BETWEEN STUDIO AND STREET:

THE ROLE OF THE LIVE PROJECT IN ARCHITECTURAL EDUCATION

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January 2004

ACKNOWLEDGEMENTS

I would like to thank the H K Stevenson Fellowhip for providing financial support for the first three years of the research. Also the RIBA Research Trust for funding a part of the field research. I am grateful to the number of architectural educators and students who took part in the study – I appreciate how difficult it is to do when already overrun with busy schedules.

Many thanks also go to my two supervisors, who provided excellent advice from their extremely thorough reading of the text.

Mostly, however, my thanks go to Louis, for providing the huge amount of financial and emotional support needed to get me through the work, and the two pregnancies and babies that came during the course of the work!

Summary of Thesis

As a core element of architectural education, the design studio is the place where most aspects of the course are assimilated. However, it is criticised for failing to address key aspects of both practice and education. In response, live projects are beginning to be undertaken in schools of architecture in the UK, as a way of introducing real clients or users into the design studio, and taking students into the 'real world'. Students often work in groups, in collaboration with other disciplines, and in the community, and are challenged to take on real issues, develop real relationships and often to make a real contribution.

This thesis traces a history of the design studio, provides a description and critique of the current normative model, and summarises the criticisms of the current system, followed by ways in which architectural educators are addressing these criticisms. Both the studio and live projects are then explored in the context of education theory and praxis. This discussion culminates with the presentation of examples of live projects. The following empirical study uses a combination of autobiography, case study and survey methods to establish: the learning effects of live projects; what is perceived to be the important issues in experiencing the live project; how and why these differ to the traditional studio project.

The research uses a feminist critique to expose the way that certain characteristics are conceptualised as being masculine and superior to others (which are conceptualised as being feminine and subordinate). The feminist position is thus focussed on reuniting and rebalancing polar opposites with the intention of creating a more inclusive approach. Ultimately the position allows both the masculine and the feminine to be celebrated for the benefit of both women and men in the development of the studio and ultimately the profession. This interpretative framework influences both the choice and approach to the literature study as well as the methodology for the empirical study.The research found live projects to be a valuable insertion into the studio repertoire. Students develop a range of attitudes and skills that can be seen to enrich, critique and develop those found in traditional studio work, and which contemporary education models support. Alongside this, live projects develop the potential for dialogue between the studio, the profession and the community. The culmination of the research is a best-practice guide for the implementation of live projects.

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1. INTRODUCTION

1.1 Definitions

1.1.1 Architectural Education

Architectural Education is defined here as the process through which a person must pass in order to become a qualified architect. In the UK this means passing a course that is presented by the Architects Registration Board (ARB). The course typically involves a total of five years study in an academic institution, and two years of practical training. This means that the bulk of the course also has to conform to the requirements of the government funded higher education sector (HE).

In this study, the term architectural education is used to refer particularly to the academic aspect of the course, and not the practical training aspects.

1.1.2 School of Architecture

The word 'school' is defined as the academic unit that provides a course and is used throughout the thesis. A school may be a department, division or other academic grouping. Within the UK the majority of schools of architecture are affiliated with Universities.

1.1.3 Practical Training

Practical training is the term given to monitored practical experience in professional practice i.e. experience working in an architectural practice or in a related field.

1.1.4 RIBA

Royal Institute of British Architects

1.1.5 ARB

Architects Registration Board of the UK

1.1.6 Design Studio

The design studio is the central feature of courses in architectural education in the UK. It is both a process and a place: As a place, it is where most of the design work goes on, and students work alongside each other with the occasional intervention of tutors and external critics in events such as tutorials and design reviews (although increasing financial pressures on schools of architecture are meaning that some courses are run without a studio as a physical space). As a process, it is normally based around project-based learning, in which students are set a design project, which they are to explore through a combination of research, experimentation and design with varying levels of input from tutors and other specialists. Students learn the process of design through their engagement with the project.

1.1.7 Live Projects

A live project is defined here as a type of studio project which is distinct in its engagement of real clients or users. This external involvement tends to result in students producing something that is of value to the client/user group, 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 design studio tutor. As a result, the process is more dialogic and inclusive than traditional studio projects. The external focus introduces a contingency to the projects, which makes live project work stand apart from the necessarily more abstract projects of the traditional design studio.

1.1.8 Crit/Review

Reviews (also known as crits) are a key part of the architecture design studio. Students present their work visually and/or verbally to a panel that might include tutors, visiting critics and fellow students, in order to receive feedback. Through this dialogue, a useful learning opportunity is made for the whole group, and in particular, students are expected to learn valuable lessons that can be taken through to their future work. In addition, tutors often use these events as an opportunity to mark students' work.
At its best, the review is a constructive learning environment for the whole group, but at its worst, it has the potential to be a destructive event in which either party becoming defensive and/or aggressive prohibits learning.

1.2 Research Motivation

1.2.1 Context

The education of architects in the UK is one of the key forces shaping the architectural profession. The current system, through which all qualified architects have to pass, typically involves a combination of architecture school based education (taking the form of a three year degree course (Part 1) and a later diploma course (Part 2), usually totalling five years) and practical training (for a minimum of two years), culminating in the RIBA/ARB professional examination (Part 3). Thus school-based education (of which the degree precedes the practical training) has a large influence on shaping the attitudes, skill base and knowledge of future architects.

Recent reports on the nature of the construction industry, and in turn the architectural profession have been critical of various aspects of current practice and in particular have emphasised the need for an increased focus on the clients and users of buildings and a more integrated work team which respects all participants in the construction process (Egan, 1998, Latham, 1994). As will be

shown, architectural education has been independently criticised for failing to develop skills in these very areas.

Parallel to this, there are demands of educators and theorists, and feminist commentators, that as shall be seen, imply that architectural education needs to become more holistic, pluralistic, responsive, political, critical, ethical, caring, responsible, and democratic. These movements assert the need to involve the 'others' in society, the local community in particular, in order to counter the tradition of architecture to be *'self justifying'* (Nicholson, 2000:xvi) and isolated.

1.2.2 Core Issue

In schools of architecture, the design studio is the one element that aims to unify all parts of the architectural curriculum. It is here that the disparate elements of architectural education may be synthesised in the design process. It is also the part that is generally given the highest status and afforded the largest proportion of students' time. The studio is at the heart of architectural education and it is here that the previously summarised criticisms of the current system largely find their source.

In contrast to the standard studio project, a new educational methodology is emerging – the live project. This new (or newly rediscovered) pedagogical approach takes students out of the relative control of the studio and into the 'real world'. Students often work in groups, in collaboration with other disciplines, in communication with those outside of the architecture school and in the community. Students are challenged to take on real issues, develop real relationships and often to make a real contribution, sometimes challenging or extending what is seen to be architectural production. By adopting this approach education can be seen to be addressing the concerns of the construction industry and critics of the normative educational process.

1.2.3 Research Objective

Due to the feminist epistemology behind the research, and the theory developing nature of the thesis, the research does not attempt to search for 'answers' to a

particular research question, but instead aims to explore issues that come out of studying live projects. As a result, the research is focused around a research objective, as opposed to a research question.

In exploring the live project as a new pedagogical practice, the objective of the research is to:

Establish the role of the live project in architectural education and propose best practice strategies in order to critique current architectural education practice.

As a result, it should be made clear that this thesis aims to explore the educational role of the live project as a process, and not the architectural products of such a process. It is for this reason that illustrations of live project work have been excluded from the thesis. It is acknowledged that the readers of this thesis are likely to be highly visually literate people involved in architecture, and it was felt that any inclusion of examples of work might prejudice readers for or against the value of the process.

The research objective is approached from a critical feminist perspective as is explained further in the following section.

1.3 Interpretative Framework

Any attempt at social research implies a position, whether this is the traditional positivist claim to objective, truth-seeking science, or another more relativistic, postmodern stance. This position informs the theories, ethics, values and methods used to interpret data and build arguments. This research thus aims to make the methods and theories inherent in the research explicit.

A traditionally scientific approach (which can be considered to be in the positivist tradition) would make the claim of objectivity, or *'the basic conviction that there is or must be some permanent, ahistorical matrix or framework to which we can ultimately appeal in determining the nature of rationality, knowledge, truth, reality, goodness, or rightness.'* (Bernstein 1983:8) This belief is now highly

contested, particularly in the realm of social research.[1] In contrast, this research draws on the personal and particular, using critical theory as an interpretative framework.

In the field of social research, knowledge is seen as being structured by existing sets of relations. *'These social structures are seen by critical social researchers, in one way or another, as oppressive structures.'* (Harvey, 1990:2) This approach then implies that the research becomes a critical project, which aims to challenge these structures. In addition, critical social research judges the adequacy of the research by its ability to inform actions (Johnson, Dandeker and Ashworth, 1990:144). Critical social theory thus frames *'its research program and its conceptual framework with an eye to the aims and activities of those oppositional social movements with which it has a partisan, though not uncritical, identification. The questions it asks and the models it designs are informed by that identification and interest'* (May, 1997:36).

In this research project, particular identification is found with feminist movements. Beasley (1999:20) defines a fundamental aspect of feminist thought as being broadly identified with a *'critique of traditional social and political theory...'* and its characteristic reliance on absolute truths and polar opposites. This reliance conceptualises certain properties as being masculine, and placed in opposition to others, which are seen as being subordinate. For example: man/woman, reason/emotion, selfhood/otherness, autonomy/interconnection, nurture, active/passive, public/private and general, universal/particular (after Beasley, 1999:9). As a result the feminist position is particularly focused on re-uniting and rebalancing the polar opposites. This means re-valuing the subordinated (feminine) concepts.

This feminist approach has emerged since the late 1970s. The early feminist critiques were focussed on including and promoting women. In the context of epistemology this meant acknowledging that women *'had been historically excluded from the institutions where knowledge is produced and validated...'* (Sandercock, 2003:68) Subsequently, attention has shifted to challenge the way

1 By theories such as realism, subjectivism, idealism, and postmodernism, and other critical theories, and in particular by feminist and ecological researchers.

that scientific knowledge is given privilege over other ways of knowing, such as those based on experience, intuition and creativity. This challenge has sought to transcend the dualisms inherent in a positivist epistemology – however, the contradiction is that the principle of a feminist epistemology reinforces the enlightenment dualisms of male/female, rational/irrational. (Sandercock, 2003:69, McDowell, 1999:12).

The position of this research is then to seek to reunite these polar opposites – accepting the need to utilise the dualisms of positive epistemology for a transitional period, on a path to an inclusive epistemology that celebrates both reason and emotion, selfhood and otherness, autonomy and interconnection/nurture, public and private, and universal and particular.

This position is used to focus the critique in the research, as well as to inform the development of the methodology. It should be emphasised that the feminist position of the researcher is not that of promoting the work and value of women as opposed to men, but is drawn upon with the intention to liberate both men and women from the masculinist (as opposed to necessarily male) structures that dominate our society, and in particular our institutions.

In accordance with this position, the researcher does not aim to detach herself from the research, as: *'If we assume that we can neutrally observe the social world we shall simply reproduce the assumptions and stereotypes of everyday actions and conventions'* (May, 1997:30). Instead, she seeks to understand her own place and experiences in the research, as a central part of its process and product. A critical position finds one needing to be both an insider and an outsider. The researcher is both a woman and has been educated as an architect and is now involved in the education of architects and yet her sex contains grounds for a resistive reading of certain educational operations. This reading helps to structure the critique and in particular the analysis of the research.

1.4 Research Methods

The starting point for the research was the researcher's involvement in live projects, followed by her proposition (or hunch) that these projects address certain issues that are currently lacking in architectural education.

1.4.1 Feminist methodology

The research method is a development of a critical feminist epistemology. It conforms to standpoint feminism.[2] This approach has been criticised for giving predominance to those in power – the white, academic middle-class feminist for example over silenced feminist standpoints such as those of black and lesbian feminists. However the researcher aims to counter this tendency, as far as possible, through a critical and reflexive awareness of her own assumptions and omissions. This standpoint approach makes explicit the subjective foundations of the research that '*recognises that we are part of the world that we study; that we bring to any setting our own experiences; that there is a constant interaction between theory and data and that these issues cannot be separated from each other*' (May, 1997:154). However, it aims at 'strong' objectivity as defined by Sandra Harding (quoted in Coffey and Delamont, 2000), which aims at objectivity, but objectivity that includes an examination of all unexplicated beliefs.[3] Feminist strategies of networking, participation, interaction, contextualised and open methods are utilised in a multi-method approach.

1.4.2 Theory Developing Approach

The intention of this thesis is develop a theoretical understanding of live projects. This is in contrast to a traditional positivist approach of testing a theory, through a pre-defined research question. In this way, the research is theory-developing, as opposed to theory-testing. This inductive approach is an established social

[2] Standpoint feminism is defined here as an approach that takes experience as the starting point for research, but is not the entirety of the research (see May, 1997:22)
[3] Harding compares this with the conventional definition of objectivity, which is weak because it fails to express and examine the researchers' taken-for granted, hidden agendas and cultural assumptions. These include the assumptions that mind and body can be treated separately, reason and emotion can be separated and masculinity and femininity are separable from social interactions.

research approach, and *'involves drawing generalisable inferences out of observations'* (Bryman, 2001:10). The ultimate intention of the research is to develop a holistic understanding and a *'search for pattern and meaning rather than for prediction and control'.* (Lather 1991:72) Thus the research does not attempt to describe a single reality, using multiple mappings of this reality but instead describes the range of realities with which individuals interpret the live project. In this way the research aims to provide more than a snapshot; instead it explores the live project from many sides, in order to develop both an empirical and an empathetic understanding of the process, with the intention of building a theory as a result. This theory aims for a 'middle range theory's' attempt at understanding and explaining a *'limited aspect of social life'* (Bryman, 2001:6) – in this case, the live project.

1.4.3 Research Model

The model in figure 2 is a representation of the research process undertaken in this thesis, and was inspired by the research wheel described by Rudestam and Newton (1992) – see figure 1.

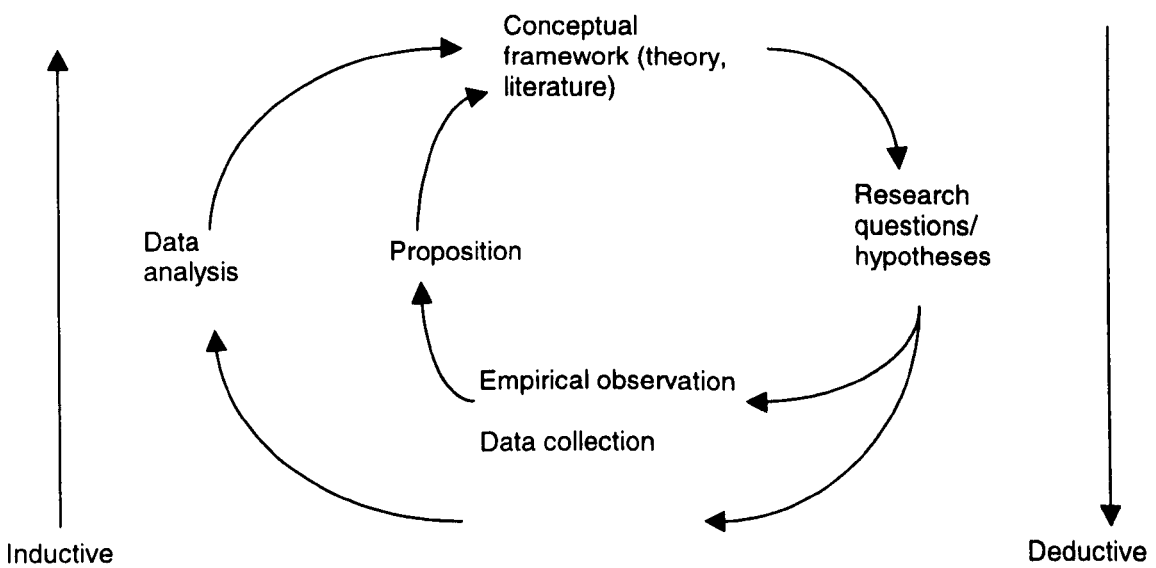

Figure1: The Research Wheel

(Source: Rudestam & Newton, 1992)

The research wheel describes a series of steps that are repeated over time. The process of this thesis slightly differs from the model shown in the research wheel, in that it describes a more inductive, interpretive, process rather than the more

traditional deductive approach; rather than aiming to test a theory, this research is theory developing. Figure 2 represents this adjusted model. As is concordant with the feminist standpoint approach, the research is shown to have a definite beginning – an experience, and does not propose research questions or hypotheses, but instead develops theoretical understanding through the concepts to emerge from the data collected, and its relationship to the literature.

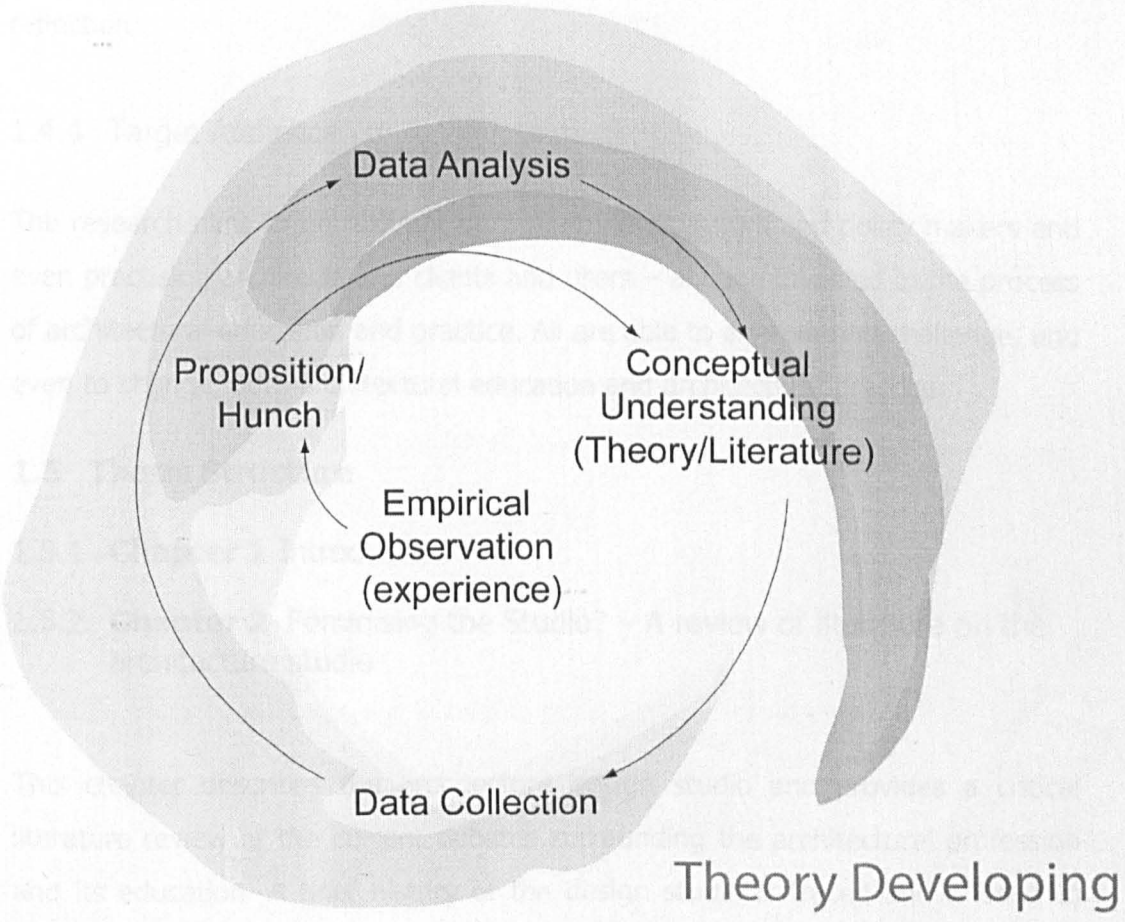

Figure2: Theory-developing research model

This model shows that the research process undertaken was not linear and theory testing, but instead went through a cycle of interpretative steps. From the initial experiential observation, a proposition was developed, which was dependent on the values, assumptions and goals of the researcher (as described in the previous section). This proposition was explored within a conceptual/theoretical framework, which clarifies the relationship of the proposition to the broader context of theory and previous research. This links the relevant abstract concepts to the empirical data and can be seen as theory-

developing. The researcher then sought further data on the subject. The data was then analysed and generalisations made on the basis of this analysis in combination with the conceptual framework, which led to further study of the theoretical context. The theory is developed and deepened at all stages in the process and thus is conceptualised as an increasing spiral around the research wheel. All parts of the wheel are interrelated and each stage (influenced by Schön's model of reflective practice (1983)) provides the opportunity for critical reflection.

1.4.4 Target Audience

The research aims to be relevant both to students, tutors and policy makers and even practising architects and clients and users – anyone involved in the process of architectural education and practice. All are able to analyse and challenge, and even to change, both architectural education and architectural practice.

1.5 Thesis Structure

1.5.1 **Chapter 1** Introduction

1.5.2 **Chapter 2** Feminising the Studio? – A review of literature on the architecture studio

This chapter describes the architecture design studio and provides a critical literature review of the current debates surrounding the architectural profession and its education. A brief history of the design studio is traced and is used to position the current model. The criticisms of contemporary architectural education are summarised, followed by a review of responses to those criticisms drawn from five recent UK conferences on architectural education. Conclusions are drawn as to the way in which architectural education may be changing, and how the live project is positioned as part of this change.

1.5.3 **Chapter 3** Including the Street – An analysis of the live project as an educational model

This chapter provides a critical analysis of the live project, its historical and current position, through a literature review of relevant education theory. The aim is to develop an argument from the literature to support and critique the live

project from an educational perspective. Conclusions are drawn as to the role of live projects from an educational perspective. This analysis is used to develop a framework for best practice for the live project's implementation.

1.5.4 **Chapter 4** Methodology

The following two chapters further explore and develop the understanding achieved through the literature research through an empirical study. This chapter outlines each stage of the empirical study, with a focus on three key stages – a reflective autobiographical account, a case study and a survey. The methodology used in these stages is described and justified.

1.5.5 **Chapter 5** Results

This chapter presents the results of the three stages of the empirical study. These results are analysed cumulatively, with each section building on the understanding given by the previous. The literature studied in the second and third chapters is used in the analysis to inspire questions, to deepen the meaning and understandings suggested by the results, to create links and to support and validate the emerging theory.

1.5.6 **Chapter 6** Conclusions

This chapter draws together all the elements of the thesis in order to build a theoretical picture of the live project in architectural education. This is used to suggest ways in which current architectural education practice might be developed. An attempt is made to widen the discussion to suggest the wider implications – to the architectural profession, to educators in other fields, to clients and users and society as a whole. Finally, suggestions are made for further research inspired by this study.

1.5.7 **Chapter 7** Best Practice Proposals

Finally, a summary of best practice is presented, which draws together the understanding developed in all the sections of the research.

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2. FEMINISING THE STUDIO?

A review of literature on the architecture studio

2.1 Introduction

This chapter introduces the concept of the design studio in architectural education and provides a critical literature review of the current debates surrounding the architectural profession and its education. The historical development of the design studio is drawn upon with a view to opening up the unspoken assumptions that may underlie current studio teaching structures. As a result, the historical summary is biased towards events and processes that are seen to be particularly relevant to the current studio, and to this study. An attempt is then made to describe the design studio in its current position. The criticisms of contemporary architectural education are summarised, followed by a review of responses to those criticisms. This review is mainly drawn from five recent UK conferences on architectural education.[1] These were chosen in order to limit the literature analysis to a manageable field, and to focus the critique to contemporary thought. As the chapter title implies, the notion that the proposed responses may be viewed as feminine, in contrast to the traditional model being viewed as masculine is explored, with an inclusive feminist objective of uniting and rebalancing the polar opposites.

[1] 'Changing Architectural Education: Society's call for a New Professionalism', De Montfort University, 1999; 'Conference on Design Education', Royal Incorporation of Architects in Scotland, 1999; 'AEE2000', Sheffield University; 'TIA2000', Oxford Brookes University and 'AEE2001', Cardiff University.

Conclusions are drawn as to the way in which architectural education may be changing, and how the live project is positioned as part of this change.

2.2 The architecture design studio

Design is prescribed by the RIBA's criteria for validation as taking up a minimum of 50% of the total time (RIBA, 2001). However, it is only relatively recently, with the formalisation of the education of architects and the subsequent move away from the apprenticeship system, that the studio has risen to its current position of dominance. Where did the notion of the studio spring from, and how did it come to be the way it is? It is worth tracing this history in order to understand the roots of the contemporary studio system. The intention is not, therefore, to provide a comprehensive history, but to delve into history to tease out how and from where contemporary traditions and structures may have emerged.

2.2.1 Historical context

It is now a commonly accepted idea that design is a process that must be learned through *'formal instruction and periods of academic study and that this should be conducted in an educational institution.'* Lawson (1997:4) This model is, however, a relatively recent phenomenon. The history of design education shows a progressive shift of influence, from the workplace (learning through doing) to the college and university studio. In *From Craft to Profession*, Mary Woods notes that from the formation of the modern architectural profession in the 19th Century right up to the mid 1960s, *'no other institution – professional society, school, or the press – matched the office's influence'* (1999:170); during this period private practices remained the dominant source of innovation in the profession. Although increasing numbers of architects received their first professional training in universities, the most significant and influential part of their education came during their apprenticeships in professional offices and significant numbers of students left to join offices before finishing a degree. (Woods, 1999:170)

Despite this assertion, it is probable that the rise of the academy nonetheless had a large influence on the profession as a whole much earlier, as it was an academic paradigm (in the form of the Beaux Arts

model) that provided the first means to validate architects' education and thus provide a way of limiting entry to the profession's ranks. The Beaux Arts model is seen by many architectural educators as the first attempt to formalise the education of architects: the AIAS[2] Studio Culture Task Force summarises that *'with the advent of the Ecole des Beaux Arts in Paris in 1850, a formal architectural education model developed.'* (AIAS, 2002:5) Almost two centuries later, it is a model that still forms a major influence on the design studio of today.

2.2.2 Beaux Arts Model

The École des Beaux Arts, founded in 1819[3], was the leading centre of architectural education in France. Developed from the earlier Académie Royale, and ultimately, it is suggested in Broadbent (1995:13), the Medici-owned and Alberti-influenced Academia Platonica, it was a centralised state-run school, based on competitions and closely linked to the government's building offices. It offered instruction in drawing, painting, sculpture, architecture and engraving (Encyclopaedia Britannica, 1987), and thus cemented the separation first established in the Académie Royale of the abstract principles of design (which were learnt first) from the practical experience which was only undertaken afterwards (Kostof, 1977:177)

Time was equally divided between lectures and studio work, which consisted of competition projects. These might be for sketch designs, larger rendered projects, construction studies of the classical orders, history of architecture, life drawing, sketching of ornament and antique casts.

In terms of teaching design, the École itself only provided the programme for the competitions and judged (in secret) the entries, so in developing the process of design, students had to fend for themselves. In order to gain some instruction, the students themselves set up ateliers – renting a studio and paying a patron (usually a prominent architect and teacher). This led to a level of competition between the studios and their patrons, establishing the idea of competition, and reverence to a studio master,

[2] American Institute of Architecture Students
[3] (Although it is recorded by Pfammatter, (2000:53) quoting Pevsner that it was established in 1795)

which is still apparent in the normative model of today. They were careful to ensure a mix of senior and new students, who would learn a lot by helping the senior students with their drawings: repeating details, inking up drawings, drawing in shadows etc (Broadbent, 1995). As a result, although there is a notion of collaborative approaches to learning, it is within a strictly hierarchical framework, that only allows those inculcated into the traditions and methods of design to make a contribution. The overriding learning model is that of the master's studio, which is essentially learning by role model. (Pfammatter, 2000:9)

The projects were undertaken under a strict structure and set of rules. For large projects the student was expected to quickly develop a concept in an outline sketch, which would be worked out in private – students were strictly confined and isolated to preserve *'the product of individual creation'* (Crinson and Lubbock, 1994:76). This early model clearly inculcates and formalises the idea of architectural genius as being individual, and produced in isolation and competition.

The students were led along a series of clearly marked steps, involving examinations and competitions. Once the student had received mentions in a set number of competitions, they would be allowed to sit the diploma test in order to proceed directly to official government work. The most prestigious competition was the Prix de Rome, which enabled the student to study in Italy for four or five years, at the end of which they would be employed as a state architect. (Kostof, 1977:210-1) In this way, the Beaux-Arts held a monopoly on entry into the profession in France, thus inculcating the dominant classical epistemology upheld by the École.

The focus of the Beaux Arts on the reproduction of the orders and fragments from history led to a perfection of presentation skills to the expense of other skills, as Kostof comments: *'Ecole students learned to produce exquisite drawings, often in brilliant water-colour wash. Critics complained that this was merely cleverness which had nothing to do with real architecture. Beaux-Arts students admitted that the school required a degree of rendering facility rarely encountered in practice, at least outside the big competitions'* (1977: 220) Thus we get the first ideas of an education that is distinct in its requirements to the needs of practice.

The Beaux Arts education model begins to shape the conception of architecture and architectural education as an individual, isolated and competitive activity. Architects in the Beaux Arts system are to reproduce the classical styles, and thus the course is heavily based on learning from historical precedents. The production of architecture and architects is institutionalized – under the control of the government and education is distinctly separated from practice.

The underlying assumptions that are established by the Beaux-Arts can therefore be summarized as:

- A system of learning that is strictly controlled by the academy, and in turn the government.
- The introduction of the studio design project (in the form of competitions). This established the learning process as based on learning by doing, or project-based learning – students are expected to learn how to design by attempting to do so through their involvement in a project (competition) set by the school.
- The establishment of the studio as a physical space. It is interesting to note that the students themselves felt the need for support in learning to design for the competitions, to the extent of setting up ateliers and employing a patron to assist in this learning process. Also of note is the inevitable collaborative learning that would have taken place in the Ateliers,
- The separation of subjects taught in lectures from the art of design, which was to be learned through the competitions. Thus design is seen as distinct from more everyday, or mundane activities.
- The development of a hierarchical system, in which students work in competition with each other, under the domination of a patron, who would also be in competition with the other ateliers, thus establishing the masters' studio model.

2.2.3 École Polytechnique

In parallel to the academic model offered by the École des Beaux Arts, was the École Polytechnique, established in 1795[4]. Very much a child of the French Revolution (Pfammatter, 2000,17) and closely liked with the military, the École Polytechnique was established with the conviction that a higher, comprehensive and scientific education for engineers and architects was capable of influencing social progress. With this aim, the school developed an education that aimed to connect theory and practice.

This led to the development of a whole new model of learning and teaching to replace the classical model of the master's studio: *'The teaching and learning models invented at that time comprised, next to practice oriented lectures, exercises and projects in the drawing classes, practical courses in the laboratory and studio, excursions, construction site visits, vacation and field work as well as training, etc. In addition, academic guidance in the form of a permanent teaching staff with tutors and assistants as well as regular examinations, internal class competitions and graduation diplomas can also look back on a two-hundred-year history.'* (Pfammatter, 2000:9)

The philosophy of the teaching was based on the Enlightenment belief that mankind's desire for knowledge and learning was inexhaustible. As a result, the tutor's aim was to fire the imagination of students and inspire them to strive for the greatest possible solutions. The approach was to encourage students' interest in and responsibility for their work. Despite this aim for self-responsibility, the model aimed to organise an atmosphere of competition, intended to raise students' achievements.

In practice, the students split their time between lectures and the drawing studios, laboratories and workshops. The structure of the day was strictly mapped out, and the class leader (chef de brigades) was responsible for ensuring that the class schedule was observed.

The school introduced for the first time the notion of class instruction. This initiated a model of a *'solid social group as a learning community and on instruction by professional teachers as exemplary individuals.'* (Pfammatter, 2000:46). The intention (at least in the early days) was that all students would be able to complete the tasks, as opposed to an education for a

talented elite. The class went from lecture to studio to workshop as one group. Thus promoting a more communal atmosphere.

Particularly interesting for this study is the use of fieldwork, which was seen to create a healthy contrast to the stuffiness of the study room. The aim was to *'spur the students' ambitions, expand their horizons and cultivate their taste'* (Pfammatter, 2000:46).

When compared to the Beaux-Arts model, we can see that:

- Similar to the École des Beaux Arts links with the government, the Polytechnique has close links with the military (often being compared to a military cadre school).
- Studio design projects are also used.
- The studio is again conceived of as a physical space. However, this is much more of an integral part of the class learning approach.
- The separation of subjects taught in lectures from the art of design is again repeated.
- The hierarchical system is also apparent, with the employment of a class leader, and in the teacher-led learning environment. However, the class system aims at a less elitist approach, that encourages the idea of a group-learning community.
- Again, the use of competition is emphasised, however, the intention is to promote self-responsibility and self-motivation.
- In contrast to the École des Beaux Arts model, there is a new attempt to combine abstract and practical learning in a broad range of different learning and teaching techniques and locations.

2.2.4 Pupillage

These French models had little impact on architectural education in England until the end of the 19th Century. Up until then there were perhaps 5 ways to become an architect (the term architect was not protected by statutory registration until 1905 (Barnes, 1934:70)):

[4] (According to Pfammatter, the same year as the founding of the Ecole des Beaux Arts)

- As an apprentice to the building lodge of the Royal Works;
- by service within the building trades;
- by having a reputation as an artist or designer who would also build;
- through being in possession of a huge private income used to construct buildings;
- through pupillage - which was supported by lectures and academic drawing classes at the Royal Academy. (Maxwell 1999)

Although there was no actual school of architecture, the role of the Royal Works (a government department responsible for the construction of government buildings) was probably, however, seen by Wren, who was Surveyor-General between 1668/9 and 1718 (Colvin, 1978:920), as an equivalent to a school of architecture[5]. All the craftsmen were brought together in the production of buildings in an apprenticeship system, which Crinson and Lubbock propose provided a pattern of training that provided progressive and flexible movements of varying and deepening experience. They argue that there is evidence to show that more experienced architects had responsibility for overseeing the training of new employees (1994:15). In this way, education through the Royal Works was through a system of apprenticeship, or learning 'on the job', under a master.

This type of learning through doing, through experience and apprenticeship was inherent in all the routes into architecture, with the support of the Royal Academy[6] lectures and drawing classes (once it was established in 1768 (Jenkins, 1961:105)) providing the only formal academic input. These lectures and classes tended to be used to support pupillage, which was the most common route for training as an architect throughout the 19th

[5] This notion of the works acting as a school is supported by a letter by Wren, reflecting on his observations of the construction of the Louvre in Paris. He observes that *'no less than a thousand hands are constantly employed in the Works; some in laying mighty foundations, some in raising the Stories, Columns, Entablements, Etc with vast Stones, by great and useful engines; others in Carving, Inlaying of Marbles, Plaistering, painting, Gilding etc. Which altogether make a School of Architecture, the best probably, at this day in Europe.'*(Wren, 1710: 261)

[6] The Royal Academy was established by William Chambers to resemble the Beaux Arts model of education: with theory taught in the classroom and design in the ateliers. Work

Century (Crinson and Lubbock, 1994:24), having risen in prominence during the 18th Century.[7] This route into architecture became more and more prominent, and by 1819, pupillage accounted for nearly two thirds of all forms of architectural training. (Kaye, 1960: 48-50)

Crinson and Lubbock argue (1994:23-4) that the development of pupillage arose as a result of a conscious reflection on the part of leading practitioners of the time of the need to develop a professional identity. They propose that since pupillage was mainly taken up by the middle classes, it began the firm separation of the responsibilities of the 'professional' architect to the other 'trades' involved in the building process.

The education system inherent in pupillage is the idea of learning from a master, as well as being generally inculcated into the norms of the profession by being involved in the day-to-day running of the practice. It is probable that after the pupil had been taught and practised the basic skills of measurement, he[8] would learn through measuring and copying designs, making working drawings, squaring dimensions and even doing accounts. Thus pupillage shows a less competitive, individual and isolated tendency than that of the Beaux-Arts model. The individual nature of experiences in different practices would mean a broader variety of processes would inform the profession as a whole. This meant that there was little control and standardisation over who entered the profession; the business of architecture was left largely to market forces and was not (yet) assimilated into an epistemological orthodoxy.

In summary, the key educational impacts of the pupillage system can be seen as:

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in an architect's office could be supplemented by evening lectures and use of the library. (Bingham, 1993)

[7] By the second half of the 18th Century it became common for London architects to take on pupils and/or apprentices. (Colvin, 1978:31) Ideally, the pupil would have learnt the techniques of draughtsmanship and the process of office practice in their five or six years training. This training would, in the ideal model, be followed by foreign travel to create a portfolio of sketches and measured drawings of the classical and modern buildings of Italy, Greece and the Levant. By their mid-twenties, this route would lead the young architect to a position in a partnership, or to form a small office of their own. (Kaye, 1960: 48-50)

[8] It was not until the 1870s that women began to work as pupils, and even then their acceptance as professional designers was more difficult. (Crinson and Lubbock, 1994:48)

- Learning from a master (in a hierarchical relationship) allowing little opportunity for self-responsibility.
- Learning based in experience.
- The introduction of learning drawing in classes (in the atelier model).
- The separation of subjects taught in lectures from the art of design.
- A less competitive, individualistic and isolated model than that of the Beaux Arts.

2.2.5 The RIBA and the AA

Simultaneous to the development of pupillage, there had been a rising interest in the notion of an academy for architecture throughout the 18th century. This had begun to take shape in the Royal Academy (RA), but by the 19th century, a few members of the profession gained experience in the French and German schools. They began to feel that the RA in England was a poor relation of the French system; the RA ran lectures, gave an opportunity for discussing designs and had a library, but was more set up for pupils who were working during the day than for full-time study, meaning that the opportunities for learning through engaged debate were lost. Bingham clarifies this point: *'Students felt these were all detached methods of learning, discouraging a spirit of debate and criticism, and that schools did not encourage dialogue.'* (1993)

In addition, a concern that the architect was diminishing in his power provoked a move to establish a professional body that would validate architects' education and seek to promote architect's services. To this end, the Architectural Society was formed in 1831, with the intention *'to form a British School of Architecture,'* (Colvin, 1978:38) thus establishing the demand for a formalized education, and determining the link between the establishment of the profession and its education. Despite this intention, it did not successfully define the obligations of an architect to his client, and to counter this objection, the RIBA (Royal Institute of British Architects) was established in 1834, as the bringing together of a collection of

societies[9] that had been formed over the previous 40 years in order to protect and advance the interests of architects.

Two years after the RIBA was established, the Royal Charter defined the Institute's educational responsibilities to promote and facilitate *'the acquirement of the knowledge of the various arts and sciences connected therewith'* (RIBA, 1971). How this was to be achieved, however, was not indicated, and apart from a few sporadic lectures, medals and access to the Institute's collection of casts, the regulation of education was not really undertaken until the end of the 19th Century.

In opposition to the RIBA, a group of young architects united to establish the Architectural Association (AA) in 1842 (Pfammatter, 2000:300). The AA was seen by architects as a way of developing their education to cover areas that pupillage and the RA did not supply. They introduced a system of free discussions and critiques supplied by visiting lecturers. Most significantly this included a design class in which students would present work that they had prepared in their own time for criticism from fellow students and visiting professors (there were no regular tutors and all contributions were voluntary). Again the idea of collaborative learning through design resurfaced, as did the notion of developing design understanding through critique. By 1869, they established an Elementary Design Course and classes in modeling, watercolour, woodcarving and life drawing were also tried. (Crinson and Lubbock, 1994:56) However, it was not until 1891 that teachers and personnel were paid. (Wilton-Ely, 1977:198)

The AA came to support the idea of a profession with protected entry through a system of exams and diplomas. (Fletcher, 1934:85) This view had been generally gaining popularity and in the 1850s the RIBA began to seriously consider the issue, inspired by a discussion that had taken place at the AA in which an AA prize essay by Knowles on the subject of architectural education was probably the catalyst for debate. He argued that an examination would help to defend the public from malpractice by protecting the term architect from *'undertakers, carpenters and builders'*,

[9] Such as the Architects' Club (1791), the London Architectural Society (1806) as well as informal get-togethers between leading London Architects (Crinson and Lubbock,

aiming to restrict the entry to *'scholars and gentlemen'* (Knowles, 1853:10,15).

In 1855, a memorial from the AA was presented to the RIBA asking for the establishment of an examination and diploma that would be hard enough that there would be no disgrace in failing it! (Fletcher, 1934:86) The Vice President approved this – provided that the exams were confined to the sciences, building and estimates etc. and excluded art. After a consultation process, a voluntary examination (which gave membership of the RIBA) was introduced in 1863. Despite the initiral assertion to exclude 'art' from the examination process, the exam was based on the Beaux-Arts examinations, and included submitting a measured drawing, a sketch perspective of an existing building, a detail of ornament, design drawings and working details for a building of the candidate's design in a specified style, as well as exams in drawing and design, mathematics, physics, professional practice, materials, construction, history and literature. (RIBA syllabus, 1861) Indeed apart form the inclusion of drawing an existing building, the syllabus in outline is remarkably similar to the general pattern of current syllabi, in which design is kept generally distinct from applied knowledge such as materials construction history etc., which is formally examined.

The exam was not well taken up, possibly due to its voluntary status; the previous system of entry to the RIBA through the *'submission of general evidence of qualification'* (RIBA: 1861) still remained. It was eventually made compulsory in the early 1880s (Clews, 2001:6). This had an immediate effect at the AA, where the course was made to align with the RIBA syllabus. The course was further developed in the 1890s, by which time the RIBA had expanded the system to include three tiers: Preliminary, Intermediate and Final. At this time, full-time courses aligned with the RIBA syllabus and thus influenced by the French Beaux Arts system were established in certain schools.[10] By the early 1900s a system of recognition

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1994:41)

[10] The RA school of architecture was opened in 1870, under the leadership of Phené Spiers who had studied at the Beaux Arts (Pfammater, 2000, 300) A further spate of schools were established after a paper was published telling of the proposal to set up a school of architecture in the Sheffield School of Art. This led to the establishment of the

was established, which allowed schools to give their students exemption from sitting the Intermediate and Final examinations if they fulfilled certain conditions. The first schools to gain recognition were the AA and Liverpool in 1902. (Fletcher, 1934:90) This system of recognition has largely remained in place ever since.

Although pupillage had enabled a handful of women to train as architects from the 1870s onwards, the first architecture schools did not accept women, and entry into the profession was also more difficult. The first female member of the RIBA (Ethel Charles) was not until 1898 (Walker, 1989:96-9) and it was not until 1905 that the first school of architecture (Glasgow) opened its doors to female students (although University College accepted women into the preparatory course prior to that). Manchester followed in 1909, and the AA in 1917. Given that the first women pupils were accepted 30 years previously, it seems, perhaps unsurprisingly, that the institutionalisation of architectural education slowed women's entry into the profession.

The formalised model of instruction, taken up by the RIBA's examinations and the schools of architecture aligned to it, and inspired by the Beaux Arts pedagogic structure, cemented the elevation of design above the rest of the curriculum. As the model developed in the schools, it came to emphasise one-to-one teaching methods, created the review system with outside critics to evaluate student projects and stressed learning from the past to inform present design (Porter and Kilbridge, 1981). The model was systematic studio-led design teaching, based on classical principles (Crinson and Lubbock, 1994:82). This model furthered the dominance of the design tutor, (begun in the patron model of the Beaux Arts) and for the first time, design was taught by the very same tutors (and in the same institution) that set the programme, and marked the projects; potentially establishing a self-referencing loop, directed by the prejudices of the tutor and insitution.

The new system fitted well with the new aims of the professional model as it could be used to control entry into its ranks. Building was seen as commercial, and professionalism was seen as a combination of distance

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Liverpool school in 1895, which was followed by others in most of the major cities (Fletcher, 1934:89).

from, and regulation of this commercial practice, through the control of design. In addition, *'academia legitimised the authority of the profession by appealing to the universality and objectivity of science'* (Till, 1996: 69). This move to the university can be seen as the first real institutionalisation of architectural education in the UK, and with it, the separation of design from market forces and into the realm of academia.

In summary, the RIBA syllabus came to support:

- The master studio model with one-to-one tutor-led teaching.
- The system of reviews with outside critics.
- The elevation of design above all other aspects.
- Education and the Profession are inextricably linked and self-referencing.
- The locating of design within the structures of academia.

2.2.6 The Memorialists

The only contrast to this was found in the model (advocated by the architect and educator W R Lethaby) of the Memorialists, named after a Memorial published by 44 architects and 24 artists in the Times (Blomfield, et al:1891) which declared that architecture was not examinable, and expressed concern over the neglect of 'art' in the recent architectural education developments. They were against the idea of the office-bound architect and wanted to keep the bonds with artists and craftsmen as close as possible. Although they were in favour of architectural education in schools, they viewed it more as a form of building lodge[11], in which design and building would be integrated with construction. The Memorialist influence was felt in the schools at Liverpool, the AA, Birmingham and the new London County Council schools in the 1890s, but not really developed until Lethaby was appointed as Art Inspector to the London County Council's Technical Education board in 1894. (Powers, 1984:42-70)

Under Lethaby's influence, a Central School of Art and Crafts was established in 1896, intended to provide the best instruction in art and

[11] The medieval building lodge was a workshop for training craftsmen in local building skills. (Crinson and Lubbock, 1994:16)

design for apprentices, workmen and pupils of any of the artistic handicrafts. The focus was on craft learning in a workshop environment, with support from instruction in other areas such as drawing from nature and solid geometry. It was seen as important that the craftsmen see the link between their own and other crafts. Architecture was seen as encompassing many of the crafts (such as modelling and ornament, stone and leadwork) but these still remained subsidiary to classes in architectural design. The design course was built on French rationalist traditions, with design approached from the point of view of the builder. Teaching was very hands-on, using workshops and experimental laboratories in which the act of making was seen as fundamental to developing a design solution. This approach was antithetical to the academic framework defined by the syllabus of the RIBA. (Clews, 2001:6)

The principal ideas of the Memorialists were to:

- Link design with the craft of building.
- Design as a craft activity in the medieval model.
- Utilise hands-on learning.
- Learn through experimentation.

The separation between the RIBA and the Memorialists lasted 15 years, but was brought to a close by the needs of both groups to forge a reconciliation. A further memorandum appealed to the RIBA to reorganize architectural education to combine preliminary training in schools and workshops with a following placement in an office. This led to the establishment of a Board of Architectural Education in 1904, which set about establishing a uniform architectural education, that proposed a course with a minimum two years in the school and two in an office with attendance at advanced courses. The syllabus was revised with an increased emphasis on construction, with history and design informed by analysis rather than archaeology. (Fletcher, 1934:90-2)

The Beaux Arts model prevailed and took over most schools up until the 1920s. The emphasis on making and technology learning in the workshops was shifted into the studio and lecture theatre – from hands-on and concrete to drawing-based and abstract (Clews, 2001:6). This could also be

seen as a shift of emphasis from the makers – the students as creator of their own understanding, back to the tutor – as provider of knowledge. As we shall see, the Beaux-Arts model continued to take hold – many claim up until the present day – but certainly until the influence of the Bauhaus and Modernism in the 1930s, and more systematically after the Second World War. (Crinson and Lubbock, 1994)

2.2.7 Bauhaus

The integration of hands-on craft with art and design education was explored again in the early twentieth Century at the Bauhaus, set up under the direction of Walter Gropius in 1919 in Weimar, Germany (Naylor, 1968:7). Growing out of a merger between the Weimar School of Arts and Crafts and the Academy of Art, it claimed the medieval lodge as its ideal, and aimed at a *'guild spirit linking artists and craftsmen devoted to expressing a shared spirit and living as a community'* (Naylor, 1968:44) Architecture was to be at its core, as Gropius exclaimed: *'The ultimate aim of all creative activity is the building!'* (Gropius, 1919, quoted in Whitford, 1995:202). It was important for Gropius that the two institutions were merged so that there should be no distinction, that the arts and crafts should all be brought together in the production of architecture (Broadbent, 1995:17) in the ultimate service to a client (Naylor, 1968:156).

Despite Gropius' initial assertion, there was no school of architecture in the early days – it was purely a school of art and design, as Gropius aimed to have the crafts well established before the architecture course was started. The early pedagogical influences, brought to the school by Itten, were the educational theories of Cizek, Froebel, Pestalozi and Dewey among others (Wilson, 1969:99-104, Cross, 1983:49). These progressive educational influences included learning-by-doing, representing primary sensations, learning-through-play activities, and principles of form. There was an underlying belief in the educational effects of the environment and self-directed discovery/learning – theories that had first been developed for the education of children. The school was repositioned as a community (an idea first developed by Dewey) and students were to be taught as whole people, through *'active participation in doing, rather than in passive listening.'* (Cross, 1983:48).

Itten devised a system for first year students that was intended to stimulate individual creativity via a series of exercises teaching the abstract relationship of forms, materials and colours, problem-solving and expressive freedom, and using a progressive development from simple to complex. The students started with free associative drawing, and moved on to an exploration of tones and planes, material studies through collage and studying natural forms, then more complex studies, such as abstract analyses of old masters in terms of mathematical proportions, rhythms and colour theory. He saw it as a way to 'cleanse' students of their previous cultural understanding: *'Every new student arrives encumbered with a mass of accumulated information which he must abandon before he can achieve perception and knowledge that are really his own'* (Itten quoted in Banham, 1960:278). When this model was later applied in the architecture studio, it was an important shift away from the dominant ideas underlying both academic training and pupillage that conceived of architectural education as the acquirement of knowledge, the acquisition of methods, and learning from a master. Instead the focus was on finding new solutions that were to come from the intuitions of the students themselves (although this was under the strict guidelines of Itten).

After the first year however, the Bauhaus students learnt crafts through an apprenticeship method in traditional workshops. This changed when Itten left in 1923 and Gropius implemented a new programme, preparing students for industrial design and with a focus on producing prototypes for mass-production. The problem-solving method was still key however, and the influence of the first year remained a strong influence on the aesthetics throughout. (Crinson and Lubbock, 1994:94) Gropius expressed his educational principles in 'Idee und Aufbau' (Gropius in Banham, 1960:282), showing that he continued Itten's tradition of using progressive educational influences, such as the Montessori tradition, and supported a constructivist position of enabling students to develop their own understanding of the world in which they live. This was supported by the Bauhaus philosophy to educate complete personalities, not narrow specialists (Banham, 1960:314).

By 1928, Gropius felt that the crafts were well enough established to set up the architecture course (the students had previously been involved in the design of buildings but there was no course to specifically focus on architecture). He appointed Swiss architect Hans Meyer to run the course and Gropius resigned a year later to go into full-time practice.[12] Meyer introduced the additional influence of social responsibility, psychology, sociology and economics (Broadbent, 1995:18) and the work was steered towards the problems of mass housing and standardisation, particularly concerned with planning, light, heat and acoustics, influenced by leftist social ideals. The age of experimentalism was over, as Meyer's political beliefs preferred collective solutions to personal experimentation. (Schulz, 1985:174)

Due to his political affiliations, Meyer was forced to resign in 1930, and was replaced by Mies van der Rohe.[13] Mies's approach at first sat uncomfortably in the traditionally democratic and political Bauhaus environment. He was an elitist authoritarian, who established a prescribed curriculum, a system of master classes (he only taught the most gifted students) and an authoritarian pedagogy (with even the previously autonomous craft workshops brought under his direction). A student revolt at the changes was swiftly crushed: Mies called in the police and instructed them to throw the students out of the building. He only allowed back students who wanted to work under his guidance. (Schulz, 1985:175) Thus Mies reinstated the educator as master rather than the teacher as fellow searcher inspired by Gropius. Live workshop projects and any form of social content were now excluded. However, the Nazis closed the school in 1933. (Broadbent, 1995:18)

Over the periods of change seen in the school, there were a variety of educational approaches. Inherent in all was the strong influence of the dominant patriarchal figures of the school – Itten and Gropius in particular (Ruedi Ray, 2001:172). Despite this, the workshop-based, hands-on learning focus of the school emphasised self-discovery learning, a move

[12] The school was under attack from local nationlists and was suffering from internal wrangling, so Gropius resigned, hoping that without his controversial personal image the school might continue more freely. (Schulz, 1985:174)

that shifts the focus *away* from the tutor to the student. However, this was very much on the tutor's terms. For example Itten's notions of areas in which creativity could be explored were strictly circumscribed by his emphasis on geometric form and primary colours. This contradiction can also be found in the Bauhaus' treatment of women students. Women students had equal access to study, due to the Weimar legislation, and as a result, at the start of the school there were 78 male and 59 female students. However it was clear that Gropius did not take the women students seriously. He believed that the male students would be better artists due to their traumatic experiences in the war and thus to the female students said: *'Dearest ladies, I do not underestimate the human achievement of those who remained at home during the war, but I believe the lived experience of death to be all powerful.'* (Ruedi Ray, 2001:173) His position is interesting to this research, as it introduces for the first time the influence of the previous experiences of the students *outside* of the academy and their specialism as designers. However, it is clearly prejudiced against women's contributions – only male experiences of war are considered valid, the perhaps more everyday activities of the women at home (who would still have experienced the deaths of their loved ones) are discounted. As a result Gropius systematically restricted the entry of women students, first by charging them higher fees, and secondly by aiming to restrict their numbers through the selection of students. Those students who did make the school found they were limited to the traditional 'feminine' crafts of weaving, pottery and bookbinding and the school of architecture was to be completely closed to women students.

For the first time in this study of architectural education, we see theories of learning being formally expressed as an issue, in Itten's interpretation of the education theorists of the time and Gropius' reference to Montessori methods. As a result, issues of *how* students learn were addressed whereas previously the main consideration had been *what* students learn. Despite this, much of the literature still focuses on style over pedagogy, thus exposing the acceptance of stylistic issues as somehow more relevant than the matter of how students learn to design. It is perhaps due to this

[13] Mies was seen as a non-political character, who was an artist rather than a man of

perspective that issues of how students learn have since been all but ignored, and are still largely undertheorised in current architectural education debates.

The content was also radically changed. Possibly due to a desire for change and a rejection of the past after the Great War, there was a bold move away from historical influence and towards self-expression, simplification and abstraction and learning from nature and materials; influences which remain with us in the current content of architectural education. 'Culture' was now seen as something 'dirty', something from which students needed to be cleansed, and the first year of the course aimed to achieve this. Later the influence was again shifted to include a social agenda. This was an additional, new and ground-breaking content for architectural education, but there is little suggestion as to how this affected the education process.

The principal educational principles established by the Bauhaus were:

- A constructivist philosophy.
- The learning environment as a community, with collaborative approaches.
- Hands-on learning, learning-by-doing.
- Learning through play and experimentation.
- Problem-solving.
- The master studio model (as established in the Beaux-Arts), despite the above principles.

2.2.8 Modernism in Britain

The Bauhaus influence first came to Britain in the late 1930s, through Gropius's interpretation. The dominant idea came to be a rational research-focused education that rejected the past, and pioneered the new – in particular standardisation and rationalistion using steel, glass and concrete in simple forms. Gropius described the course as it stood after 1922, thus distancing it from the Arts and Crafts tradition. Workshops were presented as places where teamwork and research was stressed, the curriculum was described as a balance between *'practical instruction'* and *'formal*

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right or left. (Schulz, 1985:175)

instruction, and the first year seen as a place to develop individual self-expression. (Gropius, 1935: 51-97) There was a belief that a universal language of forms could emerge from an objective understanding of modern society and modern technology. Other published works presenting the Bauhaus, summarised it as a synthesis of ideas: the freeing of individual creativity, the use of constructivist and elemental forms, the adapting of functionalist ideology and the need to make a range of activities, from industrial design to planning, the concern of education. (Crinson and Lubbock, 1994:96)

Generally in the 1930s, there was an awareness of the Bauhaus, but little appreciation of how the ideas might be realised in architectural education. The Beaux-Arts model was still standard - with the establishment of the Architects' Registration Act of 1931, (Barnes, 1935:74) the RIBA had effective control over education and entry into the profession. To fulfil the requirements for registration applicants would have studied for 5 years at a recognized school or participated in the pupillage system (studying part time and taking the RIBA's own examination). Education was based on a basis of a cultural inheritance and rational processes – realised through drawing studies of ancient, medieval and Renaissance buildings rather than the pre-cultural, technology and materials focused self-discovery methods of the Bauhaus. (Crinson and Lubbock, 1994:98)

The move towards a modernist curriculum only really began to be cemented with the appointment of Rowse as Principal of the AA in 1935. He rearranged the school from its progressive 'years' to a system of fifteen 'units' each of about seventeen students run by one teacher. These units were semi-autonomous, and were intended to encourage teamwork, rather than the individualism and competitiveness of the Beaux-Arts method, by working together on integrated research into each studio project. Rowse (inspired by the planner and educator Geddes) was particularly interested in the use of studies of behavioural patterns as design generators and favoured analytical investigations for the start of design projects as opposed to the quick sketch schemes (esquisse) of the Beaux-Arts. (Crinson and Lubbock, 1994:102)

Some of the more proactive of Rowse's students published a report (known as the Yellow Book) in 1937, publishing their proposals for the course. The Yellow Book is probably the first British manifesto of modernist architectural education. The manifesto expressed stylistic and educational content changes as well as pedagogical ones – such as the rejection of historically applied decoration and the proposal for increased emphasis on scientific knowledge and sociology. However it is the structural pedagogical proposals that are of interest to this study. The key pedagogical proposals can be summarised as:

- Opposition to the system of competitions – which, they argued, compelled the student to work for the competition as a thing in itself.
- Support for the unit system (with adjustments).
- Opposition to the separation of the studio into separate, watertight components, which rendered each dry and 'spiritless'.
- Sketching exercises should be related to studio work (after Crinson and Lubbock, 1994:104).

In addition, another article by an AA student Townsend, (quoted in Crinson and Lubbock, 1994:97) argued that the following lessons could be drawn from the Bauhaus for architectural education: A change in the structure of the course in order to involve students in decision-making; reconceptualising education as a developing process; developing the content of the course to see a break with the traditional course, to analyse things into their components and to see the course as an amalgamation of fine art schools with the arts and craft schools. This summary was used to support the emerging education at the AA.

These publications represented a trend that was happening around the country. Modernism was taking hold in the schools of architecture. In particular, the changes in education came to be the introduction of research into the education of architects, a rejection of the past and the embracing of all things new, and the emphasis on individual self-expression - all elements that are still to be found in schools of architecture today. However, Bauhaus influences such as teamwork, involving students in

decision-making, and the idea of education as a developing process seem to quickly fall by the wayside. Again it seems to be largely the content of the course that really changes, as although the system of competitions is gone, students are still to learn design through their involvement in a series of design projects, supported by lectures and research. The studio system (and in particular the unit system) remains remarkably close to the master's studio inherent in the Beaux Arts model.

After the start of the Second World War, the modernist style continued to take hold, and in particular, architecture in Britain was exploring a newly social agenda. Many of the original writers of the Yellow Book gained institutional positions after the war and this allowed many of their ideas to be realised. Most schools had strong modernist stylistic tendencies by the 1940s and early 1950s. Structurally, however, the French institutional framework remained, with the principal modernist influence being limited to the content of education, evidenced in particular by an emphasis on research and theory.

The modernist model was summarised and made concrete by the recommendations for education arising from the Oxford Conference in 1958. This cemented the move to the "official system" (coined by Crinson and Lubbock) of architectural education, which emphasized the need for: architecture at University level, faculties of environmental studies, building science, practical training and research. The emphasis was on integrating rational practice into an increasingly ill-defined professional discipline (Crinson and Lubbock, 1994:152). The importance of developing theory as the intellectual base for the profession was also emphasized (Broadbent, 1995:20). Ultimately the profession could be seen to be justifying and controlling its position by attempting to make its practice rigorous through the model of technical rationality (see later definition part 2.3.2). Thus once more, the education of architects was used to determine the shape of the profession, a model first found in the system of the Beaux-Arts.

2.2.9 Discussion of the studio's influences

The over-riding model of current architectural education draws much from both the Beaux Arts and the Bauhaus. From the Beaux Arts we have the emphasis on the studio and learning-by-doing through project-based

learning, supported by lectures, with atelier based one-to-one teaching methods; the elevation of design above technical issues, the review/crit system, the use of competition and criticism. Perhaps most fundamentally, the Beaux-Arts students use of ateliers began the idea of the studio as a physical place, in which students may learn from each other and being a part of the environment, as much as through their own work. However, in parallel, and perhaps in contradiction, to this is the notion of architectural design as an individual, isolated and competitive activity that still pervades. The notion of a 'studio master' as described by Schön (see part 2.3.1) as a dominant studio guide also finds its ancestry in the Beaux-Arts students' employment of a patron. In addition, it could be argued that the institutionalization of architectural education as separate from practice finds its roots in the Beaux-Arts model.

Many would argue that the Beaux-arts model is still the standard in architectural education, and yet it is based on a model of an architect that is largely defunct, not to mention a political backdrop, and resistance to change, that is antithetical to modern society. Nonetheless, the myth of that model is still very pervasive.

In contrast, the Bauhaus influence has given us the emphasis on breaking with historical tradition. We have taken the 1st year emphasis on individual creativity and the need to 'cleanse' students of their prior architectural and cultural understanding, the analysis or research at the start of the project, the emphasis on self-expression, simplification and abstraction and learning from nature and materials. Interestingly, issues of teamwork, involvement of students in decision-making and the view of education as a developing process and the consideration of theories of learning largely fell by the wayside, only to be re-visited in the current self-reflective climate.

Fundamentally however, it seems to be largely the content of the course that really changes. Despite the fact that *'there is agreement that the most significant aspect of pedagogic communication is finally not the message but the "medium," understood in the largest sense as the scene of teaching in the environment of the university'* (Ulmer:1989:172). The 'medium' of the Beaux Arts structure and value system, which celebrates the individual, competitive genius in a structure of master-led studios, remains dominant.

2.3 The Current Position

As summarised, the current model of architectural education in the UK draws much on the past models described, as well as being influenced by the current climate of architectural practice and changes in the University. This section will provide a normative description of the model as it stands. In the attempt to make the account normative and generalised, it is acknowledged that the description given will differ in certain aspects to what happens in individual schools. This normative description will then be used to extrapolate the current model's historical influences and provide a critique based on this positioning. Finally the studio's position in the current university climate will be explored, with the intention of understanding the current influences acting upon the model.

2.3.1 Normative description of the current model

The current model of architectural education is focused around the design studio, to which both students and staff dedicate most of their time. This is then supported by lectures and research in areas that are intended to ultimately feed into the studio work. In this way, the design studio project at its best *'provides the connective tissue that brings together, progressively, the many elements of architecture education.'* (Boyer and Mitgang, 1996:101)

The studio is organised around manageable projects of design, set for individual or groups of students. Within this format are contained traditional events such as the design review, desk crits and tutorials (group and individual). These combine with students' experience in the actual design process to create a highly active and interactive learning environment. *'Compared to typical classroom scenarios, studios are very active sites characterised by drawing, model making, conversation, and debate, activities which demand analytic, synthetic, and evaluative modes of thinking. These attributes attest to the specialness of the studio as a vehicle for student education'* (Dutton, 1991:165).

What then is the format of the studio that enables this special learning environment? Schön provides a generalised descriptive account of how students approach a typical studio project:

'Given an architectural program (or brief) and the description of a site, the student must first set a design problem and then go on to solve it. Setting the problem means framing the problematic situation presented by site and program in such a way as to create a springboard for design enquiry. The student must impose his preferences onto the situation in the form of choices whose consequences and implications he must subsequently work out – all within an emerging field of constraints.' (1985:6)

In this way, the architectural studio is conceived of by Schön as an example of education for the development of artistry – which he sees as inherent in their role as designers (Schön, 1988:4). Although this model can be criticised from a number of perspectives (see later critique), it does however provide a basic conception of the studio as based on the tradition of learning-by-doing (the student learns through the process of 'solving the problem'), through project-based education (the students learning is focused around a particular design project, and all the elements that must feed into it), with examples of practice and reflection at its core.

Schön also describes an imaginary design review – based on a real record (see Simmonds in Porter and Kilbridge, 1981:9-159). The mainstream acceptance of Schön's work has established his version of the design process as the normative procedure and it may be argued that his validation of the process as a distinguished outsider has allowed architects to continue with the system in an uncritical manner. His account is paraphrased here as an example of a traditional (although not necessarily entirely desirable) studio project:

> A studio master (Quist) sets a brief for the design of a school and a description of the site on which it is to be built. Each student is to develop their own design, recording their results in preliminary sketches, working drawings and models. At the end of the semester, there will be a 'crit' in which the students present their designs to Quist, outside critics and the other students. At certain points during the semester, Quist runs tutorials with each student. In an encounter with Petra, Quist teaches through a combination of example and theory: He traces over her work while explaining what

> he is proposing, then takes a moment to tell the her about the principles of designing (reflection on action). (After Schön, 1985:33)

The underlying assumption of the studio that it is only by doing, followed by critical evaluation, that the student can learn. The studio is rooted in project-based education; as described by the RIBA Syllabus, *'Design is a holistic process and dexterity in it is derived from the practice of iteration: the regular practice of the skill of designing through a variety of projects and structures'* (2001:59).[14] Others may help, but ultimately (usually) the students are expected to educate themselves in designing by attempting to do so. This is attempted in a strange atmosphere of both collaboration and competition, where on the one hand the shared nature of the studio implies that students learn from each other, but on the other, the (often) individual nature of the projects and hidden culture encourage competition.

The studio runs throughout all the years of education, and one project follows fairly swiftly after the previous such that most of the time students will have a studio project on the go. The projects typically increase in complexity and scale as the course progresses and as students are able to explore a wider variety of issues within each project. In this way, knowledge gained in other parts of the course (mainly lectures and research such as essays and the dissertation) is assimilated (although not always directly) into the studio work. Accordingly, the level of design-thinking is expected to increase in complexity and understanding as the students progress through the years.

In the context of historical influences, it is possible to critique Schön's model of the studio. He assumes, in the tradition of a master-led studio, that the teacher is the only one qualified to bring knowledge to the encounter; the teacher deems what is appropriate for the student to know. Schön describes Quist's tutorial as a virtuoso performance, he is the expert, the holder of all knowledge and Petra is to remain in awe of him. Schön acknowledges that Petra is likely to remain thoroughly confused, and may find the whole studio experience mysterious. This confusion is described as inevitable: *'Initially, the student does not and cannot understand what designing means. He finds the artistry of "thinking (and doing) like an*

architect" to be elusive, alien and mysterious. Conversely, the studio master realizes that the students do not initially understand the essential things and cannot be told those things at the outset, because the fundamental concepts of designing can be grasped only in the context of doing – only through the experience of designing. Further, at least some studio masters...believe that, even in the experience of designing, some of the essential things must remain covert; one cannot explain them, the student must somehow internalise them' (Schön, 1985:55).

This exercise in domination can only harm both parties, as the tutor is not allowed to learn anything from the student or the encounter, and the student is entirely disempowered. Is it a coincidence that the tutor is described as a (male) master and the (powerless) student is female? He violates her work by drawing over it and rendering it valueless. She is not allowed to critique or develop his processes and thus the model is used to repeat the status quo. In addition, since he provides the only example of what an architect does, he inculcates a notion of a professional who tells rather than listens, who knows best and is not open to suggestions.

Schön's model of how a design project might be addressed by a student also exposes the biggest weakness of all the models described so far. As there is no client or user for the studio project, the student '*must impose his preferences onto the situation in the form of choices whose consequences and implications he must subsequently work out.*' (Schön, 1985:6) This leads architecture to be self-referential and introspective in a way that has damaged the public's perception of the profession, as well as damaging the profession itself (Till, 1996).

This patriarchal model is perhaps inevitable in a system that has grown up under the institutionalising influence of the Beaux-Arts and the agenda of the RIBA. However, if the architectural profession is to progress, and to remain relevant to the society that it serves, it needs to become inclusive to all. The model needs to develop to allow multiple collaborative learning interactions – between student and tutor, between students, between tutors and between tutors students and external collaborators (such as clients and users), to allow a critique of current processes, cultures and

[14] This exposes how even today, the profession acts to determine the design process.

models. In order to do so, the process needs to empower those who are disempowered.

Despite the fact that architectural education is often considered to be an excellent model for higher education (see for example Boyer and Mitgang, 1996, Schön, 1985, 1987), producing students that are particularly skilled in problem-solving, little is being done to further develop the model in the light of recent research into teaching and learning (as is shown in chapter 3). In addition, the studio's flaws (proposed by Dutton as legitimating hierarchical social relations, choking dialogue and sanctioning individual consumption of hegemonic knowledge in a competitive environment (1991:165)) have led to widespread criticisms, which are further explored in part 2.4.

2.3.2 The studio's position in the current university

The current design studio finds itself in a difficult position within the modern university. Firstly, it sits isolated outside of the norms of technical rationality. This model depends on a positivist philosophy, which when applied to professional knowledge, implies that professionals are rational problem-solvers who use (preferably) scientifically proven theories and techniques to solve well-defined problems (Schön, 1987:3). In the specific case of the architectural profession, the architect is thus *'seen as the possessor of objective knowledge with which he can solve the problems of the world'* (Till, 1996:67). This model of technical rationality finds its roots in the professionalisation of architecture, and its attempt to define a coherent system of knowledge in order to precisely define and control the boundaries of the profession. As a result, the official system and its links with the RIBA's control over architectural education is a technical rational model that is still dominant within academia and the professions.

The studio, however, brings a different territory of architectural professionalism into play – the mystique of the subjective genius, in which *'the architect is seen as the possessor of intrinsic subjective genius which she can silently call upon to shape the world'* (Till, 1996:67). The studio, home of this unquantifiable, irrational model of the designer, is isolated in

the context of the modern research-based university. *'It is a throwback to an earlier mode of education and an earlier epistemology of practice, which helps to account for its current marginal status in the university'* (Schön 1985:5). Thus the studio is pulled in two directions at once – toward the rest of the university and the model technical rationality, or toward the self-protecting mystique of unique art. Both directions are problematic to education however, as both aim to defend the architect's (and thus the tutor's) position of authority, where the 'objective knowledge' of the rational architect and the 'subjective genius' of the artist architect are both out of the student's reach.

The pull towards to technical rational approaches of the research-based university has supported the rise of the university-based academic/practitioner in the last thirty years, accompanied by an increasing emphasis on *'the purely abstract intellectual architectural project.'* (Leach, 1995:28) As a result, the studio project has tended to move further away from the kind of work found in the offices of architectural practice and the influence of the 'real world' outside of the university.

The studio's second position of discomfort in the university arises due to political changes in the perception of the role of the university. An effort to expand access to Higher Education has led to expanding student numbers, which has not however been matched by increased staff levels. In addition, an increasing focus on the universities' production of research has led to less time for teaching and thus lower staff to student ratios. The increase in student numbers has led to a squeeze on the physical space available for the studio (with some schools having to close down their studio facilities completely) and the reduction in staff/student ratios has meant less time for one-to-one studio teaching (Fisher, 2000a:6). The intensive levels of tutoring found in the studio, compare unfavourably with the more typical university system of lectures, and thus the studio as a teaching model is also threatened.

Despite this, the studio has been fervently (and generally successfully) supported by the schools of architecture, and remains the dominant feature of architectural education.

Although the normative descriptions given in this account will have accord with what goes on in many schools, it is important to note that there are in reality a huge variety of pedagogical approaches, both between the schools, and between different course leaders within each school. Although the model of an isolated and tutor-dominated studio is one that most architectural students and educators would recognise, it is a model that is no longer unwavering, and indeed no longer welcome, in many schools. Evidenced by the recent number of conferences and published papers on architectural education, there is the foundation of a movement for change in architectural education, spurred on to some extent by public criticism of both the architectural profession, and its education. The author proposes that we are currently experiencing the seeds of change for a new paradigm.

2.4 The criticisms

Alongside the position of discomfort that the studio holds in the modern university, the last decade has also seen architectural education having to contend with criticism from *outside* of the academy, as well as inside its own ranks. Architects have been described as arrogant and poor listeners, and their education is seen to be to blame. Writers have even referred to our profession as 'dysfunctional' (Nicholson, 2000:xvi) and in 'crisis' (Crinson and Lubbock, 1994:180). Criticisms have come from many quarters: from the profession (RIBA, 1992, 1993, 1995, Stansfield Smith, 1999, Worthington, 2000), from the construction industry (Andrews and Derbyshire, 1993, Egan, 1998), from the public (Nicol and Pilling, 2000) and students (Archaos, 2001), and from architectural educators themselves (Cuff, 1991, CUDE 1999, TIA, 2000, AEE, 2000). In addition, there are quite distinct and separate critiques from feminist (McCorquodale, et al., 1996) and critical pedagogists (Dutton, 1991).

The bulk of the literature demonstrates a notable absence about the role of gender, and indeed race, sexuality, and disability on the architectural profession, architects relationships with others and on architectural education. This is particularly shocking given the absence of women and minority groups in architecture: women currently make up only 13% of the architectural profession, which compares very poorly to other professions

(ONS, 2000). As a caption in Progressive Architecture magazine suggested, it remains a "White Gentleman's Profession" (Dixon, 1994:55)

Feminist writers have argued that the architectural profession is entrenched within a masculine paradigm and that it is *this* inequality that is at the root of the current crisis in architecture (see McCorquodale, Ruedi, Wigglesworth, 1996, and Ahrendtzen and Groat, 1996). Indeed, the limited representation of women in the architecture profession itself supports the argument of a gender-related crisis. Ruedi (1996:238) argues that *'both men and women in the architectural profession successfully ignore the current high drop-out rate of female students, the tiny percentages of women practitioners and the small scale of their commissions. The continued dismissal of gender inequality as an issue in architecture means that the taking up of a binary gendered position is still absolutely essential within the discipline. It is only after affirming that gender differences exist within architecture, only after making the subject a public, explicit and contestable one, that the space for a more open-ended relationship between genders, sexualities and desires can, in turn, be created.'*

Despite this argument, there is little research on women's experience of architectural education in the UK. According to Wigglesworth (1996), the cause of this can be rooted to the absense of the excluded in the profession – as corporate members of the RIBA, as council members, as president, on building sites and in drawing offices – thus allowing the phallocentric nature of the profession to remain unchallenged.

What feminist and critical architectural education writing that there is, (by isolated authors[15] and in two essential critical/feminist texts on architectural education McCorquodale, Ruedi, and Wigglesworth, 1996, and Dutton, 1991) has remained very much on the periphery of the discourse, having been all but entirely ignored by reports such as the RIBA's Strategic Study of the Profession (1992, 1993, 1995), the Stansfield Smith Review of Architectural Education (1999), the Egan report (1998) and under-represented at recent conferences (CUDE 1999, TIA, 2000, AEE, 2000). The writers expose the dominant system as favouring Eurocentrism,

cultural chauvinism, competition, individualism, hierarchy and patriarchy in architectural schooling (Dutton, 1991:xxiii) –issues that are largely ignored by the mainstream reports.

These ideas are supported in a recent report on why women leave the architectural profession, funded by the RIBA. The key concerns voiced by this report echo the previous criticisms, and particularly highlight as problematic a culture of laddishness, misogyny in architectural school employment practice, gender bias in crits, gendered language in ARB and RIBA published material and a system that is set up for workaholic males. (Gates, 2003)

As a result, the following summary and critique of the current criticisms of architectural education is structured by presenting first the mainstream perspective which is then re-visited from a feminist and critical perspective in order to enrich, develop and critique the discourse. The counter-hegemonic views often overlap with, or complement, the concerns of other resistive perspectives, such as the green movement. As a result, arguments from other such perspectives are sometimes included in order to enrich the discussion.

The critique is categorised into three main areas (after Nicol and Pilling, 2000), which will be used to organise the following debate. The debate will thus be explored under the following structure, where the subheadings (marked in bold italics) define the key issues within each area:

1. **communication and teamwork** – the need for architects to improve their skills in working and communicating with others both within and outside the profession,
    - ***by developing a focus on communication skills,***
    - ***by promoting team-working and co-operative learning and***
    - ***by introducing others into the studio/design process;***

[15] Such as Ahrentzen and Groat, 1996, 1992, Battersby, 1989, Dixon, 1994, Gallop, 1982, Landau, 1997, Mackie, Hansen, and Lloyd-Tomlins, 2000, Milliner, 2000, Morrow, 2000, Parnell, 2001, Ruedi Ray, 2001.

2. **lifelong** learning – the importance of the contemporary professional being able to continue learning throughout their life in order that they be able to deal with the ever-changing demands of the profession meaning that prospective architects need to learn how to learn, which it is argued will be achieved through,
   - ***allowing for self-responsibility in learning,***
   - ***emphasising learning over teaching, through interdisciplinary learning, and***
   - ***promoting reflection;***
3. **design studio culture** – the demand that this must be transformed in order to evolve a practice that is inclusive, empathetic and which breaks away from the current studio's isolation,
   - ***by re-emphasising process as well as product,***
   - ***by providing a nurturing environment,***
   - ***by invalidating the myth of the genius,***
   - ***by exposing and diminishing dominating relations of power,***
   - ***by providing context and contingency,***
   - ***by including values and ethics and***
   - ***by breaking down the isolation of the studio as its own world.***

2.4.1 Communication and Teamwork

'The quality of any school, in the end, must be measured by the quality of its communication' (Boyer and Mitgang, 1996:111). Yet the studio has been described as a hothouse environment, isolated from outside influence and collaboration, and concerned with developing individual star architects. Milliner (2000) proposes that the model still promoted is that of Rand's hero architect in the *Fountainhead*, a male, white, middle-class, ruthless architect which conforms to a masculinist model with no room for client or user needs, compromise or collaboration.

This model is identified as contradictory to professional practice (Cuff 1991, Worthington, 2000) in which teamwork and collaboration are fundamental. In addition, this isolating tendency is seen to be *'at the centre of our malaise because it allows architecture to be self-justifying and above criticism'* (Nicholson, 2000). This tendency encourages the view that architectural discourse is inherently esoteric and limited in use for communication, thus isolating architecture from the public and diminishing the vitality of the discourse itself. Against this tendency, Helen Mallinson argues that *'architecture needs to flourish as a language to engage its public, to generate the demand for architecture and qualities it represents.'* (Stansfield Smith, 1999)

This is no new demand however. As early as 1967, the Princeton report on environmental design education stressed the importance of ending the isolation of the discipline of architecture (Geddes and Spring, 1967). Today, yet again, it is suggested that architectural education shakes off its introspective culture by re-examining itself from the perspective of the client, although ironically it is proposed that this is achieved *'without threatening the "magic" which clients look to architecture to provide.'* (RIBA, 1993) Whilst these mainstream reports emphasise the importance of introducing the client and user perspective into architectural education, the notion that this client and user base will be as socially and culturally diverse as the population itself is never expressed. Also ignored is the need for the profession (and thus the schools) to reflect the diversity of its client base in order for issues of difference to be explored, acknowledged and worked with (Dixon, 1994).

There is also a need for increased responsiveness to user needs and for more effective cross-disciplinary teamwork. Architects are not seen as good listeners, communicators or team-workers, and clients see this as a result of architects' attitudes, beliefs and training (RIBA, 1993). Even architects themselves are aware of the problem (Lawson and Pilling, 1996). This perceived weakness is backed up by the Egan report (1998), which cited the results of a British Property Federation survey of major clients (1997), showing that more than a third of major clients were dissatisfied with their consultants' performance in team co-ordination. This becomes particularly

important in the light of Blau's study of firms, which indicates that the more participatory the office, the more effective it is, both in terms of business and design quality (1984:143). In response, Egan proposed that the high standard of professional training needed to be matched with a practical understanding of the needs of clients and industry (although with no mention of the variety of that client base, or the need to understand the users of the building).

How can this be achieved in the studio? According to Lawson (1999), *'the studio in a design school is in many ways a bad model of design practice. One of the ways in which it is most far removed from practice is the absence of collaborators, whether they be clients, users or other associated professional consultants.'* (Lawson 1999:9) The proposals expressed in the literature for the ways in which communication and teamwork might be developed in architectural education are summarised in the following text under the headings:

- **Develop a focus on communication skills in the studio**
- **Promote team-working and co-operative learning**
- **Introduce others into the studio.**

Develop a focus on communication skills in the studio – In order to develop two-way communication (listening as well as presenting), it has been proposed that the crit or review be reconfigured. Boyer and Mitgang (1996) argue that the review lays the foundations for an adversarial relationship between presenter and listener, which then is repeated in the professionals' dealings with non-architects. Traditional reviews are also seen to encourage the use of architectural jargon (Cuff 1991) and are not as successful at developing communication skills in students as tutors would like to think (Wilkin, 2000).

In addition, Nicol and Pilling (2000) propose a systematic development and assessment of communication and interpersonal skills. This might be best achieved through the development of empathy skills, in order to empathise with the future user (Vale, 1996). However, if communication and interpersonal skills are simply added to the existing studio model, professional practice is likely to remain unchanged. It is the habits

inculcated in the studio that most need to be reassessed, as these habits will be repeated in the students' later practice. To this end, the communication and dialogue between teacher and student needs to be developed. This rarely exists, even in the studio, as in this vertical relationship, *'teachers speak in ways (often unconsciously) that legitimise their power, and students orient their speech and work to that which is approved'* (Dutton, 1991:172). This sets up a relationship of persuasion, as typified by Schön's conversation between Quist and Petra, rather than of mutually reciprocal dialogue.

Promote team-working and co-operative learning - Nicholson argues that we need to overthrow the myth that as architects, we lead the design process by right and that we can do it on our own (2000). The RIBA is doing its best to protect this 'myth', as the recently updated syllabus demands that *'The critical objective of the course must be to encourage architects to have the skill and authority to lead the design and building team in the majority of contractual situations'* (RIBA, 2001:63). As identified above, (Egan et al) this myth is not serving the profession well, which suggests it needs to be re-evaluated.

The use of team-working and co-operative learning in the studio (such as partnering between members of the industry, and between customers and industry (Latham, 1994)) can promote better models of practice. This type of working and learning responds to current trends in education – a recent study (cited in Berry & Sharp, 1999) found that co-operative learning tends to promote higher achievement than the other more competitive and individualistic learning modes.

This cooperative approach is in contrast to the traditional competitive model. Competition (possibly as a residue of the Beaux-Arts system) is often seen as indispensable to studio culture, considered as the major motivator to urge students to excel, to bring out the best in people. However, Dutton (1991:172) argues that the reverse is the case, that it also brings unnecessary emotional pressure, and promotes the belief that students must work alone. *'Design in this view is legitimised as a self-indulgent activity where cooperation and compromise, as possible vehicles for good design, are actively negated'* (Dutton, 1991:172). Competitiveness

in the studio is an issue that is found to be particularly negative by female students (Groat and Ahrentzen, 1996), suggesting that the traditional competitive model is also discriminatory to female students.

We thus find that the mainstream texts are in concordance with certain strands of feminist thinking, that describes woman-friendly practice as non-hierarchical and cooperative, open, democratic and friendly, less confrontational and competitive, and involving participation (Walkerdine 1990). However, critical pedagogues would include the collaboration of the tutor to further the idea of true collaborative learning. When the tutor also becomes part of the team, it shows a total commitment, not just to the students, but also to the advancement of the solution (Bond in Dutton, 1991a:93). Dutton (1991a:93) highlights the difficulty of achieving this when it is the tutor who has all the power (over giving marks etc). In order for genuine collaboration to be achieved he argues that the power of the tutor must somehow be diminished.

Introduce others into the studio – Since design *'inevitably involves subjective value judgement'* (Lawson, 1997:127) it is important that others are introduced into the debate in order to avoid the self-referential loop of architects only being criticised by architects and thus only their values ever being given a voice. The involvement of others enables students to experience tailoring presentations to particular groups (e.g. engineers, clients, the public) and may help to lessen the difference in the way architects and the public communicate, perceive, interpret and value the built environment (Brown and Moreau Yates, 2000).

Pilling and Lawson (1996) also point out the differences between the design brief as it appears in the studio (largely from a tutor's construct and developed by individual students – as characterised by Schön's model), and the way briefs are developed in practice (a negotiation between the client and the architect). Introducing clients and users in certain projects addresses this problem by giving students the opportunity to develop skills in this negotiation in order to discover their client's and user's aspirations, values and concerns (as well as ultimately how to design within these externally imposed constraints).

Again this proposal is supported but further developed by feminist thinking, to use the inclusion of other voices as a way of critiquing the dominant approaches. An important part of feminist research is to *'step outside of the circular logic of rationalised theoretical thought'* and to give a voice to the 'other' over that of the dominant ideology and in the process to erase it (Wigglesworth, 1996). To this end, it has been proposed that the studio be merged with the everyday: *'Only by merging with the everyday can the values, traditions, and aspirations of those who have actively been silenced become the central ingredients of our contribution to help produce a subversive/ transformative spatiality, coincident with their efforts to construct a counter-hegemonic worldview and a new integrated culture'* (Dutton, 1989: 5). Hurst-Mann adds to this proposal that we must ensure that we hear all the different voices, without deeming one to be dominant or superior (1991). In the studio, this means introducing a whole range of people into the studio project and acknowledging that laypeople also possess an expertise that is grounded in their setting and perspective. Leavitt (1991:234) acknowledges, however, that this is threatening to the ideology surrounding a profession, but in the long term, the addition of having alternative texts by someone representing the 'other' voice can only strengthen architectural education (Grant, 1991:163). At the same time architectural practice benefits as this method breaks the self-referential loop of architectural thought which is currently viewed as fundamental to the current crisis within the profession.

Morrow (2000) describes the failure of architects to take account of the 'otherness' that is essential to the creation of inclusive design – design that *'recognises the diversity of users, regardless of their ability, age, gender, income, sexuality, race or culture.'* She highlights the homogeneity of students and teachers in most architecture schools as being of similar background, social class, aspirations and political affiliations, and the teachers to be predominantly male. As a result, she argues, they typically do not experience exclusion in the built environment and thus do not design to counter exclusion. This needs to be countered by a conscious attempt to make inclusive design a priority. She argues that people issues (that are more in line with the career goals and interests of female and minority students (Ahrentzen and Groat, 1996:177)) are underemphasized

in the curriculum and thus have become peripheral. This therefore needs to be responded to in order that architectural education becomes more relevant both to its students, and to society as a whole.

2.4.2 Lifelong-Learning

Rapid changes in society, information and technology mean that professionals will need to be able to keep learning throughout life – to learn how to learn and to reflect on and thus improve their practice, to be adaptable, autonomous, flexible and versatile. Architectural education can respond by *'laying the foundations for continuous learning throughout life'* (Nicol and Pilling, 2000) and acknowledging that the curriculum is just one phase in life-long learning (Ease report, 1998) - as Dewey (1916:50) teaches: '*The educational process has no end beyond itself; it is its own end.'*

This perspective emphasises the need to develop the teaching and learning practices found in the schools. The literature reviewed proposes the following changes, which can be seen to respond to the above demands:

- **Allow for self-responsibility in learning,**
- **Emphasise learning over teaching,**
- **Interdisciplinary learning,**
- **Reflection.**

Allow for self-responsibility in learning - The studio is not currently structured to enable self-responsibility in learning, (Nicol and Pilling, 2000) and fails to lead students from dependence to independence in learning (Agyris, 1981). It is possibly due to the power relations inherent in the studio, that the notion of self-responsibility is diminished: Agyris (1981:560) found that interaction between students and teachers in the studio was characterised by both groups trying to gain control of the learning environment, but that given the difference of power, the students typically lost. In addition, Wilkin (2000) found traditional crits to be antithetical to independent learning as students rarely have any control

over the way in which reviews take place, or the criteria by which they are assessed.

This characteristic of domination is challenged by a feminist perspective, which repositions the role and authority of the teacher to give more responsibility to the learner (Weiler, 1991). This implies a nurturing form of pedagogy that includes choosing topics and defining the program in collaboration with students (Leavitt, 1991:230). However, it has to be acknowledged that there are curriculum elements that are set by those outside the tutor/student relationship and thus are non-negotiable.

Emphasise learning over teaching - The architecture model has been criticised for treating the first day of the course as 'day one' of students' architectural lives (Cairns, 1997), or even expecting students to unlearn everything that students had absorbed prior to the beginning of the course (Willenbrock, 1991:98). This model (which may find its roots in Itten's influence at the Bauhaus) aims to see the student as an empty vessel, which the teacher is to fill with knowledge. In this model the student acquires the desires of the teacher and displays that knowledge back to the teacher, unchanged by their own thinking, desires and ways of knowing. Friere describes this education as an *'exercise in domination'*, in which *'the educators role is to regulate the way the world "enters into" the students'* (Friere, 1989). In contrast he proposes a transformative model, in which education is perceived as the *'practice of freedom and bringing to consciousness the conditions that shape student's places in the world.'* Education viewed in this way is a dialogic process: In contrast to the student being 'filled' with knowledge, the exchange between student and teacher leads to knowledge being produced. The teacher-student relationship is one of mutual exchange and collaboration in the pursuit of learning.[16]

This transformative model exposes the need for true and equal dialogue in the model of studio teaching described by Schön, as well as in the review or crit process, which Wilkin found to be full of teaching but lower in learning than it could be (Lawson, 1999). In these review environments

[16] This approach is further explored in the following chapter in section 3.2.6.5 entitled 'Critical Pedagogy'.

real opportunities for learning are *'undermined in a climate of excessive competition, coercion, intolerance, or isolation from others on campus'* (Boyer and Mitgang, 1996:108).

In contrast, a learning focused architectural education would need to allow opportunities to evaluate the actual learning process (as opposed to say the design process), which is a key skill in developing autonomous learners (Nicol and Pilling (2000). This may expose differences in the way that individuals learn, thus avoiding the unconscious discrimination of a male tutor imposing their learning style on female students, or female tutors imposing their learning style on male students (Willenbrock, 1991:100).

Interdisciplinary learning - Effective learning involves a free exchange of ideas, yet there is often a sense of disconnection between architects and other disciplines on campus, and between architectural education and practice (Boyer and Mitgang, 1996:26). Collaborative projects and interdisciplinary work *'are generally marginalized in architecture schools today'* (Woods, 1999:170). This is especially troubling in light of its effects on architecture students' abilities to work effectively in the professional settings they desire to enter, with the need for interdisciplinarity cited by the Construction Industry Council (Andrews and Derbyshire, 1993), and conferences such as Education for the Built Environment (University of Cambridge, 1991) and Development in Education and Training for Professional in the Built Environment (University of Central England, 1995).

Christopher Barlow of the Graduate School of Business at IIT notes that in interdisciplinary settings *'a new kind of complexity comes into play'*, in which the "truths" of different perspectives conflict with each other. In these contexts one has to minimise the way that differences in cognitive style, cultural backgrounds, personality and values may diminish the possibilities for collaboration (Barlow, 2000). One way to approach this is to exploit whatever shared experiences the group may have. Rüedi (1996).

Reflection - Studio learning is based on the assumption that it is through involvement with a project that the student learns. Just having an experience does not, however, necessarily mean that learning has occurred. The important factor in turning experience into learning is reflection. Critical reflection (Brookfield 1995) helps students to develop

awareness of their own thinking, and includes self-questioning activities coined by Schön (1983) as 'reflection-on-action'. Reflection can also lead to challenging and questioning the nature of orthodoxies acting as social control (Astley, 1992), i.e. reflection can lead to transformative education[17]. In this way students can be partners in the furthering of the knowledge base of the profession (Boyer and Mitgang 1996:88).

Nicol and Pilling (2000) argue that there are few formal opportunities for reflection in the traditional architecture studio. Although this is at first contradicted by Schön's view of the studio, closer study reveals that it is only the tutor who is afforded the opportunity to reflect upon his actions in the design process. In addition it is only the design process, and not the learning process itself that he reflects upon. This criticism may be countered by the conscious inclusion of opportunities for reflection on both learning and design processes, supported by feminist practices of self-reflection and promotion of critical reflection in students (Weiler 1991).

2.4.3 Design Studio Culture

Design dominates the architecture curriculum. *'It is the place – the design studio – where students spend as much as 90% of their time and energy. It is a product – the tangible result of thinking about and making architecture. And it is a process – a way of thinking during which the many elements, possibilities and constraints of architectural knowledge are integrated.'* (Boyer and Mitgang, 1996:101-2)

Cuff studied the school of architecture through the language of social science, in order to describe the schools as socialising students into the culture of the profession. As she described, *'students stay up late, are never home, spend all their time in the studio, and belong to a clique of other architecture students...Here in this earliest phase of becoming an architect, we see kernels of architects' later values, such as the principle of peer review and a developing segregation from the general public.'* (Cuff, 1991) The studio then forms a virtual world that attempts to simulate, but also simplifies practice, relatively free of the pressures, distractions and

[17] See also Didaskalou (1996).

risks of the real world. This virtual world *'for the student...embodies particular ways of seeing, thinking and doing that tend, over time, to assert themselves with increasing authority'* (Nicol and Pilling, 2000: 7). Students learn as much through the social culture and the type of teaching and learning in the school as they do by the content of the course.

This socialisation process exposes the 'hidden curriculum' (Dutton, 1991) of the studio, which refers to the unstated values, attitudes and norms inherent in the process and content of the course. Dutton argues that it is in this way that the discriminations found in contemporary society – class, gender and race discrimination and asymmetrical relations of power – are reproduced in the design studio. His view is supported by Cuff's 1991 study, which also adds the historical emphasis to discrimination in the studio, where the curriculum and classroom reflect a long history of male dominance.

Didaskalou (1996) proposes that by participating in the world of the studio, by internalising architecture's knowledges and practices, women have to reconstruct themselves as s/he's, in the image of the neutered male. He argues that an ideologically neutered masculine figure forms the only dominant architectural role model. Thus, whilst woman has used the broader economic and cultural empowerment created by the women's liberation movement to enter architectural education, at the end of the process, she has exited into practice a decimated figure. This suggestion perhaps explains the findings of a study into why women leave architecture, which found that although increasing numbers of female students are registering for architecture courses, the number of female practising architects has remained low (Gates:2003).

This position of male dominance is arguably protected by the studio set-up that itself prevents the movement for liberation: *'we tend to think of the studio as a big space with lots of desks, drawing boards, lights, and a teacher who wanders around sharing his or her experience with numerous students. But it is much more than this. It is a set of social processes and relationships which are specifically designed to prevent social and political change. It is an anachronistic hold-over from the French Academies of the*

monarchistically privileged times of Louis XIV. It has no place in a democratic society' (Ward, 1991:218).

Although the view that the studio as a whole has no place in democratic society may be an extreme one, there *is* a general consensus that the studio needs to evolve. In order to provide a better preparation for practice, it is necessary to reassess the relationships, between learners, and between learners and teachers, that exist in schools. Nicol and Pilling propose that the learning climate be realigned around different relationships that emphasise communication, collaboration and self-reliance, through a combination of active learning, reflection, collaborative learning, authentic learning tasks and self- and peer-assessment.

The following changes are a summary of the ways in which the design studio culture may be developed in order to address the above criticisms:

- **Re-emphasise process over product**
- **Create a nurturing environment**
- **Expose and diminish dominating relations of power**
- **Diminish the myth of the genius**
- **Reintroduce Context and Contingency**
- **Integrate values and ethics**
- **End the isolation of the studio**

Re-emphasise process over product - There is much criticism of the priority that schools give to design as product (as a visual and graphic output) rather than design as an interactive, dynamic process (Nicol and Pilling, 2000, Cuff, 1991 and Lawson, 1999).[18] This is seen as problematic as it is *'the ability to view design as a process [that] serves a graduate for*

[18] This is seen to be a supremely masculinist priority (Didaskalou, 1996), that is seen to be part of a wider tradition: 'Parallels can be drawn between these approaches to architecture and involvement of men and women within different spheres of the arts...Historically, women have tended to be involved in the arts that concentrate on the process of the experience, whereas men have created the artistic products' (Vale, 1996). She describes how the strength of the art of process lies in its inclusion of the user in a way that the art of the product never will, and that this inclusion is fundamental to environmentally responsible architecture.

a lifetime and withstands changes in architectural styles, materials, construction and technology.'(AIAS, 2002:110)

Morrow (2000) proposes that the start of rebalancing process with product might be made by acknowledging process in assessment, for example, by inviting user involvement in assessment of work. She also criticises the studio's preoccupation with the novel, the exotic and innovative solutions for their own sake (see also Vale, 1996), an idea that is inherently linked to the emphasis on product over process. In response, it is proposed that everyday life be explored, in order to develop skills in finding inspiration in the most mundane of places.

Create a nurturing environment – Architectural education has been accused of promoting unhealthy work habits in a culture that almost takes pride in dysfunctional behaviour: *'Students brag about the number of consecutive "all-nighters" they survive...and the "cool" students are those who spend the most time in the studio.'*(AIAS, 2002:7) This is seen to be damaging to the profession, as we are setting ourselves up for exploitation and ill health.

Despite the fact that morale among students is generally high (Boyer and Mitgang, 1996)[19], Fisher describes the atmosphere created by the studio as having a *'fraternity aspect...where the pressure on students and interns, in particular, becomes a kind of rite of passage or, less generously a weeding out of those unfit for membership of the club.'* (1991:9) This macho atmosphere is found by Cuff (1991) to be particularly difficult for women students; a notion supported by Ahrentzen and Groat, (1996:177) who argue that women and minority students tend to respond negatively to competitive learning settings. In response, it is recommended that schools expand their teaching repertoires in order to establish a supportive climate for learning – *'where faculty, administrators and students understand and share common learning goals in a school environment that is open, just, communicative, celebrative and caring.'*(Ahrentzen and Groat, 1996:177)

A nurturing environment is a place where a diversity of peoples, cultures and ideas is celebrated. This begins with inclusion - schools must actively

[19] a USA based survey that can be assumed to be fairly similar to the UK figures.

acknowledge the contributions of all groups to the history and body of knowledge that make up the architecture story, simultaneously seeking to diversify the student body and faculty (Boyer and Mitgang, 1996:112) in order to achieve the 'critical mass' of women or minority students needed to provide a hospitable environment for these students, and to lessen the likelihood of harassment (Ahrentzen and Groat, 1996:177).

Expose and diminish dominating relations of power

Dominating relations of power are inherent in many aspects of the studio and architectural education. The teaching of architectural history and theory often presents the western male as the only producer of worthwhile architecture. This implicitly devalues women and minority groups (Dutton, 1991a) as women and non-western cultures are rendered invisible by their absence in historical accounts (Willenbrock, 1991:99). In this way architectural education inculcates the values of a hegemonic view in which people of colour and women discover little about their values, history, or cultural place (Grant, 1991:151). Within such a framework racism and elistism are likely to be intensified, and women and non-Western cultures are left without role-models and without history. In addition, the competitive and individualistic process of the studio is seen to exacerbate this concept of 'cultural chauvinism' (Diaz, Buss and Tircuit, 1991).

Power relations are also seen to be at the heart of the negative elements of design crits or reviews. *'When the review is structured in the typical show and tell routine where students stand next to the wall and often get ripped by professors, this is an asymmetrical relation of power. There's no dialogue in relations of power that are asymmetrical, and if there's no dialogue, there's no learning'* (Dutton, 1991a:94). When the elusive language used by many design tutors is added to the equation, this asymmetrical relationship is reinforced (Willenbrock, 1991:114).

This argument can be extended to much of the design studio. Schön's text on the design studio (1985) is criticised by Willenbrock (1991:106) for failing to acknowledge the presence of power in the design studio. *'There are many examples of a relationship of disproportionate power in Schön's design studio juxtaposed against his claim that an ideal learning environment must contain dialogue. Simply stated, dialogue is an exchange*

rooted in respect for the other party, accepting the other's unique experience as valuable. Clearly, then, a dialogue requires an equal distribution of power not present in Schön's studio example.' (Willenbrock, 1991:106). Schön does not allow the student to engage in equal dialogue with the tutor, and when the teacher holds all the power of decision-making, students become mentally passive (Feigenberg, 1991:275).

It is possible for educators to readdress these positions of domination through their own approaches to teaching and learning. They are challenged to *'participate in a struggle both to give voice to the margins of thought and to challenge the centres of power and the processes that delineate the boundaries of knowledge.'* (Hurst Mann, 1991:56) In this way, those outside the norm of architectural history teaching are newly included, what is seen to be relevant to architectural knowledge is expanded, and educators are to challenge their own, as well as other's positions of power within the studio and school. Architecture is re-conceptualised as a tapestry and thus a non-hierarchical web, intended to be viewed from a multiplicity of perspectives. It shows architecture to be the result of diversity of threads and patterns that is connected to social values and is culturally based. (Ahrentzen and Groat, 1992)

The myth of the genius.

The current studio culture is seen to promote the individual and even the iconoclast. This leads to competitiveness that is seen to be contradictory to the necessary practice skills of collaboration and teamwork (AIAS, 2002:12). This is not to suggest, however, that there is no role for the individual professional, but rather that *'the individual acts in the context of a larger and increasingly significant social environment. As such, the cult of the individual should not dominate our beliefs about practice any more than the collective or the team.'*(Cuff, 1991:251)

Although the proposed re-emphasising of the collective in balance with the individual is seen to be important for all students, it is exposed as being particularly important for female students. Ahrentzen and Groat (1992) criticise the dominance of the star system and the gendering of genius as specifically frustrating women's progress within architectural education. Their work is based on statements from a survey of women staff in North

American architectural departments, but it is assumed here to have a strong resonance to the UK experience.

They propose that the notion of master-mystery in design learning, coined by Agyris (1981) and supported by Schön's model of the studio (1983), is inherently sexist. The concept of master-mystery describes the design education process in which the student learns from a master who has mastered the craft of architecture, but the process by which they arrived at this mastery remains a mystery to students. Students are expected to suspend doubt and remain unquestioning of the values and assumptions that underlie the tutor's mastery.

The teaching model is that of persuasion rather than dialogue and is thus imbued with relations of domination. The fact that the master is almost always a mister adds to the sexist nature of the encounter (Ahrentzen and Groat, 1992). In addition, the geniuses that the studio refers to are almost always male (as is particularly apparent in the teaching of architectural theory and history: a history of great monuments and the great men that created them (Diaz, Buss and Tircuit, 1991, Willenbrock, 1991:99, Grant, 1991)). The model of master-mystery supports these sexist norms as *'by challenging students to 'suspend belief' and have faith that mastery of the creative process is inherently mysterious, a process of uninformed consent to the dominant culture of the pedagogue is institutionalised'* (Hurst Mann, 1991:52).

In order to recover education as the practice of freedom, Dutton proposes that a space will need to be created *'where students can come to voice and be empowered by what they say, singularly and collectively'* (Dutton, 1991:174). This includes allowing students' subjectivities to become central to the pedagogy, in order that these can be made problematic. Students and teachers are exposed to the way that subjectivities are defined *'by configurations of power within class, race, gender, ethnicity, and culture'* (Dutton, 1991:175) in order to benefit *all* students.

Reintroduce Context and Contingency - Donald Schön (1987) articulated an essential aim of architectural education as preparing students for the *'indeterminate zones of practice'* where action is characterised by uncertainty, uniqueness and value conflict. However, design studio

problems are ideal ones: the problem has potential, an appropriate site has been selected, a reasonable programme has been created, there are no clients, consultants, or planning officers to demand revisions, and the budget is irrelevant. There is little uncertainty about the problem or the process.

This contradiction is understandable, enabling novices to learn new skills, however, according to Cuff: *'By de-emphasising context, much knowledge and training that would be useful in architectural practice is unattainable.'* (1991:250) She also suggests that architectural education accentuates the qualities of innovation and individuality to the expense of business interests. This argument is supported by Symes, Eley and Seidel (1995), who found that less than one in four British architects felt adequately trained in practical matters, including client relations, office and budget management, CAD, property development, accounting, facility management, marketing or computerisation.

These omissions mean that students learn to solve problems in simpler settings than they are likely to find in practice. As Barlow notes, intensive efforts to teach students to understand a certain (single) perspective means they are generally only exposed to problems that can be solved in that perspective. The more success a student realizes in solving these "single domain" problems, the more likely they will encounter problems applying their knowledge in the complex and messy "multiple domain" context of the real world. (Barlow, 2000) Although design studio problems are rarely "single domain" the issue is still relevant in that messy issues of context and contingency are usually excluded.

Architectural practice is fundamentally rooted in practical knowledge shaped by human action, which is defined by Aristotle as *phronesis*. This implies that the learning of architecture must be based in experience: *'Phronesis is not seen as a precise science which can accurately predict human actions, but is shaped through experience. There is an underlying assumption that human action is contingent and does not lend itself to precise knowledge.'* (Till, 1996:70) The experience can then be reflected on in order for the individual to develop their own theory of knowledge and action within the dynamic structures of the real world. Till then proposes

that through critical interpretation of these structures (through contingent theory) the architect can reveal the *'forces and dominant ideologies that shape the production of buildings'* (1996:71).

In terms of education, it is proposed that the messy problems of the real world are introduced into the studio (Morrow, 2000, Vale, 1996, Ease report, 1998), in order that the *'indeterminate zones of practice'* be explored, and students develop experience and understanding of working with uncertainty, uniqueness and value conflict.

Integrate values and ethics – Plato and Aristotle both teach that the ideal of education is to enable students to lead the good (ethical) life. This ideal is particularly pertinent to architecture, which produces material that can have direct effects on peoples' lives. Graduates need to be aware of the ethical and moral issues needed to *'guide practitioners through a lifetime of civically responsible practice in a multicultural and interdependent world'* (Boyer and Mitgang, 1996:91). Although recent years have seen a limited interest in the ethical role of the architect, (this lack of interest is described by Landau (1997:421) as architectural amorality) there are signs that this is changing. In particular feminist, environmental and critical texts highlight the nature of the profession, as well as education, as being imbued with value choices and ethical and moral dilemmas.

Again contingent theory is seen as a way of reintroducing the notion of ethics and values. It forces practitioners to place themselves in relation to other individuals and thus to define their own political and ethical positions. In the realm of the studio, the educator is repositioned as 'ironist', who accepts the contingency of their beliefs and thus relinquishes their hold on foundational knowledge, thus also relinquishing the related position of power. Instead the educator uses dialogue to draw out the individual position of students and to enable them to build self-critical understanding of the conditions within which they are working. Once more, it is proposed that the everyday is drawn upon to facilitate this critique. (Till, 1996: 74)

End the isolation of the studio - Little has changed since this scene was described in 1932: *'Go through, of an evening, any university campus*

containing an architecture school. That school can be spotted without fail. It is the one brilliantly lighted attic' (Bosworth and Jones, 1932).

Architecture students are socially, physically and intellectually isolated from the rest of the university.[20] Because of their heavy workloads, students find it hard to participate in extracurricular activities (Boyer and Mitgang, 1996:108) and the nature of most design studio projects means that the focus is inward-looking and introspective. The lack of time and opportunities to develop relationships and activities outside of the studio has been cited as being the cause of clients viewing architects as arrogant and ignorant (AIAS: 2003:9). Certainly, if we want a profession that is involved and relevant to its communities, then we need to promote that level of involvement in architecture students.

The isolation of the studio is also seen by Ahrentzen and Groat (1992) to impede women's progress in architectural education. They argue that in addition to the isolation caused by the lack of involvement of others in the design studio, women feel particularly isolated due to the small numbers of women staff and their often non-mainstream areas of scholarship.

The isolation of studio work from the others involved in experiencing architecture is also seen to be a problem. The separation of student designers from the day-to-day experiences of users of buildings (as well as the physical construction) is seen as being part of a dualistic construction of reality which holds apart the ideal and real, mind and hand, subjective and objective: dualities which could be seen to favour the masculine over the feminine (Pyatok in Willenbrock, 1991:109), again, to the detriment of *all* involved.

2.4.3.1 The epistemological backdrop

The various perspectives on the ways in which architectural education might change expose a difference of political opinion about the role of the designer in society, which in turn reflect different ideological positions towards knowledge. Markus (1972) paraphrased in Lawson (1997:26,27) suggests three broad views that may be held about the designer's role in

[20] Boyer and Mitgang found that 73% of students agreed that they 'often feel isolated from others outside the architecture school.' (1996:92)

society which are repeated here as a way of positioning and thus further understanding the movement for change exposed in the previous text:

Conservative - centred around the continued dominance of the professional institutions. Designers are unconnected with clients and makers. This conservative model is under threat from the RIBA itself, which promotes the need for change, and the government's accusations of protectionist practices by the RIBA.

Radical – the designer actively seeks out different structural changes in society ending in the end of professionalism as we know it. The designer would associate directly with user groups, forsaking independence and power, and a belief in a decentralised society would mean the designer would be happiest when working with disadvantaged groups or 'radical' groups such as self-sufficiency communes. Lawson argues that this model is unlikely to become mainstream since these kinds of client groups are not likely to control any resources.

Realist – this middle path lies between the two extremes, where designers remain professionally qualified specialists but try to involve users in the process by using new participative approaches. Designers following this approach are likely to have abandoned the traditional idea that the individual designer is dominant in the process, but they still believe they have some specialised decision-making skills to offer.

The current movement for change exposed in the previous text settles largely under this realist perspective as a critical feminist perspective aims to effect structural changes to empower all from *within* the structure of a profession.

2.5 Discussion

Even in 1994, Crinson and Lubbock talked of a *'major historical shift'* in the education of architects. Subsequent critiques and the school's responses have served to cement this shift, although it remains still very much based in the discourse, as opposed to the practice, of architectural education. The proposal made here is that the discourse proposes a shift that fits well with realist, (and inclusivist) feminist principles and thus can be seen to have a (unconsciously) feminising influence in the conception of architectural

education. The argument is not that education is becoming (or needs to become) more women centred, but rather that the current conception of architectural education can be seen as having a masculine bias, and thus the proposals for change may be seen to rebalance the practice of the studio in a way that will benefit both women and men, in education and the profession.

Both the mainsteam texts and the feminist and critical perspectives support the introduction of the 'other', the approaches of collaboration, compromise and communication, team-working and co-operation and new models of teaching and learning. Both support the re-positioning of process and product, the re-emphasis of context, and the erosion of the myth of the genius. This supports the argument that the movement for change is one that rebalances the masculine with the feminine.

In addition, it becomes apparent that qualities traditionally considered to be feminine (such as empathy and collaboration, community and evolution, holism and versatility, negotiation and enabling, emotion, experience and responsiveness) are being undervalued in education. Instead, existing mainstream education values competition, isolation, the individual, esoteric professional knowledge bases, and singular, one-size-fits-all education paths. The explicit exposure of this gendered binary opens it up to contest. It allows us to assess the current movement for change and become more critically aware of what may be lacking. It is ironic that while many of the proposals for change can be seen as feminising, the notion of gender or equality issues has been almost entirely ignored by the mainstream texts.

A feminist perspective on the movements for change highlights the need for amendments and developments to the proposals. For example the feminist literature introduces the notion of empathy into the proposal for improved communication and listening skills; it emphasises the critical possibilities inherent in introducing others into the studio and in promoting reflection; it also highlights the power relations inherent in the teaching and learning environment. Thus the exposure of the movement for change as rebalancing the masculine with the feminine, has the potential both to critique and to enrich the developments, to the benefit of the profession as a whole.

At the same time as this rebalancing influence is being put forward, university education is being affected by a supremely masculine model of technical rationality, involving top down rationalisation, commodification, commercialisation and accountability. Architectural education is now a business (Wolf, 1987). The latest RIBA syllabus (2001) focuses on rationalisable issues such as management, CAD skills and a technical view of sustainability. Gender and minority issues are entirely ignored. The new language of efficiency, standards, cost-effectiveness is defined by dominant groups (typically those with the funding) and thus has the potential to push aside concerns for a more balanced educational model.

If a multiplicity of individuals is in the architectural profession and in architectural education, the technical rational model must be resisted by embracing, enacting and exploring the proposals made in the discourse, thus unravelling a move towards a better model of practice and education.

2.6 Responses – A review of current trends in the architecture studio.

In response to the challenges, many educators have begun to actively explore changes and alternatives to the current model. Changes have also become critical in response to increased student numbers and diminished teaching time – *'We must be open to change and stop the old cries of 'we have always done it like this"* (Follett 1999).

In the schools of architecture, changes are beginning to take place in practice. These changes include redefining the context, the content and the process of architectural education: 'others' are introduced into the studio; the studio is taken out into the world; students are working in teams, in collaboration; existing relationships are being questioned; rituals such as the crit and assessment are being re-thought. Some innovations centre on community, interdisciplinary and client-based projects. Others describe restructured teaching methods to improve students' skill attainment – in design, team-working and communication and developing independent learning (as described in the following text). It is apparent that there are beginning to be changes made to practice as well as in the discourse. However, it is perhaps worth noting that the participants of the

conferences from which this summary is drawn are by their very nature self-selecting and thus perhaps cannot be seen to be representative of a more mainstream change.[21]

What follows is a summary of action for change as recorded in recent UK conferences on architectural education.[22] The practices described are categorised here into seven areas which may be seen to have relevance to this study: altering crits, demystifying the design process, introducing clients into the studio/taking students into the 'real' world, exploring architecture in collaboration with others, challenging architectural assumptions, ensuring representative diversity of staff and students, and lifelong learning initiatives.

2.6.1 Altering Crits

In response to criticisms of the traditional crit, various alternatives have been explored, alongside a general move towards renaming the event as a review. One alternative approach is the student-led crit – in which tutors take a back seat. The students involved found this to be a truly enjoyable and liberating experience, and felt that they learnt more than usual. However, the tutors felt they should be teaching - tending to equate student learning with teaching. (see Lawson 1999:14, White, 2000a:211)

At the Leicester School of Architecture, Brindley, Doidge and Willmott (2000) tried out other alternative review formats. These were an exhibition, whereby tutors reviewed the work privately and then held short sessions with individual students; a talk format, where students presented their work using an overhead projector; a meeting format, where students made a short presentation followed by a statement of the areas of feedback that they would like to see covered; a selective review, which is a standard review format followed by selective reference to particular student's work; and a computer review, in which students present their work entirely from a computer, using a data projector. At the same school, Henderson

[21] As one eminent contributor to one of the conferences put it, *'most (male) educators think they know how to do it, and so didn't come!'*

[22] Changing Architectural Education: Society's call for a New Professionalism, De Montfort University, 1999; Conference on Design Education, Royal Incorporation of Architects in Scotland, 1999; AEE2000, Sheffield University; TIA2000, Oxford Brookes University and AEE2001, Cardiff University.

(2000:255) describes an attempt to separate the review from assessment, in order to encourage reflection and feedback, alongside a clarification of the event by changing certain characteristics, from things like the room layout, to overtly expressing the educational objectives.

2.6.2 Demystifying the Design Process

Farren-Bradley (1996) argues that the empowering of women in relation to their own health and the health of children has been achieved through a combination of the **demystification** of professional knowledge and the education of women by women, with an emphasis on **experiential** rather than theoretical knowledge. It is this that she argues that architectural education needs to achieve.

Various attempts have been made to demystify the design process: through showing how successful designers work; by reflecting on students' own design processes (individually and in groups); by designing using another student's design process and by attempting to break down design-understanding into components.

Aberdeen University produced videos of well-known designers designing against the clock to help provide an insight into design processes for architecture and engineering students (McCallum 1999). Although this is potentially problematic in its veneration of architectural heroes, the principle of making others processes of design explicit is admirable.

At Sheffield University, Parnell (2001) describes the use of peer discussion groups, in order to aid students in managing their disjunction (the confusion, loss of sense of self and desire for 'right' answers typically experienced by students in studio projects). She argues that peer discussion provides an opportunity to step back from specific project details, potentially resulting in greater student understanding and critical awareness of the context of both architectural production and education, thus aiding in demystifying the process.

Also at Sheffield, Bakerman (2001) describes a method for students to identify and deconstruct their design processes. In an experimental project, students were asked to attempt to record their design processes. This process was then passed on to another student, who was asked to design

by replicating the first student's process. He argues that the tool developed helps students to communicate the design process and thus to assess it; if the design process is explicit then it is possible to reflect on it and get feedback.

Similarly, Webster (2001) describes an initiative at Oxford Brookes that uses design diaries (as distinct from design sketchbooks) to embed the process of reflection into the studio. The intention of the diaries is to both record and reflect upon the process from beginning to end, using the stages in Kolb's learning cycles (action, reflection alone, reflection with others, reflection on reflection with others and further action). Another example is the 'Design File', a written and illustrated report reflecting on the design process, described by Odgers (2001) from the Welsh School of Architecture at Cardiff.

2.6.3 Exploring architecture in collaboration with others

In order to develop skills in communication and teamwork, and to counter the perceived isolation of the studio, a range of projects and alternative ways of working have been introduced, which aim to enable architecture to be explored in collaboration with others. Many of these introduce a client or collaborator into the design equation, or use community-based projects. To this end various schools have experimented with live projects, which will be explored in more depth in the following chapter. Attempts to explore architecture in collaboration with others outside of the live project include collaborative studios, vertical studios, group learning and joint courses.

Collaborative studios involve students in exploring architecture in collaboration with non-architects. This might involve working with school children (Brown and Moreau Yates, 2000), with planning students and community groups (Ruedi, 2000), in multi-disciplinary groups with students from other built-environment disciplines (Howes, 2000), with artists (Ewing, 2000) and many other disciplines (the author has experimented with involving a contemporary dancer).

Jarrett (2000) describes a community-based design project in the USA. Groups of four students worked together to experience different areas of the city, studying a community building, and then redesigning an existing

mini-mall. Following this studio was a collective project involving 11 architect-led interdisciplinary teams and 100 students in collaboration with neighbourhood groups and civic agencies. The aim was to give 'voice over form', giving value to the 'other' and to form an inner city case study that would propose localised tactics to strengthen the sense of urban life and community in the inner city. Students were able to experience the whole design process and gained experience in working with architects dealing with real social issues.

These projects have the potential to break the self-referential loop of architectural production and criticism, which is seen to have such a negative impact on our profession. Working with other groups also means that students are given the opportunity to develop skills in communication with a variety of people and are introduced to issues and values outside of their normal field of reference. Students get involved in real issues, which can result in them having to make ethical decisions, deal with contingency and potentially critique the structures that they experience in undertaking the project. In addition, the inclusion of outside collaborators has the potential to diminish the power of the tutor, as it is no longer them alone who is the judge of the success of the students' work.

In a similar vein, Leeds Metropolitan runs interdisciplinary collaborative projects, in which groups of four students from architecture, quantity surveying, civil engineering and construction/ project management work together, but in competition with other groups, on 'real' projects that have been or will be carried out by one of five industrial collaborators (2 commercial architecture practices, a contractor, a firm of quantity surveyors and project manager and a bank) (Howes and Wood, 2001). This project enables students to develop skills in communication and interdisciplinary teamworking. In addition the collaborators bring many of the advantages of the collaborative studios described previously. However, the emphasis on competition, and the fact that the work that the students produce would not be used could potentially diminish the value of the project.

Vertical studios have also been explored as a way of encouraging architecture students from different years to learn from each other.

Portsmouth has experimented with these, in which the whole school of architecture is restructured, to enable students from different years to work together in the same studios (a 'vertical' studio) (Potts, 2000). This model draws on the natural collaborative learning that happens between students in the design studio.

In other attempts to affect the pedagogy of the school, Gutman (2000) describes a range of experimentation with architectural education, such as team teaching, in which other specialists besides architects join in the teaching panel. This small change could have far-reaching effects in the breaking down of the isolated and self-referential tendencies of the studio. The potential weakness is that the tutor involved in employing other members of the team could naturally be drawn to those whose views are in concordance with their own.

As opposed to group teaching, group learning is embraced in many schools. In one pilot project, the idea of group learning was taken to an international level. This project involved design collaboration between architecture students from the university of Liverpool, UK and Montana State University, USA in relation to an urban design project in Siena, Italy. The project promoted joint-working via an initial physical workshop and subsequent remote studio and resulted in a cross-continental scheme presentation via video teleconferencing, reflecting the progress made by the major players in architectural practice. (Dunne, 2001)

In a more fundamental shift, whole courses have been designed to focus on working with more than one construction discipline, eg. a joint architecture and planning course at UWE (Manley and Claydon, 2000), joint architecture and engineering and architecture and landscape architecture at Sheffield University (2001) and a building design engineering course at Strathclyde (Howieson, 2000) and the interdisciplinary design for the built environment masters programme at the University of Cambridge (ACBEE, 2003a).

These approaches must help in broadening the influences and spheres of reference of each course. In this way it may be possible for these students to step outside the processes of the two environments in order to critique them more effectively.

2.6.4 Challenging architectural assumptions

Dutton proposes we resist the reproduction of dominant cultural and political practices through counter-pedagogical strategies. These aim to: *'(1) make problematic the inherently conflictive nature of society with its asymmetrical relations of power, (2) so that students and teachers can begin to critically understand their experience within this context, (3) to learn what it means to be a self- and socially constituted person giving meaning to the world, (4) in order to act upon and change institutions, society, and life.'* (Dutton, 1991:166)

The current theoretical resistance to the hegemony of the design studio is reflected in explicit counter-hegemonic educational practices: Callicot and Sheil (2000) challenge the notion that architecture is about drawing buildings, not making them and the notion of authorship, by setting a project that involved 'drawing' space, and handing it anonymously to another student who was to interpret and make it. Mackie, Hansen and Lloyd-Tomlins (2000) introduce gender issues and their impact on sustainability in the design studio through the development of teaching alongside research; Morrow et al. (2001) aim to introduce reality into the studio as a generator (rather than a constraint) of creativity. The intention is to develop a level of creativity that is sustainable even in more 'real' environments.

In addition, there are many examples of attempts that are being made to integrate teaching of non-'pure' design subjects into the studio. These include the teaching of technology through team-working, where an emphasis is given to meaning and value rather than technical solutions (Clews, 2001), the integration of 'lower-case' history into the studio (Samuel, 2001), introducing the teaching of day-lighting into the design studio (Correa and Pereira, 2000) and many more.

2.6.5 Ensuring representative diversity of staff and students

In order to give a voice to the 'other' over that of the dominant view, it is essential that a diversity of people are represented in the profession and thus in the schools. This need has become increasingly high-profile in the wake of the murder of black student Stephen Lawrence, who intended to go on to study architecture. The Stephen Lawrence Scholarship provides

grants to enable black students to study architecture, with the aim of a "Stephen Lawrence" student in each of the country's 30 architecture schools (Dodd, 2000). The RIBA's 'Women in Architecture' lobby is pushing to have measures in place to improve enrolment amongst other tactics to keep more women in practice than there are at present. Minority groups are equally championed by the "SOBA", Society of Black Architects' link both to RIBA and to the British black community. However, the issues of race, gender, sexual and ability diversity are still under-addressed in schools of architecture. From the five recent conferences recorded in this study, only two papers focused on access for non-traditional students:

Murray (2001) describes an initiative at the University of Cape Town to improve the student profile to match the country's demographics. Academic merit, portfolio promise, weighting in the case of students from underprivileged schools and social backgrounds, foreign students, mature applicants, transferees from other universities, all become part of the equation.

Uduku (2001) records the role and success of Liverpool University's Architecture School at working with nearby communities on architecture-related projects with a community focus, such as a one week live-in summer school for A-level students, exposing the issue that many local neighbourhood residents remain unconnected to the world of architecture and course enrolment opportunities that are literally on their doorstep.

It is fundamental to both the architectural profession and its education that educators expand this effort for the benefit of those currently accepted by the normal entry requirements as much as for those who are currently excluded.

2.6.6 Lifelong-learning initiatives

In order for students to develop transferable skills that will enable them to learn throughout life, initiatives have been made to teach 'people' skills, to encourage students to keep learning records and involving students directly in the development of their own course.

Fisher (2000b) introduced a series of workshops on interpersonal skills to prepare students for interprofessional practice, including reflection on these

skills in use. The workshop technique was also developed at the Leicester School (to develop skills in brief-making, team-working, oral and verbal communication, talking to lay-clients and users and working with students and practitioners from associated disciplines)(Henderson, 2000:255) and at the University of Central England, where Vowles (2000) ran a series of group research and design projects with 3rd year full-time BA students. The series began with two workshops devised by CUDE for introducing the idea of team-working as a structured enterprise with rules devised and agreed by each group. They kept learning diaries as part of the project and were asked to assess each other's contribution to the projects at the end.

The notion of life-long learning is addressed by Hull School of Architecture by the use of personal development plans and negotiated learning contracts. These are used to support students during their year in practice, to support lifelong learning, attitudes and skills and to help integrate their academic study and learning from practice. At Oxford-Brookes, learning contracts and personal development plans are used in the diploma course, to make curriculum choices and to help students plan their study pathway (Webster, 2000). This idea is also interpreted by Depuydt (2001) at the *Free University of Brussels*, where the student is asked to record their learning process through the use of a matrix.

Students are being actively encouraged to participate in the evaluation of their learning processes (see Philibert-Petit, 2000:1.13) by using their values as the starting point for their education. This kind of idea is also explored in Cyprus, at the Eastern Mediterranean University. The detailed process and content of the course is flexible, allowing the student to be actively contributing to the quality of the course (Yagiz and Dagli, 2001)

Where these approaches allow and encourage students to become self-directed and reflective, it is clear that they will have benefits, particularly in the light of the education theories presented in the next chapter. The potential weakness is where these approaches are not valued or carried through to other parts of the course. Tutors need to ensure that they themselves give enough value to these issues. In an environment where design is often valued above everything else, it is easy for students to feel

that keeping diaries, making learning contracts and personal development plans are a waste of their valuable (designing) time.

2.7 Conclusions

In reviewing the literature on architectural education, it becomes apparent that we are experiencing the tentative beginnings of a paradigm shift, from the current individualistic, competitive ideal, to a more pluralistic, nurturing model. The shift is still largely a theoretical debate, although there are some limited signs of changing practice.

Of the changes, it is those that attempt to diminish the isolation of the studio by introducing clients and other collaborators or taking students out into the 'real' world, that have gained the most interest (as evidenced by the number of papers recorded in this survey). These are seen by those involved to have a multiplicity of outcomes, including: developing communication skills – in brief-building, questioning and listening, presenting, and dealing with differences; linking the school of architecture into the community; integrating the application of scientific or technical knowledge with experiential and cultural factors; collaborative learning including student-professor partnerships, learning from other students and team-working; learning-by-doing; raising students' work to a professional standard; increasing motivation; developing skills in project management, problem-solving, organisation; understanding the whole design or building process; giving hands-on experience; reflection; working with real social issues and working with professionals.

The social context of these projects provides the potential for Dutton's counter-pedagogical strategies; the social context is acknowledged and made available, thus providing the potential to expose and critique the asymmetrical relations of power, to allow students to understand the meaning they give to the world in context, and providing the potential to actually change that world.

When studied from the perspective of the live project it becomes apparent that there are many parallels in the process (particularly in the involvement of others, and the real-world locations). As a result, it may be expected that live projects will see similar benefits. Indeed, it is proposed in the

following chapter that the live project may be seen as an exemplary model that largely addresses the concerns outlined in the first half of this chapter and unites many of the methods of change made in response to these concerns (outlined in the second half of the chapter).

This chapter thus provides the architectural context to the study of live projects, both from a theoretical and a practical perspective. It suggests that live projects are part of a larger paradigm in architectural education that can be seen to rebalance the masculine with the feminine, for the benefit of all students, and ultimately the development of the profession.

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3 INCLUDING THE STREET

An analysis of the live project as an educational model

3.1 Introduction

In order to develop a better understanding of the role of live projects in architectural education, it is necessary to draw extensively from education theory. This chapter provides a critical introduction to the live project through a literature review of relevant education theory principles, with particular emphasis on professional education in higher education institutions. The intention is not to provide a comprehensive summary of educational theory but rather to see how a review of theory may inform our understanding of the live project. This is presented in three main sections, starting with the theoretical positioning of live project work, followed by a description of relevant educational models, and finally a summary of live projects in action. Each section is dependent upon and related to the ones presented before and after. The aim is to develop an argument from the literature to support and critique the live project from an educational perspective. This analysis will be used to develop a framework for best practice for the live project's implementation.

3.2 The Live Project in Educational context

3.2.1 Live project model

Although the contingent nature of live project means there can be no typical example, an attempt is made here to make some generalisations in order to edify common themes within live projects.

Often as a group, and with the tutor collaborating as a part of the team, students will be given a real-life problem or programme. This will involve an outside player of some sort – a client, user or community group. In parallel to Schön's model of a typical studio problem, (see previous chapter) the student/s must first 'set the problem'. However, in the live project this will involve a two-way conversation with the outside participant/s in order that the project be developed collaboratively. This is in contrast to Schön's model where '*the student must impose his [sic] preferences onto the situation in the form of choices whose consequences and implications he must subsequently work out'* (1985:6).

In this way, the live project is seen an example of education for the development of communication skills and collaborative working. As with the traditional studio project, it is based on the tradition of learning-by-doing, through problem-based education, with the added element of external influences, which provide a contingency to the project that is impossible to simulate. Thus students also develop more complex problem-solving skills (including learning to manage change) that are potentially more directly transferable to practice.

As the project progresses, students and collaborators will develop the aims of the project, including an idea of what outcomes they want the project to produce. There will typically be a number of meetings throughout the course of the project. At the end of the project the students will present their work to the outside collaborators. This helps to break the loop of self-referential criticism - seen to be *'the heart of our malaise'* (Nicholson, 2000:xvi). Contrary to Schön's model of the traditional studio project, the tutor is not the only one to bring knowledge to the encounter. Where the traditional model sees the tutor setting the project, developing it with the student and ultimately marking it (possibly in collaboration with other

architect critics), the live project instead allows the tutor, the collaborator and the students to all bring their experience and values to the table. The introduction of the outside collaborators thus counters the tradition of architecture to be *'self-justifying and above criticism, except occasionally from other architects'* (Nicholson, 2000:xvi). As a result, the tutor is closer to the position of the radical designer (see previous chapter) than in the traditional studio.

Live projects are typically highly active rather than abstract, messy and playful, rather than formal and ordered. In this sense Bakhtin's reading of the carnival may help us to an understanding of the live project, where *'as opposed to the official feast, one might say that carnival celebrated temporary liberation from the prevailing truth and from the established order; it marked the suspension of all hierarchical rank, privileges, norms, and prohibitions...These truly human relations were not only a fruit of imagination or abstract thought; they were experienced. The utopian ideal and the realistic merged in this carnival experience, unique of its kind'* (Bakhtin, 1965 in Morris, 1994:199). The humour of carnival exists outside the official world and thus is able to parody and satirise it – but not in the modern formal sense, as folk humour also 'revives and renews' at the same time, it is never purely negative and the people do not exclude themselves from that at which they laugh (Morris, 1994:194). Thus the live project could provide the opportunity to critique but also resuscitate the official worlds of education and practice.

3.2.2 Context

As described in the previous chapter, live projects are increasingly being introduced into the architecture design studio repertoire. Based in the 'real world' a live project is significantly different to the traditional studio project, notably in the added value of 'real' rather than simulated human interactions with clients, users and/or other collaborators. At its best, the live project has the potential to provide a huge variety of outcomes, both in terms of student learning, and in terms of better integrating the studio with the wider community.

Whilst traditional design studio projects are organised around 'manageable' projects, the live projects introduction of the 'other' – the outside influence - means that projects are inherently unpredictable, complex and open to contingency.[1]

The integration of the community into the university setting is seen to be inherent in the post-technocratic model of professional education (see 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, 1992:152) In this way, the post technocratic model acknowledges and embraces Aristotle's notion of phronesis.

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: 131) Bines goes on to suggest 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: 135) As we shall see in the following discourse, live projects also begin to address the developing theories of teaching and learning.

[1] This loss of control may even be seen to be a threat to the technical rational model, in which programme, staff support and learning outcomes are all to be mapped out in advance and under the control of the university.

3.2.3 Theories of Learning – Behaviourism, Cognitivism, Constructivism

The idea of using real life experiences to educate is no new phenomenon. Chapter 1 showed that in the field of architecture, it is only relatively recently - since the Industrial Revolution and the associated rise of the professions - that the education of architects has moved from the workplace into the academy. This move into the academy is linked with the need for the professions to protect their boundaries with rigorous entry requirements, best achieved within the structure of the technical rationality of the university. A result of this shift is that live project work, which positions itself outside those closed boundaries, sits uncomfortably in the university model of technical rationality.

The shift of education into the academy has also meant that education itself has come under increasing scrutiny. Education - what it is and what it should be - has been the concern of Western philosophers since the time of the Greeks, but it is only with the development of the new science of psychology that the way we learn has become the subject of scientific scrutiny. The following section provides an introduction to the psychological theories of learning of behaviourism, cognitivism and constructivism and seeks to position the live project within these.

3.2.3.1 *Behaviourism*

Behaviourism is a way of explaining how learning happens, by focusing on the behaviour of organisms. It seeks to explain behaviour entirely in terms of observable and measurable responses to environmental stimuli (Cotton, 1995:42). One of the first people to experiment with how animals learn was Pavlov, who discovered the notion of the conditioned response (or reflex), where an organism could be conditioned to respond to a stimulus by a reward, even if the reward is not present each time. He showed that a dog that was regularly fed from a food dish, would begin to salivate when the food dish was put in front of it, before there was actually any food presented. The stimulus in this case was the food dish and the response was the salivation and the reward was the food. (Cotton, 1995)

Subsequent Behaviourists have explored the idea that learning is a process of conditioning responses. Three of the key theories in Behaviourism can

be found in the work of Thorndike's connectionism, Hull's drive reduction theory, and Skinner's operant conditioning (Bower, 1981, Peters and Ghiraldelli, 2000a, 2000b, Skinner, 1971). The underlying principles of Behaviourism are that:

1. Human behaviour is a product of the Stimulus-Response interaction and is thus modifiable.
2. Studying animals can help us to understand/analyse human behaviour.
3. Behaviour can be modified and shaped through a combination of reward and punishment. (Black, 1995)

When applying this to how learning happens, the stimulus is seen as a form of question, and the response is the answer to that question. Although this seems over-simple, Skinner (1954) argued that even complex forms of behaviour are made up of simple stimulus response events. *'In this ...situation, learners are confronted by a problem situation in which they have to reach a goal'* (Bower, 1981:25). The goal might be anything – winning some money, reaching a bar of chocolate etc – but in order to achieve their goal they select a response form a number of possible responses and experience the consequence (were they successful or unsuccessful in achieving their goal?). If the effect is pleasant, then learning occurs, if unpleasant, the behaviour is weakened (Bolles, 1975:9). In this way, learning is seen to be mediated by ideas, but produces a mechanised response. Learning is achieved through trial and error, where if the response to the stimulus is successful, then the behaviour will be repeated. In this way, the teacher can modify the behaviour of the student by rewarding them for learning what they want them to learn (e.g. by giving good marks, a gold star etc) or punishing them for giving the wrong answer (e.g. by giving poor marks, humiliation etc).

It becomes apparent that Schön's model of the studio conforms largely to a behaviourist model: the tutor provides the stimulus in the form of a design question or problem; the students' responses are modified by being rewarded for work that the tutor deems to be successful; the student learns to produce responses that will result in good marks from the tutor

through a process of trial and error, punctuated by tutorials and crits. These occasions can be seen to be the home of the reward or punishment, where a student's work is rewarded (through praise and good marks) or punished (through their work being traced over and 'corrected', criticised or marked down) according to the tutor's view of what constitutes a good solution.

Critics deride this approach for being deterministic, as it imposes the views of the teacher on the student. In addition, behaviourism is criticised as over-simplifying human behaviour to that of an automaton as it ignores individual differences and emotional responses (Black, 1995). More recent critics have also blamed behaviourism for a negative attitude towards error, or 'wrong answers'. As a result, people strive to give only the correct answer, thus undermining the idea of learning from our mistakes (see constructivism) and minimising creativity and innovation, since a safe answer is implicitly encouraged (Stevenson and Stigler, 1992). Post-modern thinkers would also challenge the notion that there are any universally 'right' or 'wrong' answers.

Behaviourist techniques are however used by almost everyone to some extent. Indeed most contemporary educational practice is based upon the behavioural stimulus-response-reward model (Romig, 2002). However, it is in many ways antithetical to a feminist or post-technocratic education model. It assumes all students learn in the same way, does not develop self-motivated and self-directed learners or collaborative team-workers, nor does it encourage skills in developing multiple solutions. Behaviourists aim to develop in students automatic 'correct' behaviour, but who is to say what *is* 'good' and 'correct' behaviour? In the current climate of constant and ever increasing change, is it appropriate to see education as the handing down of knowledge? How will students cope with new situations of which they have no prior experience? Do we simply wish to manipulate students to behave in the ways that current society demands of them, or do we aim, in the words of Dewey, *'to shape the experiences of the young so that instead of reproducing current habits, better habits shall be formed, and thus the future adult society be an improvement'* on the current one (Dewey, 1916:85).

For these reasons, direct behaviourist approaches are rarely consciously used in HE these days (although the principle of grading work can be seen as a form of operant conditioning). Nonetheless, certain principles, such as the importance of motivation are nonetheless applicable to a more student-centred approach.

3.2.3.2 Cognitivism

In contrast to behaviourism, cognitive theories focus on the mind, and the processes that occur when we learn (the thought processes between the stimulus and the response). Changes in behaviour are observed, but only as an indicator to what is going on in the learner's head; how information is received, assimilated, stored, and recalled. The theory assumes that if we can understand these processes we can develop teaching methods that foster the desired learning outcomes. Cognitivists argue that learning is more than simply the absorbing of stimuli and the production of responses: the mind is able to both retain and **transform** significant volumes of input.

Coinciding with the rise of cognitivisim, in the late 1950s and 60s, was the development of the computer. As the two sciences progressed, cognitivism adopted the metaphor of 'mind as computer'. This metaphor gave cognitivism a language of rigour and precision, the language of 'information processing', which was used as a model that attempted to describe how information is received (through the senses), transferred into short-term or working memory, and ultimately placed in long-term memory for later retrieval and further use. Thus the information is analysed, compared, processed and output in the form of behavioural change.

Cognitivism proposes that the deeper something is processed, the more effectively that information is acquired, retained, and retrieved. The concept of 'depth' is controversial as it is difficult to define, but essentially, it refers to the quality of processing involved. A deep and a surface approach to learning can be contrasted:

Deep Approach	Surface Approach
Students start with the intention of understanding the meaning of the	In the surface approach the students conceive of learning as

material presented. This involves questioning the author's arguments (interacting critically with the content) and relate it to previous knowledge and experience. Finally, the student tries to evaluate the extent to which the author's conclusions are justified by the evidence given.	simply memorising parts of the material that they predict will be needed to meet requirements of the course later on. Their aim is merely to satisfy the course or project's requirements.

(After Entwistle, 1981:77)

The cognitive paradigm sees learning as an active and creative process. Learning involves individual meaning *making*, not purely knowledge reception. New facts (information) must often be learned by 'rote', but the learner must be allowed and encouraged to 'play' with the new knowledge, to make interconnections, to see patterns, to build understandings, and understandings must be actively tested and applied in many situations. This contrasts with the behaviourist model:

Behavioural Paradigm	**Cognitive Paradigm**
Learning is passive.	Learning is active
Students learn the 'correct' response	Learning is reconstructive.
Learning requires external reward	Learning is intrinsically rewarding
Learning is independent of context	Learning is influenced by the context in which it occurs
Learning is a matter of memorising information	Learning depends on the quality, as well as the quantity, of processing.
Understanding is a matter of seeing existing patterns	Understanding is a matter of reorganising patterns (or mental structures) to relate new information to previously learned

	information.
Applications require 'transfer of training' which requires common elements among problems	Applications require the learner to see relationships among problems
Teachers must direct the learning process	Learning is enhanced through self-monitoring of learning processes and capabilities

(After Romig, (2002) and Doolittle (2000))

Again there are parallels in some aspects of the cognitive paradigm to the studio project, where learning to design is active and reconstructive. Viewing the studio project from a cognitive perspective enables us to enrich the understanding of (as well as critique) the studio processes given by Schön's model and to inform our understanding of live project work.

The studio naturally addresses a 'deep' approach to learning, in which student *interact* with new information (through the design process) attempting to relate it to previous experiences. However the critique of the information received (from literature, research and tutors) is not so well achieved. The summary of the cognitive paradigm shows that the studio has more in parallel with this than the behaviourist model: Learning in the studio *is* active and reconstructive, based on the need for students to reorganise patterns in the light of new knowledge in the process of design. The strengths (from a cognitive perspective) therefore lie in the process of learning through design, whereas it is the tutor's intervention (in Schön's model) that leads the process to correspond to a behaviourist model of stimulus-response, thus doubting the idea that learning is intrinsically rewarding. The repositioning of the tutor as a part of the team, as found in live project work, may begin to allow the idea of learning as intrinsically rewarding, in addition to encouraging the potential for self-monitoring (which is disallowed in the traditional model of mystery/mastery). Finally, and perhaps most clearly, the proposal that learning is influenced by the context in which it occurs leads to the suggestion that the outside context of live project work might be a valuable supplement to the current studio-based model.

Notably both the behaviourist and the cognitivist positions attempt to develop models of human learning that can be applied to all people. Their emphasis is on the transmission model of learning, where education is considered to be a question of passing on information and skills. Both could be criticised for endorsing a technical-rational view of learning. Aspects such as emotions, social situation and background, individual personality and other fundamentally human characteristics are not addressed.

3.2.3.3 Constructivism

'As the 21st century nears, the pendulum of education is quickly moving from a theoretical framework based on cognitivism (information processing) to a constructivist framework'. (Doolittle, 2000)

Constructivism is based on the premise that individuals construct their own perspective of the world (or schema – an internal knowledge structure), based on individual experiences. A person adjusts their mental model to incorporate new experiences and make sense of new information. Thus a person's schema is constantly readjusting. This restructuring allows individuals to *'go beyond the information given'* (Peters and Ghiraldelli, 2000c) preparing the learner to problem-solve in more complex, ambiguous situations than is usually attempted by cognitivist theory.

Constructivism can find its roots in the doctrine of internal illumination of St Augustine, who taught that when the pupil learns he does not receive ideas from the teacher; teaching cannot take place on the hypothesis of transferring ideas. He writes that *'when words present a meaning to the minds of those who hear them, this meaning is necessarily already present in their own thought, and it is this meaning with which their intelligence clothes the words addressed to them.'* (quoted in Curtis and Boultwood, 1977:80) The teacher's task is to stimulate the student to explore the truths that are already in the pupil's mind. Learning is **active** not passive. Constructivists acknowledge that we experience a 'real' world, but argue that meaning is imposed by us, rather than existing in the world independently of us. Understanding is embedded in the experience of the individual, thus pupils may think about the conclusions reached by the teacher and decide whether or not to accept them; without this

questioning Augustine argues, there would be no advances in knowledge or understanding.

The principal founders of the constructivist movement are Piaget (see Beilin and Pufall, 1992) and Bruner (Kearsley, 1996)[2], who developed the early ideas. The key beliefs held by constructivists are that:

1. Knowledge is not passively accumulated, but rather, is constructed as the result of active cognition by the individual.
2. Cognition is an adaptive process that organizes and makes sense of one's experiences. It is not a process to render an accurate representation of ontological reality. (Doolittle, 2000)

Constructivist theories share an interest in defining general models of cognitive structures and learning as the cognitivists. However, constructivists see learning as a self-directed process that affects the whole personality of the learner (Vavik, 1999:3). As described by Fosnot: *'Learning from this perspective is viewed as a self-regulatory process of struggling with the conflict between existing personal models of the world and discrepant new insights, constructing new representations and models of reality as a human meaning-making venture with culturally developed tools and symbols, and further negotiating such meaning through cooperative social activity, discourse, and debate.'*(1996:ix)

Therefore, constructivism involves active **creation and modification** of thoughts, ideas, and understandings as the result of experiences that occur within a **socio-cultural context.**

Doolittle (2000) provides a comparison of constructivist principles to the cognitive model:

Cognitivist	Constructivist
Classroom activities should be created that use environmental cues to facilitate learning	Learning should take place in authentic and real-world environments
Classroom activities should be	Learning should involve social

[2] These two thinkers are the most often cited although the movement has involved many other key thinkers.

created that foster the building of mental structures	negotiation and mediation
Students should be encouraged to actively process information and experiences	Content and skills should be made relevant to the learner
Students should be encouraged to reflect on their experiences and understandings	Content and skills should be understood within the framework of the learner's prior knowledge
Teachers should provide for unique, idiosyncratic interpretations of experience	Students should be encouraged to become self-regulatory, self-mediated, and self-aware
Teachers should create activities that relate to the student's current level of understanding, knowledge, and experience	Students should be assessed formatively, serving to inform future learning experiences
	Teachers serve primarily as guides and facilitators of learning, not instructors
	Teachers should provide for and encourage multiple perspectives and representations of content

Thus constructivist pedagogies offer a learner-oriented approach, where the students themselves are seen as active, independent and responsible for their own learning. This learning happens by interacting with and transforming information in order to assimilate it with previous understanding, so as to create individual, subjective knowledge. The teacher's role is correspondingly, to enable this kind of learning, in particular in helping students to relate new knowledge and experience to their existing understanding. As a result, the learning environment needs to be flexible and highly exploratory and interactive.

Constructivism has had a huge impact on educational thought since the 1980s, and has been broadly adopted in fields as varied as science and mathematics, literature, art, social sciences and religion (Mathews, 2000:161). The following discussions in this chapter aim to bring architecture into this group, and proposes the live project as a form of constructivist pedagogy, although it is acknowledged that it is perfectly possible for constructivist pedagogic techniques to be *'undergirded by a decidedly non-constructivist epistemology, and vice versa.'* (Howe and Berv, 2000:20) In other words, although the live project is shown to conform with many of the principles of constructivist pedagogy, those implementing the projects may have very different epistemologies.

As this model shows, the live project conforms to constructivist learning principles:

- In live projects learning does take place in authentic and real-world environments;
- The inclusion of outside collaborators means that learning should involve social negotiation and mediation;
- The content of the project and the skills developed will be largely determined by the learner and thus will be relevant to them;
- Students will need to use their prior knowledge wherever possible, in order to manage the project;
- In a typical live project, students are largely self- or group-directed, and thus need to become self-regulatory, self-mediated, and self-aware;
- The nature of the projects means that the tutors are used as guides and facilitators to the project, offering advice and enabling rather than instructing.

Although these constructive principles tend to be inherent in typical live projects, it is useful to make these explicit, in order that each principle can be actively promoted and reflected upon.

The aspects which are not inherent in live projects, but which should be taken on board as examples of best practice, are the need to provide

formative assessment throughout the different stages of the project, in order that later stages may be informed by earlier experiences. In addition teachers can provide for and encourage multiple perspectives and representations of the content of the project by giving voice and value to all participants.

The emphasis on learning in authentic and real-world environments via social negotiation and mediation should encourage learners to see themselves as a part of society and see the responsibilities inherent in their actions. Additionally an emphasis on multiple perspectives and representations of context could promote diversity.

Both constructivism and cognitivism elevate the importance of the context of learning and use reflection to situate new knowledge in a wider context. Constructivism emphasises the development of self-regulatory, self-mediated and self- aware individuals, but also emphasises that learning should involve social mediation and negotiation. Fosnot (1996) in particular proposed that the individual learns through collaboration.

The constructivist belief in individually constructed knowledge emphasises the importance of the learning task being relevant to the learner and to be understood within the framework of the learner's prior knowledge. They emphasise the **interpretation** of content and skills – where the same task can be used for a variety of learners, but will be individually interpreted by them. The emphasis on self-regulation, mediation and awareness means that the student will be able to evolve and develop their own awareness and understanding. The proposal that learning should take place in authentic and real-world environments also emphasises the experiential and the actual.

3.2.3.4 Discussion

In positioning the live project in the context of learning theory, it is possible to critique the traditional and live models and to develop a theory-influenced best practice for the implementation of such projects.

Behaviourism enables us to position the traditional studio project as a model based on the stimulus-response-reward interaction. This interaction is to some extent inevitable in a formal educational environment where

programmes are set and marks are ultimately given. However, its positioning enables us to mark the traditional project as problematic and thus to review traditional practices.

However, the behaviourist model does teach us that the student must be motivated and the learning satisfy their wants. Research on motivation suggests that it is dependent on what each student sees as important, how this accords with their values, what they believe they can achieve and their expectations of success or failure. People also motivate people, and thus team and collaborative working and the contribution of others all increase individual motivation to learn (Fisher, 2000:5).

The cognitive 'deep' approach should also be aimed for, implying an individual critical interaction with the project, being able to relate it to previous knowledge and experience as well as reflecting on and evaluating the processes used. Cognitivism emphasises the importance of applying (and thus testing) understandings in many situations – a requirement which supports the use of live projects in **addition** to a variety of other project types.

The constructivist theory provides the most complete model for developing the live project, particularly as most aspects of the model are naturally achieved in a live project. This model can be used as a checklist to enable participants to reflect on their own learning processes. In addition, aspects which are not inherent in the live project can be added. Such as: the use of formative assessment, the importance of projects being relevant to learners, and the importance of encouraging multiple perspectives. Further research in later chapters will explore to what extent the live project achieves these goals, and how it may do so. In addition proposals will be made as to how aspects that are not achieved may be introduced.

Having established the position of the studio and live project work in relation to theories of how (and why) people learn, it is time to turn our attention to praxis, and the different methods proposed by thinkers from differing epistemological perspectives as to the way that this learning may be achieved.

3.2.4 Praxis

Education has been described as an impossible profession. This is first stated by Socrates in Meno:

'Meno: Can you tell me, Socrates, if virtue can be taught? Or is it not teachable but the result of practice, or is it neither of these, but men possess it by nature?

Socrates: ...You must think me very happy indeed if you think I know whether virtue can be taught...I am so far from knowing whether virtue can be taught or not that I do not even have any knowledge of what virtue itself is.

Meno: Yes, Socrates, but how do you mean that we do not learn, but that what we call learning is recollection? Can you teach me how this is so?

Socrates: ...Meno, you are a rascal. Here you are asking me to give you my "teaching," I who claim that there is no such thing as teaching, only recollection.' (Plato, trans. Grube, 1980: 70a, 71a, 82a).

Thus Socrates, who began the task of defining pedagogy, begins by asserting both his own ignorance and the impossibility of teaching. This impossibility serves as a fine introduction to the following section, which explores how the theories of learning described previously might be implemented in practice. It focuses on theories with an inherent constructivist approach and in particular, those which have relevance to live projects in the realm of adult education.

3.2.4.1 Dewey

Recent years have finalised a shift in the conception of how education should take place. Constructivist research has shown that it is not enough for students to be **told**; they have to **do** (Fisher, 2000:5). Education has shifted from being teacher-centred to being learner-centred. This new positioning of the learner can find its roots in the research of the educationalist and philosopher Dewey, who saw knowledge as personal and made by each individual for the purpose of adapting themselves to new situations.

In Dewey's experimental school, teachers were to be constantly alert to new opportunities to break down barriers between school and community life, as well as to find ways of including richer, more varied subject matter in pupils' studies. He proposed that the human contacts of everyday life provide unlimited natural, dynamic 'learning situations'. Education must reflect the processes and interrelations of society as a whole and the student is to share the resources of society and give back to that society, thus helping in the development of other members (Dewey, 1916:358). In this way the individual and the group both grow together – not through the mere exchange of information, but through rich and varied experience. He warns that this will fail unless individuals are able to feel imaginatively what others feel and to respond sympathetically to those feelings, thus emphasising the importance of empathy.

Dewey emphasised the danger of formal education as a transmission of symbols, which can be lacking in meaning and its inevitable split from indirect, informal education: *'As formal teaching and training grow in extent, there is the danger of creating an undesirable split between the experience gained in more direct associations and what is acquired in school. This danger was never greater than at the present time, on account of the rapid growth in the last few centuries of knowledge and technical modes of skill.'* (Dewey 1916:9) He proposed that the separation of learning from activity meant a separation of learning from morals. Instead he proposed the school as a miniature community and one in close interaction with other modes of associated experience beyond the school walls. *'Interest in learning from all the contacts of life is the essential moral interest.* (Dewey, 1916:360)

If the student is to share the resources of the community and give back to that community, what role then has the teacher? The teacher is the facilitator, regulating and organising experiences. The teacher is to prepare experiences that relate the material to be learned to the child's familiar world, experiences that do not present ready-made conclusion but rather require that the child experiments, forms their own hypotheses and tests them. Teachers must realise that their superiority in experience and knowledge are but temporary, there can be set no limit to the development

of pupils. Past knowledge and experience should be used as **examples** of knowledge, customs that will give students the opportunity to develop critical appreciation and evaluation.

The children also influence the experiences that they learn from. Dewey emphasises that the experiences we all learn from are not purely inflicted upon us; we can selectively explore the environment in order to seek expression, satisfaction and growth. This **learning through interest** is not merely an easy way of acquiring a certain amount of knowledge; it is a way of calling into play the full powers of effort and determination of the learner. Lessons should start with the problems of the world –problems that bring interest and motivation. However, he emphasises the changing nature of the world and thus calls in the need for 'reflective attention', anticipating Schön (1983).

In summary, Dewey proposes that:

1. We break down barriers between education institutions and the community.
2. Human contacts provide unlimited learning situations.
3. Students need to be encouraged to develop empathy.
4. We link theoretical and informal learning in order to integrate moral choices.
5. The teacher acts as facilitator, enabling learning through experiment, critical appreciation and evaluation.
6. Learners need to apply reflection.

Dewey's approach and intent form useful pointers as to how we might develop best practice for live projects. The involvement of external collaborators in live projects will help to break down barriers between community and institution, by both taking students out into the community and bringing members of the community into the university, as well as providing natural learning situations in the human interactions. Empathy is developed when students need to design from the collaborator's perspective, which will come hand-in-hand with the need for moral choices. Both of these aspects can perhaps be understood more deeply if the

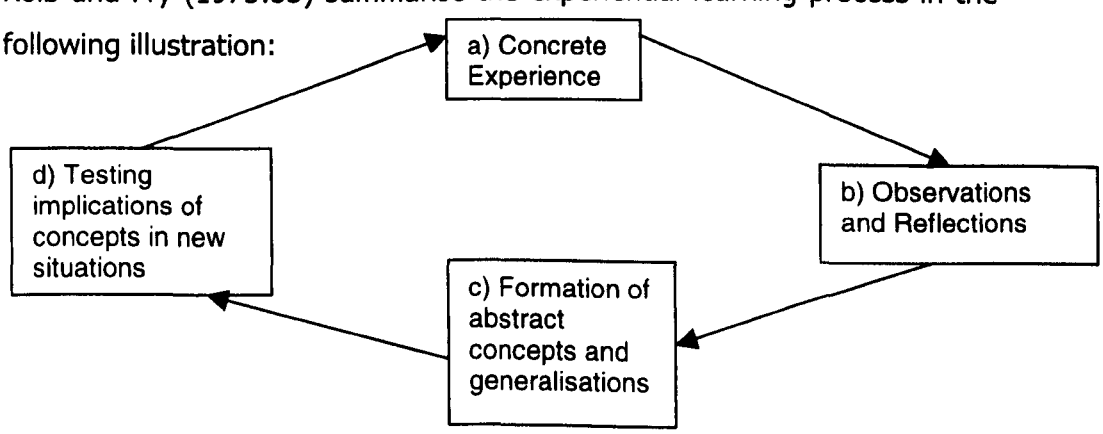
teacher makes these issues explicit and provides time for reflection and evaluation on these issues in addition to broader aspects of the project.

3.2.4.2 Experiential Learning

Live projects involve an experiential form of learning, in which *'the learner is directly in touch with the realities being studied'* (Keeton and Tate, 1978:2). Experiential learning *'connotes learning from experience or learning by doing'* (Husen and Postlethwaite, 1985:1797) and thus allows students direct encounters (experience) with the phenomenon being studied rather than a purely abstract thinking about the encounter or only analysing the possibility of doing something with it. This form of learning has gained increasing interest in educational institutions in recent years (Husen and Postlethwaite, 1985:1797), but has historical roots in 'learning by doing', the notion of which was first introduced by Aristotle (Curtis and Boultwood, 1977:39).[3]

It was Pestalozzi who further developed the concept of experiential learning by proposing that ordinary life can be used to educate. He emphasised the importance of the social setting – that the development of the group and that of the individual are bound together - and saw education as an integral part of community life. This idea was later developed by Dewey (Curtis and Boultwood, 1977:482) who made a key contribution to the movement in 'Experience and Education' (1963).

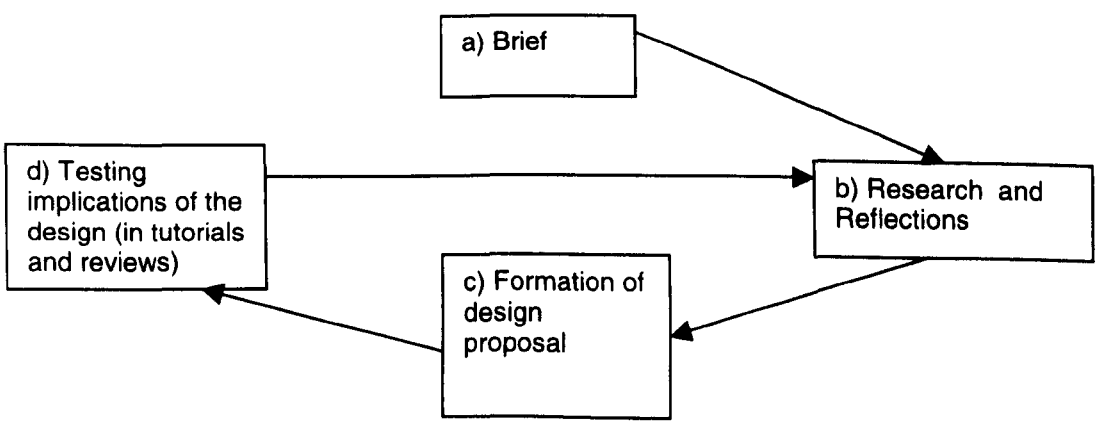
Kolb and Fry (1975:33) summarise the experiential learning process in the following illustration:



[3] The learning by doing of Aristotle was, however, more a case of mimicry than the contingent, learner centred method of learning we understand it to be today.

The process 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. This model emphasises that for learning to take place, all aspects of the process need to be integrated: Learning from experience will not take place unless the experience is reflected upon, generalisations made and tested in further experiences. This enables learning by experience to be a more inclusive approach as it introduces the concrete realities of people's experiences into the abstract ideas of academia. The tension between the two zones can be used as educative: *'Learning is best facilitated in an environment where there is dialectic tension and conflict between immediate concrete experience and analytical detachment'* (Kolb, 1984:9).

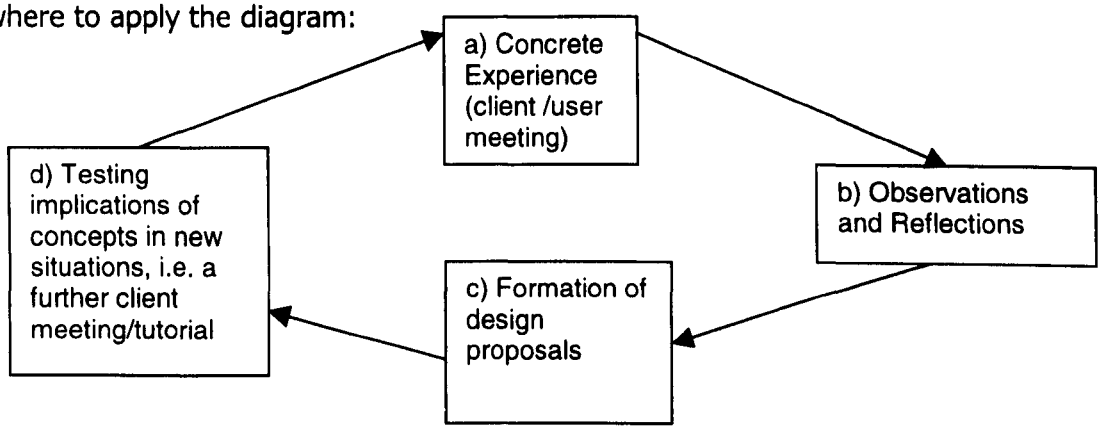
In using this model, we can see that the traditional design studio loosely follows the process from b) to d), where the design brief (provided for by the tutor) acts as the springboard to activity:



This sidesteps the need for students to learn from concrete reality, thus reinforcing the self-referential nature of architectural education, where only those inculcated into the profession (the tutors) are allowed to frame the issues (in the brief) and deem which are the appropriate solutions in the tutorial or review.

In contrast, experiential learning reintroduces the students' personal experiences into the learning equation, thus allowing students to develop their own understanding of the issues. Academic learning has always emphasised that single and personal examples are not appropriate. Personal experience has been devalued in the quest for objectivity and generality. (Boud et al, 1993:4) Experiential learning counters this tendency by repositioning individual and specific interpretations of experience at the very heart of learning, whilst allowing abstract generalisations to develop from these interpretations.

Live projects have the potential to work in the experiential learning model, where to apply the diagram:



In contrast to the traditional studio model, the starting point is a concrete experience that is subject to two-way dialogue between the students and the collaborators. As a design proposal is developed as a specific response to the situation, rather than an abstract generalisation, the design is tested in the design studio and ultimately in collaboration with the client/user group, which in turn provides a concrete experience, and the loop is continued. The model highlights the need for observation and reflection, which might easily be neglected in the rush to make a design response.

In exploring the live project through the experiential model, the following list (drawn from Boud et al 1993) is used to explore the five key elements to learning from experience from the perspective of the live project:

1. Experience is the foundation of, and stimulus for, learning

'Our assumption ...is that every experience is potentially an opportunity for learning.' (Boud et al, 1993:8) To create a learning experience from an experience, it needs to be framed as something from which we can learn. However, while experience is the foundation of learning, it does not

necessarily lead to it: there needs to be active engagement with it. *'Experience has to be arrested, examined, analysed, considered and negated to shift it to knowledge'* (Criticos in Boud et al, 1993:161). This highlights the need for time in the live project process to reflect on 'live' experience before rushing into designing responses. In this way new experiences can act as a stimulus to learning, but new meanings may also be sought in old experiences. In working with the experience, further experiences are created that may or may not be helpful in constructing the former. Construction of experience is never ending.

2. Learners actively construct their experience

We attach our own meaning to events. While others may attempt to impose their meanings on us we ultimately define our own experience; others do not have access to our sensations and perceptions. In general, if an event is not related in some way to what the learner brings to it (consciously or otherwise) then it is not likely to be a productive opportunity. *'Much of what we label as poor motivation is a mismatch between students' construction of the event and our own as teachers.'* (Boud et al, 1993:11) This highlights a potential strength of live project work, as students are more able to apply their own perspectives to guide the initial experience.

3. Learning is a holistic process

Much writing about learning treats it as if it exists in different domains that are separated from each other eg. between the cognitive (concerned with thinking), the affective (concerned with values and feelings) and the conative or psychomotor (concerned with action and doing). Although it can be useful to separate these aspects, no one aspect is discrete from the rest. Higher education has focused on the conative and cognitive aspects of learning, and as a result there has tended to be a *'lack of emphasis on people as whole persons and on problems that are taken out of context.'* (Boud et al, 1993:13) Values and feelings in particular have been neglected. The introduction of the outside collaborator in the live project gives a value to the inevitable complexity of working with people. The

values and feelings of the group (students, collaborators and tutors) are reintroduced in partnership with the conative and cognitive.

4. Learning is socially and culturally constructed

Experiential learning acknowledges the pervasive influence of social class, ethnic background and gender on learning. The theory highlights the influence of cultural reproduction through language as one of the most powerful influences on learning. We have words for some experiences but not for others, and in naming an experience we give it prominence and a means to explore and appropriate it. Equally important then is the un-named, which must be sought out and highlighted. Best practice in live project implementation will then make a point of searching out the un-named as a part of the observation and reflection process. (Boud et al, 1993:13)

5. Learning is influenced by the socio-emotional context in which it occurs

Emotions and feelings are most neglected in our society; *'there is almost a taboo about introducing them into our educational institutions'*((Boud et al, 1993:14). However they are both possibilities for and barriers to, learning. Acknowledging them can enable us to significantly redirect our attention to matters we have neglected. Criticos (in Boud et al, 1993:157-168) cautions that much valuable learning occurs in circumstances we would never choose if we knew what we might need to experience to reach that endpoint.

Self-confidence is incredibly important– unless learners believe themselves capable, they will be continually handicapped in what they do; *'Developing confidence and building self-esteem both flow from, and are necessary for, learning from experience.'*(Boud et al, 1993:15)

The experiential learning model thus provides a broad framework for understanding the live project process and highlights the strengths of such an approach as well as making apparent elements that live project best practice will need to address. In particular, the model highlights the importance of framing the meeting with outside collaborators as something from which students may learn. This must then be reinforced through

observation and reflection after the experience, in which emotions and feelings must be given equal value to facts and knowledge. Through observation and reflection, un-named experiences can be sought out and highlighted. In this way the experiential learning model can be a way of structuring a critical pedagogy approach (see following sections).

3.2.4.3 Problem Based Learning (PBL)

Dewey develops the idea of the **problem method** in learning (see, How we think, 1909), a method of learning that uses solving problems as the basis for learning new skills and knowledge. The problem method had previously been proposed by Rousseau who says *'Put the problems before him (sic) and let him solve them himself. Let him know nothing because you have told him, but because he has learnt it for himself.'* (Rousseau, 1911:131) This problem approach has subsequently been explored and developed by contemporary educators. Problem solving in adult education, and in particular, professional education, has received perhaps the most attention in recent years, and is of particular interest to this study. Theories such as Double Loop Learning[4], Lateral Thinking[5], Algo-Heuristic theory,[6] Reflective Practice and Problem Based Learning (PBL) all discuss problem solving in the context of professional or expert knowledge. PBL is probably the most influential and most practised, and has been described as *'the most significant innovation in education for the professions for many years. Some argue that it is the most important development since the move of professional training into educational institutions.'* (Boud and Feletti, 1991:1)

PBL is a way of designing and teaching professional courses using problems as the focus of student activity, rather than conceiving of education as the transmission of professional knowledge. The traditional

[4] Theory for solving complex, ill-defined problems proposed by Agyris, see Argyris, C. (1976). Increasing Leadership Effectiveness. New York: Wiley.

[5] Edward de Bono has written extensively about the process of lateral thinking - the generation of novel solutions to problems. See DeBono, E. (1967). New Think: The Use of Lateral Thinking in the Generation of New Ideas. New York: Basic Books.

[6] Landa's theory is concerned with identifying mental processes (conscious and especially unconscious) that underlie expert learning, thinking and performance in any area. His methods represent a system of techniques for getting inside the mind of expert learners and performers which enable one to uncover the processes involved. See Educational Technology (1993). Landamatics ten years later. Educational Technology, 33(6), 7-18.

didactic lecture model, whereby a body of knowledge is transmitted from teacher to student, positions the student as a receiver of knowledge. The PBL model instead allows students to construct their own understanding and knowledge bases through attempting to solve problems pertinent to their profession. *'The principal idea behind PBL is...that the starting point for learning should be a problem, a query or a puzzle that the learner wishes to solve.'* (Boud, 1985:13) The whole curriculum is conceived as being centred upon key problems in professional practice, rather than the 'passing on' of disciplinary knowledge. As a result it is a model that is particularly applicable in vocational courses. Ross describes this approach as turning the normal approach to problem solving found in university and college programmes on its head: *'In the normal approach it is assumed that students have to have the knowledge required to approach the curriculum before they can start on the problem; here the knowledge arises from work on the problem.'* (Ross, B in Boud and Feletti, 1991:30) In this way PBL is quite distinct from the use of problem solving as used more commonly in education. It is learner-centred rather than teacher-centred.

PBL evolved from innovative health sciences curricula introduced in North American medical schools over 30 years ago. (Boud and Feletti, 1991) It was developed in order to address both how students learn (according to constructivism, learning takes place when students are actively involved and learn in the context in which knowledge is to be used) and the expanding knowledge-base of most professions (it is now impossible to include all the knowledge that is required in the curriculum so it is more important for students to be able to learn quickly, effectively and independently). This is certainly the case in architecture where constant changes in the technology used to design and construct buildings, changes in the legislation and the development of new materials, the impossibility of using generalised solutions and the sheer breadth of knowledge that is expected of architects mean that it would be impossible to pass on all the information that an architect might need in their professional career. Instead, PBL aims to promote 'deep' learning that allows students to learn how to learn. In relation to architecture, this would mean that students would learn how to go about designing buildings, consulting with other

specialists and researching the information needed rather than learning a fixed body of knowledge that an architect 'ought to know'.

These innovations promoted student-centred, multi-disciplinary education, using 'real' and simulated life situations as a basis for lifelong learning in professional practice. This philosophy has since led to a world-wide spread of problem-based learning in many professional fields, such as business, engineering, architecture, education (Boud and Feletti, 1991) and social work. (Taylor,1997:5) It has developed as a branch of experiential learning (Henry, 1989:30) and its theoretical position is rooted in constructivism.

Typically, a problem will be presented as a simulation of professional practice or a 'real life' situation. The tutor will guide students' critical thinking, whilst providing limited resources to assist in defining and trying to resolve the given problem, and will use stimulus material to aid discussion of an important issue or problem. Students work cooperatively as a group, with access to a tutor who can facilitate the group's learning process and encourage students to identify their own learning needs. Students reapply the knowledge they have developed to the original problem and evaluate their learning processes (Boud and Feletti 1991:2-4). A typical outline is described by Barrows and Tamblyn (1980) (in bold), and clarified by educational implications (after Boud and Feletti, 1991).

1. **The problem is given first, before any preparation or research.**
2. **The problem is presented in the same way in which it would appear in reality.** Thus students are stimulated to tackle a realistic problem in the field in which they want to become competent. Learning in an applied context is remembered longer and more easily retrieved. Relevance provides the incentive to learning.
3. **The student works with the problem through reasoning and applying knowledge to be challenged and evaluated, appropriate to their level of learning.** They are challenged to begin by applying their existing knowledge and experience, thus anchoring the new knowledge.

4. **Areas of learning are identified in the process of work with the problem and are used to guide individual study.** Students constantly practice logical, analytical approaches to unfamiliar situations and are encouraged to identify what they do not yet understand or know and to see this as a challenge to future learning. Students learn how to obtain information from various sources. Active use of this new knowledge helps to embed the new information in long-term memory.

5. **The skills and knowledge acquired by this study are applied back into the problem, to evaluate the effectiveness of learning and to reinforce learning.** Students are helped to recognise that nothing is ever learned completely and that learning in a variety of areas needs to be concurrent to be applied in an interrelated way (this integration of learning assists integrated application).

6. **The learning that has occurred in work with the problem and in individualised study is summarised and integrated into the student's existing knowledge and skills.**

The focus is on process rather than prepositional knowledge. Students must take responsibility for learning, including identifying learning needs, setting learning goals, planning learning activities, finding and using the resources for learning and evaluating the learning achieved, all of which are elements essential to independent learning and to professional practice. The notion of students learning collaboratively as a group is also fundamental.

When reading the above outline from the perspective of architectural education, it is easy to suggest that the studio actually conforms to a PBL model, where the brief is seen as the 'problem' to be solved. First impressions suggest that architectural educators may congratulate themselves that an apparently newly favoured pedagogic approach is an established part of the studio, (see for example Parnell, 2001) but closer investigation reveals this would be unfounded. Two of the fundamental aspects of PBL, the emphasis on cooperative group working and the lack of

a complete context for the project, are typically lacking in the traditional abstract studio project.

It is acknowledged that *'for students in professional education, the relevance of problems to practice is crucial'* (Taylor, 1997:5). This issue is difficult to achieve in a practice such as architecture that is so difficult to pin down and define. How can we ensure relevance to practice when practice is so multifarious and unstable? Certain aspects of practice are however generalisable. Most notable is the effect of outside influences that make design in practice a highly contingent process. These outside influences are typically excluded from traditional studio projects. Influences such as the client and user, budget cuts (or any budget issues); conflicts among parties and interests; ambiguous roles; working with consultants and time management with respect to these variables as well as other interpersonal professional relationships between architects and engineers/planners etc are rarely addressed (Cuff, 1991). Lawson describes this exclusion: *'We all know that the studio in a design school is in many ways a bad model of design practice. One of the ways in which it is most far removed from practice is the absence of collaborators, whether they be clients, users or other associated professional consultants.'* (1999: 9). In school, the tutor often replaces the client as the most consistent and significant influence on the student-designer, thus the student has no chance to develop skills in negotiation and design communication with non-architects. Whilst the simplification of complex problems is often considered desirable for didactic reasons, this limits the validity for practical application.

In introducing live projects into the studio, these two issues are addressed; students usually work cooperatively as a team, and the introduction of external influences supplies a level of contingency impossible to simulate. With the live project, the students step inside the problematic situation and thus the stakes are higher – they are not learning as outsiders looking on from a safe distance. In this way, it forces the issue of practice into the swamp of important problems but non-rigorous inquiry. It forces students to develop skills in the indeterminate zones of practice.

Having established that the live project has a potential role in enriching the design studio from a PBL perspective, it is possible to use the PBL literature to critique live projects. Potential problems highlighted with PBL could apply to the live project: *'the role the tutor plays can easily undermine the proclaimed intention to give students greater responsibility for their own learning – and then controlling the learning experience through inappropriate or excessive interventions. Similarly, adopting assessment methods that reward how much, rather than how well, students have learned may encourage a surface rather than deep approach to learning.'* (Macdonald, 2001:1) Thus best practice in the live project will involve finding ways of repositioning the tutor as facilitator and expert advisor, who is able to allow students responsibility for the project whilst providing a level of support that the students require. Perhaps the most important role of the tutor will be to promote critical reflection on the processes used and in particular to make students aware of their own learning. This approach could, however, place extra demands on staff time and teaching/counselling skills, which will be difficult to sustain in the current climate that has seen increasing pressure on resources due to the expansion of student numbers without significant extra funding. (Bines and Watson, 1992: 62)

Scrutiny of PBL from contemporary learning theorists also reveals criticism. It is agreed that there are advantages of involving students in authentic problem-solving activity, but some commentators are less convinced that curricula should have a major focus on practical problem solving (Kwan, 2000). One intrinsic danger is that students will equate learning solely with its practical or instrumental value (which PBL supporters argue comes from too narrow a construal of the problem) (Boud and Feletti, 1991). This approach may also downplay the transformative role of students' experience, in terms of subverting their own perceptions and internal information-processing aspects of cognition; Instead of taking an executive, self-directed role in their learning, they may become more analytical, reflexive critical thinkers, with the curriculum defining the world (or professional practice) for them as a series of problematic situations, which can be interpreted and resolved by using existing schemata and

available routines.(Boud and Feletti, 1991) This criticism is perhaps not applicable to live project work since the nature of each 'problem' will vary so much from one project to the next that the routines used will be ever changing. It is not the curriculum which will define the world for them, but the world itself – the reality of the projects and the outside collaborators will ensure it.

There were also concerns that students' actual knowledge bases were lower than those in more traditional courses (Albanese and Mitchel, 1993, Vernon, 1995). This was considered to be largely due to the focus on process over content. Boud and Feletti (1991) acknowledge that if the balance is constantly tipped toward process at the extent of content, there could be a problem with students' knowledge bases - a problem that has already been highlighted by architecture professionals themselves when reflecting on their transition form education to practice (Fisher, 2000:18). However, is the very fact that they have more developed processes at their disposal more important, as it means they will have the ability to research appropriate information as they need it? In addition, some would argue (see Cuff, 1991) that the studio is not there to train students for practice but also to challenge that practice. This implies developing critical thinkers who will critique and develop the processes they find in practice rather than passing on a body of knowledge that practitioners deem necessary to practice in that profession.

This debate raises the important issue of skills versus knowledge. The nature of vocational education tends to imply a need for both; in the case of architecture, for example, practitioners need to be able to design (a skill) in a way that is informed by knowledge (of materials, building regulations etc.). Till argues that architectural practice is rooted in practical knowledge shaped by human action (Till, 1996:70). The influence of human action, combined with the ever changing and expanding knowledge-base of the profession, means that skills become more central. This means that architects must develop the skills needed to practice – interpersonal skills, design skills, time management skills – as well as the skill of learning how to learn, and searching out the information (knowledge) necessary for tackling the problem.

The term 'problem' in PBL can have negative connotations, and should be clarified as to its meaning in this situation.[7] In the use of the live project, best practice would involve drawing on PBL theory without necessarily mentioning the term 'problem'. Professional education has typically emphasized problem-solving, but Schön argues that *'the most urgent and intractable issues of professional practice'* (1985:11) are the need for skills in problem-**finding**, rather than problem-solving. Live projects typically develop this skill, as although the tutor typically 'finds' the project that students are to work on, it is the students, in collaboration with the other participants who together work to refine the problem which they are to work on.

PBL students are found to have well-developed study behaviours; they study to understand, assuming considerable control over their learning; have positive views of the learning environment, particularly self-directed learning; have a high satisfaction with PBL (tutors also feel this), and enjoy small group interactions, (Ryan in Boud &Feletti 1997) *'PBL also facilitates student autonomy and negotiation of the curriculum and, when allied to small group work, is not only more effective but includes communication and other interpersonal and collaborative skills which have often been neglected in professional education despite being crucial to successful professional action.'* (Bines and Watson, 1992: 61)

There was also evidence of increased motivation for learning and well-developed problem-solving ability, which transferred successfully into a professional setting. Early studies suggest that professional education students who develop the ability to learn independently and interdependently, transfer these skills into practice (Taylor, 1997:5). Problem-based courses certainly allow students to develop skills in areas appropriate for contemporary practice (irrespective of what profession they end in): skills such as adapting to and participating in change; dealing with problems; making reasoned decisions in unfamiliar situations; reasoning

[7] In the context of social work, PBL was renamed 'issue based learning' as it was felt that naming issues such as ageing and immigration as 'problems', further pathologised them. Also, presenting situations as problems implies there is a solution, whereas architecture is about exploring a range of perspectives and acknowledging the diverse responses which may be appropriate.

critically and creatively; adopting a more universal or holistic approach; practising empathy; collaborating productively in groups or teams; identifying own strengths and weaknesses and undertaking appropriate remediation (Boud and Feletti, 1991). It is proposed that where live projects are undertaken in conformance with PBL principles, they can be expected to have similar benefits.

3.2.4.4 Reflective Practice

A current trend in contemporary professional education thought, is the notion of reflective practice. Reflective practice is a way of learning from problem solving, described by Donald Schön (1983, 1987). He proposes that good practitioners deal with uncertain situations in daily practice, through a tacit *'knowing in action'* (a kind of phronesis). This action-understanding is expressed through the practitioners *'repertoire of examples, images, understanding, and actions'*, (Schön, 1983:138) which are used in conversation with the problematic situation.

Schön criticises the positivist epistemology of practice, which he argues has been institutionalised by the modern (technical-rational) university. This positivist epistemology models professional activity as instrumental problem solving, which is made rigorous by applying scientific theory and techniques. Skills are seen as unscientifically ambiguous and a secondary knowledge. He argues that this positivist approach has led to the current crisis in the professions. In opposition, he argues that professional problems are in fact often unique and value laden (Schön, 1983) and proposes that practice should be re-conceptualised as artistry, and that education should prepare students for reflective practice (Schön, 1987). *'The 'reflective practice' model of professional education emphasises the centrality of practice to professional education and requires both expert professionals and students to make explicit the decisions they are making, through reflection and analysis of real situations.'* (Bines and Watson, 1992:29) In this way the potential problem in shifting from the 'rigour' of scientific enquiry and the equally exclusive mystique of art (see chapter 2) is avoided. This may involve a significant shift in attention, as Schön (1985:7) describes how practitioners are likely to value action over reflection. They tend to mystify their artistry, and find it difficult to give

explicit accounts of the understandings implicit to the gradually learned competences that may now be intuitive.

Practice is recognised as being of academic value, and the traditional view that the high ground of scientific enquiry should underpin professional practice is rejected. Instead, reflective practice is concerned with developing the skills necessary to deal with the individual, unique and contingent nature of professional practice. In this way, reflective practice is able to deal with the tension between theory and practice shared by the education of all the professions.

The seeds of learning through reflection can be found in the teachings of Augustine and Commenius. Augustine's doctrine of interior illumination teaches that the content of our ideas are derived from active experience, but our understanding is realised through reflecting on that active experience. Commenius further developed St Augustine's ideas in the 17th Century, teaching that true learning cannot be realised through the acceptance of other people's ideas or descriptions. Students must arrive at the truth for themselves, through activity followed by reasoning – sensation and then reflection. (Curtis and Boultwood, 1977)

Reflective practice typically involves the setting of a problem, followed by the situation being framed and reframed and problem-solving actions generated, according to the possible outcomes of this reflective dialogue. Through this, students are able to monitor and control their learning processes and progress, whilst critically examining the relationships between theory and practice, academic and professional knowledge, and the relationships with and between staff and students. In this way, reflective practice could be a way of practising critical pedagogy.

However, as we have seen in the previous sections, the actual example that Schön gives us of the design studio has many problems. The reflective dialogue is modelled as being with the tutor, thus the student's construal of the problems and issues, their view of the relationship between theory and practice, and between academic and professional knowledge is constrained by being filtered through the tutor. This limits the possibilities for critique, makes the process self-referential and supports a behaviourist model of

stimulus and response. *'A common criticism of architects and the architecture they produce is that their work is personalised and self-referential. Educational settings which face students only with introspective views of the subject are counterproductive to practice in a pluralistic world. Schools of architecture have to strive to represent a wide range of skills and views in the studio. The habits of reflective and responsive practice can only be fostered by confrontation and debate around the design acts of the students.'* (Hayward, 1992:77) If the reflective model is instead applied in a live project setting, where the dialogue is between outside collaborators, the students and the tutor/s, then the self-referential loop is broken, the relationship between theory and actual practice and academic and professional knowledge is truly experienced and thus able to be critiqued. Live project work allows students to become aware of the way in which their own values may differ from those of the Profession. Reflection on these will potentially lead to improvements in practice and thus in the service to society.

Educating for reflective practice is not exclusive of other education paradigms. Schön's cycle of reflective practice has been related to the experiential learning cycle of Kolb (Bines, 1992:61). His work has led to a considerable interest in experiential and problem-based approaches to teaching and learning, which are seen to both model the actuality of unique, value-laden professional problems, and enable the integration of knowledge and action, independent study and lifelong learning: *'The most appropriate methods of teaching and learning [in professional education]... seem to be those which are concerned with enquiry, analysis, experience and problem solving. This paradigm of 'good practice' is further sustained by the new approaches to adult/higher education ...and the cycle of reflective professional practice.'* (Bines, 1992:61)

As Boud et al (1985) observe, just having an experience does not necessarily mean that learning has occurred. The important factor in turning learning into experience is reflection. Critical reflection helps students to develop awareness of their own thinking; and includes self-questioning activities such as 'how did we go about our learning?' 'what

could we have done better?'. Students have much more control over their own learning processes.

In considering the role of reflection in the architecture studio, it is clear that reflective practice is, and certainly should be already taking place. As Hayward describes, at its best, '*the studio generates not simply a thirst for knowledge and understanding of the arts, science and technology, but also a truly reflective practicum.*' (1992:73) However he also warns that in the studios support of artistry, in its developing of the programme between tutor and student there is a danger that this process is not supported by reflection or articulation, and thus that *'both participants are seduced by the mysterious pleasure of the encounter. These situations may foster the tendency of architects and their work to being esoteric and self-referential.'* (1992:75) Live project work, and the inclusion of the other can help to counter this tendency.

Most importantly, reflection allows students to learn how to learn and how to transfer skills from one experience to the next. Introducing live project work will broaden the range of experiences in the studio, enabling students to gain transferable skills in dealing with more complex and ill-defined problems than those typically found in the studio. The introduction of practice into the studio is a huge step in recognising its academic value, a fundamental tenet of Schön's proposal.

3.2.4.5 Critical Pedagogy

Inherent in all of the previous models of education, is the notion of critical thinking: that students should be encouraged not only to develop skills and knowledge, but perhaps most importantly, to actively critique the information and practices learned. In this way, students are expected to become autonomous, responsible and caring citizens, able not just to contribute to current practices, but also, as suggested by Dewey, to develop them.

Critical pedagogy takes the emphasis on critical thinking one step further, by exposing the academy itself to critique. The academy is re-visited as an environment that is far from neutral; that is characterised by asymmetrical relations of power and struggles for meaning, truth and knowledge. As

Shault describes *'There is no such thing as a neutral educational process. Education either functions as an instrument which is used to facilitate the integration of the younger generation into the logic of the present system and bring about conformity to it, or it becomes the "practice of freedom", the means by which men and women deal critically and creatively with reality and discover how to participate in the transformation of their world.'* (1970:15)

Critical pedagogy views the academy as a site of political and cultural production: *'Critical pedagogy is concerned with how a society reproduces itself through its school systems.'* (Dutton, 1991: xxiii) It promotes the 'practice of freedom' in contradiction to that of reproduction.

Initiated by Friere's seminal work, 'Pedagogy of the Oppressed' (1970), there has been growing attention across a variety of disciplines in the theory and practice of pedagogy: *'Refusing to reduce the concept to the practice of knowledge and skills transmission, the new work on pedagogical practice has been taken up as a form of political and cultural production deeply implicated in the construction of knowledge, subjectivities and social relations.'* (Giroux, 1991:x) Pedagogy is perceived as a form of cultural politics. This implies an analysis of the production and representation of meaning and how this process is structured by the dynamics of social power: *'Highlighting the politics of the everyday, critical pedagogy unravels and critiques the experiences of students and teachers as they find themselves in asymmetrical relations of power tempered by class, race, gender, ethnicity, and others.'* (Dutton, 1991: xxiii)

As a practice, critical pedagogy aims to be liberatory; to promote *'equality, freedom, and justice'* (Dutton, 1991: xxiii) and to enable all to overcome the domination of both the hegemony and of social relations. It makes education accountable (ethically and politically) for the 'truths' it produces, the histories it re/produces, and the images of the future it deems legitimate. Critical pedagogical practices are rooted in subjectivity and work, in part, to link theory and practice in the service of expanding the possibilities for democratic life. (Giroux, 1999)

Critical pedagogic practice reconfigures the academy as a discursive community, in which the different opinions and beliefs of each community member are actively questioned. This develops the dialogue method of Plato, where: one starts by submitting opinions to fellow searchers after truth; through this the inadequacy of the ideas becomes apparent and it is necessary to modify, supplement, or restate them; unsatisfactory ideas are rejected and as a result of discussion and criticism, the mind gradually moves forward in its quest for truth. (Wynne, 1963:5) People that participate in a dialogue process usually start from some prejudices and assumptions that determine the way in which they interpret information. Assumptions develop in the individual from childhood, along with the conceptions, beliefs, values, aims and purposes of the social group they belong to. Critical thinking questions the validity of these assumptions by giving voice to others: to excluded voices, the ones that are voiceless because no one has ever listened to them. In doing so, education must accept a multiplicity of viewpoints: challenging the notion of a monological reality that silences others and accepts only one perspective. (Peters and Ghiraldelli, 2000d)

The transformational approach of the academy as a dialogue community is well suited to the studio environment in that it allows students to creatively *'discover how to participate in the transformation of their world'* (Shault, 1970:15). However, there are many ways in which the studio would need to develop in order to become supportive of other critical pedagogy principles.

The studio needs to allow critiques of its own processes and to somehow diminish the relations of domination inherent in the studio environment. In particular, the typical relationship between tutor and students would need to be reconfigured. All parties need to acknowledge their own subjectivities and these need to be accepted. In this way the studio must carry along multiple meanings and viewpoints. The homogeneity of most architecture students and tutors might diminish the power of this discourse and could tend towards a restricted perspective. This may be countered by the introduction of 'others' into the studio: others who will inject new perspectives, through cross-cultural experiences that shape students'

understanding. An alternative method might be to use an open discourse, that teases out the underlying assumptions/structures of the studio and its actors.

In addition, critical pedagogy implies action, to link theory with practice. Whilst the studio is geared towards action in design, this is action without consequences. In order that the true moral and ethical implications are experienced, the actions of the studio need to be considered in the context of their consequences.

The addition of the live project may provide a way in which many of these developments could be introduced. The way in which tutors work with the students, often as part of the team could help to diminish the power domination of the tutor. The introduction of the other, the outside participant will introduce new perspectives. Best practice would then encourage these new perspectives to be given equal value, as well as accepting the subjectivity of all views. Including all participants in any evaluation or assessments could help to give a value to all participants, as well as diminishing the power of the tutor over the student. The real consequences inherent in live project work could be exploited for critical pedagogy ends. In particular it may be through open discussion, and the role of the educator as ironist, that moral and ethical dilemmas are brought to the fore and explored.

It needs to be an opportunity for students to develop the professional's role in the 'practicum' – developing a model of practice. To be useful, there needs to be a time for reflection in order to critique the culture of practice, to challenge assumptions, including the structure and content of the course.

3.2.4.6 Feminist education praxis

In viewing education from a critical perspective, certain more specific critical viewpoints become apparent. The most vociferous of these, and certainly concordant with this research, is probably the feminist perspective. There is a plethora of different feminisms e.g. concerning the different voices and multiple subjectivities of women, feminist standpoint theory, interest in the local, the perception that we are entering a period of

changed ideas, metaphors and hopes for women. As a result the term feminisms is used to acknowledge the range of different viewpoints.

The term praxis is used to imply a form of reasoning informed by action, which in a process of reflection on its character and consequences, is reflexively changed. It rejects the theory/research divide, as well as the split between method and epistemology, where the how is inferior to the what. Critical praxis allows this action reasoning to also embrace the political/social values of the practitioner (Weiner, 1994:124). For Patti Lather this *'is the self-creative activity through which we make the world...it is the central concept of a philosophy that did not want to remain a philosophy, philosophy becoming practical'* (1991:11).

The term praxis is derived from *'Aristotle's notion that the practical arts of ethics, politics and education necessarily rest on knowledge which is uncertain and incomplete,'* (Weiner, 1994:123) and was later used by Marx and Friere, to contrast action and philosophical speculation and to unite the objectivity and subjectivity in the way we live. Schön's conceptualisations of 'the reflective practitioner' and 'action research' are also forms of praxis.

Feminist pedagogy largely aims to address three major areas of concern: the role and authority of the teacher, the epistemological challenge of experience (*'the source of the claims for knowledge and truth in personal experience and feeling'* (Weiler 1991:459)) and the emerging challenge of new feminisms around questions of difference (especially from black feminists and postmodernism).

Feminisms highlight the masculinist structures of learning and knowledge; described through the analogy of pederasty[8] by Jane Gallop (1982:118): 'a *greater man penetrates a lesser man with his knowledge. The student is an empty receptacle for the phallus; the teacher is the phallic fullness of knowledge.'* This is not an individual desire, but is inherent in a model that aims to instil a desire for learning or a thirst for knowledge. (Todd, 1996:2) This model is parallel to the banking model described by Friere (1970:62), in which the student is seen as an empty vessel that must be filled by the transmission of the skills and knowledge of the tutor. Instead, feminists

[8] Sexual relations between a man and a boy.

support a transformative model. However, feminist thinking acknowledges the inevitability of the pederastic or banking model, particularly if teachers believe in what they do, as if one believes say in the importance of valuing women's contributions to architecture, it is inevitable that one will try to transmit that perspective to the student. Indeed even a critical perspective may be seen as an attitude that can be transmitted in the pederastic model. Weiner states the main problem as being to create critical consciousness without *'implying an idealogical correctness or clashing with the complex desires and subjectivities of their female (and male) students.'* (1994:126)

Feminist theories tend to see knowledge not as fixed and rational, but as contingent, multi-determined and constantly shifting. They locate the personal as political, which is implemented by *'redefining the private and public realms within which women live, understanding the power relations operating everywhere, and valuing the experiences of each and every woman.'* (Stone, 1994:5) However, this is in conflict with the patriarchal paradigm '(*where the personal is seen as a source of contamination and the subjective, something to be avoided).'* (Spender, 1987:151)

Underpinning all this is the notion of consciousness-raising, which remains a feminist ideal. Feminist pedagogy repositions teaching and learning as *'a process that is tangled up in social relations, where identification, fantasy, and desire begin to emerge as pressing concerns within the field of the social.'* (Walkerdine, 1990:4) The challenge of new feminisms mean that the definition of patriarchy must now also acknowledge the race and class oppressions inherent in the system, and address both equality and difference, alongside allowing and valuing the multiple subjectivities of different individuals.

Developing a critical feminist practice from this theoretical background is acknowledged to be *'complex and highly contested, though this should not detract from any attempts to develop one.'* (Weiner, 1994:56) The following list is an attempt to summarise the features of feminist education practice:

- Derived from experience and rooted in practice;

- continually subject to revision as a result of experience;
- reflexive and self-reflexive;
- encouraging collectivism over individualism, and collaboration over competition/confrontation;
- supportive and friendly;
- widely accessible and involving others;
- grounded in the analysis of women's (and men's) multiple and different material realities;
- explicitly political and value-led;
- liberatory;
- imbued with feminist organisational practices grounded in equality, non-hierarchy, cooperation, participation and democracy;
- blurring the boundaries between the education setting and the outside world;
- acknowledging of the inherent power relations in the educational setting.
- rejecting of conventional dualisms such as theory/practice, mental/manual, epistemology/methodology. (After Weiner, 1994; Marshall 1985; Powney and Weiner, 1991, Todd, 1996)

To deal with the tension between passing on principles and yet not perceiving education as the banking model, feminist teachers have developed specific strategies. These include consciousness raising by rendering the ordinary extraordinary (Taylor, 1993) and finding 'pedagogical moments' which arise in specific contexts and using them as transformative (Lewis, 1990).

The praxis emphasis of feminist education thinking supports the studio model in which students learn through experience of design. Studio work also allows students to explore design problems in an individual way. Best feminist teaching practice would encourage and nurture these differences, but finds problematic the notion of ranking these different approaches in the assessment process.

Feminist studio praxis will involve reflection and be open to develop or change projects as a result of that reflection. The studio will have to be reconfigured to allow for group working in a supportive and friendly environment and to discourage the competitive environment that is currently standard. Instead the group work will strive towards cooperation, with equality achieved through participation and democracy.

For the studio to become more accessible and inclusive to outsiders, and the outside world more a part of studio life it is suggested that teachers use field visits to *'create face-to-face encounters for students, including contacts in informal settings where discussions may range freely over a variety of topics. The field visit becomes more than just an analysis of the physical site.'* (Leavitt, 1991:231) This might be integrated with projects that are more explicitly political and value-led.

In order to facilitate the studio as a liberatory location, it is suggested that students are given the opportunity to actively challenge and then find ways of transforming the studio, architecture and society. To make this possible, the studio must be actively integrated into the broader education setting and the outside world. Thus also rejecting the conventional divisions between education and practice, theory and practical. The power relations inherent in this setting must be acknowledged and made problematic.

3.2.5 Discussion

The descriptions of relevant models of education begin to develop a framework for best practice in the implementation of live projects, whilst acknowledging the impossibility of exhaustively completing such a task. Each of the models provide an argument for the introduction of live projects, whilst simultaneously providing a critique as to the potential problems of these projects and adding ways in which to enrich the process.

The analysis has exposed the traditional model of the design studio as described by Schön as being fundamentally flawed. Although it is certain that there are other, more developed studio models in routine in contemporary schools of architecture, it is telling that this is the only model

of the architecture studio found in the literature, and that it has remained so rarely challenged.[9]

The literature exposes a variety of ways in which the studio could be developed. However this variety can be viewed as a fundamental shift in the perception of the studio: from teacher to student and community centred; from individual learning to group learning; from the student as a receptacle for knowledge to the student as a holistic socio-emotional creator of knowledge.

Many of the models overlap in their approaches, and what follows is a summary of the key ways in which the literature implies that the studio must be developed:

- Blur the boundary between the studio, the community and practice
- Learn from human contacts
- Promote the development of empathy and the affective
- Support and acknowledge the socio-emotional needs of individuals, particularly in developing self-confidence
- Make moral and ethical choices a part of the education process (thus the need for educational work to have consequences)
- Reject the dualism between theory and practice, mental and manual etc
- Reconfigure the teacher as a facilitator, expert advisor and supporter, intervening only where appropriate
- Encourage learners to critically reflect, experiment and evaluate
- Work cooperatively and as a collaborative group in a supportive and friendly setting that supports equality, non-hierarchy, participation and democracy
- Present educational problems as they would appear in reality
- Allow students to be responsible for and aware of their own experiences and learning

[9] The only challenge in the literature surveyed was found in Willenbrock (1991:106) and the report of the AIAS Studio Culture Task Force (2002).

- Involve students in defining their own projects
- Introduce others into the educational setting
- Accept, analyse and celebrate a diversity of views and allow multiple meanings, valuing the personal and subjective
- Search out the un-named experiences in the process
- Tutors and students to critique the processes and relations of power of the school as well as in practice and society as a whole
- Base education on experience and root it in practice (whilst enabling a critique of that practice)
- Allow for flexibility in education that is subject to revision due to experience, and is reflexive and self-reflexive
- Make the process accessible to a wide range of people
- Involve projects that are explicitly political and value-laden
- Use pedagogic moments as transformative, such as rendering the ordinary extraordinary

This list enables us to clarify the role that the live project could play in architectural education. Many of the points are implicitly achieved in a live project setting. Fundamentally, the live project *is* 'experience-based education that is rooted in practice'.

The summary also highlights additional points in the ways in which live projects can be approached in order to get the most out of them. This includes proposals as to the way live projects are implemented by tutors, in order to: allow multiple meanings, valuing the personal and subjective views of collaborators as well as students; give students time to critically reflect, to experiment and evaluate these experiments; enable cooperative and collaborative group work, and create a supportive and friendly setting that supports equality, non-hierarchy, participation and democracy; allow students to be responsible for and aware of their own learning by setting aside time for reflection on this; encourage a critique of the processes and relations of power of the school, practice and society through critical discussion. Whilst live projects are often inherently political and value-

laden, tutors have the opportunity to make this explicit. To achieve these proposals, it is suggested that tutors need to be flexible in their own practice, as well as allowing students flexibility, in order to be able to revise projects in progress and from one project to the next, due to reflection in experience. This includes a reflexivity and awareness that enables the use of certain events and 'moments' as trasformative.

The responsibility of tutors, as part of the department and university as a whole, to ensure that the course is accessible to a wide range of people, is extended in live project work to include the range of external collaborators. This accessibility might be expanded by the potential of live projects to provide an outreach affect by bringing universities closer to the community.

The texts also highlight the potential problems of a live project approach as well as highlighting barriers to their implementation. Most fundamental of these is likely to be from the tutors themselves. It is perhaps inevitable that many will be resistant to losing the position of power that they inhabit in the traditional model described by Schön. In addition they will need to develop and strengthen different skills in teaching and learning, no longer relying on 'passing on' the skill of designing. Their new role as facilitators and advisors is far from a demotion in skill levels. Effectively enabling the processes described previously will involve a high level of active, reflective attention.

In addition, the current management stance of the institutions could be a barrier to live project implementation. This stance is seen to constitute *'a theoretical and practical technology of rationality geared to efficiency, practicality and control... It represents the bureaucratisation of the structure of control and individual action are subsumed within a technical perspective.'* (Ball, 1990:157) This approach is bound to find the contingent nature of live projects problematic.

There may be some resistance from the profession who may view live project work as stealing work from professional practice. It is important in choosing the projects that this is not the case. In addition it is key in the implementation of such projects that it is made 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.

Where the barriers to the live project's implementation are broken down, it is an opportunity for the playful carnival of the live project to provide temporary liberation from the established system. The normal hierarchies and ranks of the studio are suspended to unite tutors, students and outside collaborators in reviving and renewing the studio, architectural practice and the community in which the work takes place. All are resuscitated as the loop of self-referential criticism is untied (if only temporarily), and *'The utopian ideal and the realistic* [are] *merged in this carnival experience, unique of its kind'* (Bakhtin, 1965).

3.3 Live Projects in the Architectural Education Literature

This section studies the live projects found in the literature from an educational perspective. Early examples of live project work and other similar approaches are presented, followed by a summary of the contemporary approaches that have been undertaken. The intention is to provide a backdrop to the empirical study, by exploring what projects are (and have been) undertaken, and what those involved perceive to be the educational impact of such projects.

Analysis of the literature shows that live projects are beginning to be explored as an alternative to the traditional studio model. Various schools have experimented with live projects, and all of the papers referred to these kinds of projects as a new or different approach to what is normally going on in the studio. The papers describe a variety of approaches, but what they all have in common is an attempt to contextualise design and combat the self-referential isolation of the studio projects either by introducing others (such as a client or collaborator) into the studio or repositioning students' work in the community. Despite the fact that the conferences reviewed were all UK based, most of the examples below come from overseas.

3.3.1 Birmingham

Under the headship of Douglas Jones from 1947, the school of architecture at Birmingham led the way to new methods of teaching and learning architecture, trying to combine live design and build projects with hands-on crafts and construction classes. Jones had first tried live projects at the AA, before the war, and reintroduced them in Birmingham in 1959, intending to combine design and building exercises with hands-on experience of construction. (Carter, 1959)

'The projects used to be small, relatively simple buildings in order that the project might be seen through to completion – from preparing a brief to supervising construction – by students taking on new jobs in their third year and, hopefully but not always, finishing by the end of their fifth year. Often criticised by other modernists for limiting student creativity, the live projects typically built laboratories, housing, clubhouses or village halls, using pitched roofs and mixed facing materials.' (Crinson and Lubbock, 1994: 111) Students at Birmingham learnt the rudiments of building crafts, namely brickwork, carpentry, plumbing and plastering, and worked together on full-scale construction exercises (conglomerates) in the second year. The third year saw them constructing a complete building – in 1959 they built a row of two storey terraced houses. The fourth year were then involved in a live project for a real client. (Carter, 1959)

This shows that students were involved in hands-on work, in communicating with clients and each other, in outside locations. An article by Carter on the process suggests that: *'The main value of the exercise has proved to be that of bringing home to students the difference between two- and three- dimensional thinking...They also learn that trade operations have to be related to each other in the sequence of tackling the work. For example, the setting out of joinery items must be a first job if these are to be ready when needed.'* (1959:353) Given these extremely pragmatic concerns, it is not surprising that they were criticised for limiting student creativity (Crinson and Lubbock, 1994: 111). However these comments were made about the construction projects, but there is no comment as to the value of say the client interaction involved in the later live projects. Most interestingly, it is also recorded that *'enthusiasm has run high'*

(Carter, 1959:353), thus implying a high level of motivation, which the literature has shown to be a key requirement for learning.

Despite the fact that an author, describing the Birmingham experiment, wrote: *'Birmingham has set off on a path that could lead to something like a Bauhaus and set off in a ...mood that promises well for the future'*, this approach seems to be a unique example that did not really spread, although there were various isolated attempts to revive it, most recently in the Prince of Wales Institute.[10]

3.3.2 Project Offices

One trend that emerged during the 1960s, was a new programme of advocacy architecture, which emphasised process over product and social and political content over form. This perspective led a couple of schools of architecture to develop socially responsible project offices. These aimed to *'combine the best of the "real" and ethereal worlds of architecture by giving their students the opportunity to "learn by doing"'* (Kingsland, 1980:14). These offices remained fairly marginal however, and as a result there are limited records of their work. Most renowned of the project offices were the Newcastle Project Office, established in 1967 (Kingsland, 1980:14) and the Cardiff Project Office, established 1970 (Cardiff University, 2001). The offices provided interaction between research, teaching and practice by undertaking live projects on a commercial basis.

At Newcastle, students were employed in their fourth year, as an alternative to *'being used as drawing office fodder'* (Kingsland, 1980:14) in their year-out. Instead they were given real responsibility, working as design architects with direct access to the client, as well as preparing working drawings and gaining site experience. The office was run as an independent consultancy, although it was physically situated within the school, and students were paid for their work.

This description is similar to that of the only surviving Project Office in a school of architecture in the UK, which is at the Welsh School in Cardiff. Again the practice operates as a viable private practice, and its physical

[10] For an example from the Prince of Wales Institute see Hanson's article entitled 'Not Arts and Crafts' in Pearce and Toy (1994:106-109).

location within the School provides an important link to the school. It was always intended to *'act as a learning vehicle which would bring students into contact with the realities of design, construction and practice through involvement with live projects.'* (Singmaster, 1994:27) The office currently employs a couple of students on their year out, as well as sometimes getting students involved in designing alternative schemes under the guidance of the office staff, from which the client may choose an option. The office, in collaboration with the students, then develops these schemes. Care is taken to ensure that the projects undertaken are of an appropriate scale that students will be able to see them from inception to completion. (Singmaster, 1994)

The fact that there are only a couple of students employed, and that they are on their year out, highlights the disadvantages of the traditional project offices compared to live project work. Certainly in the past, it has not been possible for all students in the school to gain experience in the project offices, whereas numerous live projects can be run in parallel to allow all students to gain some 'real world' experience. This means that it would be impossible to allow project office employment to be a part of the course structure, if only limited numbers of students could be involved.

Experience in a project office then has more parallels to the year out, where students are required to gain experience in architectural practice (or a related field). Of course this experience has parallels to live project work, in that students are learning outside of the studio, in real world environments. The differences however mean that each model has its own distinct advantages and disadvantages: The fact that students are being paid for their work in the year out might mean that they are less willing to focus on their own learning needs and requirements than in live project work; They also may be less likely to take risks and learn form failure, and are likely to be given far less time to become involved in the community; The types of projects they are involved are likely to be different, with less emphasis on community clients, although these types of clients are becoming more and more relevant to contemporary practice. These differences imply that apart from live projects being used as preparatory experiences for the year out (in the degree), or for building on the

experiences of the year out (in the diploma years), live projects will have distinct and separate benefits to the year out, not least because their location within the course will mean that the focus is education, rather than profit-making.

Project Offices as described, seem to be nearing extinction, and it is unclear as to why. The recent closure of the Cardiff Project Office was seen to be due to isolation of the practice from the education and research elements of the school of architecture. Essentially it became an independent practice, which supports the suggestion that practice, and the contingent realities of project work (as found in live project work), sit uncomfortably within the academic University (an argument developed in the next chapter).

However, it seems that a new kind of office is emerging. Both Cardiff and Sheffield University have new, more research focussed practices, which also practice as architecture offices.[11] The emphasis is on research through practice. Students are sometimes employed at both, but it is only at Sheffield that the office is really linked to live project work, where live projects with students sometimes lead to work for the practice. This, in turn, might lead to further involvement of students at a later stage. This means that the ongoing nature of live project work can be managed in an academic environment, allowing students to dip in and out of projects as the curriculum allows, whilst maintaining the continuity of the project for clients. The ability for these offices to act as a bridge between school and practice is one way of integrating contingent and messy live projects into the framework of the University. This model is still very much evolving, with issues such as professional indemnity insurance, funding and resourcing still providing problems.[12]

3.3.3 Community Design Centres

The American equivalent, known as 'Community Design Centres' (CDCs) (Boyer and Mitgang, 1996) were also victims of this change, but in the long run seem to have fared better – as many are still in operation.

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[11] Bureau of Building Design Research (BDR) at Sheffield and Design Research Unit at Cardiff

[12] Interviews with Prue Chiles of BDR and Steve Coombs of DRU held, 05/05/04

Initiated by students who recognised that the architectural profession had done little to help the poor, the 1960s and 70s saw the establishment of non-profit design clinics in many of America's poor urban neighbourhoods. Their initiators believed that they could show how to improve deteriorating housing and instil good design in grassroots construction projects, and worked to *'halt the construction of elevated highways, overscaled apartment towers, and other urban renewal blunders.'* (Arcidi, :4)

At first the work was rather *ad hoc*, but by the 1970s, funding from the AIA and the state enabled CDCs to provide wages to staff and allow them to provide a professional service, not entirely dependent on volunteers, at little or no cost. Clients were invited to join in the design process, and these novel methods were publicised in order that private firms could learn about their interactive design methods.

Students remained an important element of these design centres and often persuaded their universities to fund in-house architectural clinics. Most famous of these is the Pratt Institute Center for Community and Environmental Development (PICCED, 2002).

Developed in 1963, it aimed to *'create a partnership between the Pratt Institute's Department of City and Regional Planning and local organisations that were struggling to address issues of urban deterioration and poverty.'* (PICCED, 2002) It grew out of the philosophy that an urban university had the responsibility to make its resources available to community organisations in low-income neighbourhoods in the region. It began as mainly an advocacy and community information centre, aiming to create alternatives to government urban renewal policies. Now it has developed to increase its architectural services and accepts fees to help support a collaborative team of architects and planners. (Arcidi,)

It seems that the community design centers differed from the UK's Project Offices in that they were non-profit, voluntary or grant funded, rather than profit-making organisations, exposing a fundamental difference in the philosophies of the two. This means that the decline of the CDCs is easier to explain, as funding was withdrawn in the Reagan administration in the 1980s. The numbers were cut from a maximum of over 70 centers in 1971,

to just 16 active design centers in 1987 (Freear and Hinson, 2001), However, a few, such as PICCED did survive. To do this, they had to move closer to their British counterparts, by balancing income-generating work with projects billed on a sliding scale. However, this increased professionalisation has led to fewer opportunities for student volunteers.

The 1990s, however, saw a re-birth of the community design movement in the States, and CDC's can be found in over 45 communities across the U.S. today (ACD: 2002). Once again, many of these centres are linked to schools of architecture, staffed by faculty, and involve students in community-oriented projects. This resurgence has not as yet, however, been repeated in the UK. However the relevance of these offices to live project work in the studio may suggest that it is time for this to change.

3.3.4 Australia

Students at an Adelaide school of Architecture, Landscape Architecture and Urban design undertake a studio entailing the design of domestic-scale buildings on the basis of briefs from 'real' clients (someone with an intention to build an energy efficient house at some time in the future) on actual sites. Clients were found through advertising and selected by students on the basis of a questionnaire. The writer (White, 2000) proposed that the introduction of a real programme means that students are given the opportunity to relate the brief to a specific context – of site and client briefing. He also writes that the energy-efficient emphasis of the design means that students have to develop skills not only in communicating the design principles, but also the construction and operation of the buildings in regard to climate, context and user behaviour. The important role that context plays in learning is supported by a constructivist approach, and PBL theory, which proposes that when students learn in an applied context, the information is remembered longer and more easily retrieved in other applied situations.

The real or 'fuzzy' nature of the project is seen to help integrate the application of scientific or technical knowledge with experiential and cultural factors and is seen to assist students to the understanding that *'design takes place in a condition of uncertainty and incomplete*

information...fundamentally in a situation of ignorance.' (White, 2000:1.19)
This way of integrating the experiential and the cultural with the scientific or technical is supported by experiential learning theory, which proposes that learning is holistic, and socially and culturally constructed, and also supports a critical feminist rejection of the traditional dualisms of the studio.

In this project there is no discussion of how relations between students, between staff and students and between the community and the academy might be affected. Although the opportunity for students to develop communication skills is recorded, there is no suggestion of where this might lead.

3.3.5 Cuba

The faculty of architecture in Havana, Cuba has also experimented with special 'working conditions' to increase the motivation of students. Live projects, in collaboration with Enterprises or communities, competitions and projects that contribute to research work, are seen to work particularly well. They are seen to raise the level of students work to that of a professional standard. In this example the tutor retains much of the role described by Schön. The projects are explored through a student-professor partnership in which both parties are learning by doing, side-by-side, but this is described as being a way to allow students to directly model the professor's methodologies, skills and performance in their exploration of the problem (Gonzalez Couret, 2000:1.01). This has the disadvantage of maintaining the tutor's position as passer-on of knowledge and the relationship of dominance inherent in such a model.

Gonzalez Couret describes his 'recommended' steps in the implementation of such projects, and maintains a tutor-led, competition-based model. This emphasises that although there is agreement that live projects provide a strong motivational force, the implementation of such projects does not necessarily mean one type of teaching/learning model. This paper exposes how live projects can still be implemented in a traditional teacher-led, transmission-based model that is antithetical to the educational models described in the previous section.

3.3.6 Sweden

In a project based in Sweden, first year students took the process on another step, to both design and build full-scale 'culture kiosks' for a public exhibition, with the participation of a real client. The client was the Cultural Secretary for the local municipal authority in Lunds, who proposed that the students could design small temporary pavilions that could be used in public spaces at various cultural events in the city. The project was also interdisciplinary, involving Architecture, Applied Aesthetics, Structural Engineering and Computing departments from the school of architecture. Students first worked individually and then grouped together with those with similar schemes.

The author recorded high levels of enthusiasm, which he proposed was due to the external interest in what they were doing. At the end of the design stage the client informed the group that there would only be enough money to fund the building of one of the kiosks. As a result, the students got together to find sponsorship from local building merchants to provide the materials. The unintended consequences were thus a high level of initiative in students, the development of a building vocabulary and skills in explaining ideas to their sometimes-sceptical sponsors. As described by Sim (1999), the students remained highly motivated even when the kiosks were not used for the commune's night of culture as intended, but instead would be displayed in another exhibition.

The skills learnt were outside of those typically developed in the studio: *'Beyond the obvious design skills of architectural design, the students accumulated skills of project management: group dynamics, problem solving, communication, organisation as well as understanding the building process: designing and building and all the frustrations and challenges involved.'* (Sim, 1999:82)

This project serves to emphasise the contingent nature of live projects. Many of the actual strengths of the project came about through unpredictable (mis-)fortune in the course of the project. Again, it is interesting to record the high levels of dedication found in students when they feel that their work is valued outside of the studio environment. This reiterates the very human need to feel valued, and emphasises the role of

our emotions in learning, an idea many of the education models described previously acknowledge.

3.3.7 Belfast

Day (2000:1.03) also emphasises the importance of educating for hand knowledge (experience-based understanding) in addition to head knowledge (which tends to be abstract). He proposes the use of hands on experience, quoting *'read and forget, write and remember, do and know'*. With Queen's students he has worked on building projects where they develop the design as they construct it - building is viewed as an artistic activity. He also mentions the need for design by group consensus and argues that *'teams which include real communities and clients make projects meaningful and 'real'*(Day 2000:1.03) Again the emphasis is on the value students feel the project have if it is seen to be real, and the need for the task to be meaningful for the students, reiterating the thinking of much of the contemporary learning theory presented.

3.3.8 USA

Growing out of the community design center ethic (see chapter 2), schools of architecture in the USA have begun to include a 'service learning' model as part of their curricula, often within the design studio. This pedagogical approach combines academic learning with meaningful community service, and often also includes an element of hands-on construction (Carpenter, 1997). This is seen to allow students to learn both how to organise collaborative teamwork, but also to *'learn how to navigate the web of challenges associated with interactions with real clients'* (Freear and Hinson, 2001:5). One of the most acclaimed of these is Auburn University's Rural Studio.

Professors Samuel Mockbee and D.K. Ruth initiated the Rural Studio in 1992. This community-based design/build studio re-locates the study of architecture from the studio into the rural location of Hale county, one of the poorest areas in Alabama's 'black belt' region. The studio aims to unite the social vocation of architecture with its construction-based roots in a 'service learning' approach. This sees students designing and constructing buildings with and for the community: *'Working with county and state*

agencies and NGOs, Rural Studio students have designed and constructed over fifty community-based projects, examples of which include play grounds, community classrooms, pavilions, repairs to mobile homes, and a children's advocacy center. As with the Yancey Chapel, built of recycled tires and salvaged barn timbers, many of the projects use recycled materials and innovative construction techniques.' (Freear and Hinson, 2001:5)

Each semester, in collaboration with the county's department of Human Resources, a group of second year students will identify and work with a family in need of acceptable housing and design a home in response to the family's needs. The students work for a semester and initiate the construction of this home as well as finishing off the construction of the home begun by the previous semester's students, modifying as necessary along the way.

In addition, a group of thesis students come to work in the rural studio for a full year. These students are responsible for finding and funding their own projects as well as the design and construction stage. The studio has also newly developed a graduate outreach program to allow students from other disciplines to take part in the process.

Although there are many articles recording the success of the finished buildings, there is only one record of the educational experiences of those involved. This paper (Freear and Hinson, 2001) records and evaluates the experiences of three of the thesis student groups, based on interviews conducted by one of the authors. The three projects these students were involved in were as follows:

'The first of these teams involved the renovation and rejuvenation of The Newbern Baseball Club, a 100 year-old Negro league baseball field in the small hamlet of Newbern, AL. The project included general field maintenance, pitching mound repairs, bleacher renovation and a new sculptural backstop and dugouts.

The second team designed and built a Boys & Girls Club for the small town of Akron, West Alabama. The building was a 100-year-old brick market that served Akron and the surrounding communities. The students renovated

the existing structure and doubled its square footage with a new steel structure donated by a local contractor. The Club is the most ambitious fully air-conditioned project of the Rural Studio and includes a large multi-purpose recreation room, a computer lab, reading room, office and handicapped toilet room.

The Third team was able to complete both an experimental materials research project and a project within the Akron community. Experimenting with bales of waste wax-impregnated corrugated cardboard clippings, the students built a "student pod" (living quarters for second-year students at Rural Studio), and a children's playground on the site of the Akron Boys and Girls Club. The 1000lb bales were used in both the foundation and wall systems of both projects.' (Freear and Hinson, 2001:6)

The authors expose various strengths and weaknesses to the program, focusing on the learning that happens through hands-on construction and through the relationship of the students with the community.

The hands-on construction taught students to refine and clarify their ideas, with students quickly having to establish the link between their sketch drawings and the built reality. This highlighted to students the difference between *'looking right in drawings'* and *'looking right in the field'* – a notion that the authors propose is not usually achieved until the student works in practice. They describe how this tends to lead students to produce sketch details instead of presentation drawings, and propose that they are perhaps able to get away with this due to the gift nature of the work and the separation of the client from those that fund the projects. Unsurprisingly they rely heavily on models to design collaboratively and for presenting to clients and tutors.

Lack of previous construction experience also creates problems that are occasionally a disadvantage, and occasionally the spur to positive innovation. In addition, the rural and deprived nature of the area means that planning and building regulations constraints are not really in force and thus students are able to be experimental and innovative in construction materials.

Most interesting to this study however, is the difference that the community-based nature of the work makes. This is also acknowledged by the authors as being key to the level of success of the project: '*There is a widely held understanding among Rural Studio students that interaction with a community-based client is perhaps the most significant factor distinguishing the "extraordinary" projects from the (merely) "good" ones. The students seem to believe that not just the involvement of community clients, but their immersion into these communities, is a significant catalyst in the design process itself.*' (Freear and Hinson, 2001:7)

The Akron students cite this community interaction as the key motivating factor; even living on site to become a part of the community that they served. This also highlighted to students that '*the building was not enough to realize the idea of the project'.* Many students ended up extending their role to become community organisers and facilitators: *'This experience of building social structure as well as physical ones helped these students address the ultimate sustainability of their impact on the communities they labored to serve.'* (Freear and Hinson, 2001:7) The community involvement has meaningful consequences, and it is perhaps the meaningful nature of the projects to the students involved that brings the most motivation.

The collaborative nature of the design projects had a huge impact on the way the students worked. The emphasis was changed from students working competitively, vying for the tutor's attention, to genuine collaboration where all are '*working on big sheets of butcher paper with everyone sketching'* (Freear and Hinson, 2001:7) and decisions are made as a group. This genuine collaboration saw each of the students gradually finding their own role in the team, and began to rely on the group to *'compensate for our individual weaknesses.'* This allowed certain hitherto hidden talents to become apparent and was felt by the students to be fundamental to the success or failure of the group.

In addition to learning how to communicate and work as a group, students also highlighted the skills they had developed in communicating with their clients. No longer able to rely on the language of design they had learned in architecture school, students had to learn '*how to present architecture to people who don't understand architecture.'* Once the client is introduced as

critic of the design, the self-referential loop of typical architecture criticism is broken. This can have a huge impact on the way in which design is perceived. As one student described: *'I started out thinking all these conversations with the community were really shallow, and wishing we would 'talk about architecture', but I gradually came to realize that this conversation was the truly meaningful one. The old way I used to 'talk about architecture' is what seems shallow now.'* According to the authors, *'many of the students leave the Rural Studio critical of the prevailing culture of architecture school and the narrow frame of concerns which dominate our typical discussions of design.'* (Freear and Hinson, 2001:8) In this way students learn not just how to collaborate, but also the value of collaboration. The immersion in a community thus leads to the project becoming a critical one, with the potential to be truly transformative.

The transformative potential is also supported by the way that students developed as people: Rural Studio students are found to have developed increased levels of self-confidence and a greater sense of who they are. They feel more willing to take risks and step out into the unknown, and these qualities often lead them to challenge the conventions of internship that they would typically be moving on to next. This emphasises the inadvertent role that the live project might have in influencing the way in which students will practice in the future – as supported by research into nursing that suggests that students will practice nursing as they have experienced it during a placement rather than how they were taught it in the classroom (Melia, 1987).

The weaknesses of the program are exposed in the paper through reflection on the other two thesis teams from the same year. These two groups still managed a degree of success in their projects, but were limited by inappropriately sized groups, an inability/unwillingness to deal creatively with changes in the projects conditions, personality conflicts within the groups and *'discomfort with community engagement'* (Freear and Hinson, 2001:8). The authors describe this as exposure that not all students (or staff) will excel in this setting. Whilst this is undoubtedly true, it is also possible that these groups would have benefited from additional support, that perhaps could have facilitated time for active reflection in order for the

groups to become aware of their difficulties and act upon them, for example by re-grouping, asking for support on how to develop skills in working in groups and/or with the community, thus exposing the need for reflexive tutorial support.

External criticism has also suggested that the relevance of the Rural Studio to the more common settings of architectural outreach (such as the inner-cities) is limited. However the authors propose that the fundamental lessons of the studio are applicable in any setting. These lessons are to do with the combination of design/build with the immersion of the designers into the community setting and beginning to explore how we can apply architectural understanding to the problems that confront society. The reflections of the students involved certainly attests to the value this brings as an educational experience in the broadest sense.

3.3.9 Sheffield Hallam University, UK

At Sheffield Hallam University, UK a project has been undertaken to encourage women to take up skills training and higher education in Built Environment Courses. The project places students with real clients in live projects that are seen to increase women students' confidence and widen their range of experience in the built environment. The projects have included an environmental strategy for a Housing Association, in which students were involved in a site survey, client meetings, feasibility drawings and costings, A new building for a kids club involving similar work to the previous project and also including community consulation drawings, and the redevelopment of premises for a counselling and therapy centre which also included applications for permissions. The project emphasised the growth in confidence of the students involved, and proposed that built environment departments develop a Technical and Design service that takes skills into the community and allows students 'real' projects to work on. In this way local schemes can be used as student projects within the curriclulum, in particular to encourage women students and professionals. (ACBEE, 2003b)

3.3.10 Leeds Metropolitan University, UK

Third year architecture students at Leeds Metropolitan University, UK are given the opportunity to work on a real project in inter-disciplinary teams. This allows students to experience the approach and work of students from other disciplines. This has included the design, planning and funding of an interchange for the Leeds supertram. The work was presented to a panel from Leeds city council and Supertram. The project is seen to improve students' communications skills in a collaborative context and be self-directed in their learning. It is also suggested that the live element will increase students' motivation and deepen their learning.

(ACBEE, 2003c)

3.3.11 Partially live projects

In a more structured, less 'live' way to introduce clients into the design process, Sahap Cakin at De Montfort University used a site and study visit, in addition to peer group presentations and group work on a huge model. Workshops and lectures were held in order to develop team-working, brief building, dealing with differences, reflection and communicating to different audiences. Clients were involved in the design reviews and there was a public exhibition of the work. (Cakin, 1999 and 2001)

Another more structured approach was taken at Sheffield University, where Torrington (2000) describes a project in which first years develop a brief for a nursery, in consultation with a role-playing client (a nursery owner), a user (a mother of a toddler) and an architect (an expert in nursery design). The feedback from students about this project records an increase in the students group-working skills. Students particularly highly valued the involvement of 'real' people, and as an unintended but positive result of these 'real' people's involvement, students' attendance and participation in the review process was significantly increased. This in turn enabled students to value the review process as a useful learning experience. *'In summary the reviews became less stressful, less confrontational between staff and student, and more enjoyable, with a deeper level of analysis and discussion.'* (Torrington, 2000:91) This project highlights the potential

value of breaking down the power relations inherent in the traditional studio model. Where others are introduced into the studio, the self-referential nature of much architectural debate is diminished and tutors are repositioned as participants in a wider discussion, as opposed to possessors of the key to architectural knowledge. This puts students more at ease and enables all to contribute in the wider debates surrounding the project.

A project at the Scott Sutherland School of Architecture, Aberdeen, introduced some community involvement by briefing students to undertake an environmental review of one of their buildings in order to create a more sustainable school environment. This included social surveys and interviews with the local community and students, a field trip to visit a similar building, a physical survey with an emphasis on the qualitative, report writing and developing the brief, designing schemes and then reviewing these in collaboration with students from another school of architecture. The results of the work were reported back to the estates department, which gave value to the students work and also provided a valuable resource for the university. (Stevenson and Cotton, 2000) Again it is the notion of producing work that will actually be valued by someone outside of the studio that most motivated the students, as one student commented: *'To feel that we, collectively had started a process which will continue and evolve next year and the year after in wonderful.'* (quoted in Stevenson and Cotton, 2000:1.17)

Similar projects include: getting students to analyse a regeneration project that took place in the city, critique the original proposals and presenting counter-proposals to a panel that included members of the original selection team (Sheffield University (Chiles, 2000)); involving students in making design and feasibility studies for redundant sites and buildings, with teams competing to convince a client Board of their proposal's merits - design schemes occasionally being the catalyst for subsequent developments (Queens University, Belfast (Cowser, 2001)); running a design project in collaboration with a business partner, in which students work in groups to develop masterplans for the site followed by each student developing designs for three buildings to a strategic design level, culminating in students presenting their work to the owner and board

members of the business partner (Queens University, Belfast (Jones, 2001)).

3.3.12 Discussion

The analysis of live projects that have recently been presented at architecture education conferences in the UK gives a reasonable suggestion of what kinds of live projects are being undertaken, how they are being implemented, and what value the contributors feel the projects to have. It is interesting to note that despite the restriction of the analysis to recent conferences in the UK (in order to contain the debate and keep the discussion relevant to this research) many of the papers presented discussed projects undertaken in other countries. The range of projects span from those that immerse themselves totally in the community to those that are more focused on the construction experience. All projects do however have the important influence of a client or user that is found to bring added meaning to the work.

The benefits of live projects recorded by the authors of these papers are summarised as:

- The added value of working in true contexts
- Develops students communication skills – with each other and particularly with lay-people
- Allows theoretical knowledge to be applied in practice
- Links the experiential and the cultural with the technical
- Raises standard of students' work to a professional level
- Increases motivation
- Promotes initiative
- Gives a value to students' work
- Students develop project management, problem solving and organisation skills
- Students learn to work collaboratively and as a team

- Live projects can help students to develop an understanding of the building process.
- Students learn to refine and clarify their ideas (particularly when building them)
- Community involvement enables students to understand, critique and develop the role of the architect in regeneration.
- Students learn to design creatively within limiting constraints – such as using community involvement as the catalyst for design solutions
- Builds self-confidence
- Can add value to the review process
- Has the potential to diminish the dominance of power of the tutor over the student

This list exposes the broad range of potential benefits to live project implementation. However there are no doubt many more strengths and weaknesses to the projects that have remained un-noticed and un-recorded. In comparing the ways in which the education literature implies that the studio must be developed and the list of benefits that the literature accords the live project, it becomes apparent that the two are often in concordance. After all, fundamentally, the projects achieve the development proposed by the literature that states that education be 'based on experience and rooted in practice.'

The literature suggests that the boundaries between the studio, community and practice need to be blurred. This is achieved through the live projects positioning in the community and its closer links with practice than typical theoretical projects. Those involved record that this raises the standard of students' work to a professional level, that students develop project management, problem solving and organisation skills that students are led to an understanding of the building process. Students learn to design creatively within limiting constraints – such as using community involvement as the catalyst for design solutions, rather than seeing constraints as limiting to quality design.

In blurring the boundaries between the studio, community and practice, theoretical knowledge is applied in practice, thus linking the experiential and the cultural with the technical. This also conforms to the literature's proposals for change to reject the dualisms between theory and practice, the mental and the manual.

The examples show that the clients involved tend to be community clients. Corporate clients in particular are excluded. Perhaps this is due to the fact that community clients are often short of funding, and thus have to be more creative in finding ways of getting work done for them. It might also be that tutors particularly favour community clients, as the difficult issue of payment and thus insurance issues are avoided, and students are more likely to be able to become fully involved. Certainly the implications of involvement with corporate clients could significantly alter the learning and wider effects of live project work.

This 'external' involvement seems to give a perceived value to students' work, which in turn increases students' motivation and builds their initiative and self-confidence. Again this is in support of a key proposal made by the literature, which suggests that the learning environment must support and acknowledge the socio-emotional needs of individuals, particularly in developing self-confidence.

The positioning of projects in situations where the outcomes are actually useful to the external collaborators brings in the added educational value of moral and ethical choice. As the literature argues, educational work should have real consequences for this very reason, and live project work often achieves this.

Repositioning the work outside of the studio is recorded as having the potential to diminish the dominance of power of the tutor over the student, a notion which would be encouraged by the literature that proposes that the teacher be reconfigured as a facilitator, expert advisor and supporter, intervening only where appropriate. This was found to add value to the review process, as students saw themselves (and their collaborators) as valid producers of knowledge.

The 'outside' of the norm nature of some live project work can enable students to understand, critique and develop the role of the architect in regeneration. This critical position is also a firm proposal of the education literature's proposals for change.

The collaborative work that is often a component of live projects is also supported by the education literature, as is the need for others to be introduced into the educational setting in order that students develop communication skills beyond those with their peers and own profession.

As suggested in the previous discussion, live projects inherently already conform to many of the proposals for change recorded by the literature, such as presenting educational problems as they would appear in reality. The examples show that live project involvement does not necessarily mean that students are allowed to be responsible for and aware of their own experiences and learning, or involved in defining their own projects, although these approaches do tend to go hand in hand with live project approaches.

The recorded weaknesses seem to be inappropriately sized groups, an inability/unwillingness to deal creatively with changes in the projects conditions, personality conflicts within the groups and *'discomfort with community engagement'*. This seems to suggest that some students will need more support than others in managing what for many will be a whole new range of experiences and ways of working. The tutor's role as supporter and facilitator becomes fundamental in enabling such students to make a valuable contribution. It also suggests that some students as well as tutors are not suited to these kinds of projects. Although it is important that all are supported as much as possible in their involvement, it is also inevitable that different students (and tutors) have different learning styles and that therefore some students will find less benefit in live projects than in other studio projects. This emphasises the importance of introducing live projects in *addition* to other types of studio project, rather than instead of those projects.

What is most apparently lacking in any of the reports recorded in this section, is any formal time for reflection or discussion. As Dewey

acknowledges: *'It is the nature of an experience to have implications which go far beyond what is at first consciously noted in it. Bringing these connections or implications to consciousness enhances the meaning of the experience. Any experience, however trivial in its first appearance, is capable of assuming an indefinite richness of significance by extending its range of perceived connections.'* (1916: 217) It is this reflective attention that is needed to use the process as transformative, to celebrate a diversity of viewpoints and to allow both tutors and students to be reflexive in their running of the process. It is reflection that turns experience into learning, as meaningful learning is achieved when associations are made between new learning and old knowledge, and can ensure that problems, such as those exposed in the Rural Studio, are tackled early on in the project. In this way, reflective attention can provide a structured way for students to become self-regulatory, self-mediated, and self-aware in their learning processes.

This reflective attention is potentially achieved through discussion. Defined as *'an alternately serious and playful effort by a group of two or more to share views and engage in mutual and reciprocal critique.'* (Brookfield and Preskill, 1999:5), discussion is a valuable learning tool in higher education with the potential benefit of exposing students to a wide range of viewpoints. Discussion in this context is seen as a democratic process and according to Brookfield and Preskill, the purposes are fourfold: *'(1) to help participants reach a more critically informed understanding about the topic or topics under consideration, (2) to enhance participants' self-awareness and their capacity for self-critique, (3) to foster an appreciation among participants for the diversity of opinion that invariably emerges when viewpoints are exchanged openly and honestly, and (4) to act as a catalyst to helping people take informed action in the world.'* Brookfield & Preskill (1999:5), believe that discussion is one of the best ways to nurture growth because it is premised on the idea that only through collaboration and co-operation with others can we be exposed to new points of view: this in turn increases understanding and renews motivation to continue learning. A study by Johnson and Johnson (1987- cited in Berry & Sharp, 1999) explored the relative effects of co-operative, competitive and individualistic

learning approaches on achievement and productivity. It was found, in support of Brookfield and Preskill, that co-operative learning tended to promote higher achievement than the other learning modes and discussion in particular improved higher quality cognitive strategies for learning.

One final issue that is unrecorded by any of the papers described here is the process of evaluation. It is the nature of learning in a University course that the work must at some point be marked as a part of the projects contribution to the degree (or other qualification) as a whole. Yet the nature of live projects value to the outside world makes this problematic. It is the University that must judge who is suitable to pass the course, and yet it is the external collaborators who can truly measure the value of the different projects to them. If the tutor is re-configured as facilitator, expert and supporter, then their role as marker of the project is going to undermine that role, and return them to a position of dominance. If the student is made responsible for their own learning then surely they would be the best judge of how well they have developed, and yet their own self-interest in passing the course makes this difficult. In addition, if we are to refocus our attention from product to process, how is the (largely invisible) process of the student to be marked in a comparative way? This gap in the literature exposes an issue that must be explored in subsequent research.

3.4 Conclusions

In studying the live project in the context of education theory, and by looking at examples of live projects in practice, it can be concluded that the live project provides a potential for learning and developing skills that would not be possible in a more academic studio based project and that it can provide a rich addition to the traditional studio curriculum.

Live project work's theoretical position is rooted in constructivism, which is in stark contrast to the essentially behaviourist positioning of the traditional studio as modelled by Schön. This exposes both the problematic nature of the traditional model as well as the fundamental shift of perspective that will be needed in order for the live project to be accepted by the mainstream. However, it is possible that this acceptance is neither possible nor desirable, as the live project's strength lies in its carnival-like existence

outside of the official worlds, and thus its potential to simultaneously satirise and renew, critique but also resuscitate the official worlds of architectural education and practice.

Alongside this positioning of live project work as outside the official worlds of architectural education and practice, it becomes clear that the educational characteristics of such projects are in fact in sympathy with much thinking in education practice, from Dewey, right up to more contemporary models such as PBL and critical pedagogy. Fundamental to the practices described is the repositioning of the focus of education: from the teacher, to the student and community; from individual learning to group learning; from the student as a receptacle for knowledge to the student as a holistic socio-emotional creator of knowledge. This move is a shift that clearly summarises the change that the live project brings to the studio. Thus in terms of broader education thinking and practice, live projects are very much in line with current thinking.

It must however be acknowledged that despite the historical pedigree of many of the practices described, they are still considered to be fairly new and innovative approaches to education in the university setting and are by no means yet standard practice. The models of education practice themselves could be viewed as a challenge to the traditional University approach of lectures followed by individual study. Again the live project finds itself outside of the traditional norms of the university environment. This 'outside' position is only likely to be enhanced by the contingent nature of live project work, which sits uncomfortably in the context of the increasingly technical-rational, bureaucratised structure of control underpinning the new business ethic of the Universities.

In developing best practice guidelines for the implementation of live projects, it may be necessary to acknowledge and embrace the outside position of the projects, whilst providing a valid argument for their implementation through the education literature. It is certainly clear from the literature that the live project has the potential to achieve many of the demands made of education by the various theories. In addition, it is suggested by the examples of live projects in the architectural education literature that many of these demands are being met by the projects in

practice. This record of responses is invaluable in building a picture of best practice that will ultimately be brought together in the final section of this thesis. The record of the value of the projects described in the literature is however largely based on the tutors leading the projects' reports, thus is inevitably biased towards success. The one report based on students' reflections is more valuable, but still leaves many questions unanswered. It is clear that further research is needed in order to establish the broader range of benefits and potential pitfalls of live project work as a learning experience. As a result, this thesis will research the live project in more depth in the field, aiming to build a more generalisable picture. This research is presented in the following chapters.

3.4.1 Guidelines for the Implementation of Live Projects Established Through the Literature Review

The study of live projects in the context of education literature, and the examples of live projects in practice described in this chapter leads to the following summary of best practice guidelines which will be developed in later chapters:

In setting the project:	Set projects in authentic, real-world environments. Aim to be involved in projects that will motivate students. Involve external collaborators in live projects to help to break down barriers between community and institution, by both taking students out into the community and bringing members of the community into the university. Reject the conventional divisions between education and practice, theory and practical. Make the project accessible to a wide range of people. Involve projects that are explicitly political and value-laden.

	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.
In the process of the project and in specific discussion sessions provide time to reflect on the social negotiations:	Highlight to students that human interactions provide natural learning situations. Emphasise the need for empathy when working with collaborators. Make apparent and reflect upon the need for social negotiation and mediation, how the project will affect the society and thus the inherent responsibilities and moral choices of such action. Encourage multiple perspectives and representations of the content of the project by giving voice and value to all participants and encouraging a diversity of responses. Reflect on 'live' experience before rushing into designing responses. In this way new experiences can act as a stimulus to learning, but new meanings may also be sought in old experiences. In working with the experience, further experiences are created that may or may not be helpful in constructing the former. Discuss and expose as problematic the power relations inherent in the setting.
In the process of the project and in specific discussion sessions provide time to reflect on the learning	Acknowledge and emphasise the role of the student in evolving the content of the project and what skills they will develop, to ensure they are relevant to each individual (even when the work is undertaken as a group).

process:	Require both expert professionals and students to make explicit the decisions they are making. Emphasise the need for students to build upon their prior knowledge in order to tackle the project. Allow and encourage self- or group- directed processes that are self-regulatory, self-mediated, and self-aware. Promote and nurture a supportive and collaborative atmosphere that discourages the individualistic competitive environment that is currently standard. Support equality, non-hierarchy, participation and democracy. Acknowledge that learning is a holistic process: discuss and give worth to students' values and feelings. Make a point of searching out the un-named as a part of the observation and reflection process to acknowledge the socially and culturally constructed nature of learning.
The role of the tutor	Tutors must re-position themselves as expert advisors and facilitators to the project, offering advice and enabling rather than instructing. Provide/enable formative assessment throughout the different stages of the project (in order that later stages may be informed by earlier experiences). Provide time for reflection. Provide emotional and academic support and give access to departmental support.

	Promote critical reflection on the processes used and in particular to help students to become aware of their own learning. Reflect on the way the project is progressing and be open to develop or change projects as a result of that reflection. Be alert to find transformative pedagogic 'moments'.
At the close of the project:	Provide time for students to discuss how their own values may concord with or differ from those of the profession, the studio, the school of architecture and society – potentially leading to better future practice. Encourage a discussion (and potentially action) of how any differences of values may be challenged. Include all participants in any evaluation or assessments – this could help to give value to the participants, as well as diminishing the power of the tutor over the student.

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4 METHODOLOGY FOR THE EMPIRICAL STUDY

4.1 Introduction

The previous chapters have sought to position and critique the live project from the perspective of architectural education and education theory. The following two chapters will further explore and develop the understanding achieved through the literature research through an empirical study. This will then be used to refine the best practice strategies previously suggested. The empirical study was undertaken in three key stages - the reflective autobiographical account, the case study and the survey - each of which built on the previous research. This chapter describes and seeks to justify the methodology used in each stage of the empirical study.

4.2 The Research Questions

The focus of this thesis is to explore and develop an understanding of the role of the live project in architectural education in order to justify or question its inclusion and thus to propose best practice strategies, ultimately to supplement current architectural education practice.

It has been established in the preceding chapters that there is a theoretical basis for the inclusion of live projects in architectural education: The debate surrounding architectural education leads us to believe that the live project may have a role; education theory also supports the notion of the live project in terms of its educational validity. This theoretical basis has served as justification for further study of the role of the live project and has provided a framework for analysing the role of the live project in practice.

Live projects, in a variety of forms, are being undertaken in many schools of architecture (see chapter 3, part 3.3). Despite this, the only record of their successes and failures has been anecdotal, and based on the experiences of the tutors who were facilitating the project, and their perception of how the students' responded to these projects. Students' own views are generally excluded from the literature. The results are therefore likely to be biased towards what the tutors wanted the projects to achieve and are unlikely to expose surprising, challenging or unpredictable results. Further research was therefore deemed necessary to discover and understand the live project in more depth, in particular from the perspective of the students involved, and to search for pattern and meaning between, as well as within, individual projects.

In the empirical research then, the broad research questions explored were:

- what are the learning outcomes of 'live' projects;
- what are seen to be the important issues in experiencing the live project;
- how do these differ to the traditional studio project;
- why do these differ to the traditional studio project?

4.2.1 Assumptions

The assumption, on which the research was based, was that the live project was in the minority as a design project type, and thus it could be assumed that any criticisms of architectural education were largely based on a more traditional design project model (characterised by Schön's model described in chapter 2 part 2.3.1). Certainly, the inclusion of live projects is a fairly recent (or recently rediscovered) phenomenon and this also supported this assumption.

4.3 Methodology for the Empirical Study

As described in the introductory chapter, this research is theory-building and grounded in a critical feminist epistemology. This approach therefore builds on an interpretive tradition of **understanding** human behaviour,

rather than collecting facts and providing explanations.[1] The empirical research aims to develop a theoretical understanding of the projects in practice, but still seeks out generalisability.

To this end, a familiar feminist approach, which includes the experiences and encounters of the researcher in the process in order to seek further understanding, (May, 1997:52) is also utilised. Where the research does attempt causal explanations, this is approached as an attempt to further our interpretive understanding. In addition, the critical perspective leads the research to inform future action.[2]

The empirical study is essentially a form of social research – the experiences and attitudes of those involved is a focus. As a result it is important to express that the ontological position of the research is that of constructivism, which acknowledges that the social world is a construction (that is under constant revision) of the actors involved rather than an objective, fixed reality that exists independently to those actors. This is not taken to its extreme, however, as it is acknowledges that social constructs such as organisations and cultures do nonetheless influence individual actors.

The epistemological and ontological positions of the researcher have led to the use of a multi-method approach (May, 1997:89), meaning that more than one method is utilised in the research. These approaches were developed cumulatively *'in search of pattern and meaning rather than for prediction and control'* (Lather 1991:72) with an eye to the theory developing through the research, evidencing a feminist commitment to changing the world rather than merely researching it (Weiner, 1994:129).

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[1] This approach acknowledges that *'research which assumes 'facts' can be collected on the social world simply reflects and perpetuates unequal power relations which already exist within society.'* (May, 1997:53)

[2] These approaches are supported by the influential 'Theories of women's studies' collection (Bowles and Duelli Klein 1983), which reject positivist 'cold' approaches of the 'scientific method' in favour of more interactive, contextualised methods. This has led to questions about the power relations in research, the need for reflexivity of the researcher and for emphasis on the importance of subjectivity and personal involvement in the research process.

This multi-method approach developed to include three key stages:

- **a reflective autobiographical account,**
- **a case study, (including open and closed questionnaires, observation and informal discussion as data collection methods),**
- **a postal survey using self-completion questionnaires,**

In this way qualitative and quantitative methods are combined. However, the two approaches are not kept distinct, as traditionally positivist methods such as self-completion questionnaires are used interpretively and in combination with qualitative techniques in order to achieve 'triangulation', which *'implies that the results of an investigation employing a method associated with one research strategy are cross-checked against the results of using a method with another research strategy'* (Bryman, 2001:447). This combined approach has much recent support, (Strauss and Corbin, 1998:28) as the qualitative and the quantitative are seen to come together to provide generalisability, enriched by depth and meaning. This is particularly important in theory-building – the ultimate purpose of this research.

The three stages of the empirical research are outlined below, including the methodological implications of each stage:

4.3.1 Reflective Autobiographical Account

The starting point for the thesis was the researcher's involvement in a live project as an architecture student, followed by her proposition (or hunch) that such projects have a broad range of educational outcomes that may address certain issues that are currently problematic in architectural education. This initial positioning conforms to standpoint feminism, in that experience informs the starting point of the research but is not the entirety of the research.

The first stage of the research draws out questions from a personal account of a live project as a student. This stage draws influence from

ethnography[3], but due to the fact that the project was experienced prior to the undertaking of this study, the observations needed to be based on self-reflection. This approach draws on a tradition of using autobiography in the research process, an example of which is Roseneil's study of protest groups, in which she had been personally and politically engaged in protest as part of the group before deciding to turn her attention to its analysis (see Roseneil, 1993).

The account was produced at the start of the study, and allowed questions to be proposed from the data. This was then reviewed critically in the research, and repeatedly re-visited in relation to the literature and the later empirical research - the study acting as a control against hasty theoretical conclusions.

4.3.2 Case Study

Following the initial reflective ethnographic account, the researcher's position as part-time studio tutor allowed her to set up and run a live project for a group of second year students. This meant that the project was able to be set up as a case study, in which the researcher would be an active participant, but this time as a tutor rather than as a student. This was implemented with the intention of deepening the author's understanding of the live project experience, with the belief that: *'the more varied the scenes of interaction that are viewed and circumstances experienced, the more one can understand actions within social contexts'* (Silverman in May, 1997:136).

The case study approach means that a detailed study and intensive analysis is made of a single case. As a result, it is concerned with the complexities and particularities of the individual case (an ideographic

[3] Ethnography (often called Participant Observation) is a method (as well as a product) of social research in which the researcher is immersed in a social setting for an extended period of time, observing behaviour, listening to what is said in conversation, asking questions and writing up a detailed account of the setting (Bryman, 2001:291). The autobiographical reflective nature of this study, meant that the process of asking questions and observing for the sake of the study was not possible, but the influence of an ethnographic attempt to describe a detailed account of the setting was instead the goal. This acknowledged that in ethnographic research *'engagement is used to an advantage. Furthermore, being part of the social world which we study is not a matter of methodological commitment, it is an existential fact'* (Hammersly and Atkinson in May, 1997:139).

approach). It is used here to develop theoretical understanding, which will then be compared with understandings developed through the other empirical studies. Thus the case study type is seen to be broadly 'revelatory' (Bryman, 2001:50).

The researcher's role in the 2nd year group was as a 'complete participant' (Gold, 1958) as *'their role is covert for their intentions are not made explicit....Among its advantages, it is argued to produce more accurate information and understanding not available by other means'* (May, 1997:140).

Due to external influences the project was developed as a part of the CUDE (Clients and Users in Design Education)[4] initiative, which aimed to give students the opportunity to interact with a client/user group to the benefit of both parties[5]. As a result the learning objectives were prescribed as being:

- 'to develop a positive attitude towards clients/users,
- to encourage peer group learning,
- and to develop skills in communication with these groups.'

It is therefore acknowledged that as a result, the outcomes of the project could potentially have been 'led' to support these objectives. Nonetheless, it would still be valuable to see to what degree students felt that the project achieved the objectives outlined. The broader research questions undertaken by this thesis could also be explored. These were: what are seen to be the important issues in experiencing the live project; how do these differ to the traditional studio project and why do these differ to the traditional studio project?

Given these research goals, the methods of data collection for this case study included open and closed self-completion questionnaires, observation, and informal discussion as follows:

4 See Nicol and Pilling, 2000

5 The researcher was involved in work with the CUDE project and it was seen that this project would be particularly appropriate to address issues relevant to that project.

	Feedback	
	Tutor, client, observer	**Student**
Prior to the start of the project		Self-completion open ended questionnaire to discover why the students had chosen the live project option and what they expected to learn from the experience
During the project	Tutor observations (recorded through diary notes) and informal discussion to ascertain what value the project might have over a more traditional studio project.	
After completing the project	Client, independent observer and tutor evaluation of the final presentations recorded in a self-completion, open-ended questionnaire.	Evaluation of the level of skills attained measured using a self-completion Likert scale. Self-completion open ended questionnaire to discover whether the project had met students' expectations and how it could be improved

As the list above shows, the data was collected using largely qualitative means (Open-ended questionnaires, observation and informal discussion) with the addition of the more quantitative approach of closed questions (using a Likert scale).

It was hoped that by using self-completion questionnaires, the study would avoid the effect of the interviewer (especially since the researcher was also involved in the project). However, it is acknowledged that the students may still have been affected by the knowledge that the researcher (who was also the tutor and thus in a position of authority) was going to read them. In order to minimise this the responses were to remain anonymous.

The closed questions were used to measure to what degree students felt they had achieved certain objectives. A Likert scale was used as an indicator in order to represent this measure. It was applied with the intention of deepening the understanding of the case, but is acknowledged as being limited to only the objectives prescribed at the start of the project. It is recognized that there is a broad range of issues that are unexplored by the measure. It is hoped that the open-ended questions, observation and informal discussions recorded will expose these as they allow for unusual and unpredicted responses. This is particularly important for the theory developing approach taken by the research.

The acknowledged limitations of the questionnaire used in this case were used to inform the development of the next stage of the research.

4.3.3 Survey

This next phase of the research was developed in order to gain a wider understanding of the position of live projects in the UK context. It was developed to discover the present status of live projects in schools of architecture, as well as exploring the learning outcomes of the live projects that are underway. Determining the nature of prevailing conditions, practices, and attitudes is the objective and the data can again be used to build on the theory developed by the previous research.

To this end, a survey method[6] was used. This enables the researcher to explore variation – between individuals and schools/projects. In order to establish this, it is necessary to have a systematic and standardised method for gauging variation, which was achieved in this research with the use of a Likert scale, which places peoples answers on an attitude continuum. This method of research can only examine the relationships between variables – it cannot expose causal influence. This is suitable to the theory-building research approach taken in this study, which seeks to understand, rather than to explain.

[6] The survey method collects data *'predominantly by questionnaire or by structured interview on more than one case...and at a single point in time in order to collect a body of quantitative or quantifiable data in connection with two or more variables...which are then examined to detect patterns of association'* Bryman (2001:42).

In addition to the quantifiable Likert scaled questions, the survey was used to gather more qualitative information in open-ended questions, with the intention that the qualitative information would inform the quantitative and vice-versa.

The survey itself had two phases, intended to gather information regarding the research questions of this section of the empirical research: What is the present status of live projects and what are the learning outcomes of the live projects that are undertaken?

What is the present status of live projects?

The methods by which this first research question was approached were twofold. Firstly a literature review was carried out to establish the current status of live projects worldwide (the results of which were presented in the previous chapter). Secondly a survey of all the schools of architecture in the UK was executed, to locate live projects underway or in the pipeline, and to gather brief descriptions of these projects. Initial e-mails were sent to each head of school, or their representative. This was followed up with reminder e-mails, and where there was still no response, an attempt was made to talk to the course co-ordinator over the telephone.

What are the learning outcomes of the live projects that are undertaken?

This second question was explored through a self-completion postal questionnaire, sent to all students and tutors involved in live projects. In order to increase the likelihood of a response, permission was first sought from the tutors involved and the questionnaires sent to them in order to distribute to the students. The sample size for the questionnaires and interviews aimed for the full population (where the population is the complete number of students involved in live projects in the UK), however a lack of a 100% response rate means that the final sample could be described as an 'availability' sample (May, 1997:88) combined with a certain degree of 'snowball' sampling, where talking to those involved in live projects led to others. Limited funding meant that it was not possible to visit each of the schools of architecture to chase up responses. The relatively small numbers available for the sample was therefore inevitable,

and as a result, the triangulated approach (see p 165) was relied upon to increase the validity of the findings.

It is acknowledged that since the individuals who replied were to some extent self-selecting, *'the replies might then be systematically biased towards one part of the population'* (May, 1997:90) and this will have to be considered in the analysis.

The use of self-completion questionnaires meant that there was little control over the completion of the survey. A covering letter explaining the purpose of the questionnaire stressing the need for co-operation and anonymity of replies was therefore sent alongside the questions. This method has the advantage of providing people with *'a medium for the anonymous expression of their beliefs'* (May, 1997:89). This was seen as important in an education setting where the students or tutors may not wish to be seen as criticising themselves, the school, or the teaching.

4.3.3.1 Questionnaire Design

The questionnaire was made up of mainly opinion questions, with fact-gathering questions at the start. An example of the questionnaire sent to students is shown in appendix A and an example of the questionnaire sent to tutors is shown in appendix B, and the cover letter shown in appendix C. The form was broken down into three sections:

Section 1 - The start of the project - their views

Section 2 - The end of the project - what they learnt/what tutors felt students learnt

Section 3 - The end of the project – their views

Both the tutor and the student questionnaire followed the same structure, with slight alternations to adapt the questions to be relevant to the appropriate actor.

The Student Questionnaire

Section 1

The first section asked students to record the name of the project/studio, their tutor and School of Architecture, why they chose the project and what they expected to learn from the project.

Section 2

The second section asked a series of attitudinal scaled questions (using a Likert scale from 0=not at all, to 4=a huge amount) in order to record:

- How much students felt their skills were improved in design, research, developing a brief, working with other disciplines /consultants, communication – (listening, speaking, visual, written), team working, time management, and environmental design.
- How much the project improved their understanding of structures, construction, the structure of the profession, the social and historical context of design, users needs, the role of a client, the planning and regulatory system, or other (open response).

They were then asked to compare their responses to these questions with other projects and whether they learnt less, the same, or more (tick the box responses).

Section 3

The third section of the questionnaire asked students about their enthusiasm levels, before starting, and during the task (again recorded on a Likert scale). Again, students were asked to compare this with other projects. They were then asked to record what form the project reviews took, how much they learnt in these reviews (Likert scale) and how this compared to other projects. The questionnaire ended with a series of open-ended questions to ascertain:

What *new* skills/knowledge they felt they had learnt from *this* project?

Anything they particularly liked about the project.

Anything they particularly disliked about the project.

Suggestions for improving the project.

Whether if they could choose again, they would choose to do the same project.

The tutor questionnaire

Section 1

This section asked tutors to describe the project and why they set it, what they expect the students to learn from this project and what work was involved in the setting up of the project - additional to the setting up of a more typical studio.

Section 2

This section remained the same as the student questionnaire with the questions rephrased to ask what tutors *thought* that students learnt.

Section 3

The third section of the tutor questionnaire excluded the questions on enthusiasm, but again asked what form the project reviews took, how much tutors felt that students learnt in these reviews (Likert scale) and how this compared to other projects. The tutor questionnaire also ended with a series of open-ended questions to ascertain:

What *new* skills/knowledge they felt that students had learnt from *this* project?

Anything they thought went particularly well.

Anything they thought went particularly badly.

Suggestions for improving the project.

Whether if they could choose again, they would choose to run the same project.

The questionnaires were designed to use simple language that could easily be understood, to be specific and not vague in the questioning, and to aim to avoid prejudiced or leading questions. The list of learning outcomes was developed from the RIBA and ARB's criteria for validation (RIBA and ARB, 1997). However, it is acknowledged that the list cannot be exhaustive. This was countered with the inclusion of an open response for respondents to add to the list at the end. Nonetheless, the common criticism that surveys

are too deterministic (since the questionnaire has already predetermined what are the important questions to ask) still rings true as *'by using the concept of standardisation, people do not have the opportunity to challenge ideas on their own terms. Furthermore, the myriad of differences in people's attitudes and the meanings which they confer on events can hardly be accommodated by compartmentalising them into fixed categories (closed questions) at one point in time (the actual completion of the questionnaire)'* (May, 1997:104). There is an assumed congruence of meaning between the survey designer and the respondent. Despite this, the survey method is still seen to have value, in particular in this multi-method research, where the qualitative techniques of the previous research phases and the open-ended questions allow multiple meanings to be developed, whilst the quantitative survey questions provide a background for these meanings. In addition, the questionnaire records recent past experience and compares it to previous experience in an attempt to build up a picture and not entirely compartmentalise the experience (in a similar way to retrospective-propsective interpretation, used by Garfinkel, 1967).

The results of this section of research need to be analysed with the following potential external influences in mind:

- The results may be partly biased by respondents wishing to please me the researcher or their tutor in their responses, this effect is minimised by sending anonymous questionnaires,
- Tutors responses may be clouded by the need to look like a successful educator,
- Some tutors may have defined the project to students as a live project, even emphasised certain qualities that they feel it has, thus putting words in the students' mouths,
- It is also possible that there are such varying conditions between projects that no strong pattern of findings will emerge.

One additional difficulty in the research is that attitudes and actions are two very different things, so what people think they learn, and what they actually learn might be different (LaPiere 1934:230). Nonetheless, the survey phase of the research was seen as a valuable way to broaden and

deepen the understanding of live projects, with the particular strength of gaining a broad variety of students' views.

4.3.4 Relation to the Literature

An understanding, and a review of the literature was developed in parallel with the empirical research phases. The theory-building nature of the research was also applied to the literature study, meaning that in contrast to traditional theory-testing research the literature study did not need to be completed before the empirical research, but could run alongside it. This meant that each stage of the empirical research could feed back into the literature study and vice versa. The research model in part 1.6.3 of the introductory chapter provides a diagram to represent and further explain this method.

The literature was used to highlight emerging concepts and to create links with other fields of study - in particular to the broader field of education theory. In the analysis, the literature is used to spark questions, to deepen meaning and understanding, to create links and to support and validate the emerging theory.

The two-way relationship between the literature and the empirical study allowed comparisons between the researcher's interpretation of events and those in recorded documents. With documents, if we assume that there are social facts which exist independently of interpretation, we fall into the trap of positivism. As a result, it was considered essential to use documents critically and to acknowledge the researcher's individual influence on her reading. In addition, the literature provides the grounding for a critical reading in the analysis.

4.4 Difficulties inherent in the research

Whilst the research is aiming to develop a theoretical understanding of live projects, it is inevitable that this should be compared with more traditional studio projects. Thus, ideally a 'live' project should be compared with a studio project of equal length, scale, and architectural complexity. However, each student may have experienced different studio projects, and as studio projects vary so enormously, they may never have experienced a studio project similar to the 'live' project they are involved in. As a result it

is impossible to compare like with like. It is possible that the very nature of 'live' projects makes them totally different to any other studio projects. This is acknowledged in the research, and is tackled by using a comparison of general experience with a specific experience - the study asks participants to compare their current project with previous projects they have experienced. Thus a single project is compared to a general impression of studio projects.

4.5 Outcome

The findings of the research are used to develop a theory about the relationship between student learning and live projects, as well as building a broader understanding of the effects, values and influences of live project implementation. This theory is used as the basis for developing a best-practice guide for the implementation of such projects and also to suggest ways in which the design studio in general might be developed.

4.6 References

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5 RESULTS

5.1 Introduction

This chapter will present the results of the empirical study. These results will be analysed cumulatively and the structure will follow the stages of the study, with each section building on the understanding given by the previous. The literature studied in the second and third chapters will be used in the analysis to inspire questions, to deepen the meaning and understandings suggested by the results, to create links and to support and validate the emerging theory. In addition, the analysis has the potential to critique the literature and vice versa.

5.2 The Analysis

5.2.1 Reflective Autobiographical Account

5.2.1.1 Introduction

As the starting point for this thesis, this account provided the standpoint from which the research was undertaken. The following text is based on critical reflection and positioning of the reflective account recorded at the start of the research and presented in full in appendix A. The account is analysed in order to draw out certain concepts. The analysis used 'open coding' - *'the process of breaking down, examining, comparing, conceptualising and categorising data'* (Strauss and Corbin, 1990:96). This codes the data as it emerges (rather than the quantitative approach of defining the codes first). This led to the development of concepts, which

are described by Strauss and Corbin as the *'building blocks of theory'* (1998:101). In this way, the account provided the foundation for further research.

5.2.1.2 Analysis

The initial project used as the starting point for this research was set up in 1999, in collaboration with a friend and colleague, Rosie White, to act as an options project for our 1st year of the Diploma course at Sheffield University School of Architecture. We were expected to pick from a range of projects set up and defined by our tutors, but instead proposed that we should set up and develop our own. This work ultimately developed and evolved to become a joint final thesis project in the 6th year, for submission for our RIBA part II qualification and the Diploma in architecture.

This immediately set our work outside of the normal approach to learning in the Diploma as it stood at that time. We were almost entirely self-directed – the boundaries and definitions of what we were trying to achieve were set (and broken) by us and thus we took control of the project ourselves. This enabled a definite (although not complete) shift in power away from the tutor, and into our own hands. The shift in power could not become complete, as it was ultimately the tutors (as representing the requirements of the RIBA and the University) who would pass or fail the work. Arguably, the model included less teaching, but (we felt) more learning.

The work started with research into using household waste as a construction material. In order to quickly explore and develop a range of approaches, we set up a workshop for fellow students. The brief was to design and build a structure from waste materials (that we had asked the whole school to collect in designated bags in the studios). We designed the framework for this construction using a combination of timber palettes, industrial casters and carpet roll inner tubes.

From this research and development stage, we moved out into the community to find a client and site. This we found in Sheffield's Heeley City Farm, with whom we developed a brief for a recycling trail through the

farm site. This inclusion of a real client and user group for the project is what defines the project (for the purpose of this research) as being live. We went on to construct one section of the trail; a retaining wall, seat and planter made from used tyres, rammed with earth and finished with a lime render. There was a failed attempt to gain monetary funding through various trusts, but eventually funding in kind was given by the local builder's yard, which provided the additional materials required. The structure was built in collaboration with a group of volunteers, consisting mostly of a special needs group who worked on the farm.

The self-directed approach seemed to inspire us to use our initiative more. We were able to work in a completely different way, and this led us to question the usual approaches. This is expressed in my reflections on the potential failure of our workshop: *'We were intrigued to see how many people actually came to a workshop that was set up by students. Would they feel that they could learn anything from an event that had no tutor involvement? We also wondered if people would be able to tear themselves away from the inward focus of their own projects, as the atmosphere in the studio was fairly competitive, we thought that many people would find it hard to take time out from working on their own individual schemes and essentially do something for someone else, that was probably totally unconnected to their own work.'* (Appendix A, p2)

This quote exposes the way that our work differed to what was going on in the rest of the studio: we worked in collaboration rather than competition; we involved and valued the contribution of our peers as much as our tutors; and we attempted to redirect our focus outward, rather than inward to the individual work we were doing. It also exposes the way that taking control of our own work led us to reflect critically on the *process* of architectural education and production.

Although limited numbers of students did join the workshop (about 10 in total), thus confirming our fears, the actual event went extremely well, with those that did participate obviously finding it a valuable experience. It was a highly active event, and one in which there was a true spirit of collaboration and innovation. The success of the workshop led us to

develop skills and an understanding of working collaboratively as part of the design process.

The hands-on nature of the workshop was also a contributory factor in its success and the level of enjoyment. Again, this was in contrast to the typical studio. Hands-on work may not be more enjoyable per se, but it might be that there is a need for variety in the ways of working in the studio in order to keep energy and interest levels high. Certainly, by the end of the long construction period on site at the farm, Rosie and I were very happy to return to our drawing boards.

The effect of working as a team made me feel that I was working more productively, and producing better work, as I describe: *'It was so much easier to structure the work and to focus when working with someone else.'*(Appendix A, p2) This concept has been supported by recent research (cited in Berry and Sharp, 1999), which found that cooperative learning does tend to promote higher achievement.

This increased efficiency seems to be supported by an important emotional factor in teamwork. In working together, we created a more nurturing environment, where praise was used to increase motivation, and sensible working patterns developed, in which breaks were justified. It seems that both of these elements were found to be in contrast to the typical way of working where there tends to be a focus on *'what is wrong with the project, what isn't working, and although this isn't deliberately to put you as a designer down, it often feels that way. The assumption is that you already know what's good about the scheme, and you only need to be told what is wrong with it.'*(Appendix A, p3)

The emotional impact of working as a team made an impact on how much we enjoyed ourselves, as *'the intense personal pressure was also off to some extent and we could begin to enjoy the work'*(Appendix A, p1). This feeling of support, and the linked feeling of self-confidence and self-esteem are considered by Boud et al (1993:15) to be essential to learning from experience.

The emphasis of this project on both making, and teamwork can be seen to posit an alternative to the traditional Beaux Arts influenced model, and

rather has a focus closer to that of the Memorialists or the early Bauhaus which can be seen to be quite anti-academy – again, the live project is positioned outside of the norms of the technical-rational university.

The need for varying types of communication throughout the project developed our skills to be able to *'communicate and interact with different types of people'* (Appendix A, p3). Initially, we had to successfully communicate with each other and our tutors; this was then developed to include explaining our ideas to fellow students. The work on the city farm needed us to develop skills in persuasion, in our presentation to the farm's directors and in applying for funding; we needed to seem professional and yet also had to get our ideas across simply to the broad variety of people who worked at and visited the farm. In addition, our involvement with a volunteer work force enabled us to communicate with, and develop a deep understanding and empathy with a broader range of people than we were used to working with – the special needs group having the most significant impact.

The idea of communication went deeper in this project than the term immediately suggests, embracing the deep understanding and empathy that we developed. The skill of empathy was cultivated not just through working with different groups of people, but also through our new understanding of the experience of construction, as I describe: *'We knew what they felt like, how heavy they were, how difficult it is to work with them in the cold and wet. We would have real empathy for builders when we came to work with them in the future!'* (Appendix A, p4) We learnt about different groups of people – thus breaking down prejudice and assumptions and leading to *'an understanding of the need to fully understand the community of people that you are working for'* (Appendix A, p4).

Our total involvement on a site outside the school of architecture meant that we became integrated into our community and thus *'forged links with people outside of the school of architecture that we still have to this day'* (Appendix A, p3). These important attitude shifts we felt were enriching to us as individuals, as well as being essential to good design. It created a social agenda to the work, which is supported by a constructivist position,

and again has Bauhaus roots in architectural education (a social emphasis was first introduced there by Hans Meyer).

The production of something for the community, and the involvement of others was seen to give 'real-world' meaning and relevance to the work, which significantly increased our enjoyment, and our levels of motivation. This was reinforced by it being valued outside of the academy. This seems to include the notion of giving something back to the community – in product and process, which then furthers the reach of the project, as it becomes interesting to those outside the academy – as evidenced by our publication in the local paper. This increased motivation could potentially lead to higher quality work.

Community involvement is again outside of the norms of the traditional studio, and certainly was not included in any of the other Diploma projects at that time. It is possible that this increased level of value in the community comes at the cost of a devaluation of the work from the perspective of the academy. The final assessment of the work implies that this might be true. In addition, could the nickname of 'the rubbish girls' given to us by tutors and students in the studio have been a subconscious devaluation of our work? This situation highlights one of the potential problems of live projects, that is really quite fundamental to how we judge architecture, as I comment, *'ultimately this depends on who and what we feel that architecture is for'* (Appendix A, p4). Although this would seem to lead to a need for live projects to be implemented in schools that support a particular philosophy, this is not necessarily the case, as the disjunction described raises questions as to the role of architects and architecture, which itself can develop students' critical awareness. It does however highlight the resistance that implementers of live projects might face, as well as raising questions as to the level of support that could be expected from the professional bodies (ARB, RIBA) who have arguably attempted to distance themselves from the communities that they serve (through the science of technology, or the mystique of art).

The community involvement also has the potential to have a benefit in the other direction – that the community may be enriched by, and learn from students. They may gain an idea of who architects are and what they

might do, thus breaking down barriers between the academy and the community in which it exists. In Sheffield, the 'ivory tower' in which the school of architecture sits is symbolically positioned in a twenty-storey tower, which dominates the skyline. If the community becomes aware of what actually goes on within, then the domination by mystique is once again diminished.

As is apparent from the concepts emerging from the data, the account emphasises what was learned during the process of the project, rather than the perhaps more traditional focus on the product. As I describe: *'we felt that we had learnt so much – about people, about construction, about the process of work and the way that people communicate, that the final result seemed far less relevant'* (Appendix A, p4). This further disempowers the traditional role of the tutor and even the school, as it is harder to judge (and mark) a process and the learning that has gone on as a part of that process, than it is to judge a product. This shift in focus also has the potential to cause disjunction between those involved and those who are perhaps more used to judging a project by its products. This was keenly experienced in this project when it came to be finally reviewed through a traditional crit format, and ultimately as a product.

An additional position of disjunction was created due to the inclusion of a real client, which shifted the focus from tutor to client. This again disempowered the role of the tutor, as in our experience of the project, it was the client and users who would be the ultimate judges of our work: *'To be honest, we didn't really care what the tutors thought of what we were doing, as we felt that we had our own, more real judges in the community'* (Appendix A, p4). Their criteria for judging the work are probably different, and yet the academic nature of the project meant that it was tutors who had to provide a mark. As a result, there was a difficult situation in which *'one of the tutors absolutely hated what we had done, and felt that it was aesthetically awful'* and yet we felt that *'it didn't matter to us what she thought, as it was the community that we had designed and built for that should be the true judge. We knew that they were thrilled with the result, and that it had contributed more to the site than had been expected by any of us.'* (Appendix A, p4)

This conflict of interests needs to be acknowledged and made explicit in the implementation of live projects. It seems particularly appropriate in live project work, that the marking criteria be based on the students' processes more than the final product. In addition, the fact that the client would be unlikely to be over-critical of a construction that was essentially a gift, needs to be acknowledged by all involved (and was probably overlooked by us in this project). As a result, the tutor may have a role in redressing the balance, and in promoting critical self-reflection in the students involved. However to entirely reject the views of the clients and users would mean a continuation of the self-referential loop of much architectural criticism. Ultimately, best practice would allow a balance between all the views held and celebrate the multiple subjectivities of the individual viewpoints, begging the question whether marking is appropriate at all.

5.2.1.3 Summary

The concepts to emerge from this initial study were seen as the starting points for further research, and are by no means seen to be 'proven' by the account. Rather, these concepts can be viewed as proposals that the subsequent research sought to support or contradict, as well as to clarify. The concepts are summarised below under the 3 categories of:

1. **Learning Processes and Results**
2. **Student/tutor/community relations**
3. **Student perceptions**

1. Learning Processes and Results

- The focus on self-directed learning.
- The reduced focus on teaching and increased focus on learning.
- The increased level of initiative shown by students.
- The development of collaborative rather than competitive working methods.
- The outward and shared focus rather than the inward, individual focus.

- The more active and hands-on approach to working.
- The integration of teamwork – to increase efficiency and as a more emotionally nurturing method of working.
- The opportunity to practice communication to a range of different groups and for different purposes.
- The focus was on process as much as product.
- The attention was shifted from the tutor to the client.

2. Student/tutor/community relations

- The diminished position of power held by the tutor.
- The development of empathy and the breaking down of prejudice.
- The integration of students into the community –

We forged useful links, learnt the true value of community involvement, gave something back to the community which was valued outside of the academy and developed a critical understanding of an architects role in the community.

3. Student perceptions

- The positioning of live project work outside of the 'normal' studio.
- The development of a critical awareness of architectural production and education.
- The increased level of enjoyment in the work compared to previously experienced projects.
- The work was perceived by the students to have increased relevance and meaning.
- The students felt they grew as people as well as designers.

In conclusion, it seems that the project promoted a critical and feminist way of working, that was based in experience, collective and collaborative,

cooperative, participative, democratic and non-hierarchical, supportive and friendly, widely accessible and involving others, explicitly value-led, and essentially liberatory. The boundaries were blurred between the education setting and the outside world and the inherent power relations in the educational setting diminished. The project ultimately rejected the dualism of theory and practice. As a result, the project might be viewed as a transformative practice, which changed not only our way of working, but also our way of thinking about architectural education and production. The analysis certainly suggested that further research into live project work was warranted.

5.2.2 Case Study

5.2.2.1 Introduction

This case study looks at a different live project, again involving the researcher, but this time as a tutor rather than a student. The project was far more prescriptive in what it set out to achieve due to its development as a part of the CUDE (Clients and Users in Design Education) initiative. As a result, the analysis is kept brief, and the concepts that emerged from the autobiographical account are used to search out data in addition to that prescribed in the project's objectives. The data analysed here is presented in full in Appendix B.

5.2.2.2 Analysis

This case study explores a two-week project, set up for second year students. It involved a real client – a cricket team, who needed a redesign (including a new roof) for its pavilion. The team had little money, so it was agreed that students would design a self-build refit, for which the client would take part in consultation sessions.

The project was offered as an alternative option and eight students signed up. The students worked in pairs to produce four design solutions, each of which was ultimately presented to the client/user group. The project followed the following programme:

1. Entire group carries out research into site and construction techniques.

2. Studio design tutorials for each student pair by one tutor throughout the programme.
3. Group meeting to develop questions for clients. Preparation session led by tutor with emphasis on collaborative-learning discussion groups involving role-play, group work and peer evaluation.
4. Consultation with client to develop brief – run by students.
5. Student-led interim review. Full responsibility for running reviews given to students. Feedback form peers about the schemes and presentation skills. Tutor comment at the end of the session.
6. Presentation preparation session. Tutors provide all students with information about presentations. Emphasis on collaborative learning discussion groups. Students prepare their presentations in pairs. Practise run-through of presentation by each student pair to another with feedback. Each presentation recorded on video to allow students to replay and reflect on their own performance.
7. Presentation of schemes to client by students – full responsibility given to the students.

The project has some basic differences to the project used in the initial study: the students involved were second year degree students, and therefore far less experienced designers; the project period was very brief, only two weeks; finally, the project was initiated by tutors, rather than the students themselves. As a result, the project followed a much more structured programme, and although students were given as much responsibility as possible in each phase of the project, ultimately the structure was pre-defined.

Again, however, the project was seen to be 'outside of the norm'. The entire group implied that it was in some way different to what they were used to, with half of the group actually describing the project as a *'rare opportunity'*. They were overwhelmingly positive towards this position, describing it as an opportunity that *'had to be grabbed'*, and which was *'scary and exciting'*. This enthusiasm seemed to be based on the positioning of the project outside of the traditional studio, and into the 'real world', with all but one of the students specifically mentioning the reality of

architectural production in some way, that made it more interesting, or more of a challenge. The high level of enthusiasm recorded is supported by the tutor's comments on the early stages of the project. The responses imply that this injection of 'reality' increases students' perception of the relevance of the project, to give them an idea of what an architect actually does – seen to be a rare opportunity in a school of architecture. The important role that motivation and enthusiasm play in learning means that best practice would aim to both make the project as 'real'[1] as possible, as well as maximising students' perception of the reality of the project.

The students were highly committed and motivated to learn, as evidenced by the tutor's record and the responses of the majority of the group mentioning the opportunity to expand their knowledge and experiences as one of the reasons they chose the project. When asked specifically what they expected to learn from the involvement of a real client, all but one mentioned designing with additional limitations, with some mentioning client/user requirements and others mentioning 'practical' limitations. The tutor record also adds that in implementation, these constraints acted as a spur to innovation and creativity rather than as inhibiting these qualities. This position is in contrast to the views held in the traditional studio, where it is often assumed that real-world constraints will inhibit creativity, particularly for less experienced designers. It is interesting that so many of the group specifically highlighted designing with real-world constraints as something they expected to learn from (implying that this would be the first time that they had done so).

In responding to what they would learn from the project, four of the group specifically mentioned developing skills in presentation and four also mentioned developing communication skills. It is interesting to note that although these comments conform fairly well to the objectives set out for the project, they do give a good idea of priorities, as none of the students cited learning from peers, or teamwork as their reasons for choosing the project, or their expectation of what they would learn, despite these also being included in the project's objectives. It is possible that this is because

[1] In terms of time constraints, client involvement, potentially budget constraints and a real presentation to the client and users.

the external involvement is the way in which the project most differed to other studio projects they had experienced.

The learning was also expected to come from the experience, rather than the teaching, which reinforces the idea of live projects focusing more on learning than on teaching. Also implied is a focus on learning from the process, rather than the product, with only one student mentioning the outcome (something to put on their c.v.) as a reason for choosing the project, all others focused on the experience of the process.

The tutor's record of the project shows that again, students worked truly collaboratively, in teams of two in this project, with individuals happy to let go of their ideas *'for the good of the scheme'.* This was seen to be in contrast to typical competitive working methods usually seen in the studio, and to support the argument that the work was outward rather than inward focused.

The record shows that students showed some initiative, and were keen to take responsibility, but that the tutor-led structure of the project seemed to inhibit this, despite the intentions of the tutor to hand over responsibility wherever possible. This could be a problem in shorter live projects like this one, where students do not get the opportunity to design the programme for themselves. It is an important issue to address, as many of the benefits of the previous project such as the diminished position of power held by the tutor and the development of a critical awareness of architectural production and education were largely due to the project's self-directed approach. This need for students to direct their own learning is also supported by the education theories presented in chapter 3, in particular in Dewey's notion of learning through direct interest, and the Experiential and PBL models. Indeed PBL literature specifically warns that excessive tutor intervention can undermine any intentions to give students greater responsibility for their own learning (Chapter 3, part 3.2.4.3).

In addition, the tutor-led structure may have meant a diminished level of students' integration into the community. This is expressed in the tutor record:

'I think that the project would have worked better if it had been less structured and allowed students to develop the direction – client meetings etc. themselves entirely. Although we attempted this, it was us as tutors who arranged the times of the meetings etc. and thus the students did not take responsibility for it. This diminished the potential for more initiative by students, in organisation and in defining the project. It also meant that they did not develop real links with the client, or integrate themselves into the clients' community. However, this might well not have been possible in such a short project.' (Appendix B, p3)

Best practice then involves the tutor in making a concerted effort to hand over the responsibility for the project to the students. This will involve an increased level of trust from the tutor's perspective; that the project will actually be undertaken in the timescales available, and in an appropriate way. It will also require a relinquishment of the learning objectives of the project, which will be far more reliant on the objectives of the students involved. Being explicit about the requirements of the course, in order that the students set their own learning objectives for the project could counteract this. In this way the tutor is truly reconfigured as facilitator and enabler, providing the information and experience necessary to both implement the project, and design a learning experience appropriate to the students' stage in the course, whilst allowing the project to fulfil its liberatory potential.

The contingencies of the projects mean that students are bound to learn things that cannot be predicted at the start, and is often where the strongest learning may occur. This is where the positioning of these projects *in addition* to the more controlled projects of the traditional studio may be used to pre-empt the potential criticism that these projects cannot be guaranteed to teach the students the range of skills required by the course. In addition, the tutor may be able to direct students' attention to relevant learning events through the use of reflective sessions, in which students formalise and clarify the learning achieved in the project.

As students had predicted at the start of the project, their skills in communication were developed in the process of this project. In particular students developed skills in brief building with the client/user group, with

all of the group feeling that this was well achieved - scoring 4 on the Likert scale (where 5 was the highest score). They also positively developed and practised skills in questioning and listening and in using design proposals to develop the brief with the client, although they felt that this had been less successfully achieved than the brief development – with four of the group scoring 3, and two scoring 4.

The success of these objectives was supported by the tutor and client responses to the final presentations, with the client feedback mentioning how impressed they were with the students' willingness to respond to their needs and the 'user friendly' nature of the presentations. One of the clients commented that the entire group had paid great attention to the brief, and each in their own way had found ways of addressing the problem. In addition, the tutor found the presentations to have a more open, less defensive atmosphere than typical final 'in school' presentations, although one of the students commented that there might have been more discussion in a less formal presentation model.

This ability to listen and respond to the needs and desires of the client emphasises the success of this project in breaking down the self-referential loop of architectural discourse exposed by critics such as Dutton (see chapter 2). Students were able to design successfully and creatively, using the client's expertise in their own needs as the starting point rather that the traditional Schönian notion of imposing their preferences onto the situation as the springboard for design enquiry. This is not to suggest that students attempted to exclude themselves and their personalities from the work, but rather that the starting points and reference points were the clients/users. In this way the conservative model of the architect in practice, who would dominate the encounter, was discarded, and a more collaborative creative partnership created, that listened to the client's needs, but still drew on the creative strengths of the student designers.

The students were also able to successfully integrate this collaborative approach with appropriate presentation of their work; with the exception of one student (who expressed that it wasn't a reflection of the programme) the students felt that they had successfully developed skills in presenting to different audiences – to a client group and to fellow students and architect

tutors – three of the group even felt that this had been 'fully achieved' (score 5). Of particular interest to this study, was the comment that more projects like this were needed in order for students to practice presenting to a range of people - the students actually wanted more client interaction.

The students demands for more client/user involvement is supported by the experiential learning model (see chapter 3, part 3.2.4.2) which exposes the need for concrete experiences to be followed by observations and reflections followed by the formation of proposals, and then the testing of these proposals in new situations. This cycle backs up the instinctive desire for students to meet clients again, in order to complete the cycle.

Overall, the participants' experience of the project was found to be very positive, with one student describing it as *'a fantastic opportunity which I'm glad to be involved in'.* Nonetheless there were some potential problems that were highlighted by the project. One of these was the way that the clients' responses exposed the tendency for live project clients to assume the role of tutors rather than acting as a client would in a live professional situation. It is possible that this could result in the client assuming a position of dominance over the students, thus the domination of the tutor is simply replaced by the client. This was perhaps exacerbated by the way that this project was still fairly tutor-led and emphasises the importance of allowing the project to be student-led, as mentioned previously. A student-led approach would mean that students would have more of an opportunity to develop the client relationship, thus enabling the client to view them as professionals (albeit student professionals) rather than the tutor-led approach which diminishes that responsibility.

The responses suggest that there are several ways in which this project could be developed. One suggestion was to run the project over a longer period, but allow it to run alongside other projects in order to extend the phases of development that the project would cover. Two of the students also wanted more client interaction, an idea that was also supported by the tutor record, which suggested that far more responsibility for the project and the client interaction be given to the students. This would allow the project to become a liberatory experience that would be both within the

control of the student/client collaboration, and released, to some extent from the typical timescales of the academic project.

5.2.2.3 Summary

When summarising the findings of this case study and comparing this to the previous account, it becomes apparent that despite the differences in the actual projects, many of the characteristics and benefits caused by the live aspect of the work are shared. These concepts are summarised below under the same categories as the previous summary:

1. **Learning Processes and Results**
2. **Student/tutor/community relations**
3. **Student perceptions**

1. Learning Processes and Results

- The reduced focus on teaching and increased focus on learning.
- The increased level of initiative shown by students.
- The development of collaborative rather than competitive working methods.
- The outward and shared focus rather than the inward, individual focus.
- The more active and hands-on approach to working.
- The integration of teamwork.
- The focus on process as much as product.

2. Student/tutor/community relations

- The development of skills in communication to a range of different groups and for different purposes.
- The attention shift from tutor to client.

3. Student perceptions

- The positioning of live project work outside of the 'normal' studio.
- The increased level of enjoyment in the work.
- The perception of the work as having increased relevance and meaning.

These repeated concepts begin to suggest the qualities that may be inherent in live project work. However, the support of two projects by no means achieves theoretical saturation[2]. Certainly, the involvement of the author in both of these projects could well be a reason for the level of conformity between the two projects rather than the live aspect itself. Nonetheless, in the theory-building tradition of this research, it is clear that certain concepts are emerging which help to build a clearer picture of the live project in practice. In addition, the concepts that are distinct to this particular project also begin to clarify our understanding.

The concept that emerges in this case study, as distinct from the previous project, is the notion that students are designing within additional limitations, but that rather than inhibiting creativity, this seems to act as a motivating force that spurs them on to innovation and creativity. This was, however, an objective of the project, so it is difficult to say whether this was caused by the project itself, or the explicitly prescribed objective that inspired students to work in this way. Nonetheless, it does contradict the idea that students' creativity will be inhibited by the constraints of the real world, which is a view often supported by architectural educators in their support of more theoretical projects.

What is not so apparent in this project is the focus on self-directed learning and the concepts that seemed to emerge as a result of this in the previous project, such as the diminished position of power held by the tutor and the development of a critical awareness of architectural production and education. The support that is found in the literature for all of these issues

[2] Theoretical saturation is a term used in qualitative data analysis to mean that: 'successive interviews/observations have both formed the basis for the creation of a category and confirmed its importance; there is no need to continue with data collection in relation to that categoriy or cluster of categories...' (Bryman, 2001:303) I.e. support for a category is found through being saturated with data.

implies that this is a real loss, as it is through self-directed learning that the student finds relevance and real meaning in the work. Where the tutor holds the power, the discussion cannot be a true dialogue, and it is harder for the students to take control of their own learning. This in turn means that the practices of the tutor and the school, and indeed the profession of which the tutor is a part are less likely to be questioned and made problematic.

It was acknowledged in this project, that the level of self-responsibility could have been increased to allow students to structure and direct their own project, although whether this would have been possible in the reduced timescale of this project is debateable. This exposes a potential problem with live project work, in which for the project to be successful, it may have to extend beyond the limits of typical studio work and thus may not fit so well within the (current) academic structure. This again makes the live project's position in the university setting a potentially uncomfortable one.

The time limits of this project also inhibited the students from developing a deep relationship and integration with the community; this may also be a reason why the students did not have the opportunity to develop empathy and break down their prejudices towards their client group and vice versa. A better client relationship combined with increased student responsibility could help to counter the tendency expressed in this project for the clients to assume to role of tutor. Most importantly, the previous project and the Rural Studio records suggest that this integration provides a deep and meaningful experience for the students, in which they grow as people, as well as designers.

This case study therefore exposes two important elements in the implementation of live projects:

- The need to maximise students' involvement with the client/user and the community.
- The importance of students having as much control (and thus responsibility) for the project as possible.

These elements will need to be ensured to facilitate a project that not only expands the learning potential of studio projects, but also allows them to be liberatory and transformative.

5.2.3 Survey

5.2.3.1 Introduction

In order to expand and deepen our understanding of live projects, this phase of the research used a survey method to discover the present status of live projects in schools of architecture, as well as exploring the learning outcomes of the live projects that were underway and the variation between them. The survey explores two broad questions: What is the present status of live projects; and what are the learning outcomes of the live projects that are undertaken? The analysis is presented under these two headings. Supporting information is included in the Appendices C and D, with a summary of the survey results in Appendices E and F.

5.2.3.2 Analysis

5.2.3.3 What is the present status of live projects?

In order to discover this, all of the schools of architecture in the country were contacted via an e-mail sent to the head of school, in September of 1999 (please see appendix C for a copy of the outline e-mail). These e-mails were followed up with telephone calls and reminder e-mails, in order to encourage a response. Of the 34 schools contacted, there were 13 schools that did not respond. Of the 21 that did respond, only two replied categorically that they did not use live projects (please see appendix D for the table of responses). Many of the responses showed a lack of clarity as to what constitutes a live project. This should be seen as a fault of the researcher in defining the live project in the initial e-mail. In particular, the initial letter did not make clear that the research was looking at student involvement in live projects (a number of schools replied that staff were involved in live projects). In addition, of the schools from which there was

no response, it later transpired[3] that a number of live projects were going on.

Despite the difficulties involved in gathering information on what live projects were underway, it was clear that although not part of their mainstream activity, most schools did have projects with a degree of 'live-ness' being undertaken in at least one of the years. It also became clear that there were a wide range of projects that could be described as live, with varying degrees of 'live-ness'. These included projects that: used clients to formulate briefs; used clients throughout the process; involved the students in design and construction/production; 'contributed to live agendas'; produced a sustainable feasibility plan; made money for the school; worked with school children; had real clients that were intending to build; had real clients who had some vested interest in the proposals; shadowed real projects in the city; involved 'community planning'; had live briefs and user consultation; pre-empted real projects in order to influence the final design. The projects involved urban design, housing design, product development, shop fit-outs, feasibility studies, conservation, and sustainability projects. This variety was as expected, at this stage, as the initial survey was intended to have a wide net, in order to include possible interesting projects that may not have fallen into a stricter definition[4].

Of the schools where the inclusion of live projects was known, 19 schools ran some degree of live project for students, and 2 schools did not. Thus the proportion that did not compared to the total is 2/21. This implies that for the remainder 12 schools for which there is no information, we may expect there to be a reasonable number of live projects of some kind to be undertaken. This shows that at least half of the schools of architecture do run projects with some element of 'live-ness' for some of their students, although it may be expected to be much more than half.

This information was of value to the research, as although there is not a great deal of literature on the use of live projects in architectural education,

3 Through informal discussion at conferences, and in two cases through papers presented about live projects.

4 The definition of a live project was later clarified for the purpose of this study as: 'a type of studio project which is distinct in its engagement of real clients or users.' (see introductory chapter, part 1.3.7)

and despite their elusive position in the schools, it shows that live projects in one form or another are being undertaken on a fairly regular basis.

5.2.3.4 What are the learning outcomes of the live projects that are undertaken?

In order to develop a deeper understanding of the learning outcomes of the live projects that are undertaken, and in order to make some kind of comparison across the types of projects and different schools, a survey of the projects that accorded best with the definition of live projects used by this thesis was undertaken. In addition to surveying live projects within the school of architecture at Sheffield, projects from twelve other schools were included. For each of these, permission was gained from the tutor involved to use their projects in the survey, and their support promised in the distribution of questionnaires to students and in completing the tutor questionnaire. The twelve other schools of architecture were:

The Scot Sutherland School, Robert Gordon University, Aberdeen

The Queen's University of Belfast

University of Dundee

Edinburgh College of Art. Heriot-Watt University

Mackintosh School of Architecture, The Glasgow School of Art

Hull School of Architecture, University of Lincolnshire and Humberside

Manchester Metropolitan University

Oxford Brookes University

Liverpool John Moores University

University of East London

University of North London

Royal College of Arts

From these schools only five returned any of the questionnaires. As a result, the final survey looked at four projects within the school of architecture at Sheffield, and five from other schools. These were:

School	Project Summary	External Collaborator?
The Scot Sutherland School, Robert Gordon University, Aberdeen	This project engaged students to produce a conservation plan to form the basis for future decisions by a feasibility group as to the future of a disused timber drill hall in Golspie, north of Inverness (Drill hall project).	Feasibility Group
Edinburgh College of Art. Heriot-Watt University	A conservation project to survey and research a church's history to inform the work that was due to begin on the building (conservation project).	Involvement with the architect for the future work
Oxford Brookes University	Project involving community consultation to make alternative proposals for a site under development by a housebuilder (housebuilder community consultation).	Community
Liverpool John Moores University	Developing a brief and design with the client for a cinema extension (cinema project)	Client
University of East London	Design and build project for a carpenter's barn (Barn Project).	Client

Of these, projects at the University of East London and Liverpool did not return the tutor questionnaires.

The Sheffield projects each involved different tutors and included:

Project Summary	**External Collaborator?**
Design and build project for the reception area and a play area of a community school centre for children with disabilities (Paces project).	Client
A school design project involving community consultation (community consultation project).	Community
A project to design and make a piece of public art inspired by and tested on communities in Sheffield (Public art project).	Artists, community
Project to design and make a series of educational interventions for Kelham Island Industrial Museum in consultation with local junior school children (Kelham project).	Client, School children, specialist in greenwood working.

Of the responses from Sheffield, only the community consultation project was missing the tutor questionnaire. In addition to this, there were two additional tutor questionnaires completed, one from Sheffield recording a project to restore and recreate a 1960s interior in a listed block of flats, and one from Plymouth recording the use of projects in which the students work with clients who are intending to build in the future and use the students' projects as research. The final responses therefore represented a good range of projects in a reasonably broad range of architecture schools and totalled 75 student responses and 7 tutor responses. Not all of these were complete however, and many of these only contained the first page of the questionnaire, focusing on the start of the project, why it was chosen and what they expected to learn. As predicted in the methodology (see p170), there were fewer responses than would have been ideal, but this potential drawback was counteracted by a triangulated approach to the empirical study and analysis.

As was found in the study of live projects in the literature, the projects tended to have a strong community bias, with no examples of projects with corporate clients. It was suggested in chapter 3 that this is perhaps due to the lack of funding of community clients, meaning they need to be more creative in getting work done for them, but also that perhaps tutors favour these types of projects. Although the responses collected favoured community involvement, this was felt to be representative of what projects are going on. Nonetheless, it must be acknowledged that the findings of the research are generalisable only to similarly community-based projects. It would be an interesting future study to explore the implications of live projects which involved corporate clients.

The Responses

Enthusiasm

In analysing the students' responses across the projects, one of the strongest concepts to emerge (as in the previous two sections) is the high level of enjoyment, with 78% of respondents scoring high levels of enthusiasm (either 3 or 4 on the likert scale - 39% for each score) before starting the project (see fig.1). More than half of these (57%) recorded that this was higher than with other projects, only 3 (8%) were less enthusiastic than with other projects (see fig. 2).

Student responses to the question *'How enthusiastic were you before starting the project?'*

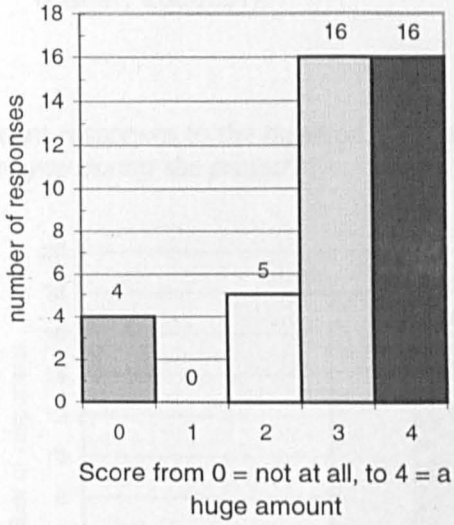

Fig.1

Student Responses to record how this compares with other projects.

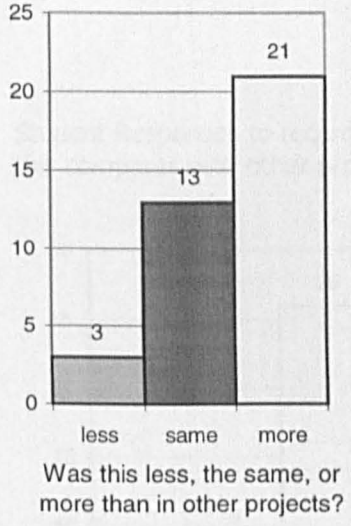

Fig. 2

This level of enthusiasm increased during the course of the project (which, is perhaps more important) to 88% scoring 3 or 4 on the Likert scale (43% scored 4 and 45% scored 3) (see fig.3). Of these 70% recorded that this level of enthusiasm was higher than with other projects (see fig.4). This was also supported by the result that 95% of those surveyed recorded that if they could choose again, they would choose to do the same project, with many students qualifying this with a 'definitely!' The two who wouldn't do the project again were hesitant in their rejection of the project they had experienced, with one saying that they might choose it again: *'Maybe, Architecture students working on real projects within society has to be a*

good thing - but not just cheap labour - if this sort of thing continues we should be paid' and one who perhaps misunderstood the question by taking it literally: *'No, I believe whatever I was able to learn from it, I learned it. It is good to try new things.'* All of the tutors would also run their project (or one like it) again. This can be summarised as an extremely high level of support for these kinds of projects from both a student and a tutor perspective. This is also supported by the literature, in which a survey of recent graduates found that *'nearly all the interviewees recommended the introduction of more 'live' or 'real' projects during the course. They didn't argue for an exclusive diet of these, rather that there should be one or more a year, preferably fairly short. They said these were important for students to get used to working with people outside, recognising what clients and end users and the general public are interested in and value.'* (Fisher, 2000:24).

Student responses to the question *'How enthusiastic were you during the project?'*

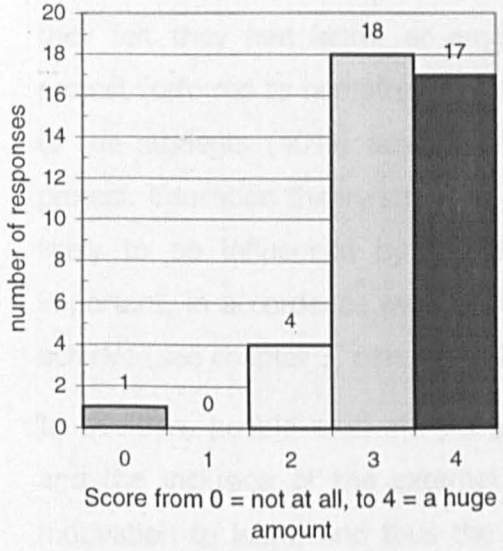

Fig.3

Student Responses to record how this compares with other projects.

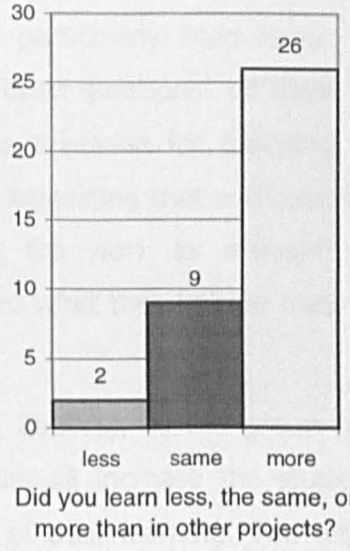

Fig.4

The high enthusiasm levels are fundamental to the students' level of learning and their engagement with the project, and are more likely to lead to 'deep learning' (see ch.3, part 3.2.3.2).

Reality

As was found in the previous research stage, the enthusiasm seemed to be dependent on the perceived reality of the projects, the fact that they were producing something of use, for a real client/user, and in many cases the teamwork involved, as shown by the qualitative responses. This emphasis on the importance of the perception of reality was emphasised in the analysis by an independent observer of a different type of studio project to design a canopy using paper as the construction material:

'Many students did not perceive paper as a real building material. This led some to ask 'what am I doing this for?' and their motivation remained low. Perhaps the perception that something is 'real' is more important than whether or not it is, since a link to reality appears to induce motivation, which in turn might sustain creativity.' (Morrow et al, 2001:5)

This is supported by a quantitative analysis of the open-ended questions: 46 of the respondents (61%) mentioned the influence of reality or the live-ness of the project in one of the open-ended questions regarding why they chose the project, what they expected to learn, what new skills/knowledge they felt they had learnt or anything they particularly liked about the project (referred to hereafter as the 'positive open questions'. Of these, 30 of the students (40%) actually cited this as a reason for choosing the project. Education theory supports this idea, suggesting that enthusiasm is likely to be influenced by students seeing the work as relevant and important, in accordance with their values and what they believe they can achieve (see chapter 3, part 3.2.3.4).

In addition, people motivate people (Fisher, 2000:5), so the group-work and the inclusion of the external contributors all increase the students' motivation to learn, and thus the likelihood of their learning. The tutors' records in response to what they felt went particularly well support this. Two of the responses are particularly relevant:

'The students felt involved with the townspeople and were deeply committed to the project which helped the quality of the final projects.'

'Huge energy and enthusiasm generated by actually creating something themselves, in public, with real reactions.' (Appendix F, p 12-13)

This motivational emphasis is also supported by PBL theory, which states that *'the starting point for learning should be a problem...that the learner wishes to solve.'* This leads back to the need for the project to be self-directed wherever possible. Again, one of the tutors highlights this self-responsibility and the resultant responsibility that the students took as an aspect of their project that was particularly successful, and comments that a success of their project was *'the way that students took complete responsibility for the work (I.e. it was largely self-learning)'.* (Appendix F, p.12)

Choice

The enthusiasm levels may also be influenced by the fact that many of these projects are presented as options – so only those interested in the projects pick them (10 of the 75 responses stated that the reason for choosing the project was because it sounded 'fun' or 'interesting'). This highlights the possibility of the group being biased due to the self-selecting nature of the group who responded. For example the enthusiasm levels could be high due to the fact that only enthusiastic students responded. However, single examples seem to rule out this potential problem; of particular interest was one student who was entirely converted by the experience of the project. They chose the project because they thought it would be the *'best chance of doing minimum work in order to finish the dissertation'* and felt that they would learn *'not much really'*, deriding the project for being *'too realistic,'* and *'too limiting'* and stating that instead, they prefer *'proper architecture.'* By the end of the project, however, they said yes *'emphatically'* they would do the project again, that you couldn't really improve the project in any way and that they particularly liked producing 1:1 used *architecture* (the use of the term architecture being important here). They learnt more than usual in 13 of the 18 categories on the Likert scale, and their enthusiasm levels went from less than in other projects (before starting) to more than in other projects (during the task). This really highlights the incredibly enriching experiences that some students gain from these projects.

Outside the Norm

In addition to this, students particularly enjoyed the physical construction and outside location found in many of the projects. The following quote is representative of what students liked about the projects: *'The fact that we were actually making things that will be used and have a purpose. Group work. The interaction with client and user, and the feedback from people outside the architecture department.'* (Appendix E, p26) One of the tutors highlighted the radical nature of this repositioning, by describing it as an opportunity to let students *'get their hands (and minds) dirty.'* (Appendix F, p1)

As in the previous sections, the projects are often highlighted as being outside of the norm (being described as 'different', 'interesting', or considered a 'rare opportunity'), with 14 of the students (19%) expressing this as a reason for choosing the project. In addition, the often different location of the projects (literally outside the studio) were seen as something particularly enjoyed by the students, as highlighted by one of the student's responses to what they particularly liked about the project they were involved in: *'Getting out in the countryside. Staying somewhere else. Physically getting your hands dirty.'* (Appendix E, p.26)

The active and hands-on nature of the work is also highlighted by 24 students (32%) in the positive open questions, with 10 of these (13%) expressing this as a reason for choosing the project, and 9 students recording this as something they particularly liked. These proportions are actually fairly high, as only 4 of the 9 projects involved hands-on construction, constituting 30 of the 75 responses. This means that 80% of those involved recorded this as something particularly positive. They particularly highlighted the way that the hands-on nature of the project contrasted to other elements of the course, as a couple of responses to why they chose the project show:

'The idea of being able to build what you have designed appealed more than doing another drawing-based project.' (Appendix E, p.3)

'I'm currently, and will be for the duration of this project, finishing off my dissertation. This project offered a more hands-on, actual building

approach, which contrasted nicely with my other time spent writing.' (Appendix E, p.4)

These quotes support the suggestion made in the first research stage, that hands-on work can provide a beneficial contrast to the rest of the studio work, increasing students' energy and enthusiasm, but that its benefit lies in the contrast, as much as in the nature of hands-on work itself. This is no new idea, as founders of the polytechnical model of learning and teaching (in the French École Polytehnique), writing in 1794, mentioned that *'the combination of spectacular and attractive physical and chemical experiments in the laboratory with more placid and abstract mathematical and geometric operations in the studio...provided not only an important variety in class, but also that the interrelationship between these two different didactic methods served to encourage interest and in a sense created a "double" motivation.'* (Pfammatter, 2000:45)

Group-work

Group-work was again something that was highlighted as one of the learning outcomes of these projects, with 23 respondents (31%) citing this in the open-ended questions as something they either expected to learn or as a skill they did develop in these projects.

This was further supported by the Likert scaled questions, in which 80% of respondents recorded a high level of learning in team-work, (scoring 3 or 4) and 60% of these scored 4 (the top score, representing that they learnt a huge amount) (see fig.5). 82% responded that they learnt more about team-work than in other projects, with only 1 student recording that they learnt less than in other projects (see fig.6). All but one of the tutors also felt that students had learnt 'a huge amount' about team-working. One of the tutor responses suggested that the success of the group dynamic in their project was due to the project being live. As with the project in the previous research stage, perhaps the responsibility that the students felt for the work they were producing caused them to pull together 'for the good of the scheme'.

Student responses to the question *'How much did you learn about team-working?'*

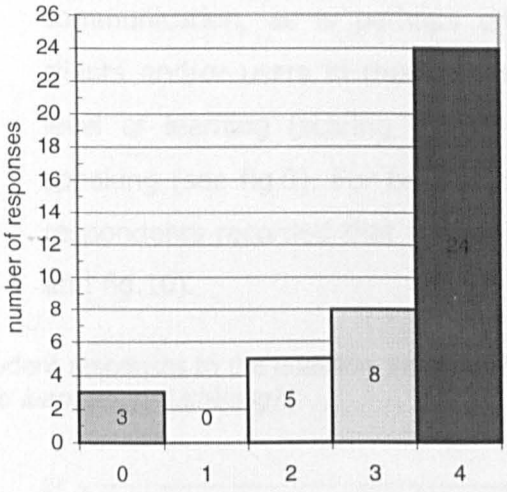

Fig.5

Student responses to record how this compared to other projects

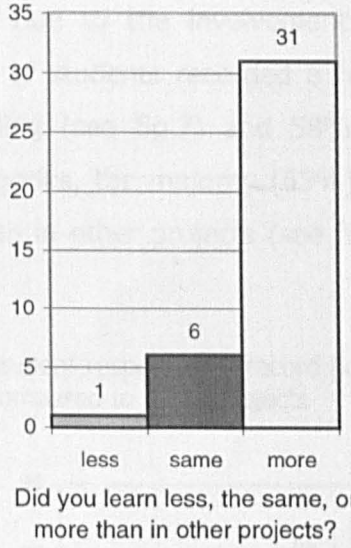

Fig.6

Interestingly, the group-work was also something that was fairly frequently a cause for problems in the projects, with 13 students (17%) highlighting group-work in some way as being something they disliked about the project. These responses tended to describe the group dynamic, or the group decision-making process as problematic, with comments such as *'the amount of time it took to make decisions'* or *'some students dominated all the discussions'* being something that students disliked about the project. In the one project where the students worked in interdisciplinary teams, the tutor recorded this as being unsuccessful, with each discipline working in isolation of the other.

The less successful elements of group-work should not however devalue the general result that skills in team-working were seen to be developed. It is important that developing team-work in general was seen to be a success, as it was something that was highlighted by the literature as being fundamental to successful professional practice. The problems that the responses highlight expose the unequal power relations even between students and will need to be addressed in the development of best practice for live project implementation.

Communication skills

The concept of developing skills in communication that emerged in the previous sections of research was also supported by the survey. The learning focus was on listening and speaking, rather than visual and written communication, as is perhaps unsurprising due to the involvement of clients and/or users in these projects. 75% of students recorded a high level of learning (scoring 3 or 4) in listening (see fig.7) and 58% in speaking (see fig.9). For both of these categories, the majority (63%) of respondents recorded that this was more than in other projects (see fig.8 and fig.10).

Student responses to the question *'How much did you learn about Listening?'*

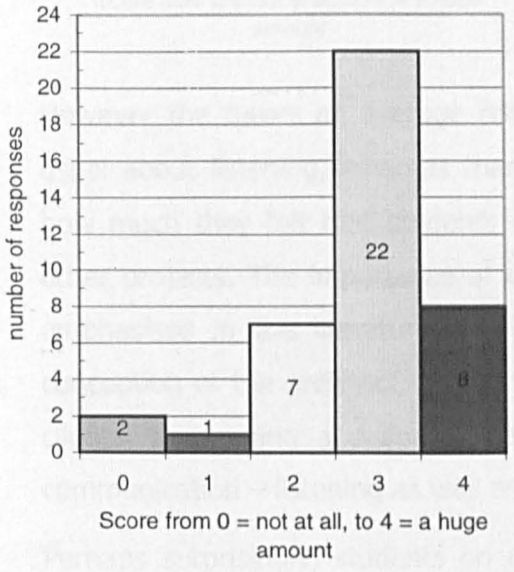

Fig.7

Student responses to record how this compared to other projects

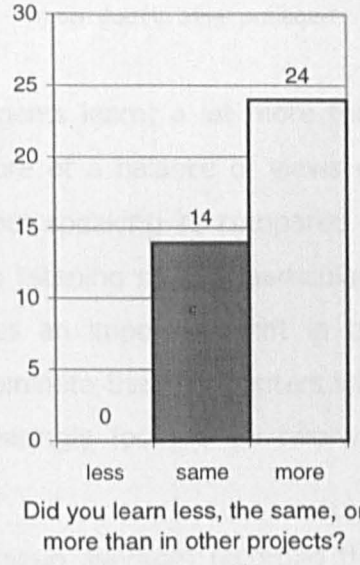

Fig.8

Student responses to the question *'How much did you learn about speaking?'*

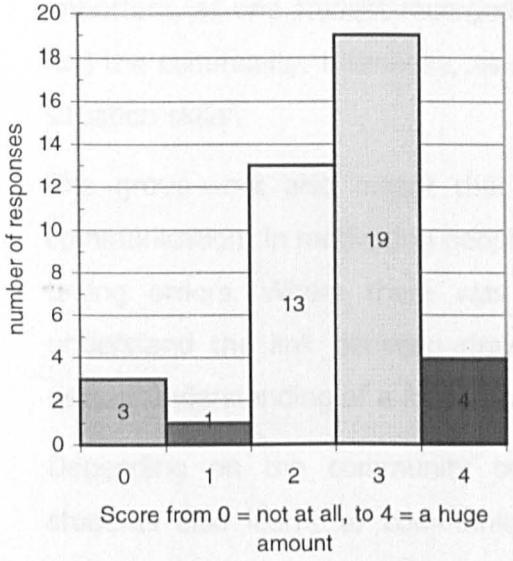

Fig.9

Student responses to record how this compared to other projects

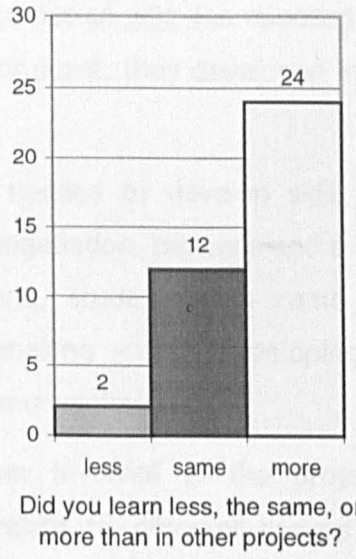

Fig.10

However the tutors on average felt that students learnt a lot more than usual about listening, whereas there was more of a balance of views on how much they felt that students learnt about speaking as compared to other projects. The importance of developing listening skills is particularly emphasised in the literature and emphasises an important shift in the conception of the architect, from trying to dominate their encounters with clients, to opening a dialogue that is increasingly focused on two-way communication – listening as well as speaking.

Perhaps surprisingly, students on average (mean average) recorded that they learnt more than usual in visual communication, although the most common answer (modal average) was that they developed this skill the same amount in other projects. Written communication was underdeveloped however, with the majority of students recording that they learnt less about this than in other projects.

The subtleties of the kinds of communication developed were exposed in the open-ended questions. Students recorded that they had learnt to communicate with clients (referring to both questioning and listening and discussion), understand their viewpoints and design ideas, work with their information to develop the brief, and integrate these into their designs – an example of two-way communication. In some of the projects, students

specifically learnt how to implement community consultation and presentations to 'laypeople' and in general, students recorded developing an understanding of the client and user's role. Their wording was important, as one student recorded learning to design with (as opposed to for) the community. Ultimately, as one student put it, they developed 'real situation skills'.

The group-work also meant that students needed to develop skills in communication: in motivating people, group negotiation, patience and even taking orders. Where there was 1:1 making, students also came to understand the link between drawing and making – thus developing a deeper understanding of a form of visual communication.

Depending on the community or client/user involved in the project, students also learnt to communicate and relate to different groups of people, by working in the community, with children, or people with cerebral palsy; one of the tutors responses referred to the students' *'communication/relationships with the client'* (Appendix F, p12) as something that went particularly well in their project. This is linked to the development of empathy and the breaking down of prejudice, which was highlighted in the reflective ethnographic account, and seems to be supported in the responses of some of the students in the open-ended questions. Students developed an understanding of communities that might be outside of their fields of experience so far; such as learning *'about a special school'*, *'about poor communities and their problems'*, design from a child's perspective, the public perception of architecture, and further developing their understanding of user needs/desires in general. A few of the respondents specifically mentioned the altered perspective they developed through designing for people and the effect of architecture on people.

Best practice will ensure that the experiences and values of the 'others' introduced are made the most of, by celebrating individual viewpoints without deeming one to be superior or dominant to another. In this way, with a broad range of others introduced into architects' education, the studio can begin to address the demands of inclusive design – to recognise the diversity of users and thus highlight the need to counter exclusion. In

addition, the inclusion has the potential to resist existing positions of domination in the studio by giving voice to others and practices 'outside' of the norm. Unusual and different perspectives can then help to expose the way that all perspectives are partially defined by configurations of class, race, ethnicity and culture – an issue that also needs to be explored in the group-work.

User Needs

This concept of understanding others was strongly supported by the quantitative questions, which found that 95% of the respondents felt they had developed more of an understanding of user needs than in other projects, with the other 5% recording that they had learnt the same (see fig.12).

Student responses to the question *'How much did you learn about users needs?'*

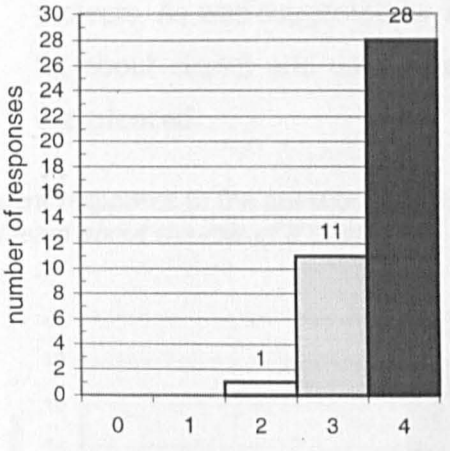

Fig.11

Student responses to record how this compared to other projects

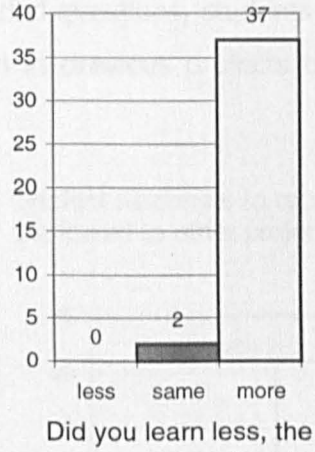

Fig.12

The tutors had the same view, with all but one recording that students had learnt more about this than in other projects, the other one again recording that they had learnt the same (i.e. there were no students or tutors who felt that they had learnt less than in other projects). 70% of the students recorded that they developed their understanding of the users needs by 'a huge amount' (see fig.11).

Given the emphasis in the literature on the need for architects to develop their skills in working with clients and users, the strength of these

responses really provides a strong argument for the inclusion of live projects in architectural education. If indeed *'the quality of a school can be measured by the quality of its communication'* (Ch 2, p24) then these live projects must help to foster a high-quality learning environment.

The amount that students generally learnt in some of these other areas linked to communication is supported by the quantitative data. The majority of students also learnt more about the role of the client, developing a brief, and working with other disciplines in this project than in other projects (with user needs showing the strongest result).

Role of the Client

An understanding of the role of a client was also felt to be strongly developed in these projects, with the highest number of respondents scoring that they had learnt a 'huge amount' about this, and 79% recording that they learnt more than in other projects (see fig. 13 and 14). *All* of the tutors recorded that students had learnt more about clients than in other projects. As was suggested by the open-ended questions, students learnt a lot about clients and users and more than in previous projects they had experienced.

Student responses to the question *'How much did you learn about the role of a client?'*

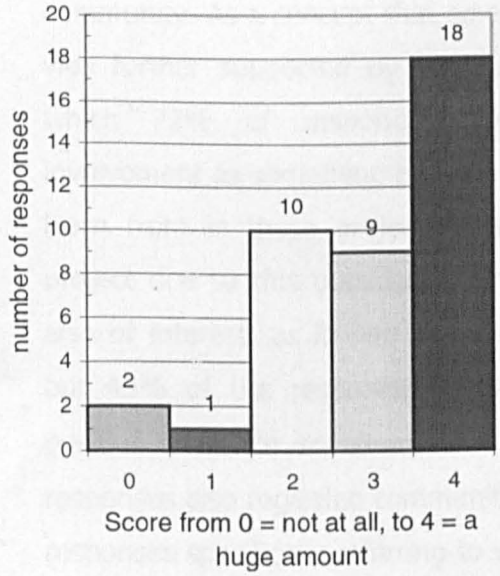

Fig.13

Student responses to record how this compared to other projects

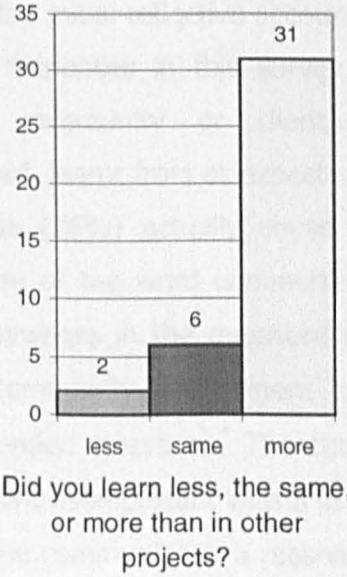

Fig.14

The emphasis on communication and understanding clients/users is in contrast to the traditional studio model which excludes this element from the design process altogether (the brief provides the only suggestion of a client's input, and the tutor and student have to imagine the rest). This is even acknowledged by Schön (with Agyris) who comment that *'the traditional studio doesn't address the problem of stimulating the client/architect relationship at all. It keeps it under the rug.'* (1974:142) The introduction of a client or user therefore significantly shifts the focus. This transformed perspective responds to the critical feminist demand for architectural education to become more empathetic and inclusive. However, this perspective highlights the need for experience and any additional teaching in communication skills to be backed up with more equal and collaborative relationships between tutors and students. This may well be inherent in the live project setting, as one tutor suggests: *'Live projects force the collaboration of tutor and students because the outcome is so contingent and not determined by the tutor's prejudices.'* (Appendix F, p13)

Involving Others

A high level of learning about clients, users and communication, was generally achieved through the projects involvement of 'others' from outside of the university and often the students' involvement with another community. As a concept that emerged from the initial reflective account, it was further supported by the open-ended responses in this survey, in which 72% of respondents mentioned community or client/user involvement as something they particularly liked, learnt from or expected to learn from in these projects. Many of these (36%) actually chose the project due to this outside influence. The use of the word community is also of interest, as it was not mentioned anywhere in the questionnaire, but 43% of the respondents referred to community involvement as a positive influence somewhere in the open-ended questions. The tutors' responses also regarded community involvement as important with 3 of the responses specifically referring to work with the community as a reason for setting the project.

One of the benefits of external involvement seems to be the motivating force that it gives students. It seems that for many students the involvement of others, or the production of something that is of value to someone outside of the university increases their perception of the relevance and meaning of the project. Students from the Paces project recorded (in addition to their questionnaire responses) that it was good to do something worthwhile. Again, this concept is further supported by the previous research stages. Where the work has real consequences, the choices made will also have a moral and ethical significance, the importance of which is emphasised by the feminist literature.

The positive impact of working with others was not however as well developed in the inclusion of other disciplines, which was highlighted by both the Latham (1994) and Egan (1998) reports as being important for the development of the profession. Only the public art project and the Kelham project involved other disciplines as specialists, but these did not really involve the students in working with these other disciplines, rather used them as one-off consultants. It is clear that a potential of live projects in involving interdisciplinary teamwork is not being exploited. This is disappointing, not only for the individual projects, but also in the light of the construction industry's need for professionals who are skilled at working in interdisciplinary settings (see ACBEE, 2003). In addition, there is the potential to use these encounters as transformative, to expose differences and question assumptions.

Process versus Product

Also supported by the previous research, is the focus that live projects have on process in addition to product. Of all the responses, only two mention the result as something positive that they experienced the project, whereas all the other responses referred entirely to aspects of the process in what they had learnt or particularly liked about the project. This shift is also perhaps supported by the reduced use of the traditional crit – an event which tends to focus on the product of the studio. Instead the focus was on the process and working together to complete the task, as is apparent in the following tutor's comment:

'The review process was less 'critical' than a hypothetical project. Encouragement to complete the task on time was critical here and encouraging the team dynamics so everyone felt a part of it was very much on the agenda.' (Appendix F, p.12)

This is a positive shift, as although ultimately the product is important, there is a need to balance this with the learning inherent in the process in terms of education. It is also important to balance the product focus of the rest of the studio and the profession. Architectural production is not a discrete event, but rather a long and integrated process that involves ethical interventions. Acknowledging this in education is important if we are to develop practice to be more inclusive.

Minimised Tutor Emphasis

Another attention shift that occurs in the previous two research stages is the emphasis on the client or user as opposed to the tutor. This is also apparent in the open-ended questions in this survey. A simple analysis shows that over four times as many respondents mention the clients or users as something positive in the project as mentioned the tutor involved. Looking at the actual content of the responses also reveals that where the tutor is cited, they are mentioned as a reason for choosing the project, whereas the client or user involvement is cited as something that was learnt from, or was something they particularly liked about the project.

Real Design Constraints

As was found in the second of the research stages, many students refer to the additional constraints imposed by the live aspects of the projects as a positive thing to be worked with. About 25% of all the respondents mentioned these or their affect on design as something that they learnt about in the project, citing the challenges of managing construction and finances, resources, consultation, time and in general 'real issues' and occasionally mentioning the need to find a balance between each of these issues and 'design'. In particular a couple of respondents mention the balance between conceptual design and real issues, between paper design and reality, or the real and the theoretical. Tutors also acknowledge this as

a potential learning element in these projects. The following quotes as to what they expect students to learn are pertinent:

'That architecture is connected to forces outside the academy which they need to recognise and find strategies to deal with if they are to succeed in bringing about a built project.'

'That things do not always go to plan and coping strategies to deal with this...That design can be enriched by responding to real and sometimes unforeseen constraints.' (Appendix F, p.2)

This real context to design work means that students will remember what they learnt for longer, and will be able to retrieve it more easily in the future (See ch3, p19). The involvement of contingent contextual influences also means that the projects are more relevant to practice (at least in their contingency) than are traditional studio projects. This relevance is seen by PBL theory as crucial; in contrast to the traditional studio project, students are forced to deal with the indeterminate and swampy problems of the real-world, that are characterised by uncertainty, uniqueness and value conflict. It seems that students relish the opportunity to design within the (changing) constraints of client, budget etc. They seem to thrive on the challenge of uncertainty. In this way these projects may go some way to help students to feel better prepared for practice.

Range of Learning Outcomes

As is suggested by the range of responses in the open-ended questions, there is a large variety in what students get out of these projects. As one of the tutors acknowledged in her questionnaire, her assessment has to be slightly arbitrary as some students benefited more from the project than others. The need to acknowledge that different students learn in different ways, and the importance of students finding personal relevance in the work they are doing means that we should not discount the value of concepts that emerge from only limited numbers of respondents. However, where the concepts which emerge from the qualitative questions overlap with the questions asked in the Likert-scaled questions, there is often shown to be a high level of support for those concepts.

Alternative Reviews

It is interesting to note that these projects often don't have the type of reviews typically found in more traditional projects – when the discourse is taken out of the studio and others are participating, the typical adversarial review in which the esoteric language of theoretical architecture flourishes no longer seems appropriate. The diminished position of power of the tutor is also an issue. It is apparent from the descriptions of the reviews implemented in these projects that a standard alternative has not yet been developed. In addition, the feedback comments imply that the alternatives are not necessarily seen as successful. It is here that the projects perhaps most need to develop. Instinctively those involved feel that the typical review is not appropriate for these projects, and yet a viable alternative has yet to be developed. This will perhaps evolve with time, but in the short term, best practice will need tutors to be aware of the potential shortcomings of the traditional review with regard to these projects, and will be open to other alternatives, inspired from architectural education literature, other fields of education and open to revision and development in practice. These new practices might include public exhibitions of the work with feedback sheets posted below for all to contribute to (clients/users, tutors and students), structured student-led reviews – which focus on the learning involved in the process as much as the product, or introducing the clients and users into the review[5] (this is something frequently requested by students – see Anthony, 1991 and Wilkin, 2000). One of the tutors in this survey also suggested a *'debriefing session with the students in order to find out what they learnt from the project.'* (Appendix F, p.12) This principle is supported by the education literature, which emphasises the importance of reflection in order to learn from the experiences involved.

The need for tutors to be aware, critical and reflexive of all aspects of these projects is highlighted by the need for alternatives to the traditional review. Best practice will see the tutors themselves being reflective and reflexive in the implementation of the projects – able to step in and provide challenges, questions, assistance as time for reflection at crucial moments;

[5] For further descriptions of these and other suggestions see Doidge et al, 2000:87-107.

the lack of predictability and control in these projects making this reflexivity all the more essential.

This questioning of the review process also suggests implications for the role and place of assessment and evaluation in live project work. The nature of group-work, the absolute dedication and enthusiasm of students, and the changing criteria of the projects all make marking particularly problematic. As a result, many projects simply suspend assessment for the duration of the project, or focus on one particular aspect of the project, such as communication (in live diploma projects at Sheffield University assessment is based on the success of the students communication in presenting their work to clients). Again it is clear that tutors need to be critical and reflexive in their approaches to assessment. The approaches used also need to be made explicit to students.

Improvements to the Projects

In assessing how these projects could be improved, the questionnaire first asked if there was anything the respondents particularly disliked about the project. There was a high level of conformity in the responses, with many students referring to issues to do with the timescale of the project and many mentioning the problems of group-work. There was a feeling that the group-work often meant that a lot of time was wasted in making decisions and in trying to work as a group. A few individuals also found that the work was dominated by some students, with one respondent finding it difficult being told what to do 'by a non-expert'. The tutors also support this view, finding that the work was rather chaotic or disjointed by the group work. A couple of tutors highlighted the problem that time constraints meant that valuable learning opportunities were lost.

The problems experienced in the group-work possibly expose a lack of experience and guidance for students in working in this way. There is potential then to improve the learning experience of those involved by providing structured workshops and teaching around how to manage working in groups as suggested by one of the tutor's responses. The tutor may also find an additional role in guiding the methods and structure of the group. However it may be that through experiencing the problems of group-work, that students developed their ways of dealing with it, in a way

that is supported by PBL theory, that reminds us that contrary to students needing to have the knowledge required before they start the problem, instead the skills needed would be developed through working with the problem. This implies that perhaps reflective discussion sessions might instead be appropriate, to allow students to come to their own solutions for group-work.

The view that the group-work needed to be improved was often combined with a view that the working methods were inefficient and one student felt that they had a lack of guidance in the process of the project, whereas another blamed the structure of the unit. Different projects were found to be too long, or too short meaning that students had to carry on beyond the deadline in order to finish the project. This is a potential issue in live project work as the contingent nature of outside involvement means that the project may overrun, or indeed change from the original expectations of the project, thus needing extra time. This was highlighted by one of the responses that recorded that time limitations restricted further developments of the project.

Although this is perhaps inevitable, it is possible that careful timetabling of such projects with additional time for over-running and/or additional work that could minimise the 'lull' periods of the project could allow more flexibility of timing. Alternatively, these problems could perhaps be minimised by the running of the project over a longer period, but alongside other studio projects, as suggested in the previous research stage.

In recording what additional work was involved in the implementation of these projects, it is apparent that the tutors are also relocated outside of the university setting – needing to liaise with the client/community. This is seen to involve extra time – in developing the brief and budget, in getting the client/community on board, in planning timescales and other logistics. In addition, one project involved arranging additional workshops. This highlights again the potential weakness of live projects in the contemporary university setting, in which staff time is severely restricted.

When studying the changes that tutors would make were the project to be run again, it is interesting to note some contradictions to the previous findings of this research. Most notable is the increased level of control

proposed in a couple of the responses, with one tutor proposing *'much tighter control over [the] group of students – making sure they followed the brief much more closely.'* (Appendix F, p.13) This seems at odds with the students' enjoyment of their responsibility over the projects in general, as well as education theory's emphasis in the importance of self-directed learning. This disjunction exposes the possibility that wherever the project is seen to be less successful, tutors will naturally want to take more control of it, whereas in contrast, a handing over of responsibility, coupled with structured time for questioning and self-reflection may be more useful. This more structured approach to enabling self-responsibility was supported by a couple of tutors' responses, who proposed increasing their input in enabling peer discussion and reviews in order to understand the project's relevance.

In addition, the need for clear assessment criteria was highlighted, the need for more user involvement again recorded and the importance of documenting the project emphasised in the tutors' records. These proposals re-emphasised the tutor's role as facilitator to learning. They highlight the point that although students may have more self-responsibility in these projects, this does not mean that tutors are somehow not needed. Rather it emphasises the tutors role in initiating the project, encouraging critical reflection, providing support and asking pertinent questions to expose important issues. Students will also draw on them for experience and expertise. This will best happen when all of the group (tutors and students) are working towards a common goal – the focus of the project.

Due to the relatively small numbers of responses for some of the projects in this survey, it is not really appropriate to compare between projects, as comparing percentages derived from such small quantities of responses would have little significance. What however is shown by this cross-project survey, compared in addition with the previous two research stages, is the level of conformity in the concepts to emerge. This is particularly clear in the following summary and implies that we can be confident that the findings are transferrable to other live projects.

5.2.3.5 Summary

The concepts to emerge from this last stage of the empirical research are summarised under the 4 categories of:

1. The Educational Position of Live Projects

2. Learning Processes and Results

3. Student/tutor/community relations

4. Student perceptions

1. The Educational Position of Live Projects

- Live projects are undertaken in most schools, but remain outside of the norm, and difficult to track down, possibly due to their positioning outside of the typical studio.
- The live projects that are undertaken are highly varied in scope and content.
- The projects are positioned outside of the norms of the typical studio.
- The projects rejected the separation between real and theoretical, practice and education.

2. Learning Processes and Results

- Students show extremely high levels of enthusiasm, which are generally higher than in other projects.
- The enthusiasm is more likely to facilitate deep level learning.
- Students are highly motivated and energetic in these projects.
- Students' self-responsibility (where this happened) was seen as particularly successful.
- The projects utilise a context-based learning approach.
- Students learnt to deal with uncertainty and contingency.
- There was a diminished focus on the 'crit'.
- The projects led to increased levels of student responsibility.

- Students developed team-working skills, but the projects highlighted the need to further develop these.
- The students developed their communication skills, particularly in listening and two-way communication, but also in presenting.
- The approaches were people-focused and more inclusive.
- The focus was on process as much as product.
- The work was undertaken collaboratively rather than competitively.
- An understanding of the link between drawing and making (where making was a part of the project) was developed.

3. Student/tutor/community relations

- The projects diminished the level of tutor control.
- The projects facilitated a shift to dialogue-based communication in brief-building and designing within that dialogue.
- Students developed skills to communicate with a broad range of people and groups.
- Students developed empathy and understanding of different groups of people.
- The attention (and power) was shifted from tutor to client/user.
- Students developed an understanding of the role of clients and users, and more so than in other projects.
- The work integrated students into the community.
- This introduced moral and ethical issues into the work.

4. Student perceptions

- Nearly all students would relish the opportunity to do the same kind of project again.
- The work is perceived to have relevance and meaning.
- The perception of the project as being 'real' is fundamental.

- The contrast of the projects to the rest of the studio was a particularly positive element.
- The active hands-on approach to working was seen as very positive.
- The work was broadly transformative.
- Designing with real constraints was the inspiration for creativity.

Again, rather than contradicting previous findings from the research, this stage supports the issues developed in the previous research stages, and in many cases develops and deepens our understanding of these concepts. This final survey and analysis has thus provided clear theoretical understandings of live project work in practice, and how the understandings relate to the comprehension of this type of educational approach developed through the literature.

5.2.4 Discussion

It is apparent that live projects begin to address many of the proposals made in the literature in the way that architectural education could be developed. The increased emphasis on teamwork and communication (through the introduction of others and of collaborative working), the introduction of life-long learning skills (in self-directed learning, and the potential for critical reflection and interdisciplinary work) and the development of a more inclusive, integrated, empathetic, equal and nurturing design studio culture, and the far-ranging implications that these changes facilitate, all support the idea that live projects form a part of a paradigm shift in the conception of architectural education. This shift was exposed in Chapter 2 as moving from the current individualistic, competitive masculine model, to a more pluralistic, nurturing feminine model. The parallels between the proposed changes in the literature, and the concepts to emerge about live projects in this research is apparent when live projects are compared with the summary provided in chapter 2:

Summary from Chapter 2	Live Projects
communication and teamwork – the need for architects to develop their skills in working and communicating with others both within and outside the profession, by developing a focus on communication skills in the studio, by promoting team-working and co-operative learning and by introducing others into the studio;	Others from outside of the university setting were involved in the projects and this was a particularly successful element, enabling students to develop an understanding of client and user needs. The community involvement acted as a motivating factor. Through community involvement, the work is given meaningful consequences that heightens the levels of enjoyment and responsibility that students experience. The educational importance of this is emphasised by PBL theory (see chapter. 3, part 3.2.4.3). Students develop skills in dialogue – in two-way communication, which also challenges the position of domination of encounters with clients held by the model architect as supported by the traditional studio. Design is reconfigured as a dialogic process that puts people at the heart of the process. In this way, students are able to share the resources of the community, but also to give back to that community, in ways that could have far-reaching implications. Group-working was also particularly highlighted by the research as being a skill developed through the live projects, despite the recorded problems associated with it.

Life-long learning – the importance of the cotemporary professional being able to continue learning throughout their life in order that they be able to deal with the ever-changing demands of the profession, by allowing for self-responsibility in learning, by emphasising learning over teaching, through interdisciplinary learning, and by promoting reflection;	Life-long learning approaches were to some extent achieved in live projects by the self-directed nature of much of the work. This (in addition to the involvement of outside collaborators and the contingency of the outcomes) takes the focus of the work away from the teaching (and even prejudices) of the tutor, and thus focuses on the learning inherent in the situation as opposed to the teaching. The contingency of the projects also forces students to learn to deal with change, and thus students learn how to learn in different and changing environments. The involvement of a range of different people in the live project work provided some interdisciplinary focus, although this could have been further developed. Similarly, although critical reflection was developed to some extent through the 'outsider' position, it is here that tutor input could be developed to provide a stimulus to increased reflection.
Design studio culture – the proposal that this must be transformed in order to evolve a practice that is inclusive, empathetic and which breaks away from the current studio's isolation, by re-emphasising process instead of product, by providing a nurturing	The community involvement of live project work allows a social potential to the project, which provides the opportunity for students to develop empathy and break down prejudice including a broad range of people, from inside and outside the university environment, as well as with differing abilities. This inclusive approach acknowledges the contributions that all members of the community may make.

environment, by invalidating the myth of the genius, by exposing and diminishing dominating relations of power, by providing context and contingency, by including values and ethics and by breaking down the isolation of the studio as its own world	Live projects break away from the isolation of the studio, by fully integrating students into the 'outside' setting of the project. This outside position also led to the true involvement of context and contingency in the project. The design process became affected by the involvement of others and this context breaks down the isolated tradition of studio work. The projects were recorded to increase focus on the process, compared to the product, as well as providing a nurturing environment through teamwork and collaboration. The projects begin to invalidate the myth of the genius, by the emphasis on group-work, by the avoidance of the master-mystery model of studio tutorials described by Ahrentzen and Groat (see chapter 2, part 2.4.3) (tutors were instead collaborating as part of the team) and the empowering nature of the work. The position of domination usually held by the tutor was diminished due to the involvement of a client, the self-directed nature of the work, the emphasis on process and the repositioning of the work outside of the studio.

In addition, the 'outside', playful and active position of the projects, as comparable to Bakhtin's carnival (see chapter 3, part 3.2.2) does indeed seem to allow a critical detachment and awareness of the rest of the studio and the nature of the profession (a concept also supported by the literature on the Rural studio (chapter 3. part 3.3.5). This implies that live projects can be seen as liberatory; the projects enable the empowerment of

students, through the focus on self-directed learning, through supportive and collaborative group-work, through the increased levels of responsibility and the shift from tutor to client, teaching to learning and product to process. Students take control of their own learning and experiences and this shift is seen to enable a deep level of learning (see chapter 3, part 3.2.3.2). This perspective frames live project work as a critical project, that allows students to participate in the transformation of their world – of education, experience and ultimately practice.

The outsider position of the projects in the academy, and the contrast of live projects to the rest of the studio, which allow the projects to be critical, all help to contribute to the levels of energy and enthusiasm experienced by students. The empirical research clarifies that this carnival atmosphere, and the critical potential that comes with it, is dependent on this outside positioning. Much of the value of the live project experience lies in its contrast to, and disjunction with, the rest of the studio. It is therefore to their benefit that they are so varied in scope and content, but important to conclude that live projects should not become the only approach to studio work; live projects should be proposed as a supplement to the traditional studio as opposed to an alternative.

This perspective exposes certain aspects of the traditional studio as being inappropriate. In particular, the crit, as an opportunity for tutors to review and mark the project, is found to be unsuitable. Whilst this is acknowledged in the projects surveyed in the research, it is clear that effective alternatives need to be developed, that are more in line with the transformed perspective of live project work. Most importantly, the research showed that the value of these projects will be limited if students are not able to take control of the experience, and this was supported by the projects' rejection of the traditional crit process.

The empirical research supports the theory that there is a huge range of benefits to learning found in live projects. In many areas students learnt more than in other projects they had experienced and many of these subjects were ones that were considered by the literature to be underdeveloped in the traditional model. The benefits are shown to be broad in range, and reach beyond the learning achieved by individual

students. Ultimately live projects developed from more traditional studio work, however, the concepts summarised here show the way in which their inclusion may improve upon the traditional approach, and in addition suggest ways in which the traditional project may be developed.

5.2.5 Best Practice

In the analysis of the empirical research, the following guidelines are suggested for the successful live project implementation (these are brought together with the suggestions for best practice drawn from the literature in the final best practice report presented in part 7, at the end of the thesis):

In setting the project:	Make the project as 'real' as possible. In introducing the work, emphasise the reality of the project. Design in a flexibility in the timescales of the project (perhaps consider alternatives to the 'finite' timescales of traditional projects and/or design in overrun time and/or additional work for 'slow' stages. Carry out a thorough risk assessment and early contact with the community and police if necessary. Make any predetermined assessment criteria clear and explicit. Plan out the logistics well in advance. Liaise with the client/community to develop the brief (which can be further evolved by students and client/community in the course of the project). Ensure that the collaborators represent a diversity of social and cultural groups, including varieties of class, race, sexuality, gender and abilities. Find possibilities for interdisciplinary work.

In the process of the project and in specific discussion sessions:	Determine a group working protocol. Celebrate the individual viewpoints of all involved. Enable equal and collaborative relationships between tutors and students, among students and with clients/users/community. Develop a review and assessment process appropriate to the project (this could be developed in conjunction with students). Challenge whether the project needs to be marked at all. Facilitate opportunities for critical reflection. Ensure the project is thoroughly documented.
The role of the tutor:	Provide support – emotional and specialist. Be reflexive and aware in order to highlight, question and facilitate solutions to problems with the work in process. Consider providing workshops around how to manage working in groups, or structure support to facilitate successful group-work (perhaps through group-focussed assessment of processes. Expose relations of domination within the group-work. Hand over to students as much responsibility for the projects as possible. Trust students to rise to that responsibility. Work <u>with</u> students as a part of the team wherever possible.
At the close of the project:	Hold a debriefing session with the students in order to find out and make them aware of what they learnt from the project and its relationship to the traditional studio.

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CONCLUSIONS

From Passive Intellectualism to Intellectual Activation[1]

This chapter draws together all the elements of the thesis in order to build a theoretical picture of the live project in architectural education. This is used to suggest ways in which current architectural education practice might be developed. An attempt is made to broaden the discussion to suggest the wider implications – to the architectural profession, to educators in other fields, to clients and users and society as a whole. Suggestions are made for further research inspired by this study. The research proposes the theory that live projects provide an influence that is valuable for the development of the studio, to benefit students, tutors, the community, and ultimately the profession. This influence is found to be part of a wider movement for change, which is conceptualised - through an inclusive feminist position - as rebalancing the feminine with the masculine in the studio in a way that will be of benefit for both women and men.

Discussion

The findings of this research show live projects to be a valuable supplement to the current studio system. Issues of both how students learn, and what they learn are addressed, and the two are found to be inextricably linked. Students develop a range of attitudes and skills that can be seen to enrich, critique and develop those found in traditional studio work; developments that are strongly supported by contemporary

[1] *After a quote by Bruce Lanier, former Rural Studio student:* 'My experiences at the Rural studio forced a paradigm shift in my perception of reality, from passive intellectualisation to intellectual activation.'

education models. The studio once more establishes itself as a cutting edge model of education.

In addition to, and bound up with, the skills and attitudes developed in these projects, are the wider consequences of such changes. Live projects are found to be a part of a wider movement for change in architectural education, that sees a shift from a fundamentally masculinist model, that favours the abstract and theoretical, the isolated studio, individual and competitive working and self-referential values, to a more balanced approach, that also celebrates activity, difference, inclusivity and individual meaning and value. The changes drawn from the empirical research, and clarified by the literature, are discussed under the following headings:

- Active Approach
- Outside Position
- Inclusive Processes
- Design with Consequences

Active Approach

This thesis proposes that live projects are fundamentally liberatory: The active, critical and/or creative transformation of the society in which we live is a goal in nearly all live projects, from the scale of a conservation plan for an old building, to the design and building of a playground for disabled children. The transformative power of architectural production is established through real demonstration, rather than 'passive intellectualism'. Thus the traditional studio, whilst acknowledged to be an active site, is exposed to be a place of abstract theoretical and intellectual exploration in contrast to live projects' focus on the intellectual exploration and creation of the concrete and the real. This energetic approach to learning exposes live project work as a constructivist undertaking, which allows students to develop their own interpretation of the world through the cooperative discourse and activity of the project.

The dialogic methodology found in live project work affects the nature of the studio teaching. The focus on the activity of the experience repositions the learning emphasis from the teaching, inherent in Schön's model of the

studio, to the learning potential that is inherent in the experiences. This diminishes the hierarchy of the relationship with the tutor, thus allowing potential for dialogue, which is seen to be essential for both developing students' understanding, as well as moving that understanding beyond current knowledge – essential to the advancement of the profession. Students are able to become more self-directed in their work, which increases students' levels of initiative, and allows students to really take possession of the projects.

The active and hands-on work increases students' levels of energy and motivation. The research suggests that this is due to the variety and change of pace from the other studio projects. This rhythm is an aspect that can easily be incorporated into the studio programme (with or without the inclusion of live project work) in order to keep students' enthusiasm high. The varied scope and content of live projects, in addition to their contrast to the traditional studio, is therefore also a positive benefit.

Live projects reject the separation between real and theoretical, practice and education, drawing and making. This approach rejects duality and embraces complexity by uniting both sides through live project work. This implies a level of contingency and complexity of working that is hard to simulate, but greatly benefits the learning experience. Students learn to design with additional limitations, but rather than inhibiting creativity, these limitations can act as a spur to creative inspiration. The varied and changing contexts of the work also imply an increased relevance of the projects to practice, which is also important for the transferability of the skills that students develop, as well as for the students' perception of the relevance of the projects, and thus their levels of enthusiasm and in turn, their level of learning.

The energy is refocused onto the process of the project work, rather than the typical emphasis on the product. This revaluing of process in addition to product is important for the development of architectural practice. However, it is necessary to recognise that the emphasis on activity needs to be supported by time and value given to reflection on the experiences, and it is this completion of the loop in the experiential learning model that

is perhaps least successfully achieved in the examples studied. Activity must be supported by reflection.

Outside Position

The liberatory potential of these projects is heightened by their 'outside' positioning; the projects are outside the norms of the traditional studio, the work often goes on outside of the academy and the work is undertaken in collaboration with others from outside the school of architecture, and often outside the normal boundaries of the profession. This outside position means that the students are released from the 'hidden curriculum' of the studio: students can be both insiders and outsiders, allowing them a unique critical position. In being temporarily liberated from the established norms and processes of the studio and academy, and the relations of power inherent in that setting, students are able to truly experience from a new perspective, allowing fresh interpretations of their existing experiences and a release from the hegemony of the studio. This critical interaction is more likely to lead to 'deep' learning.

This outside position challenges the model of the technical rational university and the emphasis on prediction and control of the learning environment that is inherent within that model: the technical rational model attempts to define a coherent system of knowledge in order to precisely define and control the boundaries of the profession. This has led to a separation of the studio from outside influences (see chapter 2, part 2.3.3). Live project work counters this trend and moves architectural education into the post-technocratic model that acknowledges the importance of professional competencies in action, by involving clients and users.

The outside influence can also be seen to be a new challenge to the dominance of the studio tutor that has been in place since the introduction of the Beaux Arts paradigm. Students focus their energies on the needs and desires of the clients and users, as opposed to the studio tutor. Despite this, the projects are potentially teaching-time intensive, but need to exist in an environment that is increasingly cash-strapped and thus teaching-time limited. The important role of self-directed learning and

student responsibility that was so clearly highlighted by the projects needs to be exploited to minimise the tutor involvement required, whilst maximising the learning potential for students involved.

There is also potential for the self-directed, 'outside' approach to be taken further through the notion of problem-finding. This is achieved through students' development of the brief in conjunction with the project's external collaborators but could potentially be taken one step further by the students entirely searching out their own projects and finding their own collaborators for the projects. In this way the school may end up running a programme with similarities to the early American Community Design Centres.

The elusiveness and variability of the projects also means that it is difficult to establish an identity.[2] Therefore it is difficult to define a fixed role for these projects. This research aims to clarify both the definition and the role of these projects and aims to counter the live project's elusive position through publishing its findings. Again, the idea of an office to help to manage and implement these projects could help with this problem of identity, as well as enabling longer-term and larger scale projects to be explored.

In terms of learning, the outside position means that students learn in the context of the community, which brings additional meaning and value to the work, and provides a two-way benefit, in which the community benefits both from the work that students produce, and from the encounter itself. In this way, students both share the resources of society and give back to that society, thus helping in the development of all parties. This approach can be seen to support a critical feminist exploration of the everyday, which seeks the extraordinary in the ordinary, in particular allowing the educator as ironist to draw out the individual positions of the student (see chapter 2, part 2.4). This also accords with other learning theories, such as experiential learning, which teaches that learning is socially and culturally constructed and thus seeks out the un-named experienced through observation and reflection.

2 I.e. what actually is a live project and what are people's perceptions of the term?

Inclusive Processes

The introduction of the 'other' that is inherent in live project work means a shift in attention - from the traditional studio's inward, individualistic and competitive focus, to an increasingly collaborative, dialogue-based approach. In this way, the external influence breaks the loop of self-referential criticism that is exposed as being damaging to the profession, and reconceptualises design: from being an isolated activity in which the student and tutor alone impose their preferences on the situation; to being an inclusive and dialogic process. Best practice will see a representative cross-section of society included, and in this way, through the multiple dialogues that are allowed, architecture is able to become relevant to the society of which it is a part, thus challenging the current conception of architecture, in which use and other outside influences are seen to pollute; dirtying the purity of an otherwise 'pure' art form.

The model shifts from a conservative model of professional action (professional institution focused and unconnected with clients and makers) to somewhere between the radical and the realist (in that live projects often associate directly with user groups, who are often disadvantaged groups), but perhaps the less extreme position of the realist is more the norm, in which users are involved though participative approaches which allow the students as designers to retain their position as professional specialists. This shift in models of professional action mirrors the shift from technical-rationality to the post-technocratic model of professional education.

The inclusivity of these projects provides a huge range of learning benefits. Most significant of which is the emphasis on communication skills: Students learn more about listening and presenting – the basics of dialogue - than in other projects, and this is fundamental to the development of the studio, and ultimately the profession. Students learn to communicate and empathise with a broad range of people, which allows the projects a critical perspective: the projects can highlight issues of power and domination both within society and within the university; and moral and ethical issues are introduced into the work. The project is allowed to go beyond the immediate to create further benefits, by allowing the project to be a bridge

between school and practice, university and students, students and the community and studio and street.

The inclusive approach to the process of the project also allows a more collaborative way of working than found in the traditional competitive atmosphere of the studio. Students learn to work in teams, and whilst this is not without its problems, they do develop their team-working skills more than in other projects. This collaborative approach to learning increases students' motivation, as well as providing a more appropriate model of practice. In addition, it counter-balances the focus inherent in the traditional Beaux-Arts model in which competition is seen as essential to studio culture.

The potential for these projects to expand the collaborative approach to include interdisciplinary work has mainly been under-represented. Best practice would seek to include this additional inclusive aspect to the work, especially as it is seen by commentators on the profession to be essential to the profession's development.

The shift in focus – from competition to collaboration, from tutor-focused to client-focused and from isolated to inclusive also leads these projects to diminish their focus on traditional crit/review formats. Successful alternatives have yet to be developed, but the contrast to the traditional confrontational, tutor-led review will benefit the development of a more nurturing, democratic model of education. Best practice would perhaps allow students to take control of events such as the review and their criteria for assessment, and would focus on celebrating diversity rather than searching for 'best' solutions. This level of control may not be possible in all studio projects (as the assessment criteria are to some extent dependent on outside forces such as the RIBA) but the one-off nature of these projects makes it highly appropriate and possible for this level of self-direction to be achieved.

Design with Consequences

The perceived reality of live projects and their consequences significantly increases student engagement with, and enthusiasm for the work, thus implying a deeper level of learning than in more traditional projects.

Students are highly motivated and energetic and this influences both the quantity and quality of their work (in process and product) and of their learning, as when students are fully engaged, their true potential is released.

In addition, despite (or perhaps because of) the constraints inherent in real-world production, the levels of creativity in these projects are seen to be high. Students are inspired rather than inhibited by the real constraints found in the projects. The extrinsic value placed on the work by the clients/users for the projects provided additional inspiration. This acknowledges a link between creativity and value, in which creative outcomes need to be both original and of value. Whilst the traditional studio focuses largely on originality, the live project's inclusion of a client or user means the work is required to produce something of value, which allows a more complete picture of creativity that is seen to motivate students.

In working with reality and the consequences of action, students deal with the uncertainties and contingencies of real action. This enables students to gain experience in solving highly complex and changing problems, tempered by human action, which will enable them to transfer their skills more easily to work in practice. Students develop skills in the less glamorous aspects of design – learning to deal with issues such as time-management, budget control and building and planning regulations. Students learn how to learn, rather than learning a body of knowledge, which seems particularly appropriate in the context of the expanding knowledge base of the architectural profession. The academic value of practice is acknowledged, and in this way students develop an action understanding, or 'Phronesis' which allows them to work with the uncertainty, uniqueness and value conflict inherent in human action. It is the proposal of this thesis that this understanding will begin to diminish the feeling of disjunction held by many students when they first move into professional practice.

Professional practice may also benefit from a repositioning of the public's perception of the profession. Live project work forces students to come face-to-face with the consequences of action, both in the process, and the

product of architectural intervention. Students are forced to confront the issue that architectural production is not a discrete event, and that the processes inherent are fundamental to the nature of the ultimate product. Who is deemed to be the ultimate judge of that product is brought to the fore, and the demands of architectural commentators and the construction industry are met in the projects' refusal to allow the self-referential nature of much architectural criticism and production. The fact that those outside of the profession are involved in the processes, and judge the consequences of design action in these projects, denies the distance afforded by the 'objective knowledge' of the rational architect, as well as the 'subjective genius' of the artist architect. When students work in dialogue with the real, the mysteries of the profession are diminished as the processes of the work are exposed. This is healthy for education, and fundamental for the development of a more relevant dialogue-based profession.

Suggestions for Future Research

Whilst the research explores the notion of inclusivity and difference in the involvement of others, the individual differences of the students' backgrounds is not explored. A potential for future research is how the students' position may affect their experiences of live projects – such as which year they are studying in, and whether their experiences are affected by gender, class, race, ability and culture in ways that is different to other studio projects. In particular, it would be of interest to see whether female students found these projects to be more successful than other projects in the light of the conceptualisation of live projects as part of a feminist influence on architectural education.

The critical angle of this research, and its exposure of relationships of domination, is under-explored in relation to the commercial position of these projects. When the projects undertaken are for a client without funding, both students and clients are equals, indeed, in the case of very poor, disempowered communities, the students may be in a position of dominance, as the communities are entirely dependent on the goodwill of the students to produce something that will be of value to them. This

would be in strong contrast to a commercial position where the client holds the power of funding. The effect of the funding of these projects on the experiences faced by students and clients/users would therefore be a valuable area of future research.

The relationships of these projects to professional practice, as well as other fields of education could also be further explored. Further research might then be undertaken to record new practitioners' retrospective perceptions of the value of live projects they experienced as students, in particular to see if feelings of disjunction held by many students when they first move to practice is diminished. In the wider field of education, it would be of interest to compare other models of 'live' project based education to see whether lessons learned in other fields might be transferable.

The Wider Picture

The live project's refusal to separate the ideal and the real, the subjective and the objective mean that the projects naturally reunite the masculine and the feminine in a post-technocratic reconceptualisation of architectural education. In this way, live project work is part of a shift in architectural education that rebalances the feminine with the masculine. The traditional model of the studio is framed as a technocratic model, in which characteristics traditionally seen as masculine (such as the individual, autonomy, competition) have been positioned above those characteristics traditionally seen as feminine (such as cooperation, collaboration, nurture and inclusivity). It is acknowledged that current studio practice has already moved on from the traditional model, and that live projects are a part of a change that is already happening in which changes in the studio can be seen to be rebalancing the feminine with the masculine. This re-balanced studio celebrates both the masculine and the feminine in a way that is of benefit for both women and men in the development of the studio and ultimately the profession.

This reconceptualisation emphasises the importance of the live project being included as a supplement to the traditional studio. However, it also suggests ways in which the traditional studio might develop in addition to the inclusion of live project work. These developments include introducing teamwork into studio projects, including others in the studio, breaking

down and critiquing the relationships of power inherent in the studio setting, allowing students more self-responsibility and providing opportunities for reflection on learning and the design process as opposed to the product. The isolated and competitive atmosphere of the studio is exposed as problematic, and the students' encounters with tutors in tutorials and crits/reviews are highlighted as being potentially damaging – tutors need to become aware of the importance of enabling equal dialogue (as many already achieve). Finally, the research underlines the educative importance of the work being perceived to be meaningful by students, which suggests that attention is needed both in the development of studio projects, and in their presentation to students.

The changes implied redirect the motivation of the profession to be more relevant and connected to the society of which it is a part. This will be empowering for clients and users, but also for architects, as a dialogic relationship between the profession and the wider community is developed, in which both parties may learn and benefit from the other.

The research highlights the value in finding a place for learning that is somewhere between the studio and the street. Through the live project, architectural education is once again an inspirational model on which other forms of education may draw.

BEST PRACTICE REPORT

A guide for the implementation of live projects in architectural education

Introduction

This report draws on the findings of the thesis to propose a guide for the successful implementation of live project work in architectural education. It draws on the critical position of the research, rather than claiming a position of objectivity. The proposals are presented under the following four stages:

1. **Setting up the Project** – including involving others.
2. **Introducing the Project,**
3. **In the Process of the Project** – including exploring the social implications, developing and reflecting on the learning process and the role of the tutor,
4. **At the Close of the Project.**

Finally, the barriers to implementation are summarised and suggestions made as to how they might be overcome.

Proposals

1. Setting up the project

- Set projects in authentic, real-world environments, making the project as 'real' as possible
- Aim to be involved in projects that will motivate students
- Reject the conventional divisions between education and practice, theory and practical
- Involve projects that are explicitly political and value-laden
- Design in a flexibility in the timescales of the project (perhaps consider alternatives to the 'finite' timescales of traditional projects and/or design in overrun time and/or additional work for 'slow' stages
- Carry out a thorough risk assessment and early contact with the community and police if necessary
- Introduce the project into the studio as a supplement to more studio-based projects
- Plan out the logistics (as far as possible) well in advance

Involving others

- Involve external collaborators in live projects to help to break down barriers between community and institution, by both taking students out into the community and bringing members of the community into the university
- Make the project accessible to a wide range of people
- Liaise with the client/community to develop the brief (which can be further evolved by students and client/community in the course of the project)
- Ensure that the collaborators represent a diversity of social and cultural groups, including varieties of class, race, sexuality, gender and abilities
- 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

- Find possibilities for interdisciplinary work

2. Introducing the project to students

- Emphasise the reality of the project
- Hand over responsibility for the project to students
- Make any predetermined assessment criteria clear and explicit
- Highlight to students that human interactions provide natural learning situations
- Emphasise the need for empathy when working with collaborators
- Emphasise the need for students to build upon their prior knowledge in order to tackle the project
- Ensure the project will be thoroughly documented

3. In the process of the project

Explore the social implications of the project

- Enable equal and collaborative relationships between tutors and students, among students and with clients/users/community, but also discuss and expose as problematic the power relations inherent in the setting
- Make apparent and reflect upon the need for social negotiation and mediation, how the project will affect the society and thus the inherent responsibilities and moral choices of such action
- Encourage multiple perspectives and representations of the content of the project by giving voice and value to all participants and encouraging a diversity of responses

Develop and reflect on the learning process

- Provide time for critical reflection in specific discussion sessions and more informally to assess the processes used and in particular to help students to become aware of their own learning

- Develop a review and assessment process appropriate to the project (this could be developed in conjunction with students), challenging whether the project needs to be marked at all
- Acknowledge and emphasise the role of the student in evolving the content of the project and what skills they will develop, to ensure they are relevant to each individual (even when the work is undertaken as a group), through self- or group- directed processes that are self-regulatory, self-mediated, and self-aware
- Require both expert professionals and students to make explicit the decisions they are making
- Promote and nurture a supportive, equal, democratic and collaborative atmosphere to balance the traditional individualistic competitive environment
- Acknowledge that learning is a holistic process: discuss and give worth to students' values and feelings
- Make a point of searching out the un-named as a part of the observation and reflection process to acknowledge the socially and culturally constructed nature of learning
- Encourage reflection upon 'live' experience before rushing into designing responses. In this way new experiences can act as a stimulus to learning, but new meanings may also be sought in old experiences. In working with the experience, further experiences are created that may or may not be helpful in constructing the former

The role of the tutor

- Develop the position of expert advisor and facilitator to the project, offering support, advice and enabling, rather than instructing
- Provide/enable formative assessment throughout the different stages of the project (in order that later stages may be informed by earlier experiences)
- Provide access to departmental support where needed

- Reflect on the way the project is progressing and be open to develop or change projects as a result of that reflection
- Be alert to find transformative pedagogic 'moments'
- Be reflexive and aware in order to highlight, question and facilitate solutions to problems with the work in process
- Consider providing workshops around how to manage working in groups, or structure support to facilitate successful group-work (perhaps through group-focussed assessment of processes
- Expose relations of domination within the group-work
- Determine a group-working protocol
- Hand over to students as much responsibility for the projects as possible and trust students to rise to that responsibility
- Work with students as a part of the team wherever possible
- Consider suspending assessment for the project or assessing the project entirely on the quality of the students' final communication of the work to the clients

4. At the close of the project

- Provide time for students to discuss how their own values may concord with or differ from those of the profession, the studio, the school of architecture and society – potentially leading to better future practice
- Encourage a discussion (and potentially action) of how these differences of values may be challenged and/or exposed
- Include all participants in any evaluation or assessments – this could help to give value to the participants, as well as diminishing the power of the tutor over the student
- Hold a debriefing session with the students in order to find out and make them aware of what they learnt from the project, and how this might differ to a more traditional studio based project

Barriers to Implementation

What has become apparent in the research undertaken is the potential for resistance against these types of projects, both from within the University setting, and from the profession (in the form of the RIBA and ARB's validation of courses). The outside position of the projects and the timing of the projects are particularly outside the norms of the academic environment. It is possible that this position be exploited in order to overcome any potential barriers to implementation. Live projects will best be introduced as occasional projects, which are included to complement and supplement, rather than replace, existing studio projects. In this way it may be possible to exclude them from the typical levels of prediction and control, as well as assessment of the rest of the studio.

If live projects came to be introduced on a regular basis, there may be a role for a member of staff, or even a project office, to provide an ongoing 'front of house' for the projects, providing somewhere for the community and others to go for help, sourcing potential live projects and managing the process, in particular providing a continuity for projects, potentially allowing projects to be 'dipped into' at different stages by different groups of students. In this way the timings of the projects would be able to fit into the existing academic framework, without compromising the projects from the point of view of the client.

Finally, the huge range of benefits in the experience of live project work exposed by this thesis can be used to make the argument that the inclusion of these types of projects are of benefit not just to students, but also to the profession and the community of which it is a part.