TEAMBUILD: NEW FORMATS FOR DELIVERY OF LEARNING IN CONSTRUCTION

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INTRODUCTION AND CONTEXT

The professional and educational contexts of Architecture are undergoing rapid change. In Practice, the construction industry is driven towards ever more collaborative, inter-professional working and technological collaboration (for example, the UK Government Construction Strategy, 2011) with the aim of improving efficiency by a staggering 15% in ten years. Simultaneously, the traditional role of the 'professional' is questioned by an increasingly commercialised model of global society, and successive governments' policies empowering the public voice, currently called the 'Big Society' and exemplified in new planning policy, handing more power to local communities (NPPF, 2012).

In UK education, moreover, we face the introduction of fees of £9,000 pa for prospective students, as the European Commission consults (Green Paper, 2011) on raising the minimum requirement for architectural education from 4 to five years of full-time study. Graduates can expect starting salaries 25% lower than the other professions covered by that directive. (Prospects, 2012). Current statistics (RIBA, 2011), would indicate that only 30% of the students commencing a Part 1 degree are likely to fully qualify as an architect in the UK, and retention rates for BME students beyond the first degree are very poor (CABE, 2004, 2005).

Current Practices in Architectural Education

'Traditional' forms of architectural education have come under much criticism (eg Latham, 1994, Parnell, EEA 2002, Till, 2009, Wright, 2012) for poorly serving the student and the profession. At the core of these criticisms lies the unhelpful disjunction of education from practice; of students from clients, users and the construction team. 'Live Projects', pioneered by several UK schools of architecture (eg Sheffield, Oxford Brookes, LMU) seek to bridge this gulf and reconnect the student to the public and the profession. Other schools have investigated scenario-based contract 'games' and case histories of real projects in order to engage the student with architectural practice (Edinburgh, Russell, 2004; Strathclyde, in Agapiou, 2006 and 2009).

These projects tend to sit alongside traditional studio design projects in the student curriculum. Chiles and Till argue in their case study for CEBE (date?) that the main limits to Live Projects are 'money, health and safety, and time'. A further constraint is scale and design sophistication: for example, a Live Project is unlikely to be of sufficient size or complexity to satisfy the design requirements of the RIBA criteria at Part 2 level. This paper demonstrates a format which engages students in interdisciplinary teams on complex technical and social design scenarios.

The Teambuild UK Competition

'Teambuild UK' has been run in various guises for 20 years (teambuilduk.com, 2012), working with groups of recent graduates and apprentices in the construction industry aged under 30. Our youngest recent entrant was aged 19. Architects form the second-largest professional group taking part in Teambuild: 15.67% of the total number of competitors over the last 17 years. [Fig 1, 2]. Prospective entrants can register as individuals or as teams; teams must be multidisciplinary and are often entered by large construction consultancies or 'real' project teams. [Fig 3].
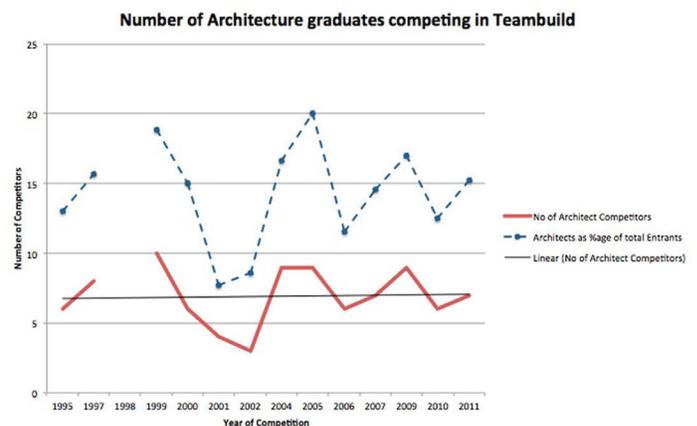

Figure 1. Architect entrants to Teambuild since 1998

The annual competition is based on an actual large-scale development underway in the UK. In 2011 this was Bicester Eco-Town, in 2012 Teambuild is partnered with the King's Cross site north of the new CSM college. At a residential weekend in November, Final-

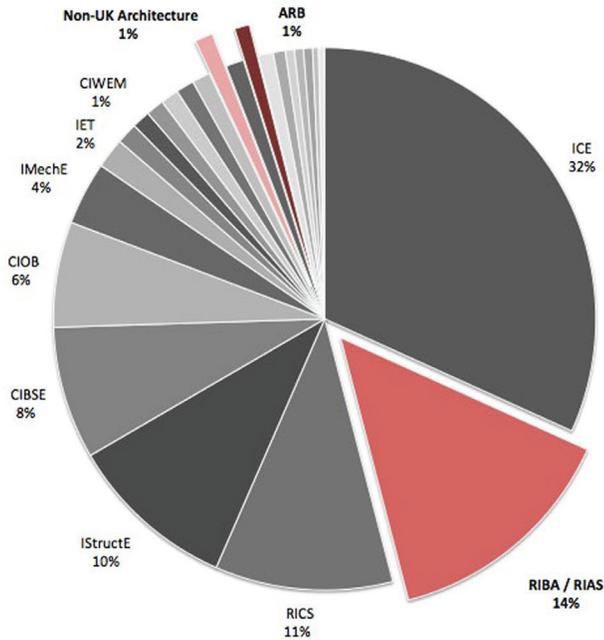## Institutions Represented at Teambuild 1999-2011

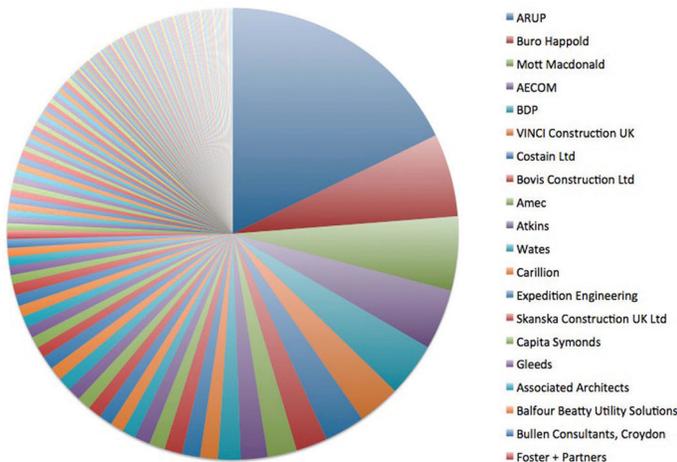Figure 2. Architects as a percentage of total entrants to Teambuild since 1998

Figure 3. Competitors' Employers

ist teams speed through the stages of concept, bid, appointment, design, tender, procurement, construction and inhabitation in 48 hours, via a pre-scripted set of hypothetical narratives, designed to mimic the often unpredictable progress of an actual project. Entrants have time prior to the event to prepare the site information, but no prior knowledge of the subsequent changes to brief or scenario over the weekend. At each stage the narrative leads to a

question(s) relating to the project, which each team must respond to within a given time limit, usually 1.5-2 hours. Questions deal with any aspect of a project from high-level risk/opportunity analyses, to strategic design, to client inhabitation. No team will be able to answer all the questions from their knowledge base; participants must take on other roles at each stage to support the team endeavour; different team members will be required to lead as their specialism is brought to the fore by a particular question.

Figure 4. A team presents their work to judges at the 'Detailed Design' stage

The 'real' site team and stakeholders send judge(s) who join an experienced cross-industry panel. Site information is real and detailed, the technical, spatial and social scenarios are intractable and complex. This allows competitors to apply specialist knowledge to problems with a palpable challenge and a tangible sense of value and achievement if their ideas succeed. However the technical scenarios are purely a means to require teamwork and collaborative innovation; teams will be marked on their communication, teamwork

Figure 5. Preparing a presentation to the client and local Building Control officer on site setup and construction strategy

and presentation. Perhaps surprisingly, Teambuild uses a highly complex technical scenario and design brief to test students' "soft" skills: management, communication, listening, presenting.

Teams are asked to present their work at each stage in a prescribed variety of scenarios, each requiring different means of exposition and directed to different groups of stakeholders. Answers take the form of sketches, diagrams, reports and tables, accompanied by verbal presentations. The competition Judges at each stage 'role play' a stakeholder position in order to question and critique the proposals.

The brief and stage questions are written by a small team of recent past competitors and judges. Each year this team can also make revisions to the competition structure, and organise smaller preparatory events throughout the year, based on feedback received and on their own recent experience: allowing the competition to evolve continuously and maintain relevance.

Discussion sessions are timetabled throughout the weekend to enable judges to offer timely formative feedback to teams. At the end of the weekend, both qualitative and quantitative written feedback is collected from competitors and judges, in the form of completed paper-based questionnaires. This shapes the next year's competition.

Figure 6. Competitors rate 'Professional Relevance' of the competition

The principle aim of Teambuild is to improve competitors' knowledge of their professional context, and specifically to improve their 'soft' skills: listening and communicating effectively. Prizes are awarded for achievement in collaboration and communication, and feedback confirms this is where competitors feel they most improve throughout the experience. Chair of the Trustees and founder of the competition, Richard Rooley, discovered in the course of his presidency of ASHRAE that active members employed in consulting firms spent only 20% of their working week on technical material, and the rest managing and communicating with colleagues and

clients. It is noted that the 2011 revision of the RIBA/ARB Criteria (pub. 2010) removes any mention of 'communication' from the 44 General Criteria at parts 1 and 2. "The training and education of young [professionals] is devoted to the technical aspects of less than one day a week activity" (Rooley, 2007).
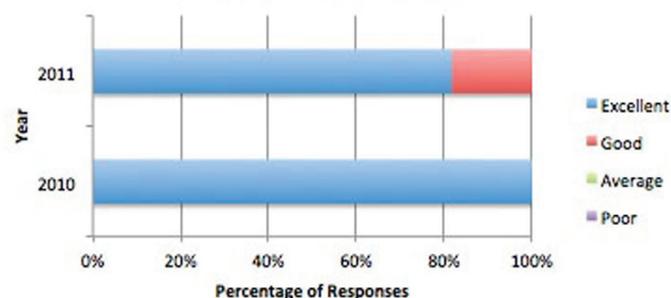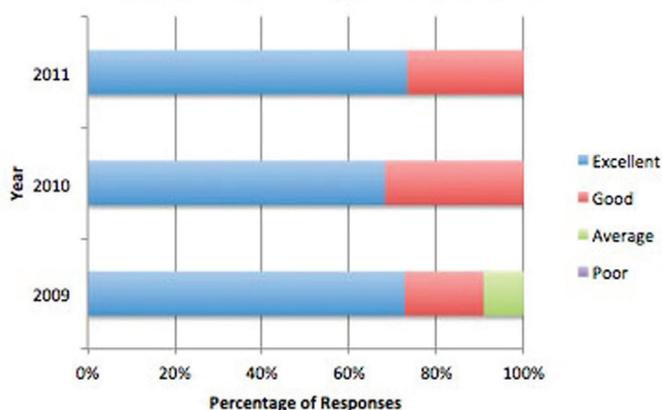

Figure 7. Judges rate 'Professional Relevance' of the competition

ANALYSIS OF THE COMPETITION

Pedagogic Evaluation

This paper posits that the 'role of the Architect' is a complex threshold concept (Cousin, 2006) unrealised by many students in their journey through architectural education. The process presented here offers a context in which students must explore this role personally, and may critique their efforts. Their interpretation of the role is unrestricted. The format encourages recursive learning and experimentation.

First-time competitors at Teambuild are new to the trans-disciplinary, inter-reliant team in which they find themselves, faced immediately with a complex brief and tangible outcomes required within an extremely demanding timeframe. This causes uncertainty; but requires quick decisions to be made in order to the deadline to be met; and poses immediate communication challenges, as individuals from different professional backgrounds often interpret the brief and deliverables differently. This ambiguity can lead to anxiety, and each team member must work hard to communicate their understanding to other members and together arrive quickly at a plan of action. Empathy is established quickly amongst the team. Individuals acquire a new way of looking at a problem: they realise their role in relation to others, and what they can offer to this team. The situation is similar to that studied by Harriss and Cassels in their project with Architecture and MBA students in 2010. This further develops competitors' critical analysis and "understanding of the systems in which they [will] operate", skills Berryman and Bailey (1992) argue is essential for modern education to deliver in order for graduates to prosper in the workplace. In this way the pedagogic model of Teambuild can be likened to the 'cognitive apprenticeships' suggested in their text.

The Judges at Teambuild do not write the brief, or have prior knowledge of the narrative development of the project. In role-playing at each stage, they represent any number of stakeholders. Judges are encouraged to occasionally take on biased and/or ignorant roles in order to challenge discussion and test teams' judgement and communication abilities. The organising team provides guidance and training, but ultimately trusts the professional judgement of these individuals to act collaboratively, professionally and constructively in pitching their questions and testing the teams' performance. This is seen as a benefit: this additional level of contingency is valuable to the learning experience: for both the graduates and the professionals.

Through unrestricted interaction with the judges, the teams develop an understanding of engagement with client and other professionals. This level of interaction is reviewed positively in feedback.

Feedback Sessions form an integral part of the programme. Feedback is structured in order that it can inform teams' subsequent work (Gibbs and Simpson, 2005), enabling an effective experiential learning cycle (Kolb, 1982). Competitors and judges alike find the sessions useful in gauging the level of assessment and critique, and improving team communication. The mix of disciplines, the divorce of 'brief-writer' and 'tutor/judge', encourages open discussion, enabling further learning benefits (Parnell, 2001).

Assessment Procedures

Teambuild has not been run in or by a Higher Education Institution to date. Finalist achieve 4 days' equivalent CPD and many of our competitors take part in preparation for their various Chartership/RIBA Part 3 exams, but it is not recognised as part of a formal qualification. Consequently the competition is not bound by regulatory assessment criteria or process requirement, and this has allowed the organisers to explore methods of assessment. Internal reviews have found that minimising constraints in production, deliverables and assessment, have been most successful in producing an effective learning environment.

The various judges, all representing different disciplines, rotate around the teams at each stage so that they receive presentations from, and question, each team an equal number of times. In this way teams receive critique and opinion from varied standpoints and are evaluated from different perspectives. These can be contradictory. This itself is a valuable learning experience (Morrow, Parnell, Torrington, 2001).

The separation of 'brief-writer' from 'principal assessor' created by the competition format is extraordinarily valuable in encouraging exploration and innovation. Competitors cannot takes cues from their tutors as to the perceived 'correct answer'. Further disjunction is afforded by the briefs' demand for technical application and prowess, but the simultaneous knowledge that this part of the submission will not be assessed. This does not have the impact of reducing experiment and invention; individuals wish to demonstrate

their flair to both peers and judges. Because there is no technical assessment, there is no fear of failure. Technical achievement will be discussed and critiqued, but not graded- and this opportunity to 'show and tell' in a competitive environment but freed from direct assessment proves peculiarly liberating for designers.

Relationship to ARB/RIBA Criteria

The current ARB/RIBA criteria (ARB, 2010) comprise 44 General Criteria shared between parts 1 and 2, qualified at different levels of achievement by 10 or 11 'Graduate Attributes' for each level. These criteria are mapped directly over the 11 points of the Qualifications Directive (European Parliament, 2005).

In overview, the requirements for the provision of education have changed very little from the previous criteria. However the content is no longer assigned to distinct groups ('Design', 'T&E', 'Cultural Context', 'MPL', 'Communication'), but form hybrid compound requirements (eg GC1.3: 'develop a conceptual and critical approach to architectural design that integrates and satisfies the aesthetic aspects of a building and the technical requirements of its construction and the needs of the user.') Perhaps in order to effectively meet these criteria it is required to integrate these previously distinct areas of the curriculum: achieved by the learning format discussed here.

The criteria reflect the progressive move towards early-stage interdisciplinary team working in the industry, and the increased role of the client. Four of the criteria cite relationships with "co-professionals", and five refer to the needs to 'building users'. 'Understanding… the role of the architect in society…[and] within the design team and construction industry' forms a core part of GC6, a requirements at both parts 1 and 2. The experience of working within a multi-disciplinary team for real clients, as offered by Teambuild, gives students direct experience on which to base this understanding; and the confidence to question their role in a known context.

The differing levels of achievement laid over shared criteria provide a challenge to the educator: how to teach the same content and assess at different levels of success within the current framework. Teambuild offers an identical, extremely complex brief and site information to teams of young professionals aged from 19-29. The teams' achievement is varied but their perceived learning experience is equally valuable. Past competitors are invited to return and compete again if they have not won; several do, and feedback confirms that they learn more and differently the second time. This also supports the theory that threshold concepts benefit from recursive learning (Cousin, 2006).

Relationships to Industry

Teambuild introduces young graduates to intensive working with their peers in the industry at an earlier stage than usually demanded in practice. The competition also brings competitors into contact with senior industry figures and employers in the form of the

judges. Contact with industry is especially valuable for graduates' confidence, and 'early contact with employers' is specifically noted as a 'key issue' in the drive to encourage greater diversity in the profession (CABE, 2005).

Contact with Industry also opens up alternative sources for expertise and funding. Teambuild has found that sponsorship opportunities are attractive to a wide range of Professional Institutions, Consultancies, Manufacturers and suppliers, in addition to training and educational Trusts. Sponsorship packages require sponsors to provide experienced judges for the competition weekend, in addition to cash funding. Both parties view this as a mutually positive relationship. The competition is currently sponsored by the ICE, CIOB, CIBSE, the IStructE Educational Trust, Speedyhire Ltd, and Saint-Gobain Ltd, and supported by the RIBA, RICS, SCL, and the A G Manly Trust. These sponsors not only demonstrate their foresight in investing in training, but also offer us expertise, and have the opportunity to engage the interest of motivated graduates in the future of our Industry.

CONCLUSION

As a practitioner, I am apprehensive and excited about the future of the architectural profession in the UK as we explore the impact of new forms of procurement and construction. As a tutor I am concerned about how to best equip students to lead the profession in this new context, and how to deliver educational value worthy of the now extraordinary levels of both time and financial commitment required by the course. As a trustee of Teambuild, I see a way to improve delivery in both of these preoccupations.

This paper has discussed elements of the training competition that may be applied to architectural curricula to improve learning in several themes; teamworking in situations of ambiguity; realisation of threshold concepts of the role of the Architect; professional communication; design collaboration; self-awareness in a professional context. Key elements to consider might be engagement with industry; hybrid cross-disciplinary deliverables; client engagement or role-playing; and finally divorcing brief-setting from critique, and technical achievement from assessment.

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