

Learning from Life – Exploring the Potential of Live Projects in Higher Education

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Abstract

This paper introduces the educational issues surrounding live project work, exploring the potential benefits and drawbacks of these teaching projects. It draws on the findings of a University of the West of England Teaching and Learning Grant funded project to explore the potential for live project work across disciplines in Higher Education. The study drew on two case studies – one architecture design project and one information systems consultancy project – to develop a wider understanding of the educational outcomes of live projects across disciplines.

In the case studies presented, students developed a range of attitudes and skills that can be seen to enrich, critique and develop those found in traditional academic work; in particular skills in communication, negotiation and professionalism which are hard to simulate within the academy. Students were actively engaged in an integrative learning process, which should result in 'deep' learning. In addition, students' enthusiasm was often higher than in their university-based projects, which has the potential to impact on the quality of their learning. The projects are conceptualised as a form of transformative pedagogy, based around experiential learning, which is located between two worlds, the university and the community. It is this in-between location that affords live projects particularly powerful learning opportunities across a range of disciplines.

Keywords: Transformative Pedagogy, Experiential Learning, Motivation, Client Engagement, Self-directed Learning, Professional Skills, Community Engagement

Introduction – Locating Learning between the Academy and the Everyday

One of the most effective ways to engage students in their work is to make that work seem meaningful and relevant. Involving students in live or real projects is one way to achieve this that has increasingly been used in architecture courses. Previous research suggests that live projects are a valuable insertion into the architectural education repertoire, in which students develop skills in communication, negotiation and professionalism that are otherwise hard to simulate within the academy (see Forsyth *et al.*, 1999; Chiles and Till, no date; Sara, 2006, 2004a, 2004b). These skills and attitudes are not discipline specific however, and seem to suggest a set of transferrable skills that might be relevant to a range of disciplines. This research project was undertaken in order to explore the learning potential of live projects across disciplines in Higher Education.

A live project is defined here as a type of learning project which is distinct in its engagement of real 'external collaborators' such as clients or users for a particular piece of student work. This external involvement tends to result in students producing something that is of value to the external collaborator, which might range from ideas, feasibility reports, or research, to a completed piece of work. Students typically leave the classroom to meet their external collaborators and the remit of the project is often worked out cooperatively with that external collaborator, rather than being imposed by the lecturer.

The definition suggests a movement away from notions of individual study, for its own sake, to ideas about working within the community, for the benefit of another, which has a pedigree in the work of John Dewey's theories of education and Aristotle's concept of *phronesis* (see Flyvbjerg, 2001). In this way, live project work can be seen to sit somewhere between the academy and the everyday. Students test out their learning in practice, acting professionally, but still working in the role of students, locating their work outside in the community, whilst also benefitting from the support of the university. So live project work can be seen to sit between the binaries of theory and practice, university and community, designing and making, the head and the hand, and ideas about what it is to be a student, and what it is to be a professional (see Figure 1).

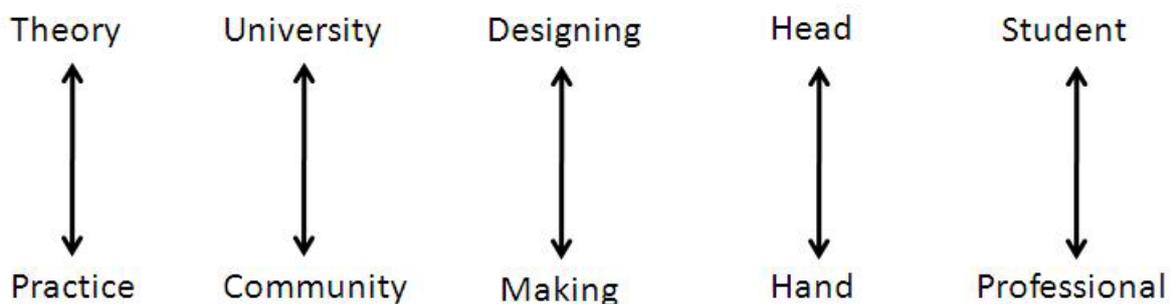


Figure 1 Live projects sit between the binaries implied by distinctions between 'work' and study

This in-between location is a transgression of the usual boundaries, allowing different teaching and learning opportunities and implying possibilities for a creative 'outside' or

different position. Through locating the projects *outside* of the classroom, but providing space for the critical reflection that we promote *within* the classroom, students are given the opportunity to critique and reenergise traditional modes of practice, both in their education's and their profession's *modus operandi*.

The special location of live project work and its potential to provide a critical distance for those involved, combined with the transferrable learning outcomes and the visible enthusiasm that students experience in these kinds of projects leads to the hypothesis that live projects have an educational potential across a wide range of disciplines. Drawing on two case studies – one architecture design project and one information systems consultancy project – this paper contextualises live project learning in education theory, to develop a wider understanding of the educational outcomes of live projects across disciplines.

The aim of the paper is to investigate, contextualise and understand the educational issues inherent in live project work to explore their potential for application in other fields of study. The paper first introduces the methodology and methods of the research project, including an introduction to the case studies, and then presents the key research findings. These findings are discussed under the emerging themes of self-organisation, peer-learning, working with a client, and preparation for practice. The findings are subsequently contextualised in relation to models of teaching and learning. In particular live projects are discussed in relation to Schön's (1987) post-technocratic model of professional education, Kolb and Fry's (1975) experiential learning model, Wink's (2005) model of transformative pedagogy and Ramsden's deep and surface approaches to learning (2003). These models begin to suggest a broader applicability to live projects as a model of teaching and learning.

Methodology and Methods

As previously stated, the research aim is to investigate, contextualise and understand the educational issues inherent in live projects to explore their potential for application across a range of disciplines. Four sub-aims are generated from this:

- To investigate the experiences of students involved in live projects in two different disciplines at the University of the West of England (UWE).
- To explore educational literature that contextualises and interprets these experiences.
- To identify how emerging themes might have wider applicability.
- To identify operational approaches, and the barriers to implementation.

Developed from the research aims, the research was undertaken inductively in order to develop understanding rather than test existing theory. The approach prioritised qualitative means of data gathering, using grounded theory (Glaser, 1992) as an approach to generating theory from the data.

The research strategy had three phases, an initial survey to gather a database of all the live projects undertaken by the faculty, a second case study phase to gather qualitative information about the range of experiences of students involved in live project work, in the final phase, key themes were contextualised and interpreted through a review of relevant literature.

Survey

The research began with a survey exercise to gather a database of all live projects undertaken within the faculty (of environment and technology) encompassing a broad range of disciplines. This was undertaken in two stages: firstly an e-mail survey inviting responses, followed up by a word of mouth 'follow-up' in order to sweep-up projects missed in the e-mail survey (snowball method).

It was clear that the term 'live' was not used in disciplines outside of architecture (with one respondent questioning whether this implied that other projects were 'dead'). As a result the definition was important. The wording of the definition in the e-mail described a live project as:

a type of learning project which is distinct in its engagement of real 'external collaborators', such as clients or users. This external involvement tends to result in students producing something that is of value to the external collaborator, which might range from ideas, feasibility reports, or research, to a completed design scheme, a construction or other intervention. The remit of the project is typically worked out in collaboration with the external collaborators, rather than being imposed by the lecturer.

This definition was developed through previous research on live projects (Sara, 2004a). It became apparent that the language was quite emotive and elicited a couple of heated responses. However there was a good overall response to the survey, with descriptions of relevant projects recorded from a range of disciplines including Architecture, Multimedia Computing, Planning, River and Coastal Engineering, IT, Urban Design, Statistics and Management Science, Electrical, Mechanical, Motorsports and Aerospace Engineering, Geography and Environmental Management.

Case studies

From the initial survey two projects were selected as case studies. The first case study was an architecture project involving students from second and third year of Architecture and Planning, Architecture and Environmental Engineering and Architectural Technology and Design courses working together in multidisciplinary groups. This group worked to develop design ideas for the long-term development/redevelopment of a community farm. The second case study was an IT consultancy project involving students from Business Information Systems, Web Design, Computing and Internet Systems, Information Technology Management for Computing, and Internet Computing working together in multidisciplinary groups to develop a piece of information management, web design, IT strategy or other related work for community organisations. In reality all of the consultancy projects studied involved students designing web sites and interfaces.

The operational running of the projects was as follows:

<i>Architecture project</i>	<i>IT Consultancy project</i>
Sourcing of project: Project chosen through word of mouth.	Sourcing of project: Project chosen through an online application process with a clear set of published criteria: http://www.cems.uwe.ac.uk/stucons/
Academic context: Run as a project within the design studio (three weeks).	Academic context: Run as a complete 30 credit module (two semesters).
Students: Work in cross year, inter-programme teams.	Students: Work in inter-programme teams.
Group allocation: Self selecting groups 'opt-in' from a range of optional projects. Students arrange themselves into smaller teams according to ideas they want to pursue.	Group allocation: Work in random groups to produce a report researching the different clients. Students are then arranged into teams according to their skills.
Project Initiation: After a site visit and client interviews, the students developed their briefs for the project.	Project Initiation: Meet the clients in a speed dating session – choose top three. Once allocated students produce a project Initiation document (similar to a briefing document).
Assessment: Students are assessed in two ways at the end of the project: at a client and stakeholder presentation at the farm and at an exhibition presentation to their peers.	Assessment: Students are assessed at various points and produce a log book. Students produce a summary poster at the end of the project.

From each case study, three groups of around five students were interviewed in a focus group format, using a semi-structured set of questions designed to prompt a discussion about the process of the project, their expectations, the learning experience – including the types of things that they learnt, how much they enjoyed the project and how their experiences compared to other approaches to learning. All of the responses were anonymised although it is possible to identify groups (but not individuals) from the responses.

In addition, evaluative feedback from the tutors involved in the project (one of whom was the author) was recorded in reflective notes and via a semi-structured interview.

Interviews and focus group interviews were digitally recorded and hard copy notes were taken during the interviews. The interviews were subsequently transcribed verbatim. All the data (including notes, reflections, and transcriptions) was open coded by hand, and organised into themed areas. The findings from the analysis are presented in this paper under the themes emerging from the data itself (in accordance with grounded theory).

Literature review

Having coded and themed the data, the final research stage was to identify relevant educational literature to aid in further interpreting these themes. This stage particularly

attempted to contextualise the findings as part of a wider debate about approaches to teaching and learning.

Research Findings

It became apparent from the initial survey that a number of projects with a degree of 'liveness' were being undertaken throughout the faculty: It is not by any means an approach that is particular to Architectural education. It is interesting to note however that all of the projects described were offered as part of vocational courses. This may of course say more about the nature of the faculty than the inclusion of live project work in non-vocational courses, but it does seem likely that there is a more obvious relationship with a potential client or user in vocational education than there might be in perhaps in English, History or Theoretical Physics.

The number and range of responses suggested that although live projects are a relatively unusual approach to teaching and learning, the range of disciplines involved begins to raise questions about whether there are common areas of learning that might span across disciplines. The two case studies were undertaken to begin to explore common ground. The findings from these are presented under the themes of motivation, self-organisation, peer learning, working with a client, and preparation for practice.

Motivation

One of the key themes to emerge from the analysis of students' experiences of live project learning was around motivation. All but one of the groups expressed very strongly that they were more motivated than in more typical academic projects, and that their enthusiasm levels were high. For students involved in the IT projects, the process was much longer, and they described real highs and lows, but nonetheless felt that overall the experience had been highly motivating. Individuals used terms like 'exciting' and 'fun', where acting as professionals gave them a 'nice feeling'.

These higher levels of motivation are strongly linked to the involvement of real clients and users and the perception that the clients truly valued the work. Students talked about 'making a difference' or a 'lasting effect', and feeling 'proud', knowing that the work was 'going to be used'. One student described:

"If the tutor says 'that's good', or something, it won't actually change the way they work or play, whereas with this website...it will be a new experience for them, hopefully open the door for new opportunities in terms of contacting other charities, maybe new income, so a real benefit. It sounds almost very cheesy but it is a benefit to them."

Handing the project over to the client was a particularly key moment, in which students recorded a sense of pride, achievement and accomplishment. Even the one group that expressed lower levels of motivation overall, highly valued the interactions they had with their user group, describing the experience as both educational and enjoyable – the high point of the project.

Students also reported that they perceived the work to have a real-world relevance, which again was seen as positive. The IT students in particular compared their experiences to projects where they were working for a client within the University. One student commented: “I feel like I learnt more when you feel something is more relevant to what you are going to be doing.” Although these other projects shared a live element, students’ were much less motivated, as they did not perceive the project to be as relevant to their final careers.

High levels of motivation are fundamental to supporting effective learning (Rogers, 2001), so you might expect that students’ learning would be more effective in these projects than in projects where students were less motivated. Research on motivation suggests that intrinsic motivation often goes with superior learning achievements, and that the quality of tasks, practice and environment encourages it (Urdu, 1999). Two factors to emerge from the analysis, the perception of relevance, and the ‘service learning’ aspect (producing something of value for an external client or user) are likely to influence motivation levels: research shows that the perceived *relevance* of learning experiences have an impact on students’ motivation to learn (Frymier and Shulman 1995). Research from students involved in ‘service learning’ in the US also clearly links the service experience with increased levels of motivation to learn (Billig *et al.*, 2005).

Self-organisation

“It’s a different learning from the other ones I think because you are self learning a lot, we are not given specific tasks to do and complete, you do your log book but what we are being marked on is what we have set ourselves” (student interviewee).

Students described a shift in the location of control and responsibility over the project from a more typical tutor-led process, to one where the students themselves took on more responsibility for managing the project and the group, using terms like ‘hands-on’ and ‘self-learning’ to describe their experiences. Again they were motivated to achieve in this self-organisation by the perceived importance of working for a real client/user: “If you don’t get it finished by that date then you have messed up!” For one student this self-direction was a negative element of the project, he described: “I want to learn how to build websites, but we are not being taught in this module, we have to go out and do it ourselves, so whereas other modules teach us the fundamentals in building website, I enjoy that more than this kind of module that you have to do yourself...I’m lazy like that!” However for the majority of the students, the level of flexibility and control over the project was something they enjoyed.

Time management was an issue that was discussed by all the groups with a particular focus on negotiating what was achievable within the time. Some of the groups also talked about managing the client – managing their expectations, and well as setting deadlines for information required from them.

This level of self-organisation was facilitated in the live projects studied from the outset, in the process of meeting the client, and developing a brief (or a project initiation document) in collaboration and negotiation with the client. In this way there is an immediate shift from a teacher centred approach, to a learner centred approach. This is in contrast to the approach often found in the architecture design studio, which Argyris (1981, p.560) and (Nicol and

Pilling, 2000) describe as failing to take students from dependence to independence in learning. Ramsden (2003) emphasises however in the 'Teaching as making learning possible' model that teaching and learning are simply two sides of the same coin, and positions a role for the teacher as collaborator in the learning process, finding out about misunderstandings and intervening to change them.

Peer learning

Five of the six groups recorded learning from peers within their groups. This included learning across disciplines and across year groups. This peer learning ranged from the passing on of skills (such as specific computer programmes) to valuing the experience of students in higher years. Four of the groups referred to integrating, assimilating and applying previous skills, rather than learning anything new, although they regularly talked about developing new understandings about working with a client, which rather contradicts the recorded comments that they hadn't learnt anything new. Perhaps this exposes the perception that 'soft' skills like communication and empathy are not 'academic' skills.

Unusually the group work was consistently seen as a positive element in the live projects studied. Since experience of group work in academic courses is so often problematic, this is quite an unexpected result. Even the less motivated group felt that they had enjoyed working together. It seems likely that the independent, self-directed way of working, along with an acknowledgement that group working is in each individual's self-interest, combined with the (generally) high levels of motivation, might begin to explain this. Mattessich (1992) also suggests that elements like a shared vision, unique purpose and attainable goals, open and frequent informal and formal communication, mutual respect and an appropriate cross-section of members are also key influencing factors. It could be that the way that the groups were allocated also had a positive influence: The architecture groups self-selected to ensure a range of levels of experience and the IT groups were carefully allocated using a skills questionnaire and Belbin (1981) team roles style analysis.

The positive experience of group-work has the potential to significantly influence the students' ability to work in groups as they progress into the world of work. Professions are consistently reporting how much they value group-working abilities and yet many students' experiences of group working within the university will have been negative. These live projects seem to suggest a way in which group-work can a positive experience: "I think because these teams were focused on our strengths it was a much better simulation than would happen in a real world and that was good news...it was good experience."

Working with a client

All of the groups recorded that they felt that they had developed skills in communicating with a non-specialist client and/or user group. One of the groups reported that they expected to learn "How to interact with a client who had nothing to do with architecture and be sent a brief by someone who wasn't in the architecture world." They referred to presenting to a client as something they hadn't done before and enjoying the way in which working with a client could direct their thinking. Another of the groups described the client interaction as the most important learning of the project. They described their favourite aspect of the project as:

“Achieving the goals and doing what she [the client] wanted rather than creating something that we wanted to do, achieving that was really good actually.” Overall, all but one of the groups would have liked more client interaction if they were to undertake the project again.

In a range of different ways, the groups all talked about negotiating with the client, either in terms of negotiating an understanding of the client’s ambitions, and drawing out which information was important, or in finding a compromise between the ambitions of the client and the abilities and available time of the group. This notion of negotiation was also apparent where the client consisted of more than one person. Often students had to negotiate between potentially conflicting ideas amongst the client group. This meant that they really had to draw out the most important, shared agendas, which were often different to what they had initially outlined: “when we initially went and looked around and started questioning them because they had kind of a broad brief to begin with, from talking to them we were able to glean what was the most important parts and what they actually wanted as opposed to what they had written down.” These negotiations also introduced ideas about the long-term sustainability of the project – something that is so easy to overlook in theoretical projects. Students described taking on the responsibility of advising clients to step back from certain ideas, because they wouldn’t be manageable in the long-term

Working with a client developed their skills in communication. Students practised presenting themselves, presenting ideas to a client group, but also actively listening, in order to understand the client. In practical terms, this meant e-mailing, telephoning and chairing meetings, but all of the student groups also referred to more phenomenological issues around developing empathy with the clients/users and their organisation; talking about “getting a feel for a place” the “atmosphere”, getting to know a client organisation “from scratch and really understand what they wanted”, reading body language and even the patience needed to work with a group of older people. This practical experience meant that a couple of the groups talked about how they would be more confident in meeting a real client now.

The development of client skills, and in particular the issues raised around communication, negotiation and empathy has an important role in the development of future professionals. According to the Royal Institute of British Architects’ (RIBA) think tank Building Futures (2011) survey, architects in the future will need to ‘offer a service that embraces the client’s broader aims – becoming a problem solver as well as a designer’ (2011, p.35). The report quotes a global engineering firm: ‘I think the world needs more collective, empathetic groupings of architects; collectives can have a bigger impact than an individual, and more collectives would give the profession a bigger impact’ (2011, p.37). This focus on the ‘softer’ skills of communication and empathy is highlighted across a range of professions. Live project work with a service-learning element can be seen as a powerful way to introduce these skills and attitudes, in a way that is meaningful for students. Back in 1992, British educationalist Hazel Bines suggested that the involvement of clients and users in education could ‘not only offset some of the criticisms of professional attitudes and power relationships in relation to clients and consumers but could also help to ensure that professional formation does address the changing nature of professions in society as a whole’ (1992, p.135). Her arguments still seem as relevant today.

Preparation for practice

The themes of self-organisation, peer learning, and working with a client clearly imply a set of agendas and skills appropriate to professional practice. This link was explicitly discussed by all of the groups as one of the benefits of engaging in these projects. Students described the experience as “a glimpse as to what life is like after University”, “getting ready for going into a practice”, developing a “sense of professionalism” and “experience in real life situations”. They referred to extending their CVs: “because to a lot of companies out there to have the actual experience of working live with a client and working with a team and bringing it all together I think is a big plus”. One student described a recent job interview where he had talked extensively about their involvement in the live project. However it should be noted that the experience of a student who already had a lot of practice experience was far less positive; although this student was the only individual out of around 30 students who felt he had not benefitted. Some of the students mentioned the live project as a positive contrast to more theoretical projects, and it making “a welcome break”. If live project work became the norm (as perhaps it was for one student) then the energy, motivation and other benefits might be significantly reduced.

The students recorded only a couple of potential disadvantages of the ways in which learning through live projects might be a preparation for practice. For one group the experience had been so positive that they were concerned the project might be “Setting too high expectation for when you go into working with other clients because it is never going to be that successful again.” There was some discussion of the pragmatics, of locating a project too far away to visit often enough. However perhaps the most important point made was about the issue of working for free. This only came up once, but highlights a range of issues. In the live projects explored here, the clients were all bar one charitable organisations. The comment came from the one group working for a commercial enterprise (a community shop), which nonetheless had a strong community outreach and service agenda. The issue of remuneration also raises issues around taking work away from the professions. In both cases (the Architecture and IT Consultancy projects) the projects were sold to both clients and students as something that needed to be of mutual benefit, that students were not ‘working for free’, but were engaged in a learning project, that would aim to produce work that was of benefit to the client. Students also benefit in their learning from the additional academic support, so that as one group described, “you are not completely on your own”. It does seem that the line needs to be clear between practice for free and student learning in the community. It might be that this line is clearer where the client is a community organisation or charity that would otherwise not have the funds to employ a professional.

The location of the students’ learning within the community also means that the community develops a direct relationship with the university. There is a two-way benefit in which information is exchanged and links are forged. In this way, live projects develop the potential for dialogue between the university, the profession, the individual and the community – a benefit which has relevance to issues around outreach and knowledge exchange.

Contextualising Live Project Learning as an Educational Model

In order to contextualise the understanding of the live project as an educational approach, and therefore explore its applicability in other educational contexts, the following section positions, evaluates and critiques live projects against relevant models of teaching and learning. This analysis draws on Schön's (1987) post-technocratic model of professional education, Kolb and Fry's (1975) experiential learning model, Wink's model of transformative pedagogy (2005) and Ramsden's deep and surface approaches to learning (2003).

Post-technocratic model

The integration of the community into the university setting is seen to be inherent in the post-technocratic model of professional education (Bines and Watson, 1992; Schön, 1987). It is proposed that there have been three stages in the development of education for the professions: the apprenticeship or pre-technocratic stage, the technocratic stage (Schön, 1987) where professional education moved into academic institutions, and the 'post-technocratic' stage, where increasing emphasis is placed on the acquisition of professional competences.

It is not enough to have knowledge; it is necessary to use it effectively in practice to assess people and situations, reach decisions about action, and evaluate the action taken. Each step in this process involves complex judgements, demanding knowledge, intellectual and interpersonal skills and sensitivity to values. The competencies involved are seen to be best developed through practice and reflection on practice.

(George, 1992, p.152)

Positioning live project work in this way, reminds us of the need to reflect on practice. It is not enough just to set up live project experiences, these also need to be stepped back from and reflected upon in order to cement and reinforce the learning. This need for reflection on action is described by Schön (1987) and by Kolb and Fry's model of experiential learning (1975).

Experiential learning model

The experiential learning model is adapted to describe the live project process:

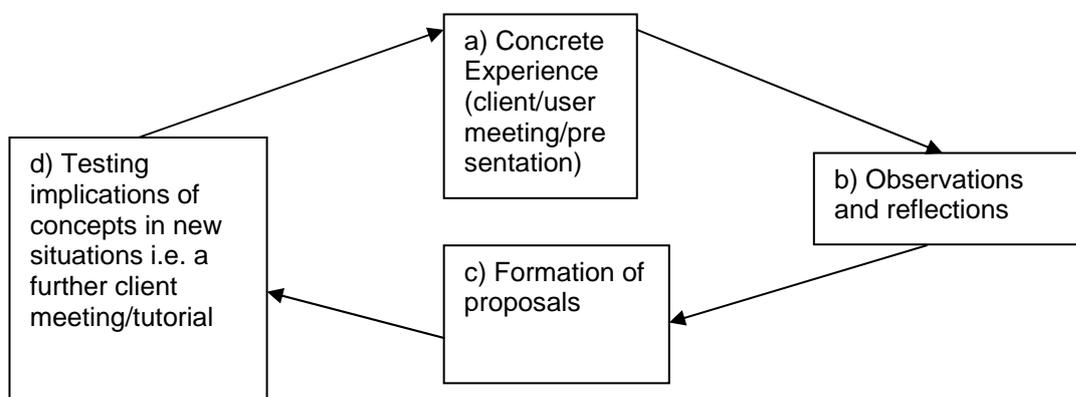


Figure 2 The live project experiential learning model, after Kolb and Fry (1975)

Figure 2 shows that a personal concrete experience (a) is followed by observation and reflection on that experience (b). These reflections are then developed into abstract concepts and generalisations (c), which are then tested in other situations (d). These new situations create further personal concrete experience from which the learner can repeat the cycle.

The live project can then be seen as a form of experiential learning, positioned within a post-technocratic model of education. The post-technocratic model is directly relevant to the live project as it 'assumes a more equal relationship between educators and other members of the professional community' (Bines, 1992, p.131). The reminder from both theories of the need for reflection reintroduces the strength of the in-between location of the projects. Although learning is repositioned out into the community, the projects retain one foot in the world of the university. This means that the projects allow a unique learning opportunity to both actively engage with clients in real-world scenarios, but also to rely on the tutorial support of the university to prompt critical reflection.

Transformative pedagogy

Wink (2005) describes three models of pedagogy, the transmission model, the generative model and the transformative model. In the transmission model the teacher transmits information directly into students. The teacher is the provider of knowledge, and the student's job is to receive and memorise that knowledge. In the generative model, the students are more involved in learning, and the process is more interactive. Students are expected to generate questions in order to direct their learning, but the teacher is still the provider of knowledge, explaining about learning. In the transformative model, the students and the teacher are partners in the learning process, actively involved in real-world settings. Wink proposes that this is the most effective type of learning, that in this setting students are actively involved and interested, and are able to take knowledge they learn and transform it into new ideas, thus the model describes this kind of learning as creating knowledge (2005).

The transformative model clearly supports the real-world learning of the live project; community development support and networking are typical instruments of transformative pedagogy. However in the projects explored in this research, the teacher was less of a partner in the learning process, and more of a critical guide, or perhaps expert consultant. Drawing on the principles of critical pedagogy suggests that for live projects to be developed as transformative projects, the role of the tutor might be repositioned as genuine collaborator in the process. Wink (2005) acknowledges that this is difficult to achieve, and if we consider the ratio of tutors to students in Higher Education this problem is reinforced. It could perhaps be that the role of critical guide, or expert consultant could be undertaken in the spirit of collaborative enquiry. It is clear that the tutor's role is significantly repositioned in live project work, from provider of the knowledge, to a more collaborative role. However the importance of reflection highlighted by the post-technocratic model and theories of experiential learning suggest the need for the tutor to prompt critical reflection. Again perhaps the notion of live project learning as 'between' might suggest a direction. The tutor's role might then be cast as mediator between the worlds of university and community, but also between the role of collaborator and teacher. In this way the tutor's role can be seen as engaging in the spirit of

collaboration and self-learning, whilst acknowledging a responsibility to prompt critical reflection and impart relevant knowledge where appropriate.

Deep versus surface approaches to learning

Ramsden proposes that we might think about learning as a relation between the person and the material being learned (2003, p.41). As such, the concept of approaches to learning describes the qualitative aspects of learning; how people organise and experience the subject matter in order to understand. He conceptualises two very different approaches: a surface approach and a deep approach:

Deep Approach	Surface Approach
Intention to understand, student maintains the structure of a task	Intention only to complete task requirements, student distorts the structure of the task
Focus on what it signified (e.g. the client's overall needs and ambitions)	Focus on 'the signs' (e.g. the programme needed to solve the problem or the words and sentences the clients use to describe their needs)
Relate previous knowledge to new knowledge	Focus on unrelated parts of the task
Relate knowledge from different courses	Memorise information for assessments
Relate theoretical ideas to everyday experiences	Associate facts and concepts unreflectively
Relate and distinguish evidence and argument	Fail to distinguish principles from examples
Organise and structure content into a coherent whole	Treat the task as an external imposition
Internal emphasis: 'A window through which aspects of reality become visible and more intelligible.' (Entwistle and Marton, 1984, cited in Ramsden, 2003, p.47)	External emphasis: demands of assessments, knowledge cut off from everyday reality

After Ramsden (2003)

To generalise, a deep approach can be seen as about developing understanding, whereas a surface approach can be seen as the memorising of facts or procedures. Although most people use both deep and surface approaches for different tasks, it is generally a deep approach to learning that achieves better long-term results. Drawing on this model helps to position live project work as likely to facilitate students in a deep approach to their learning. It is apparent that the structure of live projects allows students to see the overall structure of the task: The students themselves define that structure and therefore have an overall picture of the intentions, even when they are working on smaller elements of the overall task. Students talked about being able to apply the knowledge learned in other modules within

their live project learning. Many of the groups specifically referred to issues around developing a genuine understanding of the client's requirements, developing a qualitative understanding of those needs and their values.

The emphasis on students understanding their learning in an everyday reality can also be seen to support a deep approach to learning. Again the model reinforces the importance of reflecting on the everyday experiences. Once more this reinforces the need for this approach to teaching and learning to capitalise on the between location of the project work to value those real-world experiences and prompt reflection on those experiences in order to convert those experiences into transferrable skills and learning.

Best Practice and Barriers to Implementation

The analysis suggests a number of recommendations for best practice which link back to the key themes of the research findings around motivation, self-organisation, peer-learning, working with a client and preparation for practice. Operationally, there are three techniques which can improve the learning potential of live project work:

- a filtering process for choosing enthusiastic clients with an appropriate service learning element;
- the construction of student groups with a mixed skill set, according to a skills profiling exercise or equivalent;
- the development of a structure that facilitates students' critical reflection on experiences. This can be facilitated through the use of a reflective log-book, which allows an assessment of the process as well as the product, but can also be facilitated through discussion and other techniques.

In addition the roles of the client and teacher significantly shift the dynamic from a teacher-led model, to a collaboration between tutor, student and client.

Working with a client

The introduction of an external collaborator, usually a client for the project, represents the fundamental shift from a typical academic project to a project that can be seen as live. As a result, in order to maximise the learning potential of the live project experience, the engagement of appropriate clients is a key part of setting up the project. There are six criteria which students and staff involved in live projects recorded as affecting the success of the client collaboration:

1. Engage clients with a strong agenda, but who are also open to new ideas.
2. Look for enthusiasm.
3. Undertake projects with a public service element (so students are not simply doing private work for free).
4. Undertake projects that are directly relevant to the students' future professions.

5. Make clear to outside collaborators that this is an educational experience; that students are not providing a professional service 'on the cheap' but that it is a process that can still be beneficial to both parties.
6. Involve clients in a collaborative assessment process.

The role of the teacher

In live project work the teacher is repositioned as collaborator in the learning process. However the teacher also has a specialist role, distinct from that of the student, as responsible for facilitating student learning. This means that the teacher is responsible for setting up the projects, managing the work within academic timeframes and acting as a prompt to allow critical reflection, whilst handing over as much responsibility for the project as possible to the students. Simultaneously the teacher's experience and professional expertise should be drawn upon in order to provide expert guidance where needed and to seek out misunderstandings and intervene to change them. The teacher is cast as mediator between the worlds of university and community, collaborator and teacher.

Barriers to implementation

It is clear that there are many benefits to this way of learning and teaching, but there are also barriers. Feedback from staff involved highlighted five key potential barriers:

1. Time needed to set up the projects.
2. Contacts needed to find appropriate projects.
3. Sourcing of projects that will work within academic timeframes.
4. Potential for resistance from colleagues.
5. Reduced level of control over the process and therefore a risk of an unpredictability of outcomes.

Conclusions

Through analysing the case studies and conceptualising live project teaching and learning within a number of educational models, it is argued that live projects can be a valuable insertion into the academic repertoire, with potential for application across a range of disciplines. Students develop a range of attitudes and skills that can be seen to enrich, critique and develop those found in traditional academic work, in particular skills in self-organisation, peer learning, communicating and negotiating with a client, and professionalism which are hard to simulate within the academy. The development of these skills and attitudes is consistently recorded across the range of different live projects that students were involved in. In addition, students are highly motivated and actively engaged in the process, which is likely to lead to superior learning achievements.

Live project work is conceptualised as representative of a post-technocratic model of professional education that draws on the real world location of projects to facilitate meaningful experiential learning. However the projects are not solely located out in the community. Live project work is also simultaneously located within the academy, and it is this straddling of the two worlds that affords live projects such a powerful learning potential. In

particular the university location allows a critical distance from the live project experiences. This critical distance can be capitalised upon by tutors as an opportunity to prompt students to reflect on their experiences and conceptualise their learning so that it might be transferred to different contexts.

The types of knowledge, skills and values developed suggest that the live project model is itself transferrable to a range of different disciplines. Skills such as group-working, communication, negotiation and professionalism are relevant to any professional context. The way in which live project learning allows students to integrate their previous learning in real world applications increases the likelihood of students learning at a deep level. The positive results seen in students who use deeper approaches to learning also justify the further application of live projects in other disciplines.

It is important to note however that the live project learning is not only about developing skills and attitudes relevant to the needs of professions and communities. Live project work has potential for a more provocative role than this. The transformative pedagogy model proposes that engagement in live projects might also be able to create new knowledge and approaches to professional practice. By working outside of the confines of established practices and by critically reflecting on their actions, the students inhabit potentially powerful liminal locations between theory and practice, university and community, designing and making, the head and the hand, and ideas about what it is to be a student, and what it is to be a professional. Viewed in this way, live project pedagogy acknowledges an evolving, socially constructed curriculum that exposes competing power relations. This potentially leads to a conflict with university regulated and modularised forms of learning and assessment; live projects can be seen as a challenge to the established order. However the nature of this work is not in opposition to more typical academic projects. The special, outside the norm, quality of live project work rather acts as a powerful *complement* to traditional academic programmes. Live project learning inhabits a threshold space between the 'normal' activities of higher education, professional education and professional practice, and thus provides the opportunity to critique and also reenergise the official worlds of each, in which knowledge is not just passed on, but is actively created. Live projects offer a truly transformative model of learning.

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