appendix 8, E19) Another reported that, "I have definitely learned a lot about dealing with clients through this process especially in regards to language and mediums used to convey proposals and ideas." (Appendix 8, E21) Whereas another reported that they used:

> *…a very hands on approach to the design and carried forward to the meetings, which resulted with us often sketching and exploring ideas with the client … allowing them to become part of the design process rather than isolating them through passive client meetings.'* *(Appendix 2, E43)*

Descriptions such as these indicate the efforts students were willing to make that did not 'alienate' nor 'confuse' their clients whilst at the same time avoiding condescension. Instead they had, "acted as interpreters" for the clients ideas,' (Appendix 2, D33) and that the discussions were, "high level." (Appendix 2, E14)

The students' approach towards client interactions was considered to be in contrast with that of established architects by one of the educators. He explained that:

> *The first thing we ask [clients] is, have you ever worked with architects before, and they say yes and it was ******g awful, OK so why are you working with us then, because they are students, OK why does that make a difference? Because they are not qualified architects.* (Appendix 6, D12)

The proactive and positive approach to client interactions could also, as one educator contended:

> *Play an important role in allowing clients/the general public, charities and companies see what architecture students can do. This is invariably wider and more than they think students can do. Students see that clients are putting their trust and often their inexperience in front of the students. They understand how little money and understanding of what an architect does clients often have.* (Appendix 6, D24)

Whilst the idea that students can rehabilitate the disillusioned public via Live Projects— and then presumably continue this later in practice as architects—is a compelling one, getting inexperienced students to manage client relationships as a means to build this capability is not entirely hazard free. As one educator explained:

> *There is a risk that working with student architects, the client can be disillusioned by slow progress or the need to fit learning outcomes in academic study in with the [clients] requirements. But this can be managed too….Live Project organisers need to be aware and manage expectations.* (Appendix 5, D18)

Finally, as one student who had completed their Part I year in practice and was now studying for Part II noted, "a lot of the Live Project clients are different to normal clients. Projects in the public eye are different." (Appendix 8, E17) What the student demonstrates here is twofold: firstly, that s/he shows an understanding that a one-size-fits-all approach to meeting clients' needs does not always prove effective and that the often social ambitions of Live Projects—where they are responding to acute community needs—raises the stakes in terms of student but also client accountability.

<u>7.3 Empowering stakeholders, enabling custodians</u>

Of the 187 respondents to the online questionnaire statement, 'The general perception of architects can only be improved by a change in the way architects engage with the public,' 40% strongly agreed and 38% agreed. As one respondent explained using the comments option:

> *Sadly, architects today have been popularized by the mass media into a small group of elite architects, or "starchitects" as some would say. These architects ...perpetuate a style, but do not advance the profession of architecture on anything more than a superficial level. If architects engaged the public more and showed the public the life changing benefits of innovative spaces, they would regain a much broader seat at the community table.* (Appendix 9, Q21)

Many other respondents expressed similar concerns. So, to what extent do Live Projects address this issue? As one educator explained, "Live Projects help students rethink who architecture is really for." (Appendix 3, E27) Another educator felt that they help students to, "work with diverse clients [and] implement and evaluate participatory processes," and "to understand that in community or socially oriented practice that the process is just as important as the final project and architecture can be used as a tool for empowerment." (Appendix 8, E21)

The idea that Live Projects or indeed architecture in general should empower is an important one. As Petrescu and Till argue:

> *…if one believes that the goal of participation is empowerment of the citizen user and not of the expert…what is needed is another form of participation that ...acknowledge[s] the imbalances of power and knowledge…that transforms the expectations and futures of participants* (Jones et al, 2005, p.24-25).

Encouragingly, many of the student respondents seemed sensitive to this. As one student explained, "I'm really interested in devolving the power relationship away from 'we are designers coming to design for you.'" (Appendix 8, E13) Another asserted that, "we want our Live Projects to belong to the people we are designing for. I think we have a moral obligation not to just design and then leave. It has to be sustainable." (Appendix 8, E11) The students

also seemed aware of policy directives that emphasised public participation and empowerment. According to one student respondent, "collaboration between the public and built environment professionals is now mainstream through the Localism Act (Localism Act 2011, c.20) and neighbourhood plans, so preparing students for this would be beneficial" (Appendix 8, E21).

Similarly, educators observed that, "students develop a 'design empathy' in other words an appreciation of the experiences of the end user" (Appendix 3, E13. See also Appendix 6, D28) and that students learn, "the importance of advocating for communities." (Appendix 3, E19) as a means to avoid the end-users feeling "disenfranchised." (Appendix 2, E16). Similarly, another student suggested that, "In future, I would try harder to acquire the opinions and varying thoughts of persons that will be using the spaces since they will be the ones that will have to interact directly with them on a day to day basis." (Appendix 2, E46) In the online questionnaire, 47% agreed and 28% strongly agreed with the statement, 'Professional Practice increasingly demands that architects demonstrate civic responsibility.' It was noted in the comments section that a number of respondents felt it should be this way but that it currently isn't.

There is a degree of parity between what the students feel they gain and what the educators feel that students gain. As one student explained, Live Projects gave her, "the chance to improve peoples' lives and work within really challenging situations with real people." (Appendix 7, E15). Similarly, an educator identified that, "Live Projects give students a sense of their role in society, and confidence in how they individually might interpret that role" (Appendix 6, D18).

However the same respondent was keen to point out that, "not all Live Projects should be in poor communities—there are problems in the suburbs too." (Appendix 6, D36) In general, this apparently burgeoning enthusiasm for 'civic responsibility' is, has one educator explained, "much more tangible value amongst today's students. When we were at school we talked about it in terms of Marx—it was more intellectual, rather than tangible." (Appendix 6, D26) Although this comment makes an important point about the distinctions between the theoretical and the applied, it should also be acknowledged that historically and as the literature review identified, many schools have previously addressed civic concerns. The question then becomes whether this legacy remains intact. What is interesting to observe however, is how many students view Live Projects as the best and most direct way to address

these concerns within a school of architecture, and how they use Live Projects as a means to addressing social problems.

7.4 Legacies and impact: the pressing need

One of the recurrent preoccupations amongst both students and educators was the ability of Live Projects to address emergent or pressing social or environmental problems and the combined issues of, "ownership, legacy, liability" (Appendix 5, E70). As one of the group of educators in the Live Project symposium workshop put forward, "Live Projects' principal preoccupation is responding to the 'pressing need.'" (Appendix 5, E48) More generally, educators discussed how through Live Projects "students get to see the big idea—understand impact," (Appendix 3, E46) and the importance of, "social impact assessment." (Appendix 5, E38)

As another educator explained, "Live Projects demonstrate how difficult it is to measure lasting impact of design on local communities" (Appendix 3, E74), whereas another observed that, "Live Project thinking is about balancing different impacts." (Appendix 6, D34), and another added that, "Impact should not be measured just in terms of outcomes," (Appendix 3, E75) which has implications for assessment and will be the focus of Chapter Nine.

Similarly, the students themselves also demonstrated awareness of impact as one reported, "We learned about how our decisions have legacies for the people we are designing for." (Appendix 4, D10) Whereas another student explained that they were, "Addressing more than one need within a project" (Appendix 4, D15).

One of the ways that students gain an understanding of legacy building is to recognise the assets of the community beyond the one that they are directly involved in contributing to. According to one educator, "Live Projects can help communities engage with and leverage inherent potential and existing assets within their communities." (Appendix 3, E77) The implication of this pro-local approach is that it enables, "students to place value on things they would otherwise overlook." (Appendix 3, E80) Although Live Projects involve volunteer work, one educator felt that Live Projects, "teach the value of labour - which is for me a biggy—develops respect for theirs and others worth" (Appendix 6, D26). In essence, this encourages students to think of the free labour of others in the Live Project is just as valuable as their own.

Although students' commitment to responding to the 'pressing need' is largely viewed as commendable, there are perils associated with seeking out community problems to 'fix.' As one educator explained, "Live Projects need to avoid acting as the design equivalent of ambulance chasers after disasters." (Appendix 3, E40) The educator in question was based in New Orleans and therefore particularly sensitive to the issue, having witnessed the rescue and rehabilitation efforts after Hurricane Katrina at first hand. However, another educator shared a similar view, and explained that, "Live Projects need to avoid a 'neo-colonial' approach to community engagement" (Appendix 3, E26), and other educators agreed that it was good to avoid being, "the parachute type" (Appendix 6, D30). What these views illustrate however, are the levels of considered sensitivity on the part of educators when organising and implementing Live Projects, and the concern over ensuring that the interests of the clients or end users—and not just the students learning outcomes—are prioritised.

7.5 Civic concerns and professional ethics

As discussed in earlier chapters and crystalised in the words of one educator, "Architecture has inherently ethical obligations" (Appendix 5, E9), yet as Till identified, no explicit commitment to deliver upon them (Till, 2009). Interestingly, a number of educators felt that Live Projects were able to address this gap (for example, Appendix E47). According to one educator, "Live Projects help students to join the dots between the practical and [the] ethical implications of authentic public service design" (Appendix 3, E35), whilst another added that, "Learning ethical behaviour and increasing social awareness is of increasing importance within design teaching" (Appendix 3, E63). A third explained that, "Students learn about civic responsibility on a very one to one human scale in Live Projects because it's very immediate. They learn about ethics, and a commonality needs to be found. People are not an abstract concept—it's a matter of practice" (Appendix 6, D30).

Yet not all respondents shared this view. As one of the architect interviewees argued, "Architecture not inherently ethical, it has that opportunity but it's a choice…some schools prioritise it" (Appendix 7, E10).

Furthermore, one architect expressed concerns over how ethical Live Projects really are. As he saw it, "we all have massive issues managing the expectations of community clients in terms of what they think they are going to get compared to what they do get i.e., making promises

they can't keep"(Appendix 7, 12E). Interestingly, this raises the question of what responding to the client really involves. Whilst the Design Studio's principal output—the design portfolio—is required to feature at least one or more highly detailed building design proposal, in practice the reality is that not all architectural solutions involve buildings. Interestingly, respondents from all profile groups seemed to share aligned views on this issue. Whilst one educator felt that, "using design solutions that aren't about buildings means we can often get to the heart of the matter" (Appendix 3, F22), another argued that, "Live Projects are about the realisation or leveraging of community assets, not just inserting interventions" (Appendix 6, C32). The distinction between the priorities of Design Studio and those within a Live Project, was neatly surmised by one student respondent:

> *The projects in studio where you make up a persona means you just rely on a load of wild assumptions. Where we work with real people, their feedback means we can move the project forward, we can design something that people really want and can sustain afterwards.'*
> (Appendix 8, E11)

In other words, Live Projects can offer students more opportunity to be open to a more diverse range of possible outcomes, outcomes that are likely to be lead by the client rather than imposed by the architect. As far as one educator was concerned this openness means that, "Live Projects are redefining what community architecture is" (Appendix 3, E9).

Returning to the issue of ethics discussed in the literature review, the researcher wishes to acknowledge the problem of using the term within the questionnaire, again due to its subjective and contested relationship with notions of civic engagement and client interaction. For example, a developer-client could demolish an established community to insert exclusive apartments but be a highly ethical employer in terms of employee rights and/or site health and safety. When asked about ethics in architecture in general terms, of the 187 respondents to the online questionnaire, 75% felt that, 'architecture should be a more ethical profession' (Appendix 9, Q12). As one respondent to the online questionnaire explained, "Architecture is fundamentally a social practice and must be understood as such. Forms and processes are representations of specific ideologies and as such either open up or close off opportunities for engagement with the work. This goes beyond socially conscious or environmental practice but must also include questioning business practices, competitions, the architectural education process, and even the idea of construction" (Appendix 9, Q12).

It is worth noting that slightly less than one third (31%) of the 187 respondents to online questionnaire statement, agreed that 'the majority of architects serve the public interest.' However, just over one third disagreed (42%), the remainder neither agreed nor disagreed (Appendix 9, Q14). Arguably this statistic gives cause for concern, since the majority of the respondents are engaged in either architectural practice or education. If our own self-perception regarding our commitment to civic good is so negative, is it any wonder the public feel similarly? Within the comments section of this question, a number of responses concerned how other team members (such as the contractors and even the clients) made serving the public interest difficult. Several of the comments made the distinction between the interests of the clients and those of the end users/public in general.

7.6 The responsibilities of the school

As with all of the skillsets, the research seeks to consider what the implications are for the school in terms of helping students to acquire each specific skillset.

Of the 187 respondents to the online questionnaire, an overwhelming majority of respondents (approximately 50% strongly agreed and 42% agreed), that 'architecture schools have a responsibility to encourage students to address civic concerns' (Appendix 9, Q24), with only 5% disagreeing. Of the three skillsets, this was clearly considered to be the most important skillset that schools should prioritise in their teaching. The comments section of the question revealed some interesting substantiations. As one respondent argued, "Schools are not there to promote socialist idealism in architecture, but to reflect requirements for a better community and environment via design," whereas another countered that, "There is a huge ego problem in architecture that can be countered through teaching (potential) architects that we are a part of a community, that we are one of many." Although the broad consensus was that students should be schooled in civic engagement, one more cautious voice suggested that it should only be done, "As part of a generalist, arts education architecture students should be encouraged to consider their actions in the widest, civic sense. However, there is a danger of indoctrination if a particular agenda is promoted" (Appendix 9, Q24).

Since the question about civic concerns was deliberately not linked to the wider question of schools engendering commitment to user engagement, Question 25 asked where community and consultation skills should be taught. Surprisingly the response to this seemed to contrast

with the previous, more affirmative commitment to teaching civic engagement in schools. 60% of respondents felt it should be taught in both architecture schools and in practice and not be the remit of the school. As one respondent explained, "It's bad enough having to teach construction skills to students when they leave university without adding a corporate social responsibility community construction skills as well" (Appendix 9, Q25). Another provided a more detailed response:

> *Community consultation obviously isn't being done correctly/properly right now... if teaching it in schools helps then great, do it, but as long as the people doing it remain committed to a merely performative process that achieves nothing, this is not going to have an effect to change the public's collective image of the architect. It links in to much larger conversations about who builds what, who owns what and the right to the city... but yes, in principle I agree. But the more complex side to this needs to be understood'* (Appendix 9, Q25).

However, the findings indicate that there are particular challenges associated with trying to frame questions concerning civic engagement *and* client engagement within the same enquiry. For example, not all clients are likely to live or work in their creations and might instead be contractors or developers. The end users or community stakeholders that do live and work in the community buildings and spaces might (quite reasonably) have a different set of priorities to the (investor) client. Subsequently, this lack of a distinction within the framing of the research question might have influenced the findings. A more detailed or extended study might therefore focus on the important distinctions between the two (or more) client typologies.

7.10 Summary of conclusions

This chapter sought to establish to what extent Live Projects are effective at enabling students to acquire client collaboration and civic engagement capabilities. In comparison to the data examined in relation to the other two skillsets – the first concerning interdisciplinary teamwork and client collaboration and the third concerning managing risk and ambiguity – the findings pertaining to this second skillset generated few original insights. The researcher's view is that this can in part be attributed to the lack of client respondents. Client engagement skills are of increasingly importance to architects in general and as the literature review identified, there is a significant body of knowledge on the subject of serving the public

interest, architecture and ethics, civic engagement and client interaction, making the likelihood of any profound revelations significantly less likely.

Furthermore, it is important to acknowledge that those most likely to want to participate in a Live Projects research enquiry are likely to have an interest in or experience of them. Subsequently, the results are not likely to capture the extent of possible criticisms from a more diverse range of students, architects and educators.

However, the fact that many of the respondents have either a largely supportive view of Live Projects meant that a number of more subtle outcomes were identified:

> Live Projects can offer client-facing and/or community engagement experiences that are less likely to be found on campus, where any client/community interaction is more likely to be contrived.

> The extent to which Live Project educators are concerned with ensuring the participating clients experience – and not just that of students – and the role of the educator in ensuring that this is carefully managed, whilst ensuring direct interaction between the two.

> Students and educators with experience of Live Projects were inclined to identify good client engagement as an important outcome in the overall project success.

> Students with Live Project experience were able to identify a range of different client stakeholders – rather than simply group them together – and could effectively differentiate what the implications were for their role within client consortiums.

> The students placed high value on gaining client engagement experience. There is scant literature on students' views of client experience at university level. Yet, the data within this study emphasised that students considered this aspect of Live Projects to be one of the most important and desirable.

Students were able to describe client experiences in terms that would be transposable to their professional practice. This suggests that such students could stand to make a very positive contribution to society once they qualify.

Interestingly, this last finding – that of a students ability to articulate their experience in relation to their impending professional application of this expertise – resonates with the third and final skillset considered in the next chapter: the capability to manage emergent ambiguities in risk exposure and decision-making. This is the skillset with the least amount of literature available, and as Chapter Three identified, is scarcely acknowledged within the qualifying curriculum of the RIBA/NAAB. Subsequently, gaining ambiguity tolerance and risk management capabilities can only happen when students have at least an initial awareness of the increasing levels of risk within practice.

PART THREE:

FINDINGS FROM THE RESEARCH

Chapter Eight

Skillset Three: The capability to manage emergent ambiguities in risk exposure and decision-making

8.0 Introduction
8.1.1 Ambiguous budgets
8.1.2 Managing constraints
8.1.3 Constrained creativity

8.2 Risk, ambiguity and failure

8.3 Risk and ambiguity within tomorrow's profession
8.3.1 Change and frustration

8.4 Emergent entrepreneurship and innovation

8.5 Teaching ambiguity: the responsibility of the school
8.5.1 Learning through ambiguity
8.5.2 A brief but indicative comparison with Design Studio risk-taking

8.6 The risk to Live Project participants
8.6.1 Revenues and investments
8.6.2 Research & realisation
8.6.3 Community risks

8.7   Summary of chapter conclusions

8.0 Introduction

As discussed previously, this thesis examines to what extent Live Projects are effective at enabling students to gain three 'practice-ready' skillsets. This chapter concerns the third and final skillset; ambiguity tolerance and risk management capabilities.

The enquiry employed qualitative as well as quantitative data collection methods as described in detail within Chapter Four: the design of the study. Emergent themes within the responses are organised into sub-chapters. Within the literature review, it was identified that setting learning exercises that contain or engender ambiguous circumstances for students to tackle, can resemble architecture practice in real life. Yet designing an assignment or performance criteria that both engenders ambiguity whilst at the same time ensures fairness, transparency and validity, could prove illusive. Although setting a learning outcome of 'an ability to deal with ambiguity' could be perfectly fair, it could be unfair if other expected outcomes are jeopardised by the ambiguities that students encountered.

As identified in Chapters One and Two, there is increasing evidence that developing risk and ambiguity management capabilities can help graduates lead more successful, professional lives (Zur, 1995; Borgelt and Falk, 2007). Arguably, this is one of the priorities shared by all higher education institutions, and not just schools of architecture. The researcher also discussed how architecture practice is becoming an increasingly 'risky' environment in which to work (Lewis, 1998, p.33). This encompasses issues as broad as the increased risk of litigation and the general uncertainty about the direction of the profession in relation to role, structure and even purpose (Nicolson in Nicol and Pilling, 2000, p.200; RIBA Building Futures, 2012).

Up-skilling architecture students in risk management could therefore be seen as directly responsive to this industrial impetus. Yet not all risk is bad. In fact, what makes risk ambiguous to begin with is the difference between 'good risks', such as creative or entrepreneurial behaviours, or 'bad risk', such as health and safety complacency. This is why the research question identifies ambiguity management and not just risk management as skills, because ambiguity management involves being able to differentiate between the types of risk.

Q19 Learning how to take 'good' risks (i.e. innovative, experimental, entrepreneurial activities) is essential in today's architecture practice environment

Answered: 144   Skipped: 38

Strongly disagree
0.69% (1)

Disagree
1.39% (2)

Neither agree nor disagree
6.25% (9)

Strongly agree
40.28% (58)

Agree
51.39% (74)
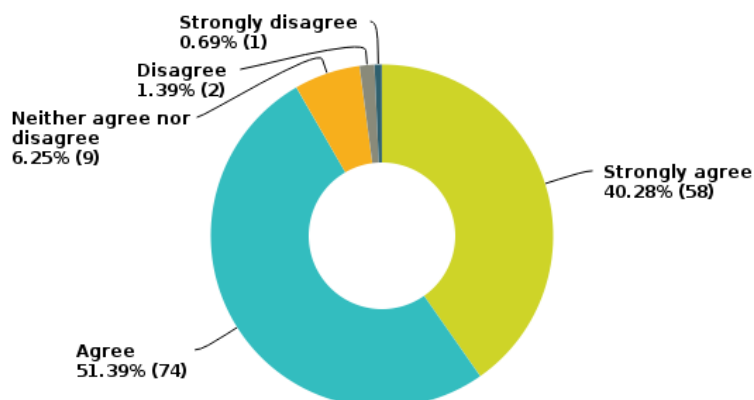
: differentiation regarding good and bad risk within the questionnaire.

Table 1: Learning how to take good risks.

The need for teamwork, working with clients and also working on building sites (even of a modest scale) align the risks taken in Live Projects with risks that are taken in professional practice. This chapter therefore examines practice-relevant, risk-taking skills and behaviours, but also those that are considered to be of general benefit to any professional. It also considers the difficulties but also the benefits of exposing students to both good and bad risks and the importance of understanding this distinction.

8.1.1 Ambiguity, constraints and creativity

As one educator explained, "Live Projects involve taking big risks," (Appendix 3, F45) a view shared (although to varying degrees of emphasis) by respondents from each data set. Since risks can be both good and bad, the researcher sought to tease out examples of Live Project risk, paying close attention to any differentiation between views revealed in each data set. For example, educators were more inclined to factor in institutional risks related to insurances and liability. Students emphasised health and safety, particularly in relation to construction site behaviour (Appendix 3, 52).

As discussed in Chapters One and Two, the current economic instability has impacted negatively on architects fees and project budgets. As one architect respondent explained,

"Fees and regulations put the most amount of pressure on the practicing architect. The four skills the average architect lacks are general management, fee organisation, time management and experimentation" (Appendix 7, G16).

With around 22% of UK Architects unemployed and close to 50% of graduates unemployed (Klettner, 2009; Klettner, 2012) [1], many architecture graduates are faced with spending at least their first few months in practice working as free interns to gain essential (to qualification) practical experience (Mark, 2013). For many architects in practice, issues around changing budgets, delays or changes that incur costs and supplier bankruptcies are some of the many risks they face on all projects. The ability to deal successfully with a broad variety of financial risk is therefore as essential as it is unavoidable. According to one educator respondent:

> *Taking a risk with a drill is one kind of risk. The success of the product cannot be measured. Most contractors tell architects what you draw and what can be built are two different things. Live Projects remove that ambiguity. One exercise you could set students is to give them a broken thing and ask them to fix it. Rather than start everything from a blank canvas, perhaps in a way this is what Live Projects do. They push students into comprehensive—or whole problem—design thinking. Conceptual risk taking is very limited. In a way, Live Projects are 'post–industrial' training, because rather than students being good at one thing they are required to experiment with doing a bit of everything—give them a whole systems overview* (Appendix 6, E34).

When asking respondents to give examples of risk taking and ambiguity in general terms, a significant number volunteered to talk about financial risks in relation to budgets. According to one educator, "the biggest risk is getting the costs right," (Appendix 6, E12) whilst a student felt that:

> *Live Projects make you realise the limitations of materials and also brings the budget aspect into sharp focus. We had a bad client who made promises about budget, but never delivered. We learnt a lot about what happens when things fall apart. We also learned about trusting people and also how to read them* (Appendix 8, F15).

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1 In her 2009 article, Klettner reported that, 'Less than half of all architecture graduates are in employment six months after graduation.'

Interestingly however, whereas budget ambiguities were sometimes cited as bad risk, other respondents felt that constrained or uncertain budgets inspired resourcefulness, adaptive behaviours and creative strategising. According to one US student, "having a limited budget…lead to some interesting design solutions," (Appendix 2, F33) whereas another explained that, as "no budget was indicated, which meant we could be extremely creative but also wanted to make it viable—this proved to be difficult" (Appendix F42).

Generally, financial challenges in Live Projects were to some extent accepted on the basis that they mimicked the 'reality' of practice. As one student explained, "I have also learned that there is much more to delivering a product than the design process alone. I have had experience in marketing and the realities of budget restraints" (Appendix 8, G19). Another explained that:

> *I learned how to work with short time constraints, designing and expanding a brief around a budget designing through reflection—either through a built form or client feedback. Students must be prepared to work within a team and adapt any personal design objectives and prepared for potential failure and use this as tool for learning and to work to real constraint—particularly time and budget* (Appendix 8, H19).

If we are going to design programs that feature deliberate ambiguity exercises, of the ambiguities to choose from, economic ambiguity management was broadly considered by respondents to be a valuable and important one. Grappling with financial risks and ambiguities also raises the issue of the 'value' of architectural services. In a period when architects fees are notably decreasing (Klettner, 2013; Fulcher, 2013; Derbyshire, 2014) developing stronger financial management skills can only prove beneficial to the next generation of professionals.

8.1.2 Managing constraints

Apart from financial ambiguities and constraints, respondents identified ambiguities that related to the other skillsets. For example, clients' behaviour was often understood to result in ambiguous situations. As one educator explained, "real stakeholders provide lots of unforeseen challenges" (Appendix 3, E65 and Appendix 3, E63). Students also shared this view. As one explained, "there was uncertainty due to conflicting interests of the two client groups" (Appendix 2, F9). However, not all client interactions resulted in creative constraints. In

defence of clients, one educator explained, "the constraints are from the context not from the client" (Appendix 6, D36).

8.1.3 Constrained creativity

One student explained that, "we didn't expect the configuration of the spaces within the centre to be just so oppressive and disheartening but the challenging and complex brief triggered a lot of exciting design ideas which can sometimes be difficult to uncover" (Appendix 2, F23). Another educator added that, "Students have to deal with real constraints—they have to deal with real issues. They take on greater responsibilities in Live Projects—even with these constraints they have to be speculative/creative—it's not a client driven situation, but they need to produce outcomes that are meaningful for the community" (Appendix 6, D36).

One of the criticisms levelled against Live Projects is that the 'real challenges' reduce the number of opportunities for experimentation or creative risk taking – or the variety that a fictional design brief might inspire. Yet, many respondents gave examples of creative elements of Live Projects. As one student explained, "This was a new, exciting and challenging experience. We had to think differently and reconsider how we approach this new environment full of constraints and opportunities" (Appendix 2, F38). In addition to this, one of the educators made a distinction in the type of creativity involved, explaining that, "Live Project students achieve creative maturity—it's real life, it might not work" (Appendix 5, F26).

8.2 Risk, ambiguity and failure

Taking risks involves dealing with failure as well as success. As discussed in Chapter Two, failing early is a behaviour often associated with innovation a subject that is also considered in more detail in later sections of this chapter (Moggeridge, B., 2002, p.8). This view was echoed by some of the respondents. As one student explained, Live Projects allowed them to, "lose bad ideas by testing them" (Appendix 4, E33). In an increasingly risky practice environment, failure is something that most architects are likely to have to deal with. When 'bad ideas' are tested and go wrong the consequences can be far more serious. What an academic environment offers a Live Project student is the forum within which to reflect, analyse and contextualise the different risk taking experiences that the Live Project offered.

This is something that the pace and pressures of practice would not similarly be able to accommodate. As one educator put it, "failure is a part of practice. Courses should therefore provide failure training" (Appendix 3, F66).

In addition to this, there is a body of learning theory that argues that failure can facilitate learning (Sitkin, 1992; Mulgan and Albury, 2003). In the words of one student, "you learn so much from failing. It forces us to make strategic assumptions, that are then questioned, so we need to be really considered and deliberate" (Appendix 7, E13).

Generally therefore, failures were considered to be a rite of passage. This is captured in one student's account, that demonstrated the extent to which they had valued being given the opportunity to takes risks and to fail:

> *When things go wrong, it feels like more of a learning opportunity – rather*
> *than just getting printed feedback from the professors, we get feedback from the*
> *community people that it's much richer and more useful. I really identify with*
> *careers where there is constant change and having that freedom and creativity*
> *to work on multiple projects at the same time, within the contexts constantly*
> *changing. I've done lots of public research projects within my undergrad, but*
> *those processes are not creative and the constraints meant you couldn't create or*
> *more meaningful impact. I like to feel like I'm pioneering...breaking the rules. I*
> *have set up a company before but it didn't work as we moved to a different part*
> *of the USA. I think I'm quite a risk taker. Live Projects do encourage us to take*
> *risks. The risk of Live Projects is about communication going wrong. Clients*
> *can behave in unpredictable ways that can make things uncertain. If there are*
> *too many risks it can result in an unproductive failure* (Appendix 8, F13).

The level of understanding and 'risk' expertise as well as 'creative maturity' captured here prompts the question of how a scenario exercise based on fictional circumstances set within a speculative design brief would elicit the same evidence of learning? Even in Live Projects however, achieving risk exposure is not an inevitability, or should even be a goal necessarily. For example, allowing students to wear flip-flops on site in order to make them learn about health and safety at the point when an injury occurs would be a serious breach of an educator's duty of care. For this reason, Live Projects could benefit from the kind of deliberately injected risks—such as 'stop everything your budget's been halved'—as Design Studio tutors might use to teach risk competencies. For risks involving the students duty of care towards others or

specifically clients however returns us to the issue of exposure to real people that many Live Projects offer. As one student explained it is, "seeing how different organisations work gives you exposure to projects that have succeeded and also failed" (Appendix 8, E17).

What this also involves is exposure to the kind of risks and potential failure that can impact upon peoples' lives and not just material outputs or as one educator described it, "Live Projects assess students' ability to manage failure, not just the design outcomes" (Appendix 3, F67). Furthermore, it's not the students' willingness to embrace failure—not least because incentivising students to fail would be irresponsible and potentially devastating for the participating communities—but the way in which students manage failure. For example, one educator noted that, "students often correct their failures in the field," (Appendix 3, H47) whereas another observed that, "students can fail, undo, try again" (Appendix 3, F47). The student respondents shared similar views. As one of the Placenomics students explained, "we failed to adequately assess the risks we were taking autonomously within the project [and] learned from failure" (Appendix 2, F18). The acknowledgement that failure has resulted in learning to some extent answers the question posed by one educator as to whether, "failure [can] be successful" (Appendix 5, F48). It is therefore worth noting the role of the educator in encouraging students to view 'failures' as strategic rather than disastrous since this can enable students' ability to find solutions and achieve meaningful learning from things that go wrong.

Finally, one of the biggest challenges associated with allowing for or even enabling opportunities for 'failure' - within any model of education but particularly in a broad and transient model such as Live Projects - is the potential difficulty in how it might be assessed, or in other words, what 'successful failure' might look like.
For one, failing to complete a Live Project might jeopardise the ability of the students to achieve other skillset behaviours or learning outcomes, but secondly, what if there is no failure? If everything goes well, having 'managing failure' as an assessed learning outcome may not be fair. The latter issue may well be an argument for doing this better in a controlled, fictional, University setting.

8.3 Risk and ambiguity within tomorrow's profession

According to one educator, "Live Projects provide answers to questions that were not answerable within the Design Studio environment." (Appendix 3, F60) As discussed in Chapters One and Two, the on-going economic crisis combined with historical problems

regarding the professional remit of the role of the architect (for example, the rise of the consultant designer) has resulted in increased levels of ambiguity in professional practice. This suggests that architecture practice is increasingly concerned with not only finding the right answers but also about framing the right questions. Of the 187 respondents to the online questionnaire, 50% agreed and 20% strongly agreed with the statement, 'Professional Practice increasingly demands that architects have greater risk management capabilities' (Appendix 9, Q17). As one of the respondents explained within the comments section of this question:

> *I agree, but I would like to add that most architects I have worked with approach the practice of architecture from a standpoint of fear and liability...fear about going too far out on a limb with a radical design when an ordinary design will suffice and liability in that they simply do not want to be sued for errors and omissions or other mistakes on the job." Whereas another noted, "professional practice seems to be becoming increasingly risk averse in all respects* (Appendix 9, Q17).

Many educators were also aware of this challenge. As one educator saw it, "there are increased levels of professional uncertainty about the future" (Appendix 3, F54), whereas another noted that, practice is becoming, "more transient, association oriented rather than employee oriented" (Appendix 3, F65). However, many different kinds of change were reported. Although ambiguity in practice was previously discussed in relation to finance, not all respondents felt that this was the biggest issue. As one architect explained:

> *The biggest challenges facing the architecture profession are fees not increasing.*
> *The traditional model of an architect must change but the profession needs to acknowledge this as a whole and I don't think it has…yet. The most important skills most architects lack is the ability to understand the needs of your client and the political skill balance this against innovation, ability to be concise in communication and business acumen* (Appendix 7, G14).

Other respondents similarly identified other kinds of ambiguity. As one educator explained, "the traditional model of Architecture is all but extinct. Live Projects are part of the future of practice" (Appendix 3, G27). Another explained that:

> *The profession of architecture has in the last ten years focused on being formulaic, very entertaining— frivolous almost. For this reason, we aren't always taken seriously as a*

> *profession, not all the drawings we produce are buildable, you cannot make any money…it's a clown show. Only the 'starchitects' get the attention—1% in essence— so this gives a false perception. In reality, most architects are interested in civic responsibility* (Appendix 6, F34).

The greater proportion of respondent architects also felt that the profession was changing in ways that are hard to anticipate. One explained that:

> *Professional futures are completely uncertain at the moment. I've been in practice for 20 years and the litigation pressure has increased, although I haven't experienced it personally. Some states are worse than others – California is particularly bad. You have to go by the book and work closely with code consultants and expeditors to cover yourself. The bigger constraints are about conservatism in design; people want to be less creative. Our society is changing so radically and so quickly, we can't stay the same, the profession can't stay the same* (Appendix F10).

The level of 'radical change' within the profession has significant implications for educators. If change is taking place at speed and on a grand scale, how is it possible to set a relevant curriculum in architecture schools? If, "students are looking for practice ready skills… beyond university taught skills [that] feed into future practice," (Appendix 5, G36) but practice is uncertain, educators have an opportunity to influence the potential direction of the profession by giving students access to skills that are currently not deemed relevant due to their absence from the validating RIBA/NAAB curricula. If, "Live Projects can create more elaborate alternatives in practice," (Appendix 5, G48) then we enable students to experiment with potentially more viable options for future practice.

Of course, there is a possibility that some educators, wrapped in the 'duvet' of the academy (Appendix 6, E12) might not agree with the scale and significance of this change. However, what is interesting, is how sensitive the students seem to be to it. As one student explained, "The world of design is changing for architects, we have to adapt to new things" (Appendix 8, G17).

Given one of the major criticisms of architectural education is its detachment from practice (Nicol and Pilling, 2000, p.11)—a subject examined in Chapter Two—observing students' awareness of the pressures facing practice suggests that Live Projects, reflective-of-practice

characteristics might go some way to addressing this. In order to consider this more carefully, it is important to look at how the profession is changing and in what ways. Are Live Projects a form of early warning system on practice shifts and able to respond positively, or are they simply victims of the same ambiguous changes facing practitioners?
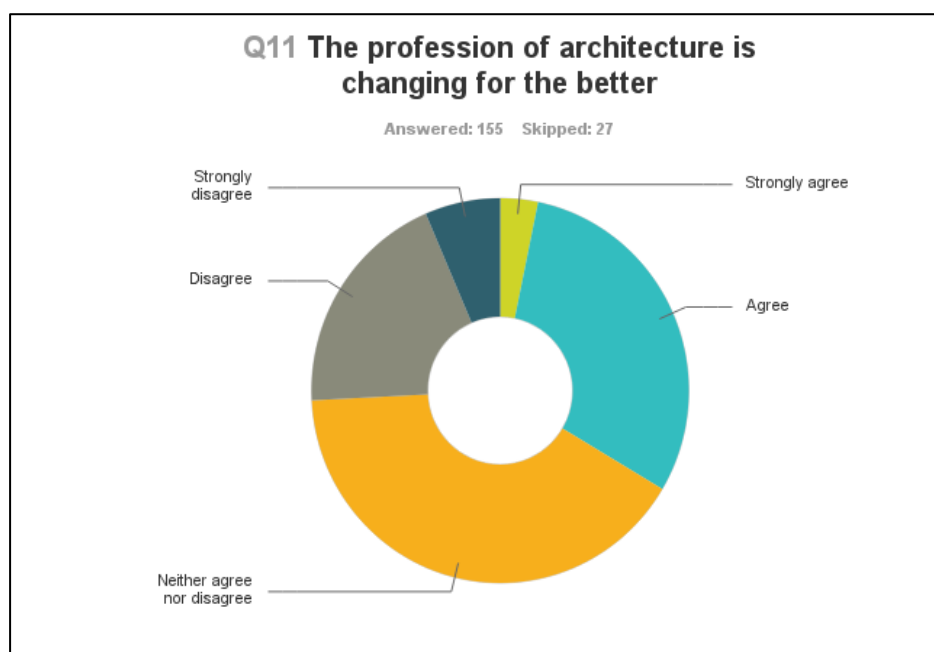
Table 2: Question 11, Appendix 9

8.3.1 Change and frustration

One of the surprising discoveries within the data was the level of frustration respondents expressed about the changing profession. In looking at the source or origins of this frustration, the researcher hoped to be able to consider whether they had any implications for schools. To do this the researcher chose to ask a deliberately provocative question. In the online questionnaire, Question 11 invited respondents to agree or disagree with the statement, 'the profession of architecture is changing for the better' (Appendix 9, Q.11, Figure 1). One third of respondents agreed with this statement, which could be interpreted as either high tolerances to change or the ability to see it as a positive opportunity. Another third of respondents neither agreed nor disagreed, whereas the remaining third either disagreed or strongly disagreed, which indicates a reasonably balanced polarity amongst respondents. However, the comments section attached revealed the perils of making over simplified assumptions. For example, it could not be assumed that respondents who did not view change as positive were less able to deal with change. Instead, there was evidence that suggested how

many felt the profession was not changing fast or enough, or not in the right way. As one architect explained:

> *Whilst the world has changed, architecture has largely remained the same… to help elevate the profession of building and have not critically examined how new technologies are changing the way people work and use physical spaces. I also feel many architects (at least in the media) are portrayed for their aesthetic style rather than on their ability to provide innovative solutions that benefit their clients and the end users of their spaces* (Appendix 9, Q11).

This sentiment was similarly echoed in the words of a young student:

> *I am a first year architecture student with no previous background in architecture, so I couldn't say if it is going better or not. However, I am surprised that no architectural school at the present time is changing or improving the architectural education like Bauhaus did! So, is that a good sign?* (Appendix 9, Q11).

This student was not alone in thinking that the school could do more to respond to or lead change. Yet as one respondent explained, "schools of architecture wish to remain the same," an antipathy that was mirrored elsewhere within the data. The frustration that schools fail to offer anything leaning towards a reimagining of the 'radical pedagogy' (Colomina, 2012) encapsulated in the Bauhaus School, does affirm that there is a perceived lack of differentiation between schools.

Overall, the broad consensus amongst respondents, however, was that change was indeed taking place, even if this change was good, bad or insufficient. Whilst some of the respondents felt threatened by change, identifying a 'dilution' of identity and a sense of being "undervalued," as well as, "far greater levels of risk," in general (Appendix 9, Q11), others felt this 'dilution' indicated a shift in disciplines that could be considered as an opportunity. For one such respondent, "the boundaries are blurring so the conventional profession of being a 'Architect' may not be getting better but practicing architecture is" (Appendix 9, Q11). Another felt that the impending scale of change could redefine architecture completely. As they saw it, "the discipline of architecture is on its way out, refusing to change with the tides of interdisciplinary collaboration" (Appendix 9, Q11). An apocalyptic vision perhaps, but one

that comes with an inherent solution—in this case gaining inter-disciplinary collaboration skills—in essence, those attributed to skillset one.

8.4 Emergent entrepreneurship and innovation

During many of the discussions about risk taking, the researcher observed how respondents frequently described activities and behaviours that are often outside of the conventional definition of an architects' role. As one educator explained,
"Risk and innovation have a reciprocal relationship" (Appendix 3, F46), whereas another explained that, "risk is embedded in all design activity—that's what fosters innovation." (Appendix 3, F64) Of the 187 respondents to the online questionnaire, 52% agreed and 41% strongly agreed with the statement that, 'Learning how to take 'good' risks—innovative, experimental, entrepreneurial activities—is essential in today's architecture practice environment' (Appendix 9, Q19). As one respondent added, "If architecture as a profession is to get out of its current malaise, it will need to be more innovative and entrepreneurial," but added that, "this will not be handed down from the existing professional structures." A view that was shared with another respondent who stated that, "It should be essential, but it isn't at all the way architects currently practice" (Appendix 9, Q19). It is also worth noting that of the 187 online questionnaire respondents, 29% had set up a design practice (Appendix 9, Q9). Therefore many of the respondents were clearly involved in entrepreneurial activities.
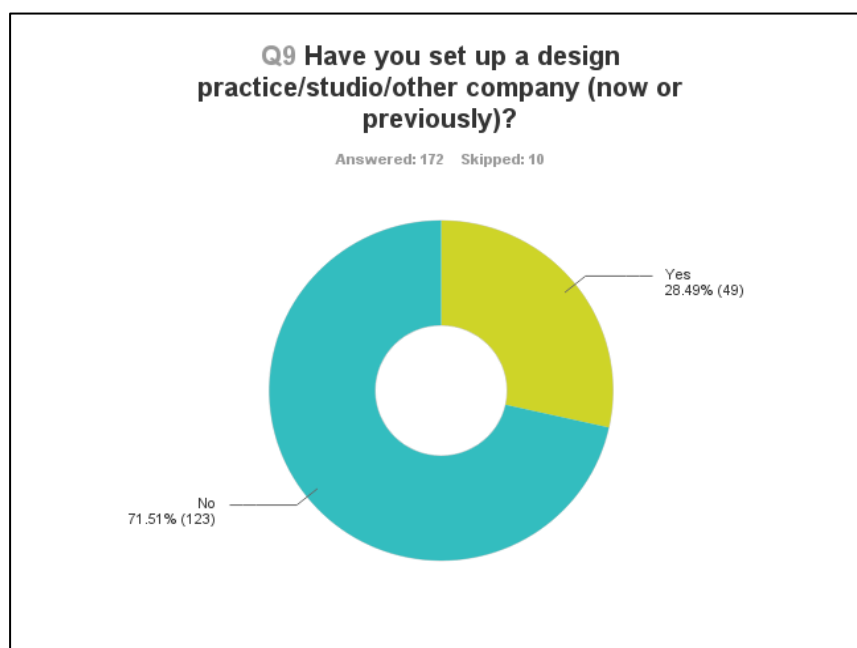
Table 3: Online questionnaire, Appendix 9

So where does this leave UK schools of architecture, if the term 'entrepreneurship' is absent from the RIBA criteria, yet the NAAB has only just adopted it in their 2013 criteria? (ACSA, 2013). Indeed, one US educator – interviewed before this change to the NAAB criteria came in – had already observed how, "the parameters of design education are diversifying to include more business management content" (Appendix 3, H63). It will therefore be interesting to observe how long before this change is adopted in the UK criteria too. The RIBA criteria do however refer to 'innovation' albeit only in relation to design work. Why this might be problematic is reflected in the insights of one respondent who explained that, "we live in a world where innovation is so ubiquitous and that the rewards are obvious and clear to all. I think this attitude is hugely different from the position of say the 1980s where the opposite was largely true" (Appendix 7, F14). Therefore, the fact that the RIBA criteria are willing to recognise only design innovation and not other more ubiquitous forms of innovation, suggests failure of the criteria to reflect and reward current behaviours and priorities. This sentiment was echoed by other respondents who pinpointed this issue as a gap between the realities of practice and perhaps most importantly, how risk taking and innovation are part of the same skill set:

> *Most architects have a bit of good risk taking expertise because student studies encourage innovation and risk taking with design (although this might depend on the school) but actually schools don't teach skills of how to implement risky and innovative ideas in the real world* (Appendix 7, F16).

This was also reflected in the views of students:

> *Enabling students to become 'better' risk takers…we can only hope students will be more entrepreneurial, but this is as much dictated by the market they are graduating into than anything else* (Appendix 6, E14).

Finally, it was generally observed that students assume a positive approach to risk in Live Projects and rather than feeling deterred, appear to see it as, "something that we have to get used to—in the 'real' world, real people are involved in making decisions and real people along with their situations will be affected by these decisions" (Appendix 2, D10).

8.5 Teaching ambiguity: the responsibility of the school

As outlined previously, students' ability to manage risk and ambiguity within Live Projects is evidenced by the tactics they use to adapt to a situation and even to turn it to their advantage. Examples of this included creating and imposing deadlines on team-workers and clients, (Appendix 2, D52), overcoming complexity (Appendix 2, F26) and in general, "finding solutions when things seem impossible" (Appendix 4, E24).

So how does this compare with the current model of architectural education? After all, it is not just the world of practice that increasingly demands that students have these skills and many students want a more diversified higher education experience (Swain, 2013). Within the online questionnaire, 76% of respondents agreed with the statement that, "architecture students should be taught to anticipate an uncertain professional future" (Appendix 9, Q28), which raises significant questions about whether schools are achieving this at the moment:

> *Students now arrive with a desire to change the world that they are operating in – Live Projects ask them to do just that. It might turn them off – as there are problems of scale, reach, time and material intensity...a lot of architecture students are really bad construction workers, mediators, community reps and so on...that can play out in unexpected ways* (Appendix 6, D26).

As architecture students grapple with the remit of their role and the potential to shift it, educators are similarly grappling with the idea of setting learning exercises that have ambiguity built in. For some of the respondents, the idea of teaching students about 'uncertainty' seemed a 'negative' thing to do: "This is a negative aspiration, setting a defeatist attitude in the student. It's up to them to decide and learn this when they try to find a job!" (Appendix 9, Q28). Similarly, another educator felt that, "Architecture students should be taught how to get a job, not warned that they might not get one. If that is the message, then the school is failing" (Appendix 9, Q28). These views seem to reflect an inherent negativity and fear of uncertainty and suggest that schools should be more focused upon convincing students that the future of the profession holds greater certainty. Another respondent felt that teaching students to anticipate uncertainty was "too late" as they should have instead figured it out before entering school (Appendix 9, Q28). Both of these comments acknowledge that things are uncertain, but that this uncertainty is something to be feared, avoided or to protect students against, rather than seeing it as an opportunity to speculate about alternative and potentially innovative professional futures.
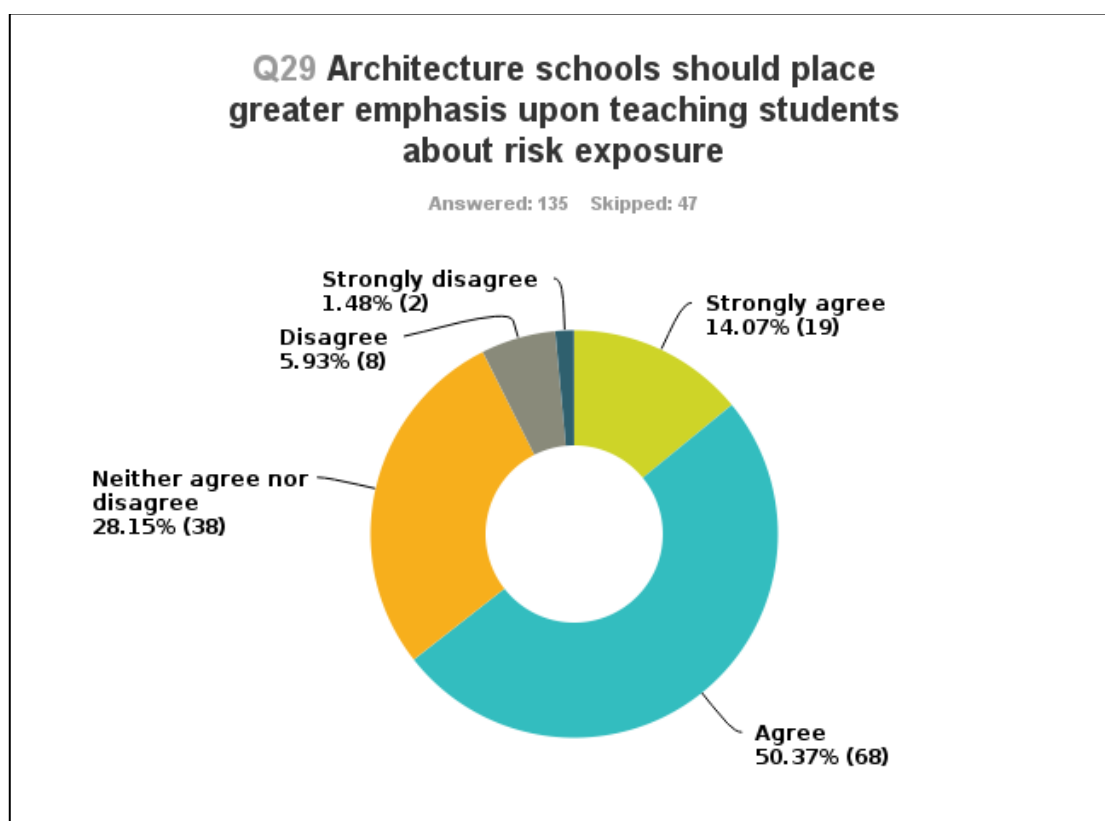
Table 4: Appendix 9, Q29

Question 29 of the online questionnaire asked respondents to respond to the statement, 'Architecture schools should place greater emphasis upon teaching students about risk exposure' (Appendix 9, Q29, Fig 3). Of 187 respondents, 51% agreed and 15% strongly agreed, whereas only 7% disagreed (with 28% neither agreeing or disagreeing). One respondent explained that schools should ensure students are, "aware of and to comprehend risk yes... not to FEAR risk, as has happened in the past." Another respondent explained that, "Some student projects I have seen are so frivolous as to be of zero value. The schools are culpable" (Appendix 9, Q29). Others similarly supported the idea that, "Architecture schools should be about taking risks," and another argued that, "In an uncertain future, architecture schools should encourage risk-taking and innovation because it definitely won't happen in practice!" (Appendix 9, Q29).

However, the argument that architectural education is and should be a rarefied place that is protected from the realities of practice, resurfaced in one respondent's comment:

It's good to be realistic and that, but they learn this at practice level. Keep the profession out of education. However, in an increasingly competitive world and commercialised learning environment focussed on priority outcomes such as employment statistics, one wonders whether the, 'duvet of the university [separating students] from any sense of real practice (Appendix 6, E12).

Whilst there is a strong case for maintaining the speculative, playful and relatively risk-free space of education models such as Design Studio to enable students' creative talents to develop, arguably there needs to be a balance. As the literature review reminds us, a complacency about the lack of this skill is a luxury that cannot be afforded for much longer without consequences for the school and perhaps most importantly, the needs of the graduate.

8.5.1 Learning through ambiguity

So, how can educators set up learning assignments that facilitate learning through ambiguity? How can they ensure that these outcomes involve good risk-taking behaviours, such as innovation (as opposed to bad failure), through the disregard of a lack of common sense and caution? One educator suggested that a way of designing in 'ambiguity' into Live Projects is to stop thinking that the solution is a 'building' but instead keep it as something much more open (Appendix 3, F53), and that defining the problem might involve architectural processes, but the solution might not be 'architecture' (Appendix 3, E18).

Other educators discussed this in relation to Live Projects, where they entered, "the grey area of build or not to build" (Appendix 5, F19), and determined that other options may be more suitable. As one educator agreed, "Live Projects can produce policy documents that impact nationally, not just locally" (Appendix 3, F73 and see Appendix 3, H23). For some student respondents, it was clear that not producing a building wasn't necessarily a problem. As one student explained, "we gained the ability to interpret an undefined brief and produce a workable design that the client really appreciated" (Appendix 2, F32). Arguably, training students to develop a sense of openness to ambiguous or non-built outcomes opens up the potential for new possibilities in tomorrow's practice environment.

8.5.2 A brief but indicative comparison with Design Studio risk-taking

As the data below indicates, many of the respondents made direct reference to Design Studio when describing risk taking in Live Projects. For this reason, the comparisons between the two contexts are briefly considered. Whilst it is reasonable to assume creative risks are taken in Design Studio, these are often related to visual and design outcomes. Whilst these risks persist in practice, they are a low-priority risk in relation to the others discussed earlier. Many Live Project educators had strong views regarding the limitations of Design Studio in preparing students for risk taking and exposure in practice. As one educator explained, "The students generally—due to type of design project they are given—have very little exposure in what is to hit them when they arrive in practice," (Appendix 6, E16) and that in contrast, "Live Projects encourage students to take more risks than Design Studio" (Appendix 6, E12). When asked what kinds of risk taking Live Projects encourage, one educator explained that, "they help students deal with unexpected situations, to learn to adapt, to use technologies but also use local resources and to be prepared to change their designs to ensure the Live Project aims are met. Students learn very little risk management skills in Design Studio" (Appendix 6, E16). Another educator shared similar views:

> *Several things get brushed under the carpet in non–Live Projects (sometimes) design gets ignored. In studio projects, budget, buildability and programme get ignored. None of these can be ignored completely in a Live Project even if they are only investigated or relevant in a very simplistic way* (Appendix 6, E18).

Student respondents broadly reflected the view of the educators. One student went so far as to suggest that, "The only risk you take in Design Studio is choosing the right professor" (Appendix 8, F15) whereas another felt risk meant, "that your tutor might not like your designs" (Appendix 8, F21).

Some of the architect respondents' views echoed similar sentiments:

> *We have had to learn about the practical side of risk management in our practice. We talk about risk all the time. It's not something we necessarily enjoy talking about or that we find fascinating. Some clients are really into developing a brief, others aren't, but I often describe it as a process of managing 'learning risk'. The world is increasingly obsessed with risk... it's everywhere now, not just in architecture. It's hard to learn about risk until you're doing it* (Appendix 7, F12).

Furthermore, there are distinctions between the different types of risk that students can learn in either Live Projects or Design Studio, as these two different responses indicate:

> *Both Live Projects and Design Studio teach you the 'risks' of time management – but Design Studios aren't much about Risk Management* (Appendix 6, E18).

> *Risk Management is relative – it depends on site, context, experience/year of study, expectations from students and so on. Generally however the involvement and level of exposure of students can be adapted to respond to that* (Appendix 6, E20).

Moreover, the researcher observed that the question of risk and ambiguity management provoked a higher number of comparisons with Design Studio than any of the other skillset questions. Furthermore, respondents were more inclined towards mentioning the role of the schools in addressing this shortfall in risk management skills. For example, "It's not really the risk you take, but rather the lack of education on management" (Appendix 9, Q17). However, some respondents felt that schools were supportive of some kinds of risk taking:

> *Most young architects will tell you that they would like to have their own firm one day so I think this is a good indication of the risk taking nature of the profession. I'm sure that young bankers would have a different answer. I think that from day one at university we are exposed to a brave new world where risk taking is incentivised through education and successful examples are upheld as beacons. I also think at this time we live in a world where innovation is so ubiquitous and that the rewards are obvious and clear to all. I think this attitude is hugely different from the position of say the 1980s where the opposite was largely true* (Appendix 7, F14).

Apart from impacting on practice, some educators also noted that a school culture that engenders innovative risk taking also impacts closer to home, or as one educator explained, "Live Project innovation feeds teaching and research" (Appendix 5, H56). Another educator took a more strategic view and provided a very clear description of risk-specific learning that Live Projects can offer students:

> *Learning risk-taking behaviours is a larger pedagogic question— you can set up a course of study to cultivate good risk taking, or the sensitivity to happy accidents and how to leverage them. The location between success and failure is feedback. Instead, cultivate education as a*

laboratory and not as a set of hurdles to clear. The problem with Live Projects is that failure is less controllable than an error in Design Studio...you're impacting people in their daily lives...there has to be a lot more risk management in Live Projects than in pure academic exercises. A 'considered' risk taker means you are able to weigh the advantages and disadvantages of potential failure, implications of failure in Live Projects are greatly magnified, so in that sense it cultivates a greater sense of responsibility and awareness of risk. The things that go wrong could be worse than getting a bad grade. We need to cultivate a greater sense of what risks there are in education in general, and how to balance them against potential good. Society in general is much more risk aware than we are in our profession—which is one of the reasons for so much conflict between architecture as a cultural enterprise and architecture as a financial or economic enterprise. We need to learn to do more risk analysis (Appendix 6, E26).

What this commentary also flagged up is potentially detrimental impact upon participating communities that can occur when things go wrong in Live Projects. If there is scope for greater risk-taking in Live Projects than in Design Studio—as the data presented here seems to support—then by implication the penalties for failure (apart from learning) can be more serious.

8.6 The risk to Live Project participants

The US educator responses (captured in Appendices 3, 5, 9), those of their British counterparts (Appendices 5, 6, 9) and the student respondents (Appendices 2, 4, 8) all discussed health and safety in relation to risk. The general consensus amongst educators is that Live Projects do present, "a risk to students health and safety," (Appendix 3, F51, and also E47)—a view that is reflected in many of the students' comments (Appendix 4). Interestingly, there were no examples of students being injured, suggesting that is a very rare occurrence. Yet, many saw this as the result of serendipity rather than strategy. Whereas the majority of the US Live Project educators operated out of Community Design Centers that offered a formal endorsement from the host Higher Education Institution, the UK educators were often offering Live Projects as a bolt on to Design Studio or as an independent, optional activity. Few of the UK institutions offered credits to students for participating (only one respondent) whereas in the US, the opposite applied. Whilst a larger discussion about curricula and assessment is the focus of Chapter Ten, the researcher observed that UK educators were working with a greater level of risk due to these circumstances. Inversely

however, the US educators, whilst being more likely to operate under insurance arrangements, spoke of the higher levels of litigious activity in the US. As one educator explained, "Here in the US everybody sues everybody else. The risks are soaked up by the faculty" (Appendix 6, E32). It was also noted that this caused a kind of insurance/liability anxiety that also impacted on practice. According to one US-based educator:

> *Live Projects are extremely risky. It's amazing how much architecture training is dictated by NAAB, which makes it hard to be innovative. Not everyone registers as an architect when they graduate— and for many of us, we choose not to use that stamp [use the title architect] given the costs of liability insurance, as it makes us more liable. It's a bit of a house of cards. If these risks increase ever so slightly I think it's going to collapse. It forces us to question why we even need to be a licensed profession. It's quite radical to say it [and] I'm glad this is anonymous. [Live Projects] are the only construction environment where construction workers wear flip-flops and no hard-hats. The risk for the students can be positive as it gives the students confidence. In my Live Projects, students have to work under conditions of extreme heat, extreme poverty, unsanitary conditions that they couldn't have imagined in their lives previously, levels of difference that they have never encountered personally* (Appendix 6, E30).

Students were also sensitive to the issue of litigation, although generally seemed less anxious about it. As one student explained:

> *Being on the edge is my favourite part of design. I like challenging the conventions I've been shown—to find the boundaries and go there. On Live Projects it's a less 'academic' risk. Live Projects make students take a lot or physical risks, so we have to be responsible for ourselves. We learn about the codes and litigation side* (Appendix 8, F17).

Interestingly, the 'exposure' to diverse contexts different from their own has been reported as something students are seeking from their Higher Education experience. Described as "something more nebulous—the bits in between the learning," these contexts are characterised by, "face-to-face contact with diverse people" (Swain, 2013). One US student demonstrated an awareness of the risks that his institution was taking to deliver Live Projects:

> *I don't think that there are enough risks in Design Studio. In Live Projects the risks include balancing expectations of students versus clients, marking criteria versus giving a client*

> *what they want, starting something but not having the time to finish it properly, informal*
> *agreements between client and architecture school/students being messy, where the liability*
> *for a project is not owned by the student or the clients. I think student–initiated Live*
> *Projects are definitely more risky than ones managed by the university. If 'risks' are things*
> *such as experimenting with materials, questioning regulations and how you can bypass these*
> *then coming up with new models that challenge current practice, then Live Projects*
> *encourage this. Risks I have taken in Live Projects include, trying to put up a roof of a*
> *structure using a homemade scaffold and it collapsing, running a workshop for a community*
> *group and no one turning up as it had not been communicated correctly by a local partner*
> *and relying on the knowledge of artisans rather than 'professionals' when building in some*
> *remote contexts* (Appendix 8, F 21).

Apart from the evident affirmation of the appeal of interacting with others, the student above
makes reference to the issue of regulations. Building Regulations, Planning Policies (also
indicatively referred to as 'Planning Constraints' by UK Local Authorities) and the ever-
changing contractual templates, impose creative and risk-taking constraints on practice
(Building Design Magazine, 2012; Waters, 2012). Given Live Projects' proximity to real
practice, it is inevitable that they can confront the same issues or as one educator explained,
allow students to experience, "The constraints of legislation and limitations of planning
controls" (Appendix 5, F43). Since Live Projects can result in outcomes beyond the building
(as discussed earlier in this chapter) there is an openness to finding ways to creatively respond
to them—or to use the students' terms, to "bypass" them (Appendix 3, F73 and see Appendix
3, H23). Adopting creative strategies for managing these constraints whilst in school, can
only prove beneficial later in practice—provided of course, that they don't involve illegal
activity.

8.6.1 Revenues and investments

Circumstantial criticisms levelled against Live Projects argue that they diminish the value of
the profession, by providing free work, or as one educator termed it, "a kind of cheap labour"
(Appendix 5, G19). Whilst this could be true in contexts where the host university is situated
in a small town, the scale of Live Project operations in both the UK and US seems hardly
likely to make a major impact across the profession. However, given that many architecture

graduates in both the UK and the USA are facing the prospect of unpaid internships [2] there seems to be a contradiction between the valuing of the work itself and the valuing of those who produce it. In some of the older Community Design Centers in the US, a system for charging fees to some clients (for example commercial clients rather than charities) has proved beneficial to the institution. That, "Live Projects can turn students into income generators for the institution" (Appendix 3, H53), and, "can and even should attract commercial funding," (Appendix 3, H71) was a view shared by several of the US educators the researcher interviewed. Added to this, one educator explained that, "Live Projects can offer great ROI [Return On Investment] for companies seeking academically informed outputs" (Appendix 3, H57). This again relates to the question of beyond-the-building Live Projects that encompass policy development and even research.

8.6.2 Research & realisation

Some Live Project offices or Community Design Centers offer research work to clients, such as London Metropolitan University's Architecture Research Unit [3] or the University of California Los Angeles (UCLA) City Lab [4]. They offer both beyond-the-building outputs that generate revenue for the institution and also reflect upon emergent trends regarding the expanding R and D (Research and Development) remit of the architect. (RIBA Building Futures, 2012) However, one issue that is often overlooked, is just how much research work is involved in designing and running a Live Project.

> *Live Projects design and implementation, from a tutor's point of view involves serious amounts of research, comparable with any other piece of academic research and for this reason should be recognised as valid research, like any other* (Appendix 3, H9).

Since authentic research involves speculation, dealing with ambiguities and some risk-taking in the pursuit of new knowledge, it seems reasonable to consider that educators are taking not just institutional by intellectual risks through their participation in Live Projects. The research integrity of Live Projects is further considered in Chapter Ten, the question of assessment.

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2 The situation for UK graduates in any sector is considered now so serious; a National Campaign has been established. Source: http://www.internaware.org/

3 Source: http://aru.londonmet.ac.uk/ Last accessed: 10/11/2013

4 Source: citylab.aud.ucla.edu/ Last accessed: 10/11/2013

8.6.3 Community risks

Finally, it should also be acknowledged that participating communities take risks in involving unqualified architecture students into sometimes very sensitive situations (Appendix 2). Whilst this can be remedied to some extent if the educator sets expectations effectively at the outset, there are risks for community participants working on construction sites without contractual recognition or the appropriate insurances. In addition to this, the students' awareness of the risks involved with working with real people doesn't always form a precursor to good risk-taking. One student considered the impact on community members to be the most significant risk of all. As he explained, "The biggest risks we take in Live Projects are delivering on promises—not letting the clients down. I'm a skater, and you need to take a million risks in order to improve" (Appendix F15). Interestingly, educators observed how student concerns regarding community impact did not always facilitate effective risk-taking. He explained that:

> *Live Projects encourage risk-taking to get outside of comfort zone, but on another level, there's a conservatism that comes in because people are so concerned about making mistakes and working with communities where things have an impact, that they become more risk adverse, because it's not working in a conceptual space but in a real space where peoples live could potentially be affected. Therefore there can be a pulling back from certain conceptual risk-taking in these kinds of situations, because people 'want to do good' and that can lead to what can be quite pedestrian or predictable outcomes that are not nearly as playful or critical or risky as you might find in a studio project* (Appendix 6, E28).

Whilst most educators felt inclined to, 'value uncertainty,' (Appendix 5, F20) in Live Projects, there is a spectrum of risk involved that includes both good and bad risk-taking, as well as positive and negative outcomes. Whilst it has been established that working with a community client is an exercise in risk-taking and ambiguity tolerance and offers a set of "unforeseen challenges" and unanticipated risk (Appendix 3, E65), the risks to the community can be strategic – in terms of leveraging learning – but also constraining, in terms of inhibiting risk-taking and resulting in pedestrian outcomes, or as one educator pointed out, "The risk is your Live Projects can contribute to and not always help the problems" (Appendix 6, E36).

Furthermore, dealing with risks can facilitate the acquisition of the other skillsets. For example in the case of skillset one (interdisciplinary teamwork) one student reported that, "In most cases you are left to make any decisions within a team and with a client rather than with a design tutor alone" (Appendix 8, D19), whereas another identified that they had to, "take risks in order to make decisions" (Appendix 4, E13). One student also explained that

> *…in this Live Project we could have been even more risky. Working in a group can help share risk, but sometimes it makes you not risk enough. You are genuinely investigating something. If we had simply been allowed to generate wild ideas that didn't need to be put into place, and you simply made up the people you are designing for there's a huge risk that it would be a disaster. Letting people into the design process is risky but rewarding*, (Appendix 8, F11).

In relation to the last remark and generally within this chapter, it has also been observed that skillset two (collaborating with clients and civic concerns) was often cited as an example of risk. Whilst the unpredictability of (ideally) clients carries risks, so too does the risk of harming the clients by taking bad risks, as this student identified:

> *Live Projects make you take good risks because they make you think more about the consequences of these risks on the client or users and your own project. My experiences of 'good' risk include … Altering a brief that the client has written to make it more realistic and appropriate given the constraints – this turned out to be successful and we were commended for expanding the brief and asking personal questions in a vulnerable community* (Appendix 8, F19).

Finally, the broad consensus is that the more uncertain and ambiguous the world of practice is becoming, the higher the levels of risk. Furthermore, the broad view amongst respondents was that Live Projects offer greater exposure to and experience of risk-taking and ambiguity management than Design Studio, and for this reason facilitate the acquisition of more practice-ready skills in graduates. As one educator explained:

> *Students often don't have a set agenda in comparison to a practicing architect, so they can get into places that other people can't—especially in disaster response situations— and on the leadership side, they work out how to ask the questions. Not just the right question, but how to ask it…filtering agendas [ambiguity] to see what is really happening. We talk about risk-*

taking a lot—the old maxim is the higher the risk the higher the reward. At the end of our lives, many people say they wish they could have taken more risks. It's easier to take risks as a student than a professional. Learning about liability in practice etc. we can talk about risks in practice in a more immediate way. The profession is a rapid change environment (Appendix 6, E38).

<u>8.7   Summary of chapter conclusions</u>

This chapter examined to what extent Live Projects are effective in enabling students to acquire ambiguity tolerance and risk management capabilities? Of the three skillsets, teaching risk had the least amount of available literature, particularly in relation to teaching in architecture, and was more likely to be discussed within other disciplines such as business management. Subsequently, framing the enquiry in a way that reflected architectural concerns and relevance to professional practice was more complex that for the other skillsets. Consequently, the data identified emergent preoccupations that covered a broad range of risk-associated activities; from health and safety, to financial exposure. Not only did this demonstrate the pervasiveness of risk—in other words its ability to affect many areas of architectural practice—but the general awareness of all respondents to this situation. The respondents' data highlighted the following key insights:

1. Live Projects can expose students to a wider variety of risks that closely resemble those experienced in practice.

2. Teaching and learning about risk (whether in Design Studio, a Live Project or any other model of architectural education) needs to involve making distinctions between good risk, such as creative or entrepreneurial behaviours, or bad risk, such as health and safety hazards. It should enable students to gain capabilities in managing and utilising both.

3. Whilst the university campus does not offer a risk-free learning environment, the divergent array of risks associated with Live Projects allow students to develop what one educator described as a "whole systems overview," pertaining to effective learning of the different types of risk in practice.

4. Although Live Projects offer more proto-practical risk-taking opportunities, some Live Projects risk-taking needs to be effectively managed. Examples include those that could otherwise put students, tutors or community collaborators at risk from harm. For this reason, some risk-taking and ambiguity training exercises might be more effectively taught in a more controlled, academic environment than in a Live Project.

5. The general view is that schools should be doing more to enable students to gain at least a greater awareness of, if not a degree of experience and skill in, risk awareness and ambiguity management. That so little literature exists concerning the importance of teaching risk in schools of architecture, indicates that there is a significant research opportunity to interrogate this area further.

6. Assessment presents specific problems in relation to risk-taking in 'live' circumstances, particularly if the risk in question jeopardises the achievement of other learning objectives. Subsequently, there is a case to be made for educators to deliberately design-in 'risky' activities to Live Projects as one tactic for ensuring other learning outcomes are achieved.

What this chapter has therefore highlighted is the potential, enabling role that assessment can play in enabling Live Projects to deliver upon the three skillsets. Secondly, the risks associated with the third skillset makes the simultaneous achievement of all three to some extent co-dependent. Subsequently, the first chapter of the concluding section of this thesis (Chapter Nine) will explore possible models of assessment that could enable all three skillsets to be achieved within the same Live Project.

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PART THREE:

FINDINGS FROM THE RESEARCH

Chapter Nine

The question of assessment

9.12 Assessment enablers: pedagogically informed assessment

9.13 Summary of conclusions

9.1 Introduction

"To be good is noble, but to teach others how to be good is nobler–and less trouble."
Mark Twain, Doctor Van Dyke speech, 1906.

This thesis—now in the concluding section—sought to question to what extent are Live Projects effective at enabling the acquisition and application of specific skillsets? Three skillsets (operationalised as sub-questions) were considered within the last three findings chapters. Chapter Six examined inter-disciplinary teamwork capabilities, Chapter Seven, client collaboration and civic engagement capabilities and Chapter Eight, ambiguity tolerance and risk management capabilities. One of the key findings consistent between each of these three chapters was that acquiring the three skillsets is less contingent on the brief given to students than the assessment processes and criteria used. This chapter therefore examines how the insights provided by the respondents can be used to inform a set of Live Project assessment 'rudiments'– incipient and undeveloped learning principles [1] - that could both identify and reward behaviours pertaining to the acquisition of these skillsets.

Within the literature review, it was established that Live Projects already deliver on many of the qualifying criteria of the RIBA and the NAAB. However, what a comparative analysis of the two validation criterion identified was that these principal agencies of qualification could offer a stronger, more specific endorsement of each skillset. This especially applies to the third and least mentioned skillset —risk and ambiguity management—giving educators and schools a far clearer curricula mandate for inclusion.
In other words, given the RIBA/NAAB criteria are used to inform the learning outcomes of each course component or module – without which schools could not receive validation – changing them to make the acquisition of these skillsets an obligation – rather than a question of interpretation – could be the first step in creating a universal set of rudiments. Yet, perhaps one advantage of both criteria's lack of specificity is that neither are an obstacle to these or other, non-validation stipulated skillsets being acquired. But did all respondents agree?

Firstly, this chapter begins by examining the extent to which the respondents recognize that the three skillsets can be both achieved and assessed in Live Projects and compares these findings with the skills needed in professional practice. Secondly, it consolidates the assessment rudiments put forward by Live Project educators and students that participated in

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[1] rudiment. (n.d.) Collins English Dictionary – Complete and Unabridged. (1991, 1994, 1998, 2000, 2003). Retrieved February 16 2015 from http://www.thefreedictionary.com/rudiment

the 2012 Architecture Live Project Pedagogy Symposium. Both their critique and their ideals inform the assessment possibilities considered within this chapter. Thirdly, it critically considers the relationship between assessment, validation and accreditation in light of the primary data: questioning assumptions about their interdependency and examining arguments both for and against formalizing or making obligatory Live Project assessment. This includes an analysis of whether Live Projects should be assessed at all. Forth, it considers the question of who should set assessment rudiments and indeed who should be involved in judging them. Finally, it examines the enabling or disabling potential of schools, institutions and validation agencies in facilitating robust assessment rudiments, whether school specific or universally agreed and the risks associated with continued inaction on the issue.

9.2 What should be assessed in Live Projects?

9.2.1 The importance of the skillsets

The design of the study focused upon eliciting information as to the efficacy of Live Projects to deliver the three skillsets. Within Appendices 05, 06, 07, 08 and 09, respondents were asked an open question, inviting them to identify what skills they thought should be assessed within Live Projects. The skills that were listed were then categorised in relation to the three skillsets. These groupings are made transparent in *Appendix 10: Live Projects Skills to be Assessed*. Whereas Appendices 05, 06, 07 and 08 provide qualitative comments on assessment, Appendix 10 is directly based upon Appendix 09 and attempts to provide more quantifiable evidence due to the larger sample size. In Appendix 09 Question 42 for example, respondents were asked to, 'list the three most important skills that Live Projects teach students.' Of the 238 skills listed, 51% of the skills could be attributed to one of the three skillsets, with Skillset 2 being considered the most important—26% (of the 51%), with skillset 1 at 24%.

Of 238 skills listed *	
Skillset 1: Inter-disciplinary teamwork capabilities	58
Skillset 2: Client collaboration & civic engagement capabilities	61
Skillset 3: Ambiguity tolerance & risk management capabilities	4
Total	123

Figure 1: Appendix 9 Question 42

Appendix 09 Question 43 then asked the respondents to identify which three skills Live Project assessments should prioritise. Of the 221 skills listed 45% were aligned with the skillsets, with a greater emphasis placed upon assessing skillset 2.

Of 221 skills listed *	
Skillset 1: Inter-disciplinary teamwork capabilities	39
Skillset 2: Client collaboration & civic engagement capabilities	50
Skillset 3: Ambiguity tolerance & risk management capabilities	10
Total	99

Figure 2 Appendix 9 Question 43

The final question (Question 44) in the online questionnaire broke down each skillset and listed their attributes along with other skills that are not of direct concern to the researcher's enquiry (such as reflectiveness or flexibility). Respondents were also asked to identify where the skills were 'most likely' to be obtained—within Design Studio or in a Live Project. As discussed within Chapter Four: Design of the Study, this was done to avoid influencing the respondents and protecting the integrity of the responses. The responses also evidenced the extent to which the respondents still consider Design Studio to be a valid model for learning. This aligns with the arguments considered in Chapter One; concerning the importance of recognising the efficacy of other models of architectural education, and not just focusing exclusively on Live Projects. However, as the data demonstrates, a larger proportion of respondents identified Live Projects as the best vehicle for acquiring these skills. Yet, the researcher concurs that may be due to a tacit bias in the way the question was presented, since it listed skills that that could still be delivered in Design Studio, but perhaps to a lesser extent.

9.2.2 The importance of other skills

Ranking	Skillsets that should be assessed in Live Projects	
1	Skillset 02: Client interaction & civic concerns	50
2	Skillset 01: Interdisciplinary teamwork	39
3	Management: resources/time/planning procurement/process/documentation	37
4	Construction quality/real building skills	27
5	Skillset 03: risk & ambiguity management	10
5	leadership/individual/professional development/innovation	10
5	Design/Detailing/concept/material sensibility	10
5	critical thinking/independent thinking	10
6	Engagement/enthusiasm/hard work/drive	9
7	Problem-solving/creativity/flexibility	8
8	relevance/contextual understanding/impact	7
9	Misc/score of 1	4
	TOTAL	221

Figure 3: Sourced from Appendix 9 Question 43

Of the 221 responses to question 43*; "Live Project assessments should prioritise the following three skills,'* it is noted that value placed upon the three skillsets in comparison to other nominated skillsets. What is also noted however is the emphasis places upon general project management skills and also technical expertise – and furthermore – the respondent confidence that these skills could be successfully assessed within a Live Project. It is also noted that leadership was amongst the skills that respondents' ranked joint 5th place. Leadership is a skillset that was highlighted in the literature review (see section 1.1.5) as best achieved by working with ambiguous circumstances. This further supports the evidence that the skillsets are interdependent (as discussed in the concluding section of Chapter Six). But how does this data compare when respondents were asked, *'what are the three most important skills for today's architect in practice?'* (Question 23, Appendix 9).

9.2.3 Live Projects skills and the needs of practice

Ranking	Skillsets that are important to the architect in practice	
1	**Skillset 02: Client interaction & civic concerns**	**58**
2	**Skillset 01: Interdisciplinary teamwork**	**40**
3	**Management: resources/time financial/commercial/marketing**	**28**
4	**Skillset 03: risk & ambiguity management**	**25**
5	**Critical/reflective thinking/independent thinking**	**14**
6	**Design/detailing**	**13**
7	Problem-solving/creativity	10
7	Technology tools/processes	10
8	Contextual/cultural understanding	8
9	Sustainability knowledge	7
10	**leadership/individual /entrepreneurial/commercial**	**6**
11	Construction quality/real building skills	4
5	Misc/score of 1	16
	TOTAL	**239**

Figure 4: Sourced from Appendix 9 Question 43

As Figure 4 indicates, there is a strong alignment between the skills that are considered both present and assessable in Live Projects, and the skills that are much needed in practice. In contrasting the two tables, management capabilities remain a rival priority in both cases. However, this is ultimately good news for Live Projects, since it implies that they are discovering another vital skillset – albeit not highlighted within the secondary, literature review evidence, and subsequently not identified as a skillset - that is much needed in practice.

As discussed earlier on in this thesis, the three skillsets were chosen - due to evidence from a range of different sources, sectors and disciplines (discussed in Chapter One) - on the basis that they were considered to be important to the professional architect yet (largely) absent

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from RIBA and NAAB criteria. Of course, there are no doubt other skills - besides those identified in this enquiry - that are also relevant and others that will emerge in time. But the point here is that Live Projects appear to offer a responsive change mechanism, hotwiring education to practice, better equipping students to develop these emergent and other skill demands. Furthermore, there is evidence to suggest that students' university-situated work can be enhanced due to their participation in Live Projects, resulting in a general post-Live Project 'transformation in terms of grades' (Appendix 6, C12), or indeed, 'in all areas of their development" (Appendix 6, C12), [such as] "human and skills awareness (Appendix 6, C16). Rather than wait until the students reach practice, they can instead "get to test skills they have only just acquired - this 'fast forward' gives them a huge sense of the value of those skills" (Appendix 3, H58).

9.3.0 Qualitative & descriptive assessment rudiments

As outlined in Chapter Five: Participant Profiles, the researcher hosted *Architecture Live Project Pedagogy Symposium* at Oxford Brookes University in 2012, and engaged educators and students from across the world to propose a tentative set of assessment principles or rudiments for Live Projects. The consolidated and interpreted findings suggest the following possible components:

1. *Respond to the pressing need*
2. *Reward successful failure*
3. *Measure social impact*
4. *(Re)define what is valuable*
5. *Reward the missing skills*
6. *Engender criticality, complexity, conflict*
7. *Reward processes over outcomes*
8. *Rewarding inter-disciplinarity*
9. *Reward the design of the iterative and expendable brief*
10. *Reward risk and trust*

 9.3.1 [Rudiment 01] 'Respond to the pressing need'

Within Appendices 05, 06, 07, 08, 09, many respondents expressed concern regarding the social relevance of architecture and its ability to respond to the "pressing need" (Appendix 5,

E48), or to a group of clients or set of environmental challenges (Appendix 9, Q14).
Subsequently, Live Project assessments might seek to recognise and reward the extent to
which the proposed/realised design 'solutions' (whether brief, report or building) reflect the
needs of the situation they seek to address. Prioritising a Live Project's fit-for-purpose
outcomes engenders responsibility amongst the students. It also requires that students work
effectively with the community to define the need, and to co-create possible solutions.

9.3.2 [Rudiment 02] 'Reward successful failure'

As one educator argued, "failure can be successful" (Appendix 5, F48). Similarly, a student
identified that, "We acted against the instructions of the lead client resulting in a security
compromise that caused the project to fail" (Appendix 2, E18, and also reported in Chapter
Seven: Client collaboration and civic concerns). As discussed in the literature review and in
Chapter Eight in relation to risk taking, learning from failure is widely acknowledged as a skill
that enables students to learn more effectively and predisposes them to better manage future
crises—an invaluable skill in uncertain times (Pearson & Clair, 1998, p59-76).

Subsequently, Live Project assessments might reward students' ability to respond effectively to
problems, to use the failure as a means to find alternative solutions or to demonstrate that they
had learned from it. Furthermore, Live Projects are understood to, "assess students' ability to
manage failure, not just the design outcomes" (Appendix 3, F67).

 9.3.3 [Rudiment 03] 'Measure social impact'

Both the literature review and the findings appear to support the view that architects are
largely preoccupied (whether through choice or circumstance) with the production of material
rather than social outcomes, even if the extent to which the two are intertwined is a subject of
some debate. Yet underlying social issues are often hard to serve. As a range of respondents
noted (Appendix 5, Appendix 3, E50 and Appendix 3, H22, Appendix 3, H40), the academic,
two semesters per year timetable can conflict with the timeframe of some Live Projects since
achieving a Live Project within a twelve-week time frame is as challenging and improbable as
trying to achieve the same in practice. As one educator explained,

> *Assessment: Measuring results and impact is really hard over the long term—it's really*
> *complicated. We should be able to measure what the students are learning—the learning*

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outcomes [2]—*this is what we assess. So much of what is learned is quite tacit* (Appendix 6, F16).

The evidence therefore suggests that Live Projects' success could be measured via post-completion visits and that this might also require the points of assessment and also project management to extend beyond the constraints of the annual academic calendar. This could arguably be achieved across the longitudinal section of a three-year degree. As one educator explained:

> *Assessing impact is made even more challenging, since once the students graduate they are unlikely to return. Revisiting the site [should be] cyclical, returning to the site/community, rethinking strategies…there are good opportunities [for] refining and developing solutions is something designers are good at doing* (Appendix 6, C32).

Since Social Impact Assessment (SIA) is understood to, "identify the future consequences of current or proposed actions," (Becker, 1997, p.2), post-occupancy work can involve speculations as well as observations. These are exercises that encourage students to anticipate or consider, "the way in which people work, play, relate to one another, organise to meet their needs" (Becker, 1997, p.2).

Subsequently, distributing the points at which the assessment takes place over a broader timeline; to more effectively measure lasting social impact and to consider evidence for efficacy beyond the point of construction completion. Using assessment to place emphasis upon a Live Project achieving lasting social impact also has implications for the profession. As one educator explained:

> *Socially engaged pedagogy—regardless of the course—is not transient but it is incredibly flexible. Underlying social issues are hard to serve. The benefit is the legacy – the impact on the students. We are creating a designer who sees his or her role as multifaceted, continuously developing, non-hierarchical collaboration, whose bottom line is people focused. The ability of their work to resonate beyond the point of delivery. Entering into the lifecycle of an issue. How will civically engaged graduates impact on the design industry?* (Appendix 5, D14).

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2 Learning Outcomes are defined as, *'subject-based, personal transferable and generic academic outcomes.'* See (Allan, 1996).

In light of this comment, the lasting social impact refers not only to the community but also to the professional life of the graduating student too. Whilst both are ideals, measuring either for the purposes of assessment is likely impossible. And yet, the researcher is reminded of the many e-mails she receives from long-graduated students offering thanks for educational experiences that only resonated many years after graduation. The potential here then, is to assess and reward educators for their efforts. It is noted – if not surprising - that no respondents suggested this during the study.

9.3.4 [Rudiment 04] '(Re)define what is valuable'

Enabling students to participate in determining what should be assessed offers a highly effective strategy for assessment buy-in in terms of peer learning and integrating new knowledge and ideas (Boud et al, 1999, pp.413-426). In addition, as some educators pointed out, Live Projects allow students the chance to, "recognise the value of their own skills and knowledge and that of others," and, "the value of their own labour" (Appendix 5, D21). This is arguably an advantageous awareness to have in recession strapped times. Consequently, educators are encouraged to collaboratively determine what students want to achieve in terms of knowledge, skills and experience, and measure performance relative to mutually agreed goals. This aligns with andragogic models of assessment including authentic and formative assessment examined in the Chapter Three literature review, that allow students greater autonomy and self-direction in determining assessment criteria that responds to what real-time clients deem important or would prove most valuable (Gardner, 2005, p.3; Wehlage et al, 1996).

9.3.5 [Rudiment 05] 'Reward the missing skills'

As one educator pointed out, "Some students have skillsets that are not properly exploited within a traditional Design Studio context—such as client collaboration or brief writing etc. But there are cases where, "because it doesn't come across [in Design Studio] it never gets marked" (Appendix 6, C12). Although assessing prior learning is not a new idea (Knapp, 1977), it is not something that architecture schools seem particularly geared towards doing. Whilst students bring, develop or utilise a diverse range of skills within Live Projects, many of these skills may not be easy to reward within the established RIBA/ARB or NAAB criteria. Subsequently, recognising and rewarding students' existing expertise is one way to increase and support diversification in both learning methods and student profile. This requires us to assess

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skills that the students have and use within Live Projects and not just those they learn on the job.

9.3.6 [Rudiment 06] 'Engender criticality, complexity, conflict'

As captured in the findings, within Live Projects, "students assume a critical and reflective position—one that is open to criticism and to intervention from people who are not of the same academic culture" (Appendix 6, C14), which can allow them to also, "contextualise their academic learning" (Appendix 3, H28), and to, "question their education" (Appendix 3, H50). These three views resonate with Stanislav Roudavski's thoughts on critical pedagogies as proving, "effective because they encourage conflict as a strategy that is capable of sustaining multiple alternatives" (Roudavski, 2012). Subsequently, there is evidence to suggest that students exposed to complexity and conflict can become more capable problem-solvers, collaborators, strategists and resource managers. Live Project assessments should therefore engender and reward the students' ability to manage complexity and embrace criticality as a means to locate or propose alternative strategies.

Further evidence from student respondents captures a general willingness to embrace complex and critical situations as well as approaches. As one student explained, "I gained some practical experience of how to deal with complex problems regarding not just space, context, structure, material but also social, behavioural and commercial aspects of the project" (Appendix 2, F28). Live Project assessments that not only reward but encourage students to define in their own terms what kinds of criticality, conflict and complexity they have experienced but also how they managed it would provide useful feedback to educators, who can then support the students ability to utilise the academic infrastructure of the institution to reflectively contextualise their learning experience, offering a more meaningful, reflection-upon-action opportunity than a conceptual exercise might offer. An example of this is illustrated by one student respondent's lucid description;

> *Live Projects helped me develop my skills for use in practice [and] apply and test the theories*
> *we are taught in school. The University timeframe can really inhibit important exchanges*
> *with external partners. You have to think about it systemically. It's not just about the faculty*
> *support for Live Projects but about the students and how they choose to lead them. If you*
> *create a framework, in some ways you reduce the ability of Live Projects to evolve and*
> *develop and be bespoke, and can inhibit how the partnerships change and innovate. The*

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thing that really needs to be assessed is how Universities identify community. A community is
a group of people who identify them as such in relation to a shared goal (Appendix 8, H13).

9.3.7 [Rudiment 07] Reward processes over outcomes

According to one educator, "Live Projects emphasise process, Design Studio is more product
focused" (Appendix 3, H46). The importance of process was echoed by others, who explained
that, "The process is as important as the outcomes" (Appendix 6, C36), and even argued that,
"Impact cannot be measured in terms of tangible outcomes" (Appendix 3, E75).

Furthermore, 74% of respondents to the online questionnaire agreed with the statement that,
"Live Projects do not always need to involve making a building or a structure" (Appendix 9,
Question 34). However, several of the comments indicated that building something was a way
of, "testing its efficacy", as "beneficial to students" and also as an, "incredible educational
experience" (Appendix 9, Question 34, comment section). Perhaps inversely, when
questioned whether, "Live Projects need to be community situated/engaged," 56% felt that
they did not. One respondent explained that although, "they don't have to be, they are a much
better learning experience if they are" (Appendix 9, Q35). Whilst Live Projects are broadly
associated with community-situated learning that results in a building, these findings suggest
that there are other characteristics that are also strongly associated with Live Projects. As one
student explained:

> *I think people confuse design with material products or building and don't think of it in*
> *terms of design thinking. This is why I'm really interested in Live Projects – because I can*
> *have access to design processes, but I can use those processes in my [undergraduate] specialism*
> *in sustainable public policy and regional development* (Appendix 7, G13).

From a US-based educators' perspective, shifting the assessment emphasis from product to
process presents particular cultural/contextual challenges:

> *Assessment – you can have a total disaster project but you learn big lessons. We are very*
> *outcomes focused in this country so it's hard to just assess the process, especially if it doesn't get*
> *built. Professors need to stay ahead of all the changes* (Appendix 6, G38).

Subsequently, assessments that reward evidence of the strategic use of 'design thinking' to in effect, 'design' the process rather than the outcome, has the potential to encourage students to think beyond the prescription of traditional architectural procedure and invent new and more responsive design processes.

9.3.8 [Rudiment 08] Rewarding inter-disciplinarity

As discussed in more detail in relation to skillset 1: collaborative working within interdisciplinary teams, Live Projects are largely considered to be inherently inter-disciplinary, offering architecture students the chance to collaborate with people from different fields and with different kinds of expertise. In the words of an architect respondent:

> *What worries me is that education in general seems to be getting worse not better. I mean recent grads who know nothing about arts or literature. There needs to be much more emphasis on holistic learning. This is how people learn about cultural diversity and regional aesthetics. Architects need to be able to reference wider cultural sources than their own discipline. This is the foundation of understanding the importance of context* (Appendix 7, H10).

This is reflective of professional practice, where a construction team consists of a diverse range of professionals, as detailed within the literature review. Other educators shared similar views. As one explained, "Live Projects ask students to draw methods and knowledge from other disciplines as diverse as, "anthropology, ethnography, sociology, ethics…" (Appendix 6, C14). This alludes to the idea that Architecture Live Project assessments might be usefully informed by the methods used within other disciplines to assess Live Projects, such as 'clinical training' (in medicine and nursing) and 'Pro Bono' work (in law) which might also go under others names such as 'field work', 'placements' or 'work experience.'

Interestingly within clinical training, research suggests that there is a trend towards assessing students for similar skillsets to those considered within this thesis, as outlined by Psychiatry educator-practitioners, Monica Doshi and Nick Brow. They identify a shift from:

> *…the limited, traditional one-off assessment towards multidimensional, broader assessments of a doctor's longer-term performance. This is accompanied by the rapid development of assessment tools, collectively termed workplace-based assessments, and is in keeping with an*

> *outcome-based approach to medical education and its increasing professionalisation. In*
> *addition to clinical skills, other aspects of being a good practitioner are being assessed,*
> *including team-working, working with colleagues and patients, probity and communication*
> *skills. There must be a clear process for applying assessments, national standardisation and*
> *training for those using assessment tools* (Brown & Doshi, 2006).

Subsequently, the emphasis on 'multi-dimensional' assessment would more easily reward a
more diverse, interdisciplinary range of skills than for example, the end of semester/year
portfolio based building designs that form the principal assessment vehicle in Design Studio.

Within Law, the traditional bar exam used to act as the threshold assessment into professional
practice. However research has identified that this system proved to be disproportionately
failing more women and "ethnic minorities" *(sic)*. Subsequently, a system of "staggered
testing" is becoming increasingly commonplace since it has been found to more effectively
identify and reward "clinical skills " (practice competencies) and "interpersonal skills" rather
than only "book smart" capabilities (Trujillo, 2007). Furthermore, many Law Schools Pro
Bono 'Live Projects' allow students to develop "practical" advocacy skills that also include
teamwork [3]. This resonated with one educator's description of other kinds of skills that
might not otherwise be assessed:

> *Students who did engage with Live Projects in my experience (especially the less active in*
> *class), have managed to find themselves in different ways through Live Projects. Some were*
> *better as coordinators and networkers, others as makers, others as managers. It equipped them*
> *with new skills and energy to lift them up when being in class that they were far more*
> *involved following the experience* (Appendix 6, D20).

In contrast to architectural education, the law profession rather than the law school is
increasingly setting the expectation regarding Pro Bono work. For example, many UK law
firms and schools celebrate annual Pro Bono Week aimed at encouraging solicitors and
barristers to offer Pro Bono services and increase awareness of Pro Bono work (Dyer, 2007).
Yet, it is the American Bar Association that makes an even bolder commitment to Pro Bono
work, through their Model Rules of Professional Responsibility that state:

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3 There is scant literature specifically on Pro Bono assessments in Law teaching. However, the University of
Reading School of Law LW3PRO-Writing Credit Pro Module stipulates, "regular practical assistance," as an,
"assessable learning outcome." Available from: http://tinyurl.com/ndo39frLast accessed: 01/06/2014

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> *Every lawyer has a professional responsibility to provide legal services to those unable to pay.*
> *A lawyer should aspire to render at least (50) hours of Pro Bono public legal services per year.*
> (American Bar Association, Model Rule 6.1)

It would be an interesting contention if the ARB or RIBA made a similar commitment within their criteria for professional registration. And whilst one educator observed that, "it's hard to measure whether students will be more civically engaged later in life—we do Live Projects because we want them to," (Appendix 6, D36) there is research to suggest that building a sense of civic responsibility amongst young people engenders a greater sense of citizenship (Carpini, 2000; Colby et al., 2003). This suggests that even if the architecture profession were to make a comparable to law commitment to public service, schools should continue to offer opportunities for students to engage in the discipline of citizenship or 'civic discipline' within their professional education (Header, 2013).

One final insight regarding Live Projects that involve collaborations between students of different disciplines is that it might easily be assumed that a standard set of assessment rudiments applied to all students, regardless of discipline would ensure consistency and possibly fairness in marking – although the latter would require avoiding any discipline specific biases. Yet, early stage research elsewhere suggests that students from different disciplines bring different skills to bear on interdisciplinary Live Projects and that the differences and not just the similarities should be rewarded (Harriss et al, 2014).

9.3.9 [Rudiment 09] The design of the expendable and iterative brief

Coined by one educator respondent, 'the expendable brief,' (Appendix 5, D61) allows a brief to adapt to emergent and unpredictable circumstances in a Live Project. This kind of flexibility is particularly suited to working with complex teams—where levels of participation might not always be equal—and when co-designing projects with community members, who may not be able to participate until the original brief has been approved by the university and the project is on site, or as one educator put it, "[the] students and community co-author the brief, rather than have it set by the University [tutors]" (Appendix 3, E31). As one student explained, "We communicated with our client throughout the project...allowing us to discuss our ideas, modify and develop them as she thought appropriate…giving us a deeper understanding of what the school and council was hoping for - which was different from the brief" (Appendix 2, E48). If a brief is flexible, then assessments will need to be too. However,

they still need some points of intersection. One way to achieve this is to allow students (possibly in collaboration with tutors, community participants or other students) to document what they originally set out to learn (objectives) in relation to what they actually learned (an amendment to the original objectives). This flexibility would allow for the brief to be adapted to suit the purposes of the Live Project but without costing the students in terms of achieving success in their assessments. As one educator explained, "All Live Projects inspire instinctive rebellion" (Appendix 5, F40 and Appendix 5, F60), in relation to the brief and as another contended, it is a question of, "rules of engagement rather than engagement of rules" (Appendix 5, F60). Subsequently, assessments that reward students' ability to take existing rules – such as planning constraints or budget limitations – and assess their ability to develop imaginative responses or to work effectively despite constraints are rewarding behaviours or skills that directly reflect the realities of practice.

9.3.10 [Rudiment 10] Rewarding risk and trust

As one educator explained, Live Projects can but also should involve a kind of "risky trust" (Appendix 5, F16). This comment was part of a bigger conversation about the distinctions between Design Studio and Live Projects. As one educator explained:

> *There can be a pulling back from certain conceptual risk taking in these kinds of situations, because people 'want to do good' and that can lead to what can be quite pedestrian or predictable outcomes, that are not nearly as playful or critical or risky as you might find in a studio project. So although the community adds 'risk' the pedagogical challenge is how do you still foster conceptual risk taking in Live Projects or how do you provide the opportunity for a spectrum of Live Projects that can range from problem solving to very conceptual and speculative? It's speculation versus inelegant problem solving. Why should only rich clients get exciting stuff and poor communities get 'un-risky' and banal design outcomes?"*
> (Appendix 6, E28)

The importance of engendering a level of risk and ambiguity in Live Projects is addressed in the analysis of Skillset 3: The capability to manage emergent ambiguities in risk exposure and decision making. It is also addressed within Chapter Eight and within the Chapter Ten skillset conclusions. Responsive and adaptive assessment would allow students to be able to define when they were confronted with or took risks (i.e. by asking to define what they learned) but inviting them to explain how they learn it (i.e. in terms of resources or strategies).

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At the very least, this information would form the basis on a risk assessment strategy likely to prove invaluable to the educators involved.

9.4 How to assess Live Projects

LIVE PROJECT LEARNING CONTRACT – viva presentation record & self-evaluation				
Project title:		**Start date:** **Finish date:**	**Assessment date** (i.e. week 1 of 6)	
	Learning objectives	**How did you/they learn it? (resources and strategies)**	**What should be assessed?**	**Have you/the student succeeded?**
Student (name)				
Educator (name)				
Client (name)				
Alignments with professional criteria (list):				
Alignments with rudiments (list):				

Figure 5: Example of a collectively agreed and assessed Learning Contract (authors own)

As discussed in Chapter Three, Knowles' research into Learning Contracts builds upon the notion of encouraging students to influence and even prescribe what should be assessed (i.e. content) but also how and when it should be assessed (Knowles, 1978; Knowles, 1980). Learning Contracts also offer students the chance to explore different formats for assessment—with the option to move beyond text based reflections and utilise multimedia formats to capture and record process as well as product (Knowles, 1986; Knowles, et al, 1984), which is particularly applicable to Live Projects that take place in environmentally challenging situations. Furthermore, Learning Contracts can also be very effectively used where there are non-negotiable Learning outcomes. One example is within nursing training

when the skills both learned and demonstrated need to be both precise and replicable – such as taking a blood sample. In architecture, a comparison might be securing roof trusses using the same fixtures and techniques as other roof trusses. The Learning Contract therefore provides the student with the freedom of choice on how (and possibly when) they will achieve the non-negotiable Learning Outcomes and what will count as evidence that they have been achieved (for example, a blood filled vial and an uninjured patient or a structurally sound roof). What this also suggests is that there needs to be a balance between students setting wholly bespoke and possibly unique Learning Outcomes for themselves, and for some assessment rudiments to be fixed, or consistent between all participants. The implications of a set of standardised or universal assessment principles, is considered later in this chapter. Returning to Learning Contracts, what is noted is that Live Project assessments that allow students to set their own criteria for assessment would go some way to engendering a greater emphasis on rewarding the successful application/demonstration of 'missing', previously acquired or emergent, skills and capabilities.

As the data highlighted, expertise in management is considered a highly valuable skillset – one that respondents' felt is vital to practice and also one that should be assessed in Live Projects. This correlation suggests a useful opportunity to align the two. In contrast to the mainly pictorial design portfolio – to which most of the credits in both regional contexts are assigned – one form of assessment could involve a management report, contextualizing the Live Project in relation to both academia and practice.

Finally, one of the criticisms of an architectural education situated in an academic, university context (as discussed in Chapter 02) is the emphasis upon assessing learning through written outputs. For students taking 'creative' subjects - which architecture arguably still is – the opportunity to present verbally, through a mini-viva for example, allows them to reflect on their ability to meet the agreed assessment points and to some extent, engage in critical, self-assessment. This is known as transformative learning - which is facilitated through consciously directed processes such as appreciatively accessing and receiving the symbolic contents of the unconscious and critically analyzing underlying premises" (Elias, 1997, p. 3). However, if we are inviting the student to take this critically reflective view on their performance – and we expect them to be honest about their limitations - should it only be the viva audience who have the ultimate say in whether the student has been successful or not?

9.5 Who should assess Live Projects? The collective critique

I love the term Live Projects – it's much more inclusive, and gets us out of some of the traps. Like live TV - feedback is spontaneous, immediate (Appendix 6, G30).

Whilst a set of assessment rudiments provides one kind of assessment tool, Question 40 (Appendix 9) invited respondents to suggest who should be involved in assessing students' work. The general consensus was that educators, other students and community members should be involved. Involving a wider range of assessors was also suggested. These included practitioners, and people from others disciplines, Non-Government Organisations (NGO's) and even politicians. One respondent even went as far as to suggest that, "educators should not be included" (Appendix 9, Question 40).

However, there was no real consensus upon whether involving clients or stakeholders in the assessment process would be wholly beneficial. Whereas one educator felt that, "real stakeholders provide fantastic feedback" (Appendix 3, E66) another felt that, "clients are much more direct in their feedback than tutors —more likely to be critical" (Appendix 3, E45).

This is in contrast with a third educator who felt that, "clients are taken on a journey that is so uplifting that it's hard to get critical feedback on the Live Project" (Appendix 5, D12). However, for a fourth educator, the idea of including the Live Project end users or clients in assessment processes could prove counter-productive:

> *It is not appropriate to engage public participants/clients in the academic assessment of students' work – they may offer their own feedback or assessment of the successes/failures of the project, but these are not the same as the learning achievements* (Appendix 9, Question 40).

This comment makes an important point concerning the distinctions between what the community stakeholders or clients are likely to consider a measure of success —such as the product outcomes within their communities—and the learning experiences of the student. Subsequently, involving clients or stakeholders in the assessment process could be usefully aided by ensuring all participants utilise assessments that places emphasis upon students learning experience and not just against the relative merits of the community situated outcomes.

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Arguably, if "Live Projects put students in the driving seat" (Appendix 7, H14), and also, "puts the student at the centre of all activity" (Appendix 6, G26), then this must apply at the point of assessment also which affirms that they are best positioned to make decisions about their own and the project's success and failure. As discussed in Chapter Three, Live Projects have the ability to offer 'peer learning' and allow students to become co-authors of knowledge (Ballantyne, 2005, p.61; Dewey, 1916: 1997 Edition, p.38). This has implications for assessments, not least in terms of how different behaviours or how the acquisition of certain skillsets are prioritised or weighted (Rust, 2000). Interestingly, the student interviews (Appendix 8) featured some astute ideas about assessing Live Projects—one student even felt that assessment might even prove a barrier to participation:

> *The three biggest challenges for students who want to participate in Live Projects are that they are difficult to mark given that it is usually a group project and architecture schools still have an aversion to collective marking and matching projects with the capacity of the students or [avoiding] 'biting off more than you can chew.' If anything, Live Projects shouldn't be assessed, or if they are it should be through the perspective of the client or some way of measuring social impact or through lessons learnt by the students, a process over product based approach of self-evaluation* (Appendix 8, I21).

Within the researchers own experience, Design Studio assessments are often used in Live Projects. This is because a Live Project brief—which sets the Learning Outcomes for the assignment—is just as strongly informed by the validating criteria as a Design Studio brief is. The data suggests this practice is far from unique. As one educator explained, "the brief is set and critiqued by people other than architects, unlike traditional studio projects where the brief, client and tutor are all architects and the conversation can be myopic" (Appendix 6, C18).

Furthermore, whilst the Design Studio tutorials offer ongoing feedback usually on a weekly basis, the 'design crit' is largely seen as the only mock or formative assessment opportunity prior to the submission of an end of semester/academic year design portfolio. Interestingly, the ability of the design crit to enable 'useful learning' has been contested (Webster, 2007) and there is also substantial evidence to suggest the design crit emphasises product rather than process. Perhaps more concerning is the fact that students often report that they are unaware

of the criteria against which their work is judged (AIAS, 2002) [4]. Arguably, a co-authored brief of the kind being discussed in relation to Live Projects would offer similar benefits within Design Studio as could perhaps go some way to addressing the issue of conspicuous assessment criteria. However, if the Design Studio emphasis remains on design product rather than process then there are only so many different learning outcomes that can be rewarded. In contrast, a Live Project that emphasises process and not just product aligned learning outcomes can identify a broader range of possible points of reward, or as one educator described it, "The Live Project environment is richer than the studio—more constraints that push back at them, more mechanisms for feedback" (Appendix 6, C38).

If, as one educator argued, "the location between success and failure is feedback" (Appendix 6, E26) then Live Projects that facilitate regular but also multi-channel forms of feedback are more likely to identify 'success' in students behaviours, independent of the final (product) outcome.

9.6 Arguments for and against assessing Live Projects

When asked directly whether 'Live Projects should be formally assessed or accredited,' within the online questionnaire (Appendix 9), 26% strongly agreed and 42% agreed (a total of 68%) that they should. However, 30% neither agreed nor disagreed. Within the comments section, some respondents revealed that assessment should be "voluntary" as although it provides an "incentive for participation," this could make participation "competitive" (Appendix 9,Q38). Respondents elsewhere shared the view that keeping things voluntary offers a way to ensure that, "collaboration is authentic" (Appendix 8, D17).

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4 American Institute of Architecture Students (AIAS) (2002) The Redesign of Studio Culture. New York: American Institute of Architecture Students. Source: http://www.aias.org/website/download.asp?id=314 Last accessed: 26/05/2014 CITED in Webster, 2007, p.1)

Q38 Live projects should be formally assessed/accredited

Answered: 131   Skipped: 51

Strongly disagree
1.53% (2)

Disagree
1.53% (2)

Neither agree nor disagree
29.01% (38)

Strongly agree
25.95% (34)

Agree
41.98% (55)
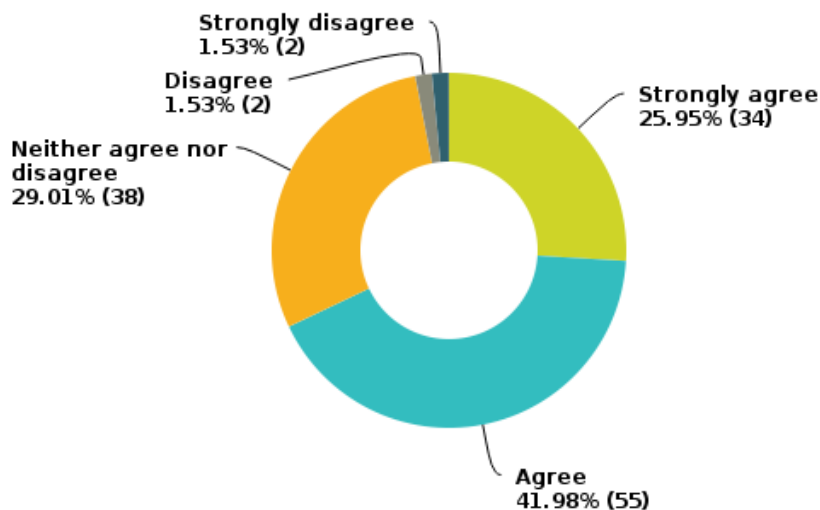
Comments:

o   Should be volunteer only.

o   Student learning can be measured independently from the success of the design outcome.

o   See the SEED Network - www.seednetwork.org.

o   Only for incentive to participate, unfortunately.

o   The experience itself should be enough. Students only caring about the credits/grades would be counter to the point of such projects. However, to be taken more seriously, by both the established architectural (academic) world and the students, it might have to be done.

o   That is when a Live Project becomes less engaging, less likely to take risks.. the Live Project dies.

o   But with allowances made in summative assessments for issues that were beyond student control.

o   I see arguments for both, but it could easily become competitive if graded. Perhaps just accredited regardless of "performance"?

o   Of course.

o   In some cases yes, particularly for postgraduate students but i think there is a danger for undergraduates that students do not have enough knowledge to understand the implications of a project, particularly if community based.

o   Why do something at university if it isn't assessed? "The point" of doing a Live Project is not only to deliver an outcome, but also to learn. Assessment is not the final stage, but the point at which learning can be identified, celebrated and discussed.

Figure 6: Question 38, Live Projects should be formally assessed/accredited. (Appendix 9)

One of the key concerns of critics of Live Project assessments is that chasing grades could affect students' motivations and agendas. As one educator explained:

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> *The experience itself should be enough. Students only caring about the credits/grades would be*
> *counter to the point of such projects. However, to be taken more seriously, by both the*
> *established architectural (academic) world and the students, it might have to be done*
> (Appendix 9, Q40).

Whilst this is true—and a point made frequently in assessment literature elsewhere—there is
also the counterpoint that some students will put in less effort if things are not assessed, which
may also need to be addressed.

Interestingly —and in comparison to the educator respondents—there were very few student
respondents who seemed particularly concerned with grades. One felt that imposing an
assessment requirement, "Is when a Live Project becomes less engaging, less likely to take risks
[and] the Live Project dies"(Appendix 9, Question 38). Only one respondent suggested that
assessment provided an opportunity to, "celebrate learning" (Appendix 9, Q40). Whereas
another student felt that; "Live Projects shouldn't be assessed, or if they are it should be
through the perspective of the client [with] some way of measuring social impact or through
lessons learnt by the students, a process over product based approach" (Appendix 8 I21).

This insight also resonates with discussions earlier in this chapter about the emphasis upon
assessing processes and not just outcomes. The concern over the potential for conflict between
assessment and collaboration resurfaced in another respondent's perspective:

> *Not having everything assessed is a good thing – collaboration is better if we aren't being*
> *measured all the time. A school should still offer participation credit though. NCARB has*
> *now set up a new category so you can get your Live Project time towards your practice based*
> *experience [5]. However, the NCARB PDF about hours is really confusing* (Appendix 8,
> I17).

9.7 Credits but not accreditation

The respondents' data seemed to indicate that US-situated Live Projects are currently more
likely to offer credits (towards final qualification) than a UK-situated Live Project. This
reward bias might be explained by the range of more established Community Design Centers
attached to US architecture schools (as discussed in more detail in Chapter Two) that offer a

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5 The equivalent to the UK PEDR (Professional Experience Development Record)

more formalised vehicle for civic engagement than UK situated Live Projects operating either out of or in conjunction with Design Studios or as a non-curricular and/or assessed option. It seems unlikely that this bias can be attributed to the accreditation systems.

Yet the importance of offering credits for Live Project participation proved a concern for student and educator respondents alike. There was a general consensus that offering academic credits for participating in Live Projects (Appendices 5, 6 and 8) was a more pressing concern. There are various reasons behind this. One educator's view was that, "credits cement commitment" (Appendix 3, H41) whereas another cited a range of reasons:

> *Live Project [assessment] makes it easier to learn from others experiences. Some do Live Projects because they believe communities should be served, some because of some mystic connection between the mind and the hand...others group work...therefore [there are] not enough rubrics for comparing projects. A set of consensual basic principles, against which you can map your work to Live Projects [is needed]. Live Projects are no harder than Design Studio to assess. Rubrics could include; completion, communication for example. Money, management and completion are the three biggest logistical challenges to Live Projects* (Appendix 6, G26).

9.8 Arguments for and against a set of universal assessment rudiments

If the ability of Live Projects to deliver specific skillsets is enhanced by setting specific assessment requirements, then the question becomes should these rudiments be universally applied to all Live Projects? It might make them easier to align with accreditation requirements, but as discussed previously, it may also constrain them. Whilst the assessment rudiments outlined in sections 9.3.5 - 9.2.11 seem sufficiently open to interpretation to avoid constraining the projects they seek to assess, all rudiments constitute a set of standard principles against which activities or behaviours can be judged. Elsewhere in pedagogic literature standardised assessments have come under much critical scrutiny due to their ability to result in 'generic' outcomes (Nusche, 2008), or because there are simply too many possible things to reward, making it impossible to prioritise some over others or to run a Live Project that tries to deliver all of them (Benjamin, 2012, p.92)[6].

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[6] One one of Roger Benjamin's 'seven red herrings about higher education assessment,' is, 'because it is impossible to measure all that is important in education, it is impossible to measure anything that is important.'

Yet arguments in favour of standardization emphasise the importance of cross project or institution peer review (in terms of input, support and validation), and as a means to engender a 'system of continuous improvement' (Benjamin, 2012, p.92) that could impact positively on both teaching and research outcomes. With these two dichotomies in mind, it was interesting to observe that many of the respondents felt similarly conflicted. For some educators, a universally applicable, assessment criteria for Live Projects seemed problematic. As one educator explained:

> *Live Projects are too many too different. And in my view Live Projects should just become a real part of every studio brief, in the end. To shoehorn them into a box is a bit tough. A project to build a bit of a wall is different from a project to unite a community or work on a playground with a school or investigate a masterplan with a regeneration agency. [You] can't apply universalities to them meaningfully* (Appendix 6, H18).

This view was shared by a student, who suggested that:

> *All the Live Projects I've been involved in are different, so it would be hard to create a set of universal assessments. We also feel we shape the processes involved, these don't compare easily with other projects.* (Appendix 8, H11).

However, the same student identified that, 'peer review is one way we could assess it though, because we are all going through it together (Appendix 8, H11). In contrast to the educator respondent, this student appears to demonstrate a greater openness to embracing a set of assessment rudiments but also alludes to a third possibility – that good assessments can and even should contain both. Standardisation is of course relative. For example, fixed rudiments can be applied at the scale of Live Projects at the same school or if prescribed through the vehicle of a validation criteria, at a national level or even at an international level (noting the fact that the RIBA validate Architecture schools in 32 different countries outside of the UK). However, the question then becomes who determines these rudiments, particularly given the RIBA validation criteria is not crowd sourced. And, if established independent of any validating curricula, they become as one educator explained, "matrices for defining goals: less a plea for validation and more a critical evaluation of what is valuable" (Appendix 5, H68).

Finally, a middle position could be to have a universal set of rudiments, but to acknowledge that only a sub-set of some of these might logically be applied to any individual project,

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depending on context, intended aims and Learning Outcomes. This would allow educators

and students to appropriate, adapt and prioritise specific rudiments on a fit-for-purpose basis.

9.10 Assessment enablers: The NAAB and RIBA validation

This thesis has regularly reiterated the huge role and significant responsibility and risks taken

by educators in the design and implementation of Live Projects. The responsibility for

assessment inevitably falls under this remit. Yet, if a set of Live Project assessment rudiments

were to be agreed, it would likely take more than the will of individual educators to implement

it. Enabling support for their adoption could come from two different sources - the

RIBA/NAAB criteria and the school. But could the RIBA/NAAB criteria – both of which

abstaining from specifying both teaching and assessment models – become an enabling force

for Live Project assessment?

As Chapter One identified, whilst the NAAB/NCARB criteria might seem to encourage Live

Projects more conspicuously than the RIBA criteria, they still stop short of making them

mandatory. Interestingly, whilst some of the educator respondents supported the idea of a

formal acknowledgement of Live Projects within the RIBA Criteria (Appendix 3 H61,

Appendix 6, G16 and others) there were others who felt that it would make no difference (for

example, Appendix 6, G18). With many respondents using terms such as "nimble"

(Appendices 3 and 5) and "agile" (Appendix 3, F40) to describe Live Projects, assessments

should avoid imposing constraints upon the project, or allowing assessment goals to take

precedent over other objectives. It is therefore important to consider whether loading

assessments with Learning Outcomes tied to professional qualification criteria might have a

similar constraining effect. As one educator argued, perhaps the solution lies in a form of,

"institutional embeddedness" (Appendix 5, H51), where the wider agenda regarding graduate

attributes is consciously aligned [7]. Within an authentic and formative Learning Contract,

alignment with RIBA, NAAB and institutional values could be served on a selective basis,

determined by students as well as educators, rather than something that is imposed. In one of

the few UK Live Project offices, Live Project assessment involved a blend of RIBA criteria

and the offices own mission statement:

> *Our Live Project office has a practice but also an academic 'mission statement'- gives us a*
>
> *criteria for which projects we choose to do. Live Projects are harder to assess, however we use*

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7 For example, Oxford Brookes graduate attributes stipulates a commitment to civic engagement. Source:
http://www.brookes.ac.uk/about-brookes/strategy-2020/our-strategy-for-2020/ Last accessed 20/12/2013

> *a standard [Design] Studio template but added in budgeting and client contact etc. We assess how the students have taken the brief and developed it and how the students work with the client and the ability to work to program – these three skills are what the architect of tomorrow really needs* (Appendix 6, G12).

What some educator respondents also identified is that Live Projects can also expose tensions between validating criterion of NAAB and RIBA and a university specific set of graduate attributes:

> *In contrast to NAAB, institution learning outcomes are more student-centric. I was introduced to a language of 'learning outcomes' ...the language is now more progressive, more student-centric. The skills I look for in assessing students in Live Projects – 1.Thinking on your feet. – the ability to respond to an unexpected situation. 2. The cross-cultural one – i.e. ability to work within a diverse group/setting – working well within a community of not of their choice* (Appendix 6, H30).

Whilst there are no CDC's in the UK offering a comparable manifesto, similar tension exists between the exemplified in the researchers own institution, where the Brookes Graduate Attributes stipulate a graduate's need to demonstrate:

> e) *Global citizenship Knowledge and skills, showing cross-cultural awareness, and valuing human diversity. The ability to work effectively and responsibly, in a global context. Knowledge of global perspectives on how disciplinary knowledge is represented and understood within other cultures; cross-cultural capability beginning with an awareness of our own culture and perspectives and the development of the confidence to question one's own values and those of others responsibly and ethically; and responsible citizenship, actively engaging with issues of equity and social justice, sustainability and the reduction of prejudice, stereotyping and discrimination* [8].

Arguably, such attributes make a far more explicit commitment to active 'citizenship' than those within either the NAAB or RIBA criteria. Reconciling institutional curricula with validation curricula might therefore present opportunities for a mutually supportive strategy:

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8 Brookes Graduate Attributes Source: http://www.brookes.ac.uk/services/ocsld/sese/graduate_attributes.pdf Last accessed: 25/05/2014

> *The whole criteria needs to change and of course more importantly, the institutions who will have to support this valuable experience for students* (Appendix 6, G16).

Inversely, the institutional graduate attributes could be used to support the activities of Live Projects in areas where the validating curricula fails to do so:

> *Live Projects are under-regulated, people do quite rogue things, often under the radar of the university, and a lot of Live Projects exist because of that...no mechanisms to check these things out. I always consider myself lucky when the students come back home OK* (Appendix 6, G30).

Furthermore, this reconciliation might offer a degree of immunity against some of the 'bad risks' associated with Live Projects discussed in Chapter Eight: Ambiguity tolerance and risk management capabilities.

> *I have to be vigilant looking after them. [Researcher: so you're taking on the risk?] Yes, I take on personal risks for Live Projects. When you go live, you have to know things about your students that you don't need to know in the classroom. We need a more robust safety net. NCARB/NAAB needs to recognised the Live Projects in the curriculum – this would protect the resources for it within the school. NAAB as a positive force, it's an incredible but unsustainable element...requiring external funding. It's only because the desire of the students is so strong that it's worth it. The fact is that the University loves it and promotes it but doesn't invest in it. Some of the Live Project locations – Shanghai for example (are part of) the University's strategic plan. There's a bit gap between the business plan and the strategic plan ... and the traditional vision/mission of the school* (Appendix 6, G30).

Finally, the views of the respondents echo those of Chapter Two: context and characteristics within the literature review, that whilst the validating criterion provided by the UK's RIBA and the US's NAAB and NCARB can be more effectively met within Live Projects than within Design Studio, the case for these criterion to make explicit reference to Live Projects is not fully established. As the following two educators—the first from the UK, the second from the US - argue:

> *Generally the school is supportive, yet constraints are imposed which at times can affect the impact and outcomes. RIBA curriculum should include the value of social mapping and*
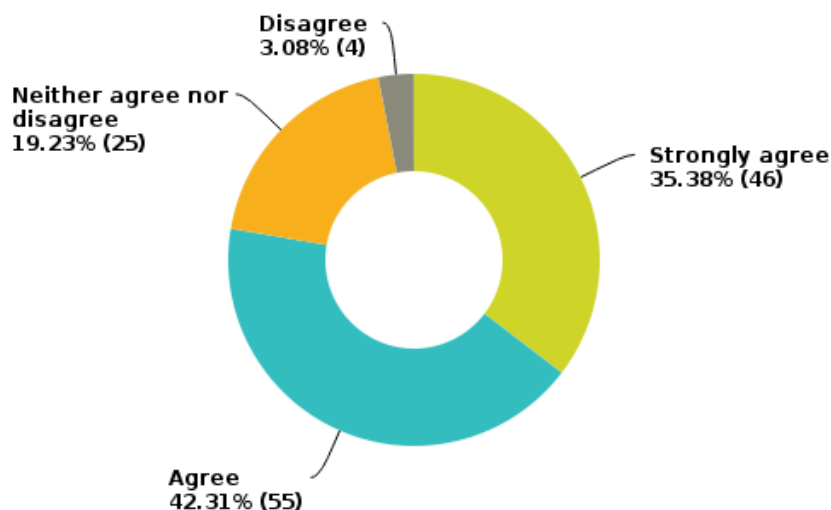
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socially conscious projects which puts weight on process is at times undermined putting the focus/weight on different criteria (Appendix 6, G20).

NCARB is an open framework for interpretation – so it could be completely acceptable to teach the criteria with a Live Project – it's up to the school. Live Projects framework makes it easier to learn from others experiences. Some do Live Projects because they believe communities should be served, some because of some kind of mystic connection between the mind and the hand...others group-work [so there are] not enough rubrics for comparing projects [what's needed is] a set of consensual basic principles, against which you can map your work to. Live Projects no harder than Design Studio to assess. Rubrics could include: completion, communication for example. Money, management and completion are the three biggest logistical challenges to Live Projects (Appendix 6, G26).

9. 11 Assessment enablers: The School of Architecture

Q36 Live projects should form a compulsory part of the schooling of an architect

Answered: 130   Skipped: 52

- Disagree 3.08% (4)
- Neither agree nor disagree 19.23% (25)
- Strongly agree 35.38% (46)
- Agree 42.31% (55)

Comments:

- o   Some work on a building site I have always thought could very useful and I used to work as a labourer in holidays. Other less messy work options could be an alternative?
- o   Live Projects are the key to comprehending real structure and finding ways to apply that creative idea in real.

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o   Sounds definitely more motivating when there is a real necessity.

o   I think that engagement of the 'real' client or consultant team should be a part of every brief- thereby removing the need to define 'Live Projects' as different from normal ones.

o   This is not the only thing, or the most important thing, but it is an essential piece of the education of a designer.

o   I think a great deal of the benefit comes from a 'hands-on' experience of building. This can still be achieved in a audio with large scale prototyping.

o   They are definitely beneficial however not always feasible.

o   But I don't think undergrad is a good place for this, unless it is a very short and well managed project

o   I notice all the students saying, both undergraduates and graduates, that they have learned more through one Live Project than they have in two years of school.

Figure 7: Question 36 Live Projects should form a compulsory part of schooling an architect.

As discussed previously, the role of the school in enabling Live Project assessment is key to the possibility of Live Projects becoming 'embedded' (as the respondents have identified) within the mainstream curricula.

Within the online questionnaire, 35% strongly agreed and 43% agreed with the statement, 'Live Projects should form a compulsory part of the schooling of an architect,' (Appendix 9, Q36) capturing a majority view that school's should be taking significant steps to 'embed' Live Projects in their curricula and to "Live Projects are the key to comprehending real structure and finding ways to apply that creative idea in reality." And another respondent identified that, "This is not the only thing, or the most important thing, but it is an essential piece of the education of a designer." A student respondent added that, "I notice all the students saying, both undergraduates and graduates, that they have learned more through one Live Project than they have in two years of school" (Appendix, 9, Q36), alluding to the intensive and often full-time nature of Live Projects. This contrasts strongly with the 20-30 minutes available for tutorials on a twice-weekly basis in Design Studio.

Furthermore, when asked whether, 'Live Projects should form part of Design Studio rather than be taught separately,' 31% strongly agreed and 47% agreed, making a 78% majority in favour of an 'integrated' approach that does, "not replace the Design Studio we already have" (Appendix 9, Question 37). As one respondent explained, "Design thinking comes from an understanding of structure and how materials are applied together, which can hardly be understood without a Live Project engagement" (Appendix 9, Question 37), again highlighting the interdependency of both teaching models.

For some however, the greater enabling force is the host institution beyond the school of architecture. This concern was reflected in a range of remarks from educators:

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> *Generally they impose constrains at a number of levels [such as] health and safety, finance,*
>
> *provisions, assessment criteria, etc. Very few institutions are prepared to encourage this*
>
> *important experience for students; because it requires extra time. Resources and slightly*
>
> *different timetable. The result is a lot of additional works from the tutors who run it and*
>
> *extra work from students and a lot of effort from client teams* (Appendix 6, G16).

> *University policies are there to manage risk – but they can create barriers. Live Projects are*
>
> *expensive. The constraints aren't arbitrary but could be reconceived into calculables – we need*
>
> *to advocate for that* (Appendix 6, G26).

Most educators took the view that wider institutional awareness of Live Projects could yield either financial enablement or advocacy or instead debilitating liability and practical and possibly terminal constraints. Given that the decision on whether to gain host institution awareness of Live Projects is contingent on the values and priorities of the institution itself, no hard and fast recommendations can be put forward on this issue. This leaves the decision of whether to do this (and by implication the responsibility for the outcomes) in the hands of the school or the educators leading the Live Projects.

9.12 Assessment enablers: pedagogically informed assessment

In addition to the earlier discussion about developing assessment rudiments informed by or aligned with RIBA/NAAB validating criteria or a CDC or Project Office Mission Statement, the idea of transposing models from other disciplines implicates the importance of learning theories in relation to identifying useful Live Project assessment rudiments. The researchers intention behind calling the 2012 conference; *Architecture 'Live Projects' Pedagogy International Symposium: Critical reflections on Live Projects,* was to set presenters' and participants' expectations regarding the notion of examining alignments and proposing new pedagogic models [9]. One of the motivations for doing this was the researcher having identified through the process of a literature review that there was little pedagogic writing about Live Projects.

As discussed in previous chapters, James Benedict-Brown (also one of the symposium participants) published his doctoral thesis in 2012. His thesis specifically examines Live Projects in light of learning theories and, 'does not adopt a position of advocacy regarding Live Projects; but considers them as opportunities for architectural educators to experiment with

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9 http://architecture.brookes.ac.uk/research/symposia/liveprojects2012/index.html (last accessed: 21/12/2013)

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the discipline and its pedagogies' (Benedict-Brown, 2012, p.10). To build on any recent intelligence on the researchers subject area is a matter of obligation. It is noted however, that some of his respondents apparently ambivalent view on pedagogy in relation to assessment. Whilst one educator felt that it would, *"*Homogenize Live Projects [as] all projects all people [and] all countries are different" (Appendix 6, G22), another felt that,

> *Live Projects vary in nature, and thus there is a fear that a pedagogic framework might homogenize them if issues of context, cultural identity, daily practices and responsive design are seen from certain angles* (Appendix 6, G20).

These comments raise an interesting question about the regional bias of learning theories and philosophies and how they might not necessarily align or apply in contrasting cultural or regional contexts. However, some educators did feel that Live Projects could benefit from some kind of pedagogic infrastructure:

> *I think it is important to have pedagogic framework specially if it includes carefully written and monitored learning outcomes as well as assessment criteria and documentation of the skills and interactions. Of course it needs to have a framework [that] is generic enough not to constrain or homogenize the experience. They are easy to assess if it is planned and written with specific content and outcome in mind. It is important that the criterion is agreed and the skills required are clearly identified* (Appendix 6, G20).

One other potential benefit of a pedagogically informed set of Live Project assessment rudiments would be to empower educators to, "create a form of tracking that would enable an argument to be made" (Appendix 6, G26) to research Live Projects. This could go a long way towards demonstrating the value of Live Projects in relation to wider academic standards and QAA objectives.

Finally, the increase in levels of target-driven, University bureaucracy (Tahir, 2010, Vedder, 2014), students' litigious challenges to assessment and grading (Grove, 2014), and the rising cost of University public liability and risk assessment obligations – most spectacularly encapsulated in the 2008 ban on throwing mortarboards during graduation (Shepherd, 2008) - may well propel institutions to impose explicit assessment rudiments onto Live Projects across all disciplines. The issue with this happening is that the decision on what these rudiments might be will be determined without RIBA/NAAB involvement. Yet if the

RIBA/NAAB maintain a commitment to 'championing' architecture and the education of architects, then surely empowering educators to determine these rudiments falls under this remit?

9.13 Summary of conclusions

This chapter examined the question of assessment in relation to Live Projects, and considered the extent to which assessment rudiments might help facilitate the acquisition of behaviours pertaining to the acquisition of the three skillsets. Yet, rather than attempting to assert that universal assessment rudiments are the way forward, this chapters first, key contribution to knowledge is that matter less precisely what is assessed than who is involved in setting the assessment ambitions and perhaps more crucially, who is delivering them.

Second, this chapter identifies that assessments informed and implemented by the clients, students and educators with direct experience of Live Projects, as opposed to schools, institutions or validation agencies could be directly linked to the efficacy and accuracy of the assessments.

Thirdly however, as the data identifies, there is no clear consensus amongst the educators and students in question whether Live Projects should be assessed at all. In this respect, this chapter has perhaps generated more questions than it has succeeded in answering.

Forth, this chapter also identified is that Live Project assessments could adapt methodologies established in other disciplines, interdisciplinary Live Projects present an opportunity for developing assessments that recognise skills that are of value to all the public-serving professions.

Fifth, the overall lack of consensus amongst respondents concerning whether or not Live Projects should or shouldn't be assessed evinces a third possibility—that Live Projects assessment emphasises (partly, if not exclusively) formative rather than summative feedback and that the experience and evidence gained is instead used to inform later summative assessments.

Sixth, Live Projects tenacity and responsiveness offers a laboratory environment for pedagogic testing, and this includes assessment design and implementation. A greater alignment with

and empowerment through School and institutional support could generate research outcomes that could benefit learners engaged in Live Projects across a range of disciplines.

Seventh, whilst all Live Projects are not the same, any set of assessment rudiments – regardless of who authors them – will need to be flexible and adaptive enough to avoid constraining the emergent learning opportunities that Live Projects – by nature of their 'liveness' – often present.

Eighth, the role educators play in facilitating the behaviours that relate to the acquisition of desirable skills is under appreciated. In comparison to campus-situated learning models, Live Projects offer students the opportunity to test the relevance and value of these criteria in real circumstances, offering an invaluable feedback loop on both the curriculum and the model through which it is taught.

Finally, it is worth noting that that all assessment principles and processes face certain challenges in that they focus upon student-created products or outcomes, which are meant to be a proxy for what the student has learned and are what we are inclined to judge. Whilst architectural education should be concerned with ensuring that future architects are able to design good buildings or other such tangibles, Live Projects emphasise the importance of process and the challenge of assessing what is learnt through the process in ways other than judging the final product. Whilst a Live Project that totally fails to produce any finished product could prove a hugely successful learning experience in terms of three skillets, material outcomes —mostly likely to be buildings—are what the majority of practicing architects are principally currently concerned with and this is the assessment challenge: how do educators make that learning explicit and judge it?

Whilst these findings present questions that could form the basis of further research, this thesis now focuses upon a critical appraisal of the original research question and findings. This is the subject of the subsequent and final chapter, Chapter Ten, that formulates answers to the main research question and assesses the limitations and flaws within the research, in terms of chosen processes and methodologies and within the data sets themselves. Chapter Ten reflects upon and evaluates the original intentions of the thesis in relation to the original activities in relation to the three skillsets: (1) collaborative interaction within and between inter-disciplinary teams, (2) participatory engagement with clients and civic concerns and the (3) capability to manage emergent ambiguities in risk exposure and decision-making.

PART FOUR: CONCLUSIONS

Chapter Ten
A critical appraisal of the original research question & findings

10.1 Introduction

10.2 The key findings in relation to the research sub-questions

10.2.1 Research sub-question 1: To what extent are Live Projects more effective at enabling students to acquire inter-disciplinary teamwork capabilities?

10.2.2 Research sub-question 2: To what extent are Live Projects effective at enabling students to acquire client collaboration and civic engagement capabilities?

10.2.3 Research sub-question 03: To what extent are Live Projects more effective at enabling students to acquire ambiguity tolerance and risk management capabilities?

10.2.4 Research question 4: The emergent enquiry: the role Live Project assessment rudiment could play in facilitating the acquisition of the three skillsets.

10.3 Answers to the principle research question

10.3.1 Key insights summary

10.4 Research parameters and limitations

10.4.1 The respondents' contribution

10.4.2 The absence of the community voice

10.4.3 The origins of the literature

10.4.4 The missing, missing skillsets

10.4.5 Live Projects are not the only fruit

10.5 Other areas for future Live Project research

10.5.1 Co-created pedagogy

10.5.3 Pedagogy versus professional validation

10.5.4 Interdisciplinary Live Project pedagogy

10.5.5 The reciprocal crit

10.5.7 Live Projects for Life

10.6 Final remarks

10.1 Introduction

This chapter defines the original contribution of the thesis; beginning by analysing, synthesizing and interpreting the findings related to each sub-question in turn and subsequently relating each of them back to the original research question (10.2). It then reflects upon and evaluates the relative success of the thesis in responding to the principle research question (10.3); examines the significance of the respondents' contribution whilst acknowledging some of the limitations within the research (10.4); and concludes with a reflection upon how the findings of this thesis could form the basis for future research into Live Projects (10.5). It includes final comments regarding the inter-relationship of the thesis to ongoing researcher activities and opportunities for further enquiries (10.6).

10.2.0   The key findings in relation to the research sub-questions

This thesis examines the extent to which Live Projects are effective at enabling the acquisition and application of specific skillsets. Three skillsets (operationalised as sub-questions) were considered within the last three findings chapters. Chapter Six examined inter-disciplinary teamwork capabilities, Chapter Seven, client collaboration and civic engagement capabilities and Chapter Eight, ambiguity tolerance and risk management capabilities. One of the key findings consistent between each of these three chapters was that acquiring the three skillsets is less contingent on the brief given to students than the assessment processes and criteria used. For this reason, Chapter Nine considered the role of assessment in assisting in the acquisition of the three skillsets and identifying a range of enabling factors. In the light of the evidence from Chapter Nine, the findings from the skillset chapters are reexamined, concluding the thesis with a clearly defined set of findings that demonstrate its original contribution to the field.

10.2.1 Research sub-question 1: To what extent are Live Projects more effective at enabling students to acquire inter-disciplinary teamwork capabilities?

Whilst the respondents - supported by evidence from the literature review – identified that teamwork can usefully disrupt the traditional tutor/ student hierarchy and better engender more autodidactic, student-centered forms of teaching and learning, some of the

terminologies used within this research question – such as collaboration, inter-disciplinarity and even teamwork – presented specific challenges in relation to interpretation and categorisation of the findings. Whilst these terms, in particular inter-disiciplinarity, demand closer scrutiny, a more engaged examination of the significance of these distinctions could easily extend into a stand-alone doctoral enquiry. The researcher therefore acknowledges the limitations of Chapter Six in developing a more detailed analysis of these terminological calibrations. However, there remain some important insights to consider.

First, the chapter identified that Live Projects requiring 'teamwork – however loosely or formally defined – do not inherently offer 'good' teamwork experiences any more than working in interdisciplinary teams guarantees valuable interdisciplinary capabilities.
Second, it identified useful information in relation to identifying skillset interdependencies, and that this interdependency and interoperability is significant. For example, inter-disciplinarity expertise not only helps students understand the limitation of their professional remit, but helps them to better understand risk exposure and ambiguity management. For educators with limited student contact time, learning exercises that deliver multiple skillsets simultaneously, have useful time, cost and resource implications too.
Third, it was noted that one of the key insights is that despite - and perhaps because of - the fact that interdisciplinary teamwork has a range of associated pedagogies and methodologies, there is a degree of complacency over the need to thoughtfully design and implement them. This links back to the role assessment can play in helping students critically evaluate their learning experiences in relation to the three skillsets, particularly in relation to distinctions that can be confused or overlooked – such as the distinctions between inter-disciplinary and trans-disciplinary learning, for example (as discussed in 3.5.3).

Subsequently, examining whether Live Projects are more effective at enabling students to gain interdisciplinary team-working skills, has inherent limitations not least because as the literature review also identified, measuring successful teamwork is in itself challenging. Thus, whilst the literature review suggested that some studies use measures such as efficiency to determine successful teamwork, the primary data indicated that a process-focused rather than outcomes-focused assessments could also be used to measure success. The final key insight identified the role of the educator in facilitating 'good' teamwork, which could involve a range of strategies, for instance encouraging individual and group reflection on what constitutes good and bad teamwork. This has implications for assessment that will be examined in due course.

<u>10.2.2 Research sub-question 2: To what extent are Live Projects effective at enabling
students to acquire client collaboration and civic engagement capabilities?</u>

The findings pertaining to this skillset and considered in Chapter Seven, generated the fewest
useful and usable insights. In the researcher's view, this is because the issue of client
interaction has become of huge importance to architects in general and as the literature review
identified, there is a significant body of knowledge on such subjects as serving the public
interest, architecture and ethics, civic engagement and client interaction. This existing body
of knowledge significantly reduced the potential for identifying any new and profound
insights. Furthermore, it is important to acknowledge that the respondents who most want to
participate in a research project of this nature are also likely to have an interest in or prior
experience of Live Projects and therefore the results are not likely to capture the range of
possible criticisms that a less self-selecting group of students, architects and educators might
reveal.

However, the fact that many of the respondents had a largely supportive view and/or had
experience of Live Projects meant that it was possible to identify a number of more subtle but
unique insights, discussed in Chapter Seven. In the context of the findings pertaining to
other skillsets, there are new factors to consider. First, as identified earlier, there are co-
dependent, interrelationships between all skillsets. This is in part because being a good team-
worker and a good inter-disciplinarian involves the same skills as being a good client
collaborator – for example, if working with clients from other fields, such as nurses. Secondly,
the evidence yet again highlighted the role educators play in facilitating and enabling good
client engagement experiences. From experience, Live Projects can spend months in
development prior to the start of semester, requiring huge amounts of preparatory input from
the educator in negotiating the arrangements with the clients. Even in Live Projects where
students are invited to take leadership roles in relation to client interaction – as featured in
Placenomics - client-student relationships are still shadowed and monitored by educators.

Much like within interdisciplinary teamwork, Live Project students and educators were able
to identify how and why challenges arose within their client relationships and not blithely
assume that a built outcome signified success or would necessarily meet the needs of the
client. Students also revealed their sensitivity to the clients' value of their work, alluding to the

role clients play in offering feedback that could form part of a collective assessment strategy (see 9.5. The Collective Critique). Furthermore, students generally understood clients to be members of a larger group of stakeholders – including people traditionally understood to be members of the design team - such as contractors and investors. This uniquely identifies how the students hold a more democratic, and open view of the clients place within the design and construction process. This represents a notable improvement upon the traditional architect-contractor-client partitions and hierarchies. It also bodes well for their professional lives as members of complex project consortiums where creative leadership is less about assuming a position of 'expert' authority, and more concerned with being able to engage and convince others of the value and importance of good design.

Overall, Chapter Seven highlighted the extent to which students are able to consider and articulate their experience of client interactions and collaboration in relation to their impending professional application of this expertise. Evidence of this critical/reflective awareness persisted in their analysis of the third and final skillset considered in the third skillset chapter (Chapter Eight) that focused upon the capability to manage emergent ambiguities in risk exposure and decision-making.

10.2.3 Research sub-question 03: To what extent are Live Projects effective at enabling students to acquire ambiguity tolerance and risk management capabilities?

Due to a lack of literature on risk-taking and ambiguity management in architectural teaching or practice, this skillset proved significantly more interesting and important to examine. And in the light of the findings from other skillsets, there are some important comparable issues to examine. Firstly, the primary data identified emergent preoccupations that covered a broad range of risk-associated activities – from health and safety to financial exposure. Much like the definition of 'teamwork' risk taking is similarly associated with a very diverse range of possible activities – some good and some bad. Second, whilst the breadth of risk-taking possibilities highlights the pervasiveness of risk (and arguably, the importance of this study) it also means that educators are presented with the same challenges in determining how to ensure 'good' rather than bad risk taking takes place and that the students are informed enough to distinguish between the two. A third finding was that all learning activities that take place off campus inevitably involve higher levels of bad risk, since the educator can exert less control over the unknown. For this reason, there's a strong argument for ensuring that some risk-taking and ambiguity training exercises are taught in a campus context where the

environment can more easily be controlled. Yet, fourthly, it is the divergent array of risks associated with Live Projects allow students to develop what one educator described as a 'whole systems overview,' (in essence, the ability to identify and understand the interrelationships that shape systems of behaviour) which proves pertinent to the effective learning of the different types of risk in practice (Gharajedaghi, 2011).

What this thesis also identifies – and again, this pertains to the findings relating to other skillsets – is the role schools should play in enabling students to gain at least a greater awareness of, if not a degree of, experience and skill in risk awareness and ambiguity management. That so little literature exists concerning the importance of teaching risk in schools of architecture indicates that there is a significant research opportunity for further enquiry. But without school-led initiatives to make it part of the curriculum, individual educators assume responsibility in addressing this shortfall.

Another key insight, again pertaining to all three skillsets, is the issue of assessment, which presents specific problems in relation to risk-taking in 'live' circumstances, particularly if the risk in question jeopardises the achievement of other learning objectives. Subsequently, there is a case for designing-in risk to Live Projects, as one tactic for ensuring other learning outcomes are achieved. Live Projects afford one other insight in relation to this skillset - whilst their unpredictable 'live' nature makes it more difficult to guarantee a balance between good and bad risk learning exercises, their unpredictability makes them the better teacher of ambiguity management. This is the second and arguably more challenging component of this skillset and, crucially, the characteristic that lies at the heart of the ability to discern between good and bad risk (Levitt & March, 1988).

Furthermore, it was noted that younger respondents assumed a more positive attitude to, and possibly higher tolerance of, risk compared to that of older respondents. As explored within the literature review, acquiring the third skillset is associated with commercial robustness and entrepreneurialism, indicating a cause for tentative optimism regarding the future of architectural practice (Van Praag et al, 2001, Amit, et al,1993, Cramer et al, 2002).

Finally, as the evidence relating to the other skillsets affirms, there were a number of occasions when respondents would illustrate examples of risk, failure and ambiguity in relation to other skillsets – such as client relationships or teamwork. In effect, this respondent validation of the apparent interdependence of the skillset, highlights that the simultaneous

achievement of all three within the same Live Project likely to be co-dependent. So what role could assessment play in measuring the extent to which Live Projects could deliver all three skillsets simultaneously?

10.2.4 Research question 4: The emergent enquiry: the role Live Project assessment rudiments could play in facilitating the acquisition of the three skillsets

Chapter Nine considered the extent to which assessment rudiments might help facilitate the acquisition of behaviours pertaining to the acquisition of the three skillsets, but uniquely concluded that assessments in general could impose obligations and constrains that might curtail the vital 'liveness' of Live Projects. Principally, its is the range of interrelated insights summarized above, that architectural educators need to consider or should be considering in their curricula design, and the implications of those insights for assessment practice that is the core original contribution to the literature. Next, it identified that assessment efficacy is contingent on who is delivering them; those informed and implemented by the clients, students and educators with direct experience of Live Projects, as opposed to schools, institutions or validation agencies could be directly linked to the efficacy and accuracy of the assessments. It should also be noted that, the evidence examined in relation to skillset two – client interaction and civic concerns – the value placed upon client relationships by the students suggests that clients occupy a powerful position in relation to student feedback, which to some extent is already functioning as a form of tacit assessment.

What this chapter also identified is that Interdisciplinary Live Projects present an opportunity for developing assessments that recognise skills that are of value to all the public-serving professions. This correlates with the researcher's view and the points made in Chapter One regarding the way in which - epistemologically speaking - architectural education in general offers students a potentially unrivalled spectrum of disciplinary knowledge and processes (See Section 1.2). For this reason, interdisciplinary Live Projects present an opportunity for developing assessments that recognise skills that are of value to all the public-serving professions. In this respect, Live Projects also have the opportunity to propose new practice behaviours therefore reversing the flow of instruction on professional practice that could well make the field more civically inclined.

Furthermore, this chapter highlighted the fact that all Live Projects are not the same, and concluded that only flexible and adaptive assessments could allow for a more bespoke

utilisation of criteria or pedagogies by building in the ability to weight different learning outcomes according to the Live Project needs as well as the students own learning agenda **(see Chapter Nine, Section 9.4).**

Live Projects give students the freedom to test the relevance and value of the validating criteria in real circumstances, as well as allow these circumstances to generate new kinds of criteria. Yet all assessment processes are faced with certain challenges in that they focus upon student-created products, or to paraphrase Biggs: constructively aligned, learning and assessment outcomes, which are meant to be a proxy for what the student has learnt and are what we are inclined to judge (Biggs, 2003). In alignment with the skillsets, educators play a huge role in reinforcing behaviours that relate to the acquisition and by implication assessment of any learning within Live Projects.

Another unique insight was the value students and educators placed on the process and not just the product of architecture – i.e. a structure or building. Learning outcomes that focus on the three skillsets need assessment strategies that can validly assess those outcomes at interval, and not only at the point of project completion. Given that some Live Projects do indeed fail, separating assessment from final product means the students learning is still valued and recognised. The challenge to educators is having sufficient understanding to make that learning explicit and the expertise needed judge it.

10.3 Answers to the principle research question

This section considers the efficacy of this thesis in addressing the principal research question:

To what extent do Live Projects enable the acquisition and application of three 'practice-ready' skillsets?

This study examined the extent to which Live Projects can deliver learning experiences that give architecture students specific, twenty-first century, professional, practice-ready skills and capabilities that are either lacking or underappreciated within existing school curricula.

In comparison to other research on Live Projects and on architectural education in general (both of which are generally understood to be under-theorised), this thesis engaged respondents from two different countries: the UK and the US. Uniquely, this thesis makes

clear the mandate provided by the agency-validated curricula in these two locations, implicating the UK RIBA's apparent lack of commitment to more socially engaged learning when compared to the USA's NAAB criteria. Furthermore, the seven different data sets used to inform this research include one comprised of architects which provides a more holistic analysis that those in comparable Live Project investigations involving smaller samples (Benedict-Brown, 2012; Sara, 2009; Whyte 1996; Findlay, 1996).

10.3.1 Key insights summary

The consolidated findings identify how thesis addresses specific gaps in knowledge. First, it draws from a diverse range of insights to identify the pressing skillsets that students should learn in school but are of increasing importance to practice – and beyond. Although the primary momentum for this thesis was a deep, personal concern about the future of architectural education, it was written at a time when its pathological failures and dysfunctions have called traditional educational practices and learning models into question.

Second, it provides meaningful evidence that supports what many commentators believe is a failure of architectural education to provide practice-ready, employable students and that the skills schools currently teach are distressingly irrelevant. Yet in the researcher's view, the more important question is whether they are relevant for a future world of practice, which may have moved beyond the construction and instead involve activities within other sectors too.

Third, although this thesis draws from trends (as discussed in Chapter One), new drivers – such as the anticipated reform of the duration of architectural training – emerge every day. That the future remains unknowable is not the issue. Instead, designing learning experiences that can respond to these unknown changes is. For this reason, the future's 'unknowability' shouldn't be allowed to be an excuse for curricular inertia – or even laziness. This applies to validation agencies, schools, educators - and even students too.

Fourth, as this thesis uniquely identifies, the skills that are currently considered to be much needed in practice align with those that are understood to be both available and assessable within Live Projects (see 9.2.1, 9.2.2). Subsequently, we can be highly confident that some skills are more likely to be valuable and more relevant than others. Yet it is transposable skills – which all three of the skillsets are – as opposed to those that are exclusive and unique to architecture – that are most likely to best serve students in future, whether or not they choose

to become professional architects. Traditional subject specific skills are undeniably important, but transposable skills deserve greater emphasis and investment given the economic reality of finite resources and demands for greater user participation. This enquiry is the first attempt at building an evidence-based case for a greater emphasis on these skills being taught in architecture school.

Fifth, this thesis gathers evidence from a highly diverse range of sources – including emergent economic and industrial trends outside of the construction sector – as a means to determine desirable skills for new architects entering practice. This is because architecture's coterie has previously resulted in the removal of self-governing autonomy, as the Latham and Egan reports discussed in Chapter One testify. Subsequently, what architects should learn should not be determined by architects alone. That the ten clients who were approached to participate in this project declined to do so, is indicative of a legacy of exclusion that has been long perpetuated. Live Projects – due to their willingness to engage clients – are unique in taking steps to remedy this. The diverse range of sources used to inform this thesis make it distinct from other Live Project research enquiries, where most of the literature reviewed is drawn from architectural discourse alone. Given uncertainties about the future of architectural practice, openness to interdisciplinary insights seems less a desirable elective than a professional development necessity.

Sixth, unlike any comparable literature on the subject of Live Projects, this thesis makes a concerted attempt to straddle the disciplines of architecture and education and uses learning theories as both a critical lens and a legitimising criterion, against which to judge the value of Live Projects. This is done through a process of pedagogic alignment – which required the researcher to develop skills in examining established and proven learning theories that require a more than basic understanding of contemporary educational theory and literature.
The experience has left the researcher with the conviction that architectural education may even have potential as an autonomous field of enquiry.

Seventh, the study admits to identifying the limitations of Live Projects – in contrast to the majority of discourse inclined towards advocacy – and in doing so provides useful insights into why maintaining other learning strategies within architecture programs is also important. Whilst there might be evidence to suggest that the changes facing architectural education might be substantial, it is the researcher's view that it would be false to assume that everything

schools teach is fundamentally wrong and fails to prepare students for current or future practice and must therefore be obliterated.

Eighth, this thesis questioned whether assessment rudiments (rather than a design brief) might be the only unifying criteria. Subsequently, it contributes to new knowledge by not merely demonstrating how 'Live Projects' methodology creates and contributes to new skills and capabilities but by identifying ways in which meaningful skills assessments could be performed. This thesis has not divorced innovative means from measurable ends but has, in fact, aligned them.

Ninth, and perhaps counter-intuitively, this thesis examines whether many of Live Projects' virtues exist best when they are not compulsory but chosen as exercisable options by students and faculty. Options and their exercise are revelatory of information and value both in finance and architectural curricula. By not making Live Projects compulsory, it is easier and less expensive for them to maintain a level of responsiveness and adaptiveness to market conditions. Ironically, Live Projects may well do best for students and curricula alike as non-mandatory options.

Tenth, this thesis explores for the first time the relationship between the curricula-validating infrastructure operating in two comparable regions – the UK (RIBA Criteria) and the USA (NAAB criteria) and whether a lack of explicit acknowledgement in the criteria has contributed to a collective sense that Live Projects are undervalued or whether that allows useful, learning model freedoms. What this exercise provides is a clear mandate to the RIBA that it has some catching up to do if it wants to promote the same commitment to industry relevant skills and civic engagement as its US counterparts.

Eleventh, this thesis addresses a gap in knowledge by establishing that enabling students to take greater risks and creative leadership decisions, Live Projects succeed in fostering a culture of professional initiative and the potential for leadership in practice. Given the current crisis in underemployment and the rise of the unpaid internship, these capabilities are likely to be of increasing relevance and value.

Finally, for architectural educators already engaged in or initiating Live Projects, this thesis provides new theoretical perspectives as well as an applied-knowledge framework to draw from, encompassing a practical as well as passionate advocacy for their wider implementation.

To do this did, to some extent, involve a redefining of what Live Projects actually involve. However, a measure of a successful enquiry is not only the extent to which is it answers its own questions, but the degree to which it frames other important enquiries too.

If, as the late American Architect, Louis Kahn asserts, 'a good question is better than a brilliant answer' (Kahn, 1961), then the researcher hopes that this thesis has succeeded in framing the key questions concerning further research opportunities. Good research also has to know where its contribution boundaries lie. Subsequently, this is preceded by a candid consideration of the research limitations.

10.4 Research parameters and limitations

Whilst the limitations of the choice of research methodology are considered within the Chapter Four: Design of the study, it is important to acknowledge how these choices impacted on the data, beginning with the research participants.

10.4.1 The respondents' contribution

As identified in Chapters Four and Five, the methodological framework for this enquiry is broadly qualitative. Of the eight different participant data sets used to inform the generation of theories in Chapters Six, Seven and Eight, only one data set (Appendix 9) involved more than 20 respondents (187 in total). For this reason, the researcher ensured that the emergent concepts referenced their original data set, making clear the respondent profile (detailed in Chapter Five) and subsequently the context within which each insight was volunteered. This delineation was intended to ensure that each respondent insight could also be understood in terms of both its specific context and also their continuity of thought. However, it is important to note that not all of the contextual information provided by the respondents was scrutinised - and deliberately so. For example, the online questionnaire (Appendix 9) data collection captures the relationship between the respondents' demographic data and their insights (i.e. female, architect, US etc.), yet this information was not used to contextualise or evaluate the respondents' specific insights. However, it did ensure that the respondent demographic was roughly equal, in terms of gender, profession and location (Appendix 9, Part 1, Questions 1-9). The researcher considered this balance to be important to increase the validity of the findings.

10.4.2 The absence of the community voice

As outlined in Chapter Five: Participant Profiles, each respondent group (apart from the online questionnaire) involved groups of educator, architect or student participants within the empirical section of this study captured in Chapters Six, Seven and Eight. However, there is one group who did not participate in the data sets: the community participants and/or end users of Live Projects. To exclude this group was not the researcher's intention, but regrettably only two participants out of ten originally involved within the Placenomics Live Projects (Appendix 3) were willing to participate. This sample was subsequently thought to be too small to include within the research findings. Recent funding has enabled the researcher to run Live Project Community engagement workshops in NYC in September 2014. The post-doctoral ambitions of this thesis are discussed in more detail in Section 10.6. However, the researcher acknowledges that the concepts and theories emerging from this thesis in relation to the skillsets might have been different had these views been included.

It should be noted that the literature review included reference to sources outside of ranked and recognised journals, such as trade magazines and periodicals. In including this material, the researcher acknowledges that accusations may be levied as to the questionable integrity of the literature used, due to arguments surrounding the absence of the power of peer review and academic research integrity (Creswell, 2013). However, whilst this enquiry is fundamentally dependent upon architectural and pedagogic literature that has come through the qualifying crucible of academe, it is important to acknowledge that the skillsets emphasis on emergent, twenty-first century skills relevant to professional practice necessitated an analysis of the commentary of practitioners, economists and business analysts.

10.4.3 The origins of the literature

It should be noted that the literature on Live Projects is largely drawn from either the US or the UK. As Homi Bhabha would describe it, this results in a bias or lack of 'cultural hybridity' that excludes the voices and views of those involved in Live Projects across the rest of the world (Bhabha, 1994). In addition to this, community-engaged learning takes place in a broad range of disciplines (including law and medicine), yet the literature review focuses largely upon the discourse relating to design teaching and little attempt is made to assert alignments between disciplines. The decision to do this was taken on the basis that this enquiry constituted a separate thesis in itself. However, the interdisciplinary nature of the

respondent validation workshops discussed in later sections of this chapter attempt to address this issue, as part of considering just how far reaching the implications of this research are.

10.4.4 The missing, missing skillsets

In all data sets but particularly in Appendix 9, the online questionnaire (illustrated in Appendix 10), respondents were asked to define not only missing skills but skills vital to practice. A variety of other skillsets emerged, such as technological expertise and project management, some of which were seemingly obvious. Others, such as historical/contextual expertise and the ability to make and manufacture were less so. Since the purpose of these matrices was to validate the sub-questions, behaviours were loosely grouped around the skillsets. Yet given the (unanticipated) volatility of some of the terminologies associated with the behaviours and skillsets (discussed earlier in this chapter) this method could be considered less reliable than hoped. Furthermore, many of the other skills volunteered as either learned in Live Projects or vital to practice could not be considered. Yet, arguably, these might well prove to have as much, if not more, value and importance in both school and in practice than the skillsets that are under investigation.

10.4.5 Live Projects are not the only fruit

Whilst Live Projects are generally seen as a more progressive and emergent form of education – despite their long history – new models of architectural education are also beginning to emerge that might well supersede this, and by implication the relative impact of this thesis findings. The new models are being prompted by a number of factors, including an increased awareness of the challenges facing architectural education and Higher Education Institutions (HEI's) in general but also due to the initiatives from the European Association for Architectural Education [1], SCHOSA (Standing Conference of Heads of Schools of Architecture) [2] and the RIBA to reduce the current five-year full-time study period to four. In the UK, two very notable examples have emerged. The first is 'Learning from Kilburn: A Tiny University' – a project established by a former arts student which uses Kilburn High

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[1] The EAAE is an international non-profit association committed to the exchange of ideas and people within the field of architectural education and aims at improving the knowledge base and the quality of architectural and urban design education. Source: www.eaae.be (Last accessed: 03/05/2014)

[2] www.schosa.org.uk - is an organisation to which every Head of every UK Recognised School of Architecture

Road and its surrounds as a kind of distributed campus classroom [3]. This enterprise shares the community-situated, participatory and architectural and geographical concerns of HEI based Live Projects without the obligation of validation or curricula alignments. The second is the London School of Architecture, which hopes to take in its first cohort in September 2014 [4]. Like Learning From Kilburn, the LSA is also a 'campus-less' institution but is distributed amongst 25 different London practices. Perhaps the most radical aspect of this is that rather than paying fees, the participating students are salaried, covering their costs by working on real practice projects that they can also use toward their professional qualification. The curriculum is also London-borough specific and once the students have completed a year within the office-as-classroom environment, they are required to remain within the borough and, 'embed themselves in the locale where they will complete a further year of 'self-directed' studies under the watchful gaze of their practice mentors' (Thompson, 2013). This direct engagement with real users and issues in a site away from the school also aligns with Live Projects. Trends like these are not restricted to the UK. In the US, The Public School (founded in 2007 in Los Angeles) defines itself as:

> ….a school with no curriculum. It is not accredited, it does not give out degrees, and it has no affiliation with the public school system. However, its framework is designed to support and enable autodidactic activities, operating under the assumption that everything is in everything [5]

Whilst elsewhere in the thesis the researcher has examined the idea of the evolution of a form of 'distributed studio' that such examples epitomise (Harriss, 2012), perhaps what is most interesting about this model is that anyone can assume a teacher role, by simply proposing a workshop or 'lesson' in any location across the globe. Like Live Projects, this distributed learning system allows proposals to be generated through response to need (since if they weren't relevant, no one would attend) rather than a slowly turning wheel of curricula. Subsequently, these three case studies highlight a limitation in the research – that other models of responsive and skillset-acquisition-enabling models of architectural education might well supersede Live Projects as the most effective model for skillset delivery. Such initiatives identify areas for further investigation and research.

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3 Source: www.learningfromkilburn.com (Last accessed: 4/12/2013)
4 Source: www.the-lsa.org (Last accessed: 3/6/2014)
5 Source: http://thepublicschool.org/ (Last accessed 4/12/2013)

10.5 Other areas for future Live Project research

Beyond addressing the original research questions and sub-questions, the researcher identified a number of unanticipated findings that suggest areas for further enquiry. What is noted is that these areas often relate to grand concerns – in other words areas for investigation that would require research at a scale quite possibly beyond the remit of another PhD. These include issues such as the more greater inclination towards risk taking and entrepreneurship amongst the younger respondents, the number of women educators involved in Live Projects compared to men and the immense expertise needed by educators who run Live Projects and how those skills relate to their professional training and experience. Whilst the scale and scope of these emergent areas for investigation exceed the remit of this summary, the next section identifies areas for further research that could be used to inform a smaller PhD enquiry or post-doctoral research.

10.5.1 Co-created pedagogy

As Benedict-Brown's Live Project thesis identifies, the lack of pedagogic theorisation of Live Projects has meant that Live Project educators were drawing on a, 'limited body of knowledge…' and emphasises 'the importance of a 'comprehensive theoretical knowledge base,' to address this problem (Benedict-Brown, 2012, p.273). Although the researcher shares Benedict-Brown's view that other disciplines have proved more effective at developing networks around community-engaged scholarship [6] it is noted that few conferences generated by these groups have featured architecture projects in the last few years. More recently, devices such as the formulation of the Live Project Network [7] by Jane Anderson and Colin Priest at Oxford Brookes University have demonstrated through the scale of their popularity that their remains further scope for architectural educators to explore working collaboratively towards developing shared frameworks to enable best practice.

10.5.2 Practice-based live projects

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[6] For example: Community Campus Partnerships for Health. Source: http://ccph.memberclicks.net/
[6](Last accessed 6/12/2013)
[7] Source: http://liveprojectsnetwork.org/

Whilst Live Projects are most closely identified as an architecture school activity, Live Projects can also take place within practice for example 'Pro Bono' projects offered in Law School (as discussed in Chapter Nine) offer students the chance to work with communities and the disenfranchised via in practicing law centres (Carly et al, 2010). Models such as this not only provide Live Project educators with additional strategic insight regarding methods and processes, but could also be used as a means to help UK schools develop project offices that more closely resemble the Community Design Centers that implement the majority of the Live Project endeavours in US-situated architecture schools. This would be one way of addressing the longevity issues that academic timetables are inclined to exacerbate, but it might also allow researchers to examine how Live Project behaviours persist into practice. The latter enquiry would involve a longitudinal study beyond the prescribed timeline of an average PhD enquiry yet the findings would no doubt serve to make Live Projects more reflective of practice and also allow them to live beyond the constraints of the academic calendar.

10.5.3 Pedagogy versus professional validation

If it is pedagogy and not professional validation criteria that proves to be the greater Live Project protagonist, then the anticipated consolidation of architectural education Parts I and II may offer an opportunity for a pedagogic overhaul. Live Projects burgeoning pedagogic production rates put them in pole position to exact significant influence in the midst of the inevitable curricula overhaul. As Banks and Banks argue, 'as teachers use pedagogy that challenges the deep structure of schools, important aspects of the hidden curriculum are often revealed' (Banks and Banks, 1995, p.157). In other words, Live Project pedagogy can play an invaluable role in revealing the pedagogic limitations of other models of architectural education at large. By implication, the more Live Projects are theorised, the more extensive the critique. Subsequently, Live Project pedagogy – particularly within projects that involve community members, diverse learners and even interdisciplinary collaborations – offers an opportunity for educators to explore and develop more inclusive and equitable forms of professional learning of the sort that recognises emergent forms of professional expertise and production processes.

10.5.4 Interdisciplinary Live Project pedagogy

Although Live Projects can generate their own pedagogy as Chapters Two and Three demonstrate, Live Projects pedagogic integrity can also be established through a process of alignments with tried and tested and theoretically established learning theories based upon pedagogy from other disciplines. What has not been considered within this thesis that warrants further investigation, is a deeper study of Live Project inter-disciplinarity, where the potential for architecture Live Projects practice and pedagogy to impact in other disciplines. Furthermore, as the researchers experience of an interdisciplinary Live Project involving architecture students and drama students highlighted (Harriss et al, 2014), developing common assessment criteria can facilitate multidisciplinary, interdisciplinary, and trans-disciplinary approaches to curriculum integration (Drake, 2007). In other words, certain professional skillsets (such as teamwork) can prove as useful to drama students as they are to architecture students.   Whilst interdisciplinary learning experiences prepare young architects for a likely future working in interdisciplinary teams as evidenced in Chapter One, schools would be correct in demonstrating preparedness given the trend in interdisciplinary learning facing higher education (Edwards, 1996; Gaff and Ratcliff, 1997; Klein, 1996). Furthermore, to equip students to develop insights and modes of thinking that are informed by a variety of disciplines gives them a means to thrive in contemporary knowledge societies regardless of their post-graduation career choices (Mansilla et al, 2007).

10.5.5 The reciprocal crit

Examining the efficacy of Live Projects inevitably required a proportion of the study to be devoted to a comparison with Design Studio – given this is where most of the qualifying credits are assigned. However, whilst scrutiny of Live Projects identified the inherent limitations with Design Studio (discussed in each of the skillset chapters) the evidence suggested that Design Studio can offer innovative teaching experiences and that acquiring the three skillsets is not exclusive to Live Projects by default. A further area for research might therefore examine emergent and innovative Design Studio teaching models in more detail, for its own sake and to move beyond a top dog tussle between the two models of teaching and consider how one could offer a truly critical 'reflection on action' and 'in action' mechanism for the other (Webster, 2007) as a means to ensure architectural education maintains both its relevance and value (Newell, 1992, pp. 212).

10.5.7 Live Projects for Life

One of the challenges of a PhD thesis – even when executed on a part-time basis over five years – is the inherent limitation in relation to longitudinal enquiry. Subsequently a larger-scale, post-doctoral enquiry that sought to track graduates into professional practice (or elsewhere) over 10-20 years would be likely to generate some profoundly important insights regarding the impact of different models of architectural education. Examining the career progression of Live Project participating students from various regions beyond the two considered here would prove of particular interest to the researcher in relation to the three skillsets but also in relation to a broader set of skills and behaviour. A long-term study of this nature could provide vital feedback to educators as a means to develop their Live Projects or further validate their efficacy and also provide crucial evidence to practice concerning the integrity and value of architectural education in terms of future as well as current industrial demands.

10.6 Final remarks

The Architecture Live Project Symposium in 2012 was initiated by the researcher to critically examine the learning value of Live Projects to students of architecture. It allowed the researcher to consider how Live Projects are attained, what their value is — particularly in terms of the students' professional development and to the shaping of the profession as a whole —and to define 'best practice' [8]. The key outcome from this event was a series of high-quality papers featuring a diverse array of Live Project Pedagogy exemplar which the researcher – —in partnership with one of the symposium presenters, Lynnette Widder from Columbia University New York City, USA —consolidated into an book entitled, 'Architecture Live Projects: pedagogy into practice' (Harrriss, H., Widder, L., 2014). The book consolidates current discussions on theory and learning ambitions, academic best practices, negotiation with licensure and accreditation and considerations of architectural integrity. Whilst none of the case studies featured in the book are referred to within this research enquiry, the book provides further evidence of pedagogic integrity of Live Projects. Finally, research into Live Projects comes at a time when both the professional stature, but also more recently the training of architects, is becoming increasingly complex and diversified and the profession's commitment to a greater good diffuse. As Till highlighted in his keynote at the symposium, many Live Projects practitioners do not realise the scope and scale of the community to which they belong (Till, 2012). It is hoped that this PhD, the book and

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[8] Source: http://architecture.brookes.ac.uk/research/symposia/liveprojects2012/index.html (Last accessed: 3/06/2014)

ongoing research into Live Projects offers more pedagogically informed tools and techniques that better enable students, academics and socially-minded practitioners and mentors to locate their counterparts and share in one another's learning.

Overall, the process of this enquiry led the researcher to consider the ways in which Live Projects are pedagogically and professionally successful. Live Projects provide a useful critique of what is missing from other areas of architectural education. Perhaps uniquely, Live Projects also act as both reflectors and directors of the future of architectural practice by identifying not only what is missing or sought after beyond the more prevalent models of architectural education, but also providing a mandate to professional practice regarding the values, skills and creative ambitions students seek to develop and fulfill within their professional lives. It is this tenacity that suggests that if their popularity continues to grow, so will their impact on the future of practice.

Given the fundamental changes occurring in professional practice, it is unambiguously clear that the future of serious and high-impact architectural pedagogy and practice rests in better designed and deployed Live Projects, rather than ever more complex campus situated learning in lecture halls and design studios. After all, the reality of live supersedes the simulacra of the studio.

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Tables & Figures