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Becoming an Architect: the role of work-based learning in architect training

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Abstract

This paper examines the little researched work-based learning (WBL) element of architect training and sits within the Professional Work and Learning stream. It investigates the experience of architecture students placed in architectural practices as part of their university course. This element of architect training is considered within the broad field of research into WBL and is analysed using concepts of situated learning. The paper draws on qualitative data from semi-structured interviews with twenty students at a university in northern England to provide instrumental case studies of what architecture students do and what they learn during the extended work-based elements of their training. These interviews were transcribed and coded to investigate students' experiences and perceptions in relation to their learning and their 'becoming' architects. Just as learning to be an architect partly occurs outside university, this learning entails more than the accumulation of professional skills or knowledge. It involves the construction of new identities. The transition from student to architect is considered by exploring how social relationships within an architectural workplace enabled students to participate, make judgements and so to form their identity as architects. The level of participation and responsibility given to students differed widely between the workplaces, with those in smaller practices generally having more diverse duties. All the students explicitly described the experience as formative and often described its 'authenticity' in contrast to the university-based course element. The latter element focused on design; the placement entailed acting like an architect involved in problem solving. This reshaped perceptions both of what it is to be an architect and notions of 'good' architecture. Arising from these findings, the paper suggests how the university element of architect training could better articulate with and prepare for WBL placements.

Donald Schön's (1983; 1987) seminal writings on reflective practice were informed by the design studio model of architecture education and more recently Richard Sennett (2009) has drawn on architecture to understand and conceptualise learning and craft. Intriguingly, the term 'architecture' is even used within metaphors of learning, such as the very notion of 'an architecture of learning' (see, for example, Washburn, 2010). Yet, despite its apparent importance to the theorisation of learning and especially work-based learning (WBL), how architecture students themselves learn to be architects whilst on their extended work placements has been little researched. This is a significant lacuna and not just because the placement is such a substantial aspect of architects' training or that architects play such an important role in literally shaping our world. The position of architects in the United Kingdom, where this study is based, is anomalous; the inequality of status between vocational learning, including apprenticeships, and academic learning in the UK has often been examined (see, *inter alia*, Avis 2009). Yet the study and profession of architecture have maintained high status despite its vocational nature and despite the "articled apprenticeship" form of architecture training (Webster 2008). Perhaps surprisingly, this status is not directly linked to average salaries for architects, which have been falling in recent years and which compare unfavourably, for example, with doctors or barristers (RIBA Journal: 2011). Moreover, architecture training unusually involves the blending of high-level technical and aesthetic skills, which allows a situated examination of how trainees can learn to synthesise theory and practice. This paper draws on initial data gathered as part of a small-scale study, described more fully below, of what architecture students learn while on their placements. It starts by describing the historical background to architecture and architecture training in the UK before discussing the concepts that underpinned our study and its methodology, in particular Fuller and Unwin's (2004) expansive and restrictive framework of approaches to workforce development, as well as what we understood by learning. Though, as mentioned, reflective practice theories have been linked to architecture, this was not a focus of this part of our project. We first describe the study and its context, including the structure of architecture courses in the UK, and go on to discuss key themes that have emerged from the data. Generally, we have found students who are conscious of their learning and qualified architects in studios who are conscious of their own pedagogical role; and we have found a refreshing openness about the interplay of theory and practice.

The relationship between architectural education and architectural practice

Director of Education at RIBA, David Gloster, (2011) argues:

architecture is an extraordinary thing – it can improve people's lives. It appears every society has decided we need it, and that we measure our civilisations by it.

Groadbent (1995) has traced the development of architectural education in the West and found that architectural education has always been in a productive tension with architectural practice. Before the Renaissance, architecture training entailed learning in practice; during the Renaissance theory in architecture became more prominent as was evident in Leon Batista Alberti's writing. Alberti argued that of all the arts, architecture was the most susceptible to theory, and could be developed philosophically, because it was rooted in 'ideal' forms – the primary solids: the cube, the sphere, the pyramid and so on. (Groadbent 1995:12)

This Italian Renaissance model inspired the French Académie royale d'architecture established in 1671, which aimed to raise architects from the status of craftman to that of philosopher. The Académie and from 1793 the Ecole Polytechnique offered lectures in the theory and history of architecture and construction and then students would learn the practical skills of drawing and design elsewhere in the studios of their masters. Aspects of this approach to the education of architects where theory was taught in the classroom and applied design in the ateliers is still

apparent today, as explored below, but it dominated European architecture and the way architects were taught until the 1920s when the Bauhaus in Germany presented a radically different educational structure (Groadbent 1995: 13-16). Walter Gropius formed the Bauhaus in 1919 when the Weimar School of Arts and Crafts was absorbed into the Academy of Art so combining two hitherto quite different teaching traditions and combining the abstract and the applied. Gropius believed that all the arts and crafts should be brought together in the production of architecture, which he outlined in his Manifesto and Programme for the Bauhaus. This approach has continued to inform the design studio approach to architecture education so praised by Schön.

Ensuring the quality of architectural training in the UK has been central to the Royal Institute of British Architects (RIBA) since it received its Royal Charter in 1834. RIBA examinations in architecture were established in 1863 and in 1882 successful completion of these became compulsory for those seeking membership of the Institute. The seminal 1958 Oxford conference held by RIBA defined the mode of architectural education which has pertained ever since. It raised the entry level for architecture students who henceforth would attend universities or equivalent institutions. The conference also introduced postgraduate study for architecture students as well as the need for placements in architectural offices as an integral element of the education of architects. More recently, the RIBA criteria and procedures introduced in September 2011 provide important criteria for validation of schools of architecture in universities as follows:

Validated schools will:

- state clear academic objectives distinguishing their offer from competitor courses, and highlighting specific areas of excellence to encourage students to creatively develop all aspects of their professional skills
- contribute to graduate employability by ensuring that students' skills in digital and analogue media, structured written work, and the exploration of design ideas through making are thoroughly represented in all academic portfolios
- provide courses where at least 50% of all assessed work at part 1 and at part 2 is undertaken as design studio projects
- provide courses at part 2 that clearly differ in substance and content from those offered at first degree level, and reflect the standards expected of graduates undertaking sustained, specialised postgraduate study

(RIBA 2011a: 49-50)

As defined by the Education Department of RIBA, the typical route to qualifying as an architect in the United Kingdom is a combination of academic studies and practical experience.

Whilst the validation criteria may offer a basis for curricular design, it is intended that schools develop courses pursuing distinctive interpretations of the practical and theoretical skills needed by professional architects occupying increasingly diverse roles, and working in a global economy. (ibid.)

Architecture training involves five years at university and a minimum of two years' experience before final qualification as an architect as shown in the diagram below (adapted from RIBA 2011b). Part 1 is three years' full-time study at university to develop a broad range of skills and architectural understanding at BA level, followed by a one year Stage 1 professional experience in practice as year out training. Part 2 includes two years' full-time study of enhanced architectural knowledge and project complexity, followed by, typically, 24 months' experience working under the direct supervision of an architect. At this stage, graduates will be given more

responsibility on projects and begin studying aspects of practice, management and law. The final qualifying stage in professional practice and management is RIBA Part 3 examination taken at an RIBA validated course provider. Having gained the qualifications pertaining to parts 1, 2 and 3 graduates can register as an architect with the Architects Registration Board and RIBA as the title architect in the UK is protected by law (RIBA 2011b).

<p>RIBA Part 1</p> <p>A university undergraduate degree normally lasting three years</p>	<p>Stage 1 Professional Experience / Year Out</p> <p>Practical Experience □ Paid practical experience – typically one year in duration.</p>	<p>RIBA Part 2</p> <p>University degree – varies from school to school e.g. BArch, Diploma, MArch</p> <p>Two years full-time/ enhanced architectural knowledge and project complexity.</p>
<p>Stage 2 Practical Experience</p> <p>Paid practical experience – a total of 24 months’ experience under the direct supervision of an architect is required to sit the part 3 examination.</p>	<p>RIBA Part 3</p> <p>The final qualifying examination in professional practice and management is taken at an RIBA validated course provider.</p>	<p>Architect</p> <p>Having gained the qualifications for parts 1, 2 & 3, a candidate can register as an architect with the Architects Registration Board.</p>

This hybrid structure of architect training as it is delivered at Northern University, where this study is situated, arguably combines the design studio convention with the much older tradition of separating theory from its practical application, as discussed below. The concept of the knowledge worker may be useful here “because creating and producing new knowledge is an expected outcome” (Fuller & Unwin 2009: 205) of the architect’s work. The practical application of design is expected by RIBA within stage 1, which assumes work-based learning, though that term is itself not used in the course’s literature. Thus, as Webster (2008: 64) has identified, the articulated apprenticeship model that originated in the nineteenth century has been “almost literally transferred into an educational setting”. This element constitutes the focus for this study.

Work-based Learning

Winch (1998: 4) described any discussion of learning as being fundamentally epistemological since it centres on *How do we know any learning has taken place?* Boud and Solomon (2003: 331) argue that:

every time these words [learner and learning] are used in workplaces, they have meanings beyond what researchers may expect. They inevitably provide indicators of power relations at work and are part of its social construction.

As described above, it is the prescribed and accepted procedure for trainee architects to be sent on placement in order to learn through participation and yet how and what they learn there has been little explained. The notion of *pedagogy* is a useful grounding from which to explain consciously planned and so formal learning, even if only to contrast or compare that with unconscious and unplanned learning during placements. Bernstein’s (1999a: 259 cited in Daniels 2001: 6) definition is useful in this regard.

Pedagogy is a sustained process whereby somebody acquires new forms or develops existing forms of conduct, knowledge, practice and criteria, from somebody or something deemed to be an appropriate provider or evaluator. Appropriate either from the point of view of the acquirer or by some other body(s) or both.

Pedagogy carries an explicit notion of what are and what are not appropriate forms, which exposes how all learning carries value judgements which derive from its setting. Perhaps surprisingly, there were elements of pedagogy by this understanding during the trainees' placement, but the separation between formal and other learning is occasionally indistinct and they co-exist throughout architectural training, as our data will later demonstrate. Much of the literature of WBL has, however, tended to ignore this often mutually dependant relationship considering workplace learning as something entirely separate and unrelated, a lack also noted by Hodkinson (2005: 521):

Much of the literature [relating to WBL] either ignores off-the-job learning altogether or, where college based learning is considered, regards it as inferior and unsatisfactory. Also, the literature is based upon a central, if sometimes implicit assumption that educational learning and workplace learning are fundamentally different phenomena.

This is a false dichotomy, especially as with our sample (and that of Hodkinson) both university classes and placement were part of one course. Similarly, Colley *et al* (2003) argue that because 'formal' and 'informal' are not discrete categories of learning there is a need for precision when these terms are used to describe particular situations (p68). So, both types of learning exist within a spectrum of formality and informality since learning is a form of normal social practice wherever it occurs. In this study of WBL within architectural training this was quite apparent. Nevertheless, as a heuristic our initial focus was on more unplanned, less pedagogic learning because trainee architects on placement are expected to 'absorb' from what is around them as if through osmosis.

Hager (2004: 243-244) described the three assumptions behind what he termed the "standard paradigm of learning": firstly "the basic image of ... the individual human mind steadily being stocked with ideas"; secondly that "the most valuable form of learning is focused on thinking... rather than action in the world"; and thirdly if "we have really learnt well, we will be able to bring the learning to mind" and identify it. This understanding of learning emphasises the individual over the social, and the mind rather than the body. It also suggests that learning is 'knowable' by the learner and so can be recalled, described and measured. By contrast in what Hager (p246) terms the "emerging paradigm of learning", "the main outcome of learning is the creation of a new set of relations in an environment" by changing both learners and their environment. Hence, individuals, teams and organisations all hold knowledge, and learning is characterised by and evident from the ability to make judgements (pp248-249). Within this latter paradigm learning is about changing relationships within a situation and so managing or shaping that situation more effectively. Furthermore, this paradigm recognises that knowledge and ability are not just cerebral but can be held bodily. Hager's paradigms chime with Sfard's (1998) metaphors, see below, but he did not consider them to be polar opposites because they co-exist and overlap. The standard paradigm is more limited and refers to formal or classroom learning, while the emerging paradigm better conceptualises learning outside of formal education and especially learning at work. The latter also recognises that, as Polanyi (1983: 4; original emphasis) wrote, "*we can know more than we can tell.*" Moreover, Polanyi's point had methodological implications for this research because it exposed the limitations of some interviews. Asking people what they have learnt through participation may reveal little because the vocabulary associated with learning derives from and so favours description of the standard paradigm.

The idea that knowledge “can never be *completely* present in the head of any one of the individuals involved in its use” (Shotter 1993: 3; my emphasis) is helpful in understanding how architects work. Knowledge is shared because it is constantly, dynamically and socially constructed using and adapting existing tools and artefacts as well as creating new ones. This social construction takes place through enculturation whereby the perspective or behaviour of the group becomes the perspective or behaviour of the individual. However, the social development of knowledge has a developmental effect on the individual, even if a full understanding of knowledge or learning cannot be individualised. In other words, the way in which what is learnt becomes unnoticed permits membership within a professional culture, which chimes with learning as an alteration in identity or ‘becoming’. Learning, thus, “involves the construction of identities” (Lave & Wenger 1991: 53) through participation. The dialogic explanation from Holland *et al* (1998: 4) is also helpful in this regard: “identities are improvised—in the flow of activity within specific social situations—from the cultural resources at hand.” This is a cultural rather than an essentialist view that understands identity as a response to circumstances. Identity, here, is not fixed and relates to agency, which exists in how people improvise with what they have. These associated conceptualisations indicate how learning, identity and practice connect, which in the context of architecture training are particularly salient.

There is a need for some caution, though. Sfard’s (1998) article on the ubiquity of the two metaphors for learning, as acquisition and as participation, described how these metaphors themselves can shape and trammel discussion of learning, so identity formation and participation often correlate in the literature. Although this broadly defines the type of learning that we were most interested in as regards the trainees, learning to be an architect involves some cognitive shifts apart from feelings of identity or community. The trainees learnt to do things they could not previously do. Anne Edwards (2005a: 6) made the following connection between acquisition and participation approaches to learning:

Acquisition approaches to learning are underpinned by a belief that careful encoding, that is the storing of knowledge in efficient ways, will produce the appropriate application of knowledge to problems we encounter. Strict participation approaches, with their emphases on induction into established bodies of knowledge also privilege existing knowledge.

This is a potential lack in both conceptions (participation and acquisition) as neither explains well how people manage culturally new problems. Furthermore, Edwards (2005b: 57) identified how learning as participation models emphasised aspects of learning related to socialisation into beliefs, values and identity and thus excluded changes in cognition. A robust conceptualisation of learning, however, including enculturation, had to involve some sort of cognitive change (in Edwards’s terms) and so the dynamicism of her (2005b: 50) “deeply cognitive definition” of learning influenced our thinking. For Edwards, learning:

reflects a concern with within-person changes, which modify the way in which we interpret and may act on our worlds. Learning is therefore a change in state, which alters how we act on the world and in turn change it by our actions.

She went on to say that:

This definition does not prioritise information storage as learning, rather it considers how the mind is shaped by and then shapes the world.

This highlights the dialectical notion of quantitative change (learning stuff) leading eventually to a qualitative change (becoming an architect) so that what trainees learn, even mundane technical skills such as using computer aided design (CAD), are a part of what eventually modifies how they see the world and themselves within it.

Edwards's summary (2005b: 61) of what learning entails, which shows Vygotskian influences, was what informed this study:

In brief, learning can be seen as a process that starts with immersion in a language community where we might hear and use the terms that carry key concepts (public meaning in the intermental plane), but not understand them. We then move onto a process of increasingly making sense and refining those concepts (the intramental plane). Finally, we are able to use the concepts and engage in and contribute to the processes of public meaning making.

Therefore, there is a need to grasp the arbitrary cultural contingencies inherent in any use of the term 'learning' or 'enculturation' as well as its connection to agency. But this must include a sense of palpable change, comprehension or capability on the part of the trainees and so how the world is understood and is acted upon which may lead to a change in their identity. Learning, whether through enculturation or as directed in an institution, is a process of constant formation and re-formation between communicating individuals according to the circumstances in which they find themselves, and who they are as individuals. Using Bourdieu's term, *habitus*, Hodkinson et al (2008: 41) summarise this conceptualisation of learning as becoming:

Within any situation, an individual may learn, through the integrated processes of participation and their on-going (re)construction of their own *habitus*. In these processes, that which is learned can be modified as it becomes part of the person.

Bourdieu describes *habitus* as a person's set of individual dispositions and behaviour; it is 'a product of the incorporation of objective necessity' or having a 'feel for the game' (1990: 11). This understanding of learning as a situated social practice that leads to change in the individual and which may be seen in the use of language and the making of professional judgements, shaped our methodology in considering these trainee architects, described below.

To help identify what promoted or constrained workplace learning we adopted Fuller and Unwin's (2004) expansive and restrictive framework of approaches to workforce development as a conceptual instrument to consider the context for architecture students on practice; both what is overt as well as what is implicit. Although the framework is more usually applied to employed workers, rather than students on placement, albeit in the case of our sample mostly salaried, nonetheless the framework allows WBL to be examined within its broader socio-economic context and can relate to the tensions within the workplace (Evans et al 2006: 3). Fuller and Unwin's understanding of the relationship between individual agency and socio-economic context is underpinned by recognition of the interplay between agency and structure. Their framework provides a taxonomy of approaches to professional development which describe either end of a continuum from what they describe as expansive, which enhance opportunities for learning; to the restrictive, which limit workforce development. It contains two broad categories (Evans et al 2006: 41-42):

1. "Those which arise from understandings about the organizational context and culture (for example, work organization, job design, control, and distribution of knowledge and skills)."

2. “[T]hose which relate to understandings of how employees learn (through engaging in different forms of participation).”

Descriptors of a restrictive approach to workforce development include (Fuller & Unwin 2004: 130):

- Technical skills taken for granted
- Virtually all-on-job: limited opportunities for reflection
- Lack of organizational recognition of and support for employees as learners

The equivalents that characterise restrictive approaches are:

- Technical skills valued
- Planned time off-the-job including for knowledge-based courses and for reflection
- Organisational recognition of and support for employers as learners

This final aspect was particularly prominent in this study as were valuing expertise and trust and opportunities to expand learning and the notion of the knowledge worker (Fuller & Unwin 2010: 204-205).

The study

This study examined the experience of students who were completing or who had recently completed their stage 1 period of experience in architects’ practices. These students were currently attached to a university in the north of England (referred to as Northern University in this paper), but some had taken their part 1 qualifications at universities elsewhere in the country. When working in the architectural practices during their year out, students need to record their experience on RIBA’s Professional Experience and Development Resource (PEDR) website, monitored by a Professional Studies Advisor from the university and an employment mentor from their practice. RIBA provides model contracts for students and employers on the PEDR website.

Sampling from amongst this group of students was opportunistic according to the availability of participants and their willingness to take part. Significantly, we have not yet spoken to those who did not continue their course beyond stage 1, only to those who had chosen to remain on the long programme. Ten male and four female students were involved in the initial stage of this qualitative study, all of whom were in their mid twenties. Northern University became a university in 1992 and though its antecedents can be traced back well over a century, it lacks the kudos of more established universities. Its intake is more local and more working class than for “red-brick” universities, and that is true also for a relatively competitive, high demand course like architecture. Our sample reflected this.

We were interested in learning, becoming and change more generally through the experience of placement and how the placement was perceived and valued by the participants. We plan to shadow students on placement in the future, which was not possible at this stage in the study for reasons of practicality and cost. Data was gathered through in-depth unstructured interviews because they were the most direct and practical means to get to the viewpoint of the participant architecture students. Although Hammersley (2008: 89) defended and justified the use of interviews in research, he listed their potential shortcomings, which are significant:

- They cannot show stable attitudes or perspectives that govern behaviour beyond the interview.

- They are not a sound source of witness information.
- Interviews may only tell us about interviews.

As Hammersley (p91) also recognised, however, interviews remain a source of self-analysis for the interviewees as they talk through experiences or situations, and indirectly interviews can also expose attitudes by revealing how the interviewees view their circumstances. Despite their drawbacks, interviews proved effective in this study. All the interviews were transcribed and analysed with the aid of Atlas-ti software using both *a priori* codes relating to social contacts on placement; learning; and perceptions of being an architect; as well as emerging codes relating to the relationship between theory and practice in design; responsibility while on placement; and the use of computer aided design (CAD) tools. The next section considers some of the major themes from the initial stage of this study.

Findings:

The individuals in this study do not constitute case studies. Rather the purpose of this initial stage of research was to scope for divergence and commonality amongst the experience of the trainee architects in order to better focus later more detailed research and to ‘test’ our chosen conceptualisations. Though our sample was small the diversity of the architectural practices where the students were placed for stage 1 was striking. One was in a rural setting, several were in the centre of major cities, others were in market towns. Four students found placements with sole architects, one of whom worked from his converted domestic garage that was too small to share with the placement student who worked from his own home. They would only meet once or twice a fortnight and communicated mainly by email and phone:

he would email me work that needed doing and plans and then I would work from home and email him back. (Harry)

Though Harry wished for a different experience for his stage 2, he nonetheless had found his stage 1 beneficial. Other students found placements within very large practices with several studios around the UK and one practice even had a studio abroad. Tom, in a very large office, had worked on a three hundred million pound project; most had been part of much smaller jobs.

Apart from those students working with sole architects, the most common experience was of working in the shared space of open plan architectural studios that facilitated and encouraged social interaction. This mirrored the design studio approach to teaching and learning within the university, which the qualified architects would themselves have experienced during their own training. A marker of the relatively egalitarian atmosphere that characterised these studios was who made the tea or coffee. The practice where Evan was placed had, he explained:

a rota system: one person does it at ten and another at one o'clock. I had this thing when I first started which was like a brew round and they printed it off and you had to sign it. It was like a joke kind of thing but it kind of stuck. ...It's a good way to start meeting people.

Evan had “loved” being in the practice. Hierarchy was not, however, absent; he had to share occasional two-hour train journeys with a senior practice director to see clients in London, which he described as “*a bit weird*”, though they had chatted. Ella explained how the people in her studio “*make each other cups of tea all through the day*” and how often on Fridays they would go to the pub together. Alan’s team ate lunch together, as did many others. Oliver, for example, had eaten lunch each day with the other placement student in the home of the architect. He said, “*it was fairly classic workplace hierarchy but it was less formal.*” He did, though, go on to say, “*you have to do what you’re your told and you don’t get to ask too many questions, really.*” Though

there was hierarchy, this was not rigid and it did not preclude social contact with senior staff. Andrew said of the architect with whom he worked:

Well, obviously he's my boss but we get on very well and, in a way, he's a friend. He's the sort of person who wants to help you and bring you on and give you the experience that can give you enough exposure to the work so that you learn.

The formal criteria of the RIBA stage 1 had to be signed off by an architect, but many of the students developed what might be called 'learning relationships' with students on their stage 2 or with architectural technologists working in the practice. Andrew found that a "Part 2 guy was really, really helpful...he basically took me under his wing." Evan spent most time with a colleague:

...who had just finished his Part 3 so he was not much older than me and he sort of understood what I needed to know and where I was going and he was a big help as well and he actually sat down and showed me everything as well when I first started.

The senior architect would, however, "happily go down for twenty minutes and he would explain what needed to be done or he'd show you what book you might need to look at." Anna described how she spent time with the technologists because:

I they were quite helpful and so I was always quite interested in seeing what they were doing...they were willing to sit down and explain things.

Moreover, well beyond the formal requirements of the three-month reviews within the Stage 1, the students told of how they were involved in professionally focused interaction and encouraged to ask questions. Alan said of the architect with whom he was placed:

I couldn't have asked for anything better, really. He showed me different things like professional learning; he opened my eyes to things that we hadn't done in degree level.

They were learning about architecture not just through practice, but through a purposeful dialogue that articulated professional development.

The level of responsibility each student had on placement differed widely. Anna's day in a large practice was normally spent on drawings:

I felt like a technician really and I tended to draw stuff up and that was quite helpful because you get to use software and you learn to manage the details [of architectural drawings].

Andrew in a much smaller office had his own projects to run as did Alan working with a sole architect. Another differentiating factor was how often if at all the students were invited to meet clients or visit sites. Anna only had one site visit during her year while Harry, working mainly from home, attended many client meetings and regularly visited sites. India's was a relatively small practice and she visited sites under construction with which she was involved and the whole office would visit completed sites. Oliver and Mary, also with a sole architect were always taken to visit clients. Daniel was the only never to have been involved with any clients or in any site visits, despite being in a small practice. This was, though, the exception; generally those in smaller offices had more opportunities to get involved in such activities, which are central to the work of the architect. Regardless of the size of the office, the students felt appreciated. India said, "they seem to value what the students can bring"; for Tom in the same practice, "you will be heard if you challenge a few things." The symbiotic relationship between the students gaining professional knowledge through participation and the architects gaining fresh ideas and enthusiasm was mutually beneficial and was a central part of the culture of the offices from the one-man band to the multi-million pound firm. Professional development of self and others were

explicitly integral to the practice of architecture, which is in stark contrast to other professional areas where trainees on placement may be considered as a burden or irritant (see Dixon et al 2010). Many features of an expansive approach to development were present in these studios, which may also explain why these participants were strikingly articulate in describing what they had learned, as explored below.

Becoming an architect

The students' expectations of what it is to be an architect were often confounded by their experience of their stage 1. Anna had not anticipated designing bespoke furniture for a job and like many of the others she was surprised by how little time she spent on designing buildings:

because you spend so many weeks actually getting the design and then you just kind of work it up but then there is all the other paperwork that you have to do with it which takes up quite a lot of time, such as answering emails and queries.

Her time on placement had been spent more on “*queries and answering questions*” than design and she had realised this was normal for architects. She was adamant, however, that she still wanted a career in the profession. Andrew explained that those who had dropped out after part 1 of the course “*didn't want the reality of work as an architect where you have to deal with lots of people and work as a team.*” He himself had not anticipated, though he found he enjoyed, the problem-solving elements of being an architect.

...people go into architecture because they are interested in the drawing aspect of it, but in practice you find this is a relatively small percentage of what you do, but you've learnt to enjoy the rest of the work...you can go home at the end of the day thinking that you've sorted out that problem out and you learn from that as well.

India, too, described this discrepancy between her expectations of architects designing most of the time with what she observed and experienced on placement. Far from being disappointed, she relished finding solutions to problems in order to make the “*environment feel nicer*” for the patients at the mental health hospital she was working on; even just placing a light in the right place. Alan had been initially “*underwhelmed*” by his experience on stage 1, because it had involved so little design, but his stage 2 colleague at the office had “*opened [his] eyes up to what architecture actually is*” and Alan still desired to become an architect.

This divergence between expectation and experience of quotidian architectural practice in relation to becoming an architect suggests an interesting paradox. *Being* an architect had been and remained important to these participants, despite the volte-face in their understanding of what being an architect entailed. The students had found themselves immersed in a language and a set of practices that they had not anticipated but to which they were attracted. They learned to cope and thrive within those circumstances and in so doing they adopted the identity of architect, though the practice involved in that identity was not the one they had originally desired. This is perhaps best understood by returning to Hodkinson et al (2008: 41):

Within any situation, an individual may learn, through the integrated processes of participation and their on-going (re)construction of their own *habitus*. In these processes, that which is learned can be modified as it becomes part of the person.

Through (re)learning what it is to be architects the trainees entered what two of the participants independently referred to as the “*architect's world*”, which was later to become their own. Eraut (2004) described a problem of researching WBL being how participants often described learning in institutionalised or formal learning terms, often associated with schools or colleges. Many of the participants, however, were conscious of and able to articulate what they had learned and how they had changed. As Andrew explained:

After having worked in placement you just look at things differently...you have an understanding so that instead of designing a building without having any idea of how it is going to be built, you have some idea of how it is going to be built.

He identified, in particular, what he referred to as “materiality: what you put into a building because you don’t want too much going on or it doesn’t look right” as well as the importance of costing a project. Andrew had also learned to look more critically at the work of prominent architects like Norman Foster and Will Alsop. Evan had learned to “concentrate more on my floor plans... it might be something as simple as fire exits and things like that. India identified learning about contracts and structuring the design process. Mary learned “to do things in more detail” and that “you need to have interpersonal skills to be a good architect.” Mary also learned “to do things faster”, as did India. Alan recognised that he had learned:

The different roles of an architect like sharing site meetings and site inspections; looking at how to deal with issuing certificates for completion of work. Things which at undergraduate level, you don’t really see or hear about.

Alan was actually given formal computer-based tutorials in his office relating to CAD and many of the participants referred to how they had learnt to use software packages. This may be explained by such learning being easily discernable in one’s practice and also easily articulated during an interview, but CAD was seen by many as a necessary professional skill relating to being an architect. It does, though, alert us to Sennett’s (2009: 44) warning about CAD, that people might let the machine do the learning. Raised confidence, more generally, was also referenced by many of the participants, especially in how they dealt with clients’ telephone calls in those open-plan offices where everyone can hear.

There is a pronounced emphasis on design on the part 1 architecture course at Northern University where other institutions might emphasise, for example, technical ability. Although a series of lectures in the third year of the part 1 has been introduced to prepare students for the practical placement, design theory and practical application are consciously separated. One student commented on how he had been commended in his part one at Northern for an innovative design for a building that could not have stood up. Evan, amongst the majority, had felt well prepared for placement by the course but India spoke for several others, “So you learn one thing at university and then you got to work and you learn something completely different.” India had completed her part 1 at a different new university in the south-east of England on a course which she described as “very much arty and conceptual” and so she had had “to learn quite quickly on [her] work placement.” This split connects with the discrepancy discussed above between the reality of architect’s daily work and the students’ perceptions of the architect as designer. Yet, although some of the sample believed the course could have better prepared them for practice in, for example, use of CAD, legal requirements on architects and so on, strikingly most appreciated the divide and how the university course had allowed them to focus on design. Even those who would have sought better preparation were not antagonistic towards their course:

I think that you learn the design aspect when you are at university and when you get in practice you learn the practical side. (Mary)

From a historical perspective this is redolent of the traditional academy and atelier divide and it shows how theory and practice may be introduced separately and still blend effectively. India reported how an architect at her placement studio had stressed to her how on her return to university she must be as creative as possible and ignore the constraints of budgets, “so I think it’s good the uni pushes creativity.”

Conclusion

Applying the descriptors from the expansive end of the spectrum of approaches to workforce development (Fuller & Unwin 2004: 130) exposes how the practices where students were placed were grounded, valued and encouraged professional development. From the most senior architects to students on their stage 2, all took seriously their role as architectural pedagogues and, apparently, considered this to be integral to being a teacher. There was a vision of workplace learning that included seeing employees as learners; there was reification of a workplace curriculum through the RIBA requirements; teamwork was valued as was trust and expertise; there was often participation in multiple communities of practice; and there was a gradual transition to full, rounded participation. The innovation that the students brought was appreciated and they were actively incorporated into the “architects’ world”. The studios had a hierarchy, but the emphasis on creative and effective design equalized relationships. Similar to Fuller and Unwin’s (2010) software engineers, these trainees were on a form of apprenticeship. Like those software engineers, the architectural studios seemed “to create the optimum conditions in which different identities of its employees can be nurtured so that they are able to demonstrate and use their talents for the benefits of both themselves and the business” (p210). A part of this was the integration of the teaching and managing role for architects (see also Fuller and Unwin 2010: 218), but also the desirable social status of the architect in UK society.

At a policy level the UK government has emphasised the supply side of skills training; that is, the need for potential employees to be well educated and trained; to have “employability” skills. Architectural training demonstrates the effectiveness of controlling the demand-side; that is, architects have to be trained according to RIBA defined criteria which necessitates and perpetuates pedagogy of a high standard in courses and in studios.

Initially, we expected to make recommendations for part 1 architecture courses to better prepare students for stage 1 through more applied design and allusion to the realities of architecture. While we may suggest a little more of such preparation in the months before the stage, the ‘abstract’ course allowed students’ creativity to flourish unfettered by the exigencies they would face outside, and that appeared highly beneficial because then theory and practice could be mutually informative. As Sennett (2009: 50) wrote about learning a high-level skill: “there is a constant interplay between tacit knowledge and self-conscious awareness, the tacit knowledge serving as an anchor, the explicit awareness serving as critique and corrective.” That interplay suggests that Schön and Sennett are right: those involved in researching and providing WBL still have a lot to learn from architecture.

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