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**EMBEDDING LEARNER INDEPENDENCE IN ARCHITECTURE
EDUCATION:
RECONSIDERING DESIGN STUDIO PEDAGOGY**

VOLUME 1

DAVID McCLEAN

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**EMBEDDING LEARNER INDEPENDENCE IN ARCHITECTURE
EDUCATION:
RECONSIDERING DESIGN STUDIO PEDAGOGY**

DAVID McCLEAN

A thesis submitted in partial fulfilment of the
Requirements of
The Robert Gordon University
for the degree of Doctor of Philosophy

May 2009

ABSTRACT

Name: David Ewan Douglas McClean

Award: Submitted in partial fulfilment of the degree of Doctor of
Philosophy (PhD)

Title: Embedding Learner Independence in Architecture Education:
Reconsidering Design Studio Pedagogy

The landscape of UK Higher Education has witnessed significant change in recent years, characterised by rapidly increasing numbers, widening participation, and a diminished per capita resource base. Developmental and enhancement agenda have placed greater emphasis on skills for lifelong learning, and the independent learner has thus become a prominent theme. In architecture education these factors are imposing pressures on the traditional studio-based teaching model, one that forms a universal cornerstone of architecture schools. Coincidentally, the same period has seen this model, endorsed by Schön in the 1980s, increasingly challenged. It is argued that the confluence of these factors, presents an opportunity to develop studio-based pedagogy around the notion of the independent learner, renewing studio's relevance and currency.

The aim of this thesis was developed from a literature review that was divided into four sections. The first summarised developments within UK higher education, including research into the First Year Experience, and placed architecture education within this context. The second examined the origins of contemporary studio-based teaching, whilst the third discussed the theoretical roots of its pedagogy. The final chapter critiqued teaching and learning practices through comparison with the theoretical intent, revealing a number of contradictory and counter-productive aspects. From this, the position that the development of the truly independent learner in the discipline of architecture requires the formulation of new inclusive pedagogic strategies that explicitly accommodate the individual in the studio-based learning process, and address identified shortcomings in existing studio-based teaching practices, was developed.

The methodology adopted an ethnographic approach that gathered data through a longitudinal study of student perceptions, together with interviews with selected academics. Analysis of the findings, whilst replicating many phenomena raised by the literature, also revealed in detail a range of perceptions of learning, and wider student life, giving insight into key challenges. In considering these against the agendum of creating the independent learner, the importance of the peer group as a vehicle for studio-based learning and pastoral support, emerged strongly. A number of recommendations were thus made aimed at reconstructing the role of the tutor in the development of future strategies, as well as harnessing the unrealised potential of the peer group as an agent in embedding independent learning in design studio.

The originality of this thesis resides in the fact that it constitutes a holistic study of teaching and learning practices in first year design studio. This is viewed against the background of rapid change in UK Higher Education. Pivotal to the study was the undertaking of a longitudinal survey of student perceptions, presenting a vitally different perspective from, say, that of Schön. From a holistic standpoint, the study creates the theoretical and evidential basis for the future development of key pedagogic strategies relating to design studio. This lays the foundation for the development of learning practices that foster learner independence within the context of design studio.

Keywords: independent learning; architecture education; design studio; pedagogy; inclusion; first year.

DECLARATION

The candidate, while registered for this PhD, has not been registered for any other award at a university during the period of enrolment.

None of the original material in this thesis has been used in any other submission for an academic award. Acknowledgements for assistance received are given, and any excerpts from the work of others have been appropriately acknowledged by source and author.

.....
David McClean

30 May 2009

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Coming from a family of teachers, the origins of my indebtedness arguably extend very far back in time, although the appeal of a career in education was certainly present from an early stage. However, two people stand out as having profoundly inspired my desire to undertake this thesis; Robin Webster, who has acted as an invaluable mentor both as educator and architect, and who sowed the first seeds for this thesis in introducing me to the work of Donald Schön in the early 1990s; and John Brady with whom I first collaborated in studio-based teaching, and whose commitment and humanity as an educator left an indelible mark on me. My heartfelt thanks go to both.

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inadvertently omitting anyone I choose not to attempt a list, but I am confident they know who they are!

David McClean

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GLOSSARY

The following terms frequently appear within the text. In order to avoid ambiguity as regards their meaning within the specific context of this thesis, the following definitions are listed:

Term	Definition
Amonie	A state of recovery from culture shock, in which the individual shows signs of acclimatisation to the host culture or conditions (Brown, 2000).
Atelier	A studio under the direction of a 'patron' or master. In the Ecole Des Beaux-Arts there was often fierce rivalry between ateliers (Cuff, 1991, p.28).
Autonomy	Defined by Holec (1979) as 'the capacity or ability to take charge of one's learning'
Charrette	Working as long as necessary to complete a project (Cuff, 1991, p.110), from the French 'en charrette' in which students worked continuously for a designated time to prepare a project, often in intense conditions.
Cognitive style	Cognitive style is commonly described as a dimension of personality that affects values, attitudes, and social interaction.
Cohort	A peer group of students sharing the same course of study, and at the same level in terms of the course structure.
Concours	Competitions, taken from the French term associated with the Ecole des Beaux-Arts (Kostoff, 1977, p.223).
Design	Within this thesis, this term refers to architectural design, unless otherwise noted.
Design activity	Project-based design work undertaken within the design studio environment.

Design process	The process involved in developing architectural design proposals, involving analysis, synthesis, reflection and evaluation, in an iterative way.
Design skills	Those skills relating to the acquisition of, and ability to apply, a design process to a range of scenarios and conditions.
Design studio	A learning setting in which architectural design is learned, typically characterised by a socially interactive environment in which drawing, modelling and discourse takes place.
Design teaching or tutoring	Tutoring relating to the student acquisition and development of an architectural design process and skills
Espace transitoire	A transitional place or phenomenon, as defined by the psychoanalyst, D. W. Winnicott.
Esquisse	A sketch project, taken from the French term associated with the Ecole des Beaux-Arts (Kostoff, 1977, p.223).
Independent learning	<i>'Independent Learning is that learning in which the learner, in conjunction with relevant others, can make the decisions necessary to meet the learner's own learning needs'</i> (Kesten, 1987, p.3). Alternatively, according to Candy (1991) <i>'independent study is a process, a method and a philosophy of education whereby a learner acquires knowledge by his or her own efforts and develops the ability for enquiry and critical evaluation'</i> .
Learning Style	<i>'Characteristic cognitive, affective, and physiological behaviours that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment'</i> (Keefe, 1979. p.4).
Pedagogy	The activities of educating, teaching, or

Praxis	instructing; the science or profession of teaching <i>'informed, directed and committed action which forms the basis of social order'</i> (Hatten et al, 1997).
Problem Based Learning	A term used to describe a range of educational approaches that encourage students to learn through the structured exploration of a research problem (Higher Education Academy).
Self-directed learning	Defined as <i>'a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes'</i> , i.e. the motivation for independent learning (Knowles, 1975).
Student-centred learning	Student-centred learning <i>'gives students greater autonomy and control over choice of subject matter, learning methods, and pace of study'</i> (Gibbs, 1992). Alternatively, student-centred focuses on student learning, and <i>'what students do to achieve this, rather than what the teacher does'</i> (Harden and Crosby, 2000).
Studio-based design	Project-based design work undertaken within the design studio environment (as <i>'design activity'</i>).
'Tutor-centric' or 'tutor centred' learning methods	The opposite of student-centred learning, in which is learning is heavily prescribed and directed.
Tutor expectations	The formally stated learning intentions and outcomes as conveyed through the tutor team individually and collectively

SECTION A

INTRODUCTION

This thesis proposes that the development of the truly independent learner in the discipline of architecture requires the formulation of new inclusive pedagogic strategies that explicitly accommodate the individual in the studio-based learning process, and address identified shortcomings in existing studio-based teaching practices. This thesis further seeks to identify the key components to be considered in formulating an appropriate strategy in terms of the learning process and its management and delivery by academic staff.

The primary motivation for the work stemmed from many years of involvement in studio-based teaching, a fascination with its consistency and ubiquity, and a developing curiosity about the intrinsic processes of learning. This motivation was further fuelled by recognition of rapid shifts in the broader environment, educationally, economically, and professionally, and increasing questions about how these forces might be reconciled with an education in architecture that continues to harness the considerable potential of design studio in progressive and relevant ways.

The Political Context

Over the past 10 to 15 years the Higher Education sector has experienced change that is rapid, multi-dimensional and significant (inter alia Kogan and Hanney, 2000; Shaw et al, 2007). From a social standpoint, UK government targets for national school-leaver participation in Higher Education of 50% by 2010 (Abramson and Jones, 2002) create a greater emphasis on the inclusion of previously minority sectors of the populace. The accommodation and performance of students from these backgrounds has therefore become an issue that institutions are increasingly required to address. Government initiatives such as the Report of the National Committee of Inquiry into Higher Education (1997) have established a national agenda with respect to teaching quality, public information relating to learning processes, standards and expectations, and subject

specific benchmarks. Perhaps in response to such initiatives, the past decade has witnessed greater focus being applied to matters of pedagogy itself, and a louder and more active debate on how and why things are done as they are, what is most appropriate and, importantly, how improvements can be made.

Simultaneously, the concept of the 'independent learner' is one that is receiving much attention in the world of contemporary Higher Education. In the UK, both the Higher Education Academy (HEA) and the Quality Assurance Agency (QAA) subscribe to it and, through their activities, seek to promote independent learning and, critically, the structured development of the student skills required to achieve learner independence¹. Indeed, consistent with the concept of 'lifelong learning', learner independence is vital for the continued well-being, relevance, and perceived value of the professions in a period of rampant change.

With specific reference to architecture, the broad political agenda is imposing pressures that are challenging traditional pedagogies that have assumed the status of accepted orthodoxy, and their complex models and conventions deeply rooted in historic practices. At the centre lies design studio, at once an activity, an environment, and a culture. Gradually, a re-examination of traditional teaching practices is being stimulated. For example, a reduction in levels of resource is applying considerable pressure to the conventional and ubiquitous model of design studio, a model which has existed since architecture education was first institutionalised, and which many schools struggle to retain in its current form (Milliner, 2003; Rooney, 2005). However, this position assumes that studio as traditionally conceived and practiced represents something of an ideal, this idea itself being open to challenge.

¹ The focus on independent learning is evidenced by:

- Higher Education Academy online resource of publications and papers on the theme;
- QAA Enhancement Themes, including 'The First Year Experience' and 'Effective Learning Frameworks' including PDP and Personalisation; and
- Joint Information Systems Committee (JISC) reports such as 'Facilitating Independent Learning using E-Portfolio and Associated Support Systems'.

The Pedagogic Context

The fundamental pedagogy of architecture education is unusual in its virtually universal adoption² of the design studio as its principal learning medium and support mechanism (inter alia Rapoport, 1984; Dutton; 1991; Salama and Wilkinson, 2007). Indeed, design studio has formed the cornerstone of architecture education for nearly two hundred years (Lackney, 1999). However, prior to the work of Schön in the 1980s, little literature existed regarding its theoretical basis (Webster, 2001), and the pedagogies involved remain relatively unexplored (Salama and Wilkinson, 2007). Schön's analysis of the established phenomenon of conventional studio-based teaching practices, which formed a component of a thesis concerned with developing an epistemology of professional practice that countered the prevailing technical rational paradigm (Waks, 2001), is widely regarded as being of seminal importance. Its elucidation of the processes of reflection and 'learning-by-doing' in the development of knowledge in the context of the indeterminacy, complexity, and pragmatic reality of practice, revealed the acquisition and construction of professional knowledge through the combination of the accepted corpus of knowledge and lived experience. As studio-based practice is founded on constructivist theory where the background, experience, and perspective of the individual play a central role in the development of personal learning, the ability to construct one's own knowledge is therefore central to learning in architecture as well as to the idea of the independent learner. Indeed, the assertion made by Schön (1983) that design studio teaching represents a powerful model for professional education in other fields, relates to constructivist theory encompassing notions of knowledge acquisition through reflection and experience. Nonetheless, subsequent literature has challenged aspects of Schön's work³, both in terms of methodology and conclusion (Webster, 2001). Somewhat ironically, the fact that his study was methodologically based on observation rather than on student perception, has been questioned (Usher, 1997). Equally, the

² It is acknowledged that there are a few exceptions to the universality of design studio provision, most notably the Architectural Association in London.

³ Whilst advocacy for the value of design studio as an educational tool remains very strong, a growing but still relatively small body of research that challenges the comparatively undisputed qualities and characteristics of, and assumptions about design studio, has emerged over the last two decades.

failure to recognise the influence of power asymmetries in the tutor-student dynamic central to the learning process, suggests that his analysis of studio from a constructivist perspective was incomplete (inter alia Dutton, 1991). The critical interface between tutor and student determines the nature of dialogue and discourse, the degree to which the personal experience of the student is valued, and hence ultimately levels of dependency (Parnell, 2001). This thesis therefore adopts the position that due to commonly encountered behavioural and human factors impacting on traditional studio-based teaching practices, the pedagogy as enacted conflicts with the intended underlying ethos of constructivism and independence.

From the student perspective, whilst architecture as a subject is not unique in its lack of representation within the secondary curriculum, the lack of exposure resulting from this, coupled with the breadth and nature of its territory and the professional codification of its specialist knowledge, makes it a particularly challenging and frequently daunting course of study (Nicol and Pilling, 2000). The combination of this factor with the preceding argument for the enhancement of teaching practices to propagate independent learning, creates a compelling case for further development with respect to design studio teaching, as a means of ensuring its continued relevance and potency within a changing educational, political, professional, and social context. Indeed, it is proposed that whilst studio teaching as conventionally conceived is straining under the pressure of the prevailing resource climate, it is perhaps such contextual conditions that represent the agent for constructive change. Moreover, the need to attain a deeper understanding of the educational complexities of the sophisticated learning vehicle of design studio has been observed (inter alia Webster, 2004), such comprehension being key to its purposeful development and enhancement.

The Study

As outlined at the start of this introduction, the aim of this work is that the development of the truly independent learner in the discipline of

architecture requires the formulation of new inclusive pedagogic strategies that explicitly accommodate the individual in the studio-based learning process, and address identified shortcomings in existing studio-based teaching practices. The motivation for the study arose from receipt of a John Gray Award⁴ in 2003, for which a (intuitively driven) proposal had been developed for a support tool to assist comprehension of the studio-based learning process. Initial work quickly highlighted that for any model to be robust and meaningful, its theoretical framework required to be clearly established. This thesis therefore makes the case for new pedagogic strategies and models, and sets out the theoretical framework. In order to substantiate this position, the thesis adopts the following structure:

Literature Review

The research context and argument are established in a literature review divided into four chapters. Chapter 1 discusses the current challenges and drivers for change within UK Higher Education, and positions architecture education within this context. Chapter 2 presents the origins of contemporary architecture education, including the enduring tensions emanating from incorporation of professional education into the academy. More specifically, the Scott Sutherland School of Architecture and Built Environment in Aberdeen is introduced as the principal location for the research. Chapter 3 discusses the origins of contemporary studio practice together with the framework of learning theory that underpins it. In Chapter 4 this conceptual model is then related to the practice that typifies the operation of design studio in schools across the country and beyond, revealing differences between the pedagogy as theoretical construct and that which is typically implemented. Summarising the salient points from the literature review, Chapter 5 presents the research aim and objectives to conclude this section.

⁴ The annual John Gray Awards are made by The Robert Gordon University to fund proposed innovations in teaching, learning, and assessment, which are considered meritorious.

The Study: Methodology

This section consists of two chapters (nos. 6 and 7) that present the methodology for achieving the research objectives. This section includes the theoretical framework for the research, discussion of ethical considerations, the parameters of the study, the research methodology incorporating both qualitative and quantitative methods, data gathering techniques, data analysis, and discussion of reliability and validity.

Results, Discussion and Conclusions

This section consists of two chapters. Chapter 8 discusses the findings from the data analysis and, based on these, develops an argument relative to the research aim. Chapter 9 draws together the principal points from the research, and with respect to the stated aim, presents conclusions, recommendations, and suggestions for further research in the area of the study. As consideration of the varied and disparate learning needs and styles of individuals is implicit within the aim, this chapter makes reference to this in its conclusions, together with an assessment of the implications of enhancement in terms of staff skills, student understanding, and conditions with respect to the learning environment.

In addition to the above, a Section B contains Appendices, divided into 7 sections as follows:

- Appendix 1 Findings from Questionnaires and Group Interviews**
- Appendix 2 Analysis of Learning and Teaching Styles Inventories**
- Appendix 3 Analysis of Multiple Intelligences Indicator**
- Appendix 4 Some Current Thinking in UK Schools: Interviews with Selected Academics**
- Appendix 5 Commonly Prevailing Myths in Design Studios and Architecture Schools: AIAS Studio Task Force Report**
- Appendix 6 Suggested Further Research Incorporating the Jung's Dimensions of Introversions and Extroversions**
- Appendix 7 Schedule of Supplementary Information included on CD**

This enables the reader to view the data analysis in full, without compromising the fluency or structure of the main body of the work. Finally, a disc is included that contains for reference files containing the collated raw data from the various data gathering techniques.

Boundaries of the Thesis

Having defined the intentions and territory of the thesis, it is similarly necessary to define the boundaries and limitations of the study. Analysis of pedagogy and aspects of the student learning experience is necessarily complex and multi-dimensional in nature. This underscores the importance of the application of focus. Accordingly, the boundaries of this thesis are set out below.

The issue of course selection forms a fundamental part of the overall student journey. Preconceptions, expectations, and personal congruence are complex and significant areas directly influencing the early stages of the learning experience, and an incorrect choice of course has been identified as the principal factor leading to withdrawal in UK degree courses (Yorke, 2000). It is true that the application and pre-enrolment phase of the higher educational process can be significant in shaping early expectations, and hence may well be an area of valuable study. However, it falls outside the scope of this work, which focuses on the learning experience beyond enrolment and how this may be enhanced to better support the structured progression of students who are committed to architecture as an area of study.

Whilst consideration of the possible future or futures of the architecture profession offers a fascinating opportunity for detailed study and discussion (Foxell, 2003), and although clearly having a direct relationship to the academic locus of architecture education, investigation into these areas falls outside the scope of this study as it relates more closely to curriculum content than underpinning pedagogy.

Similarly, many variations and models exist for the structure and content of the architecture curriculum across schools of architecture in the UK and

overseas (inter alia Boyer and Mitgang, 1996). For the same reason discussion of this rich field lies beyond the bounds of this work.

Finally, there is no intention for this work to be a study of cognitive psychology, as the author offers no pretence of expertise in this area. However, given the acceptance of the conformity of design studio learning to constructivist theory (inter alia Cunningham, 1991), and the pre-eminence of Jung's Theory of Psychological Type and Gardner's Multiple Intelligences Theory (Silver, Strong and Perini, 2000), these have been selected as the theoretical armature on which the work is developed.

LITERATURE REVIEW

CHAPTER 1: HIGHER EDUCATION: A CHANGING LANDSCAPE

1.1 Introduction

This chapter forms an introduction to the literature in briefly summarising the UK Higher Education context that forms the principal backdrop to this thesis. The chapter also positions architecture education within this context, and identifies the salient drivers for change.

1.2 National Trends: The Context for Change in UK Higher Education

The nature of change within UK Higher Education (HE) over the last twenty years forms the background context to this study, as many phenomena and agenda at the macro level impact directly on teaching and learning in the specific realm of architecture. This section briefly summarises some of the salient issues.

1.2.1 Expansion of the Sector

'Nowhere in western Europe have the changes in the nature of the university as institution accelerated so rapidly as in Britain, where the pace and profundity of reform have perhaps been exaggerated because of its relative lateness in making the move from elite to mass higher education' (p.18)

Smith and Webster (1997)

The dramatic rise in student numbers within the UK university sector has arguably been the most significant change in recent times, with numbers showing a 4 fold increase between the late 1960s and the millennium (Blanden and Machin, 2004). Between 1995 and 2003 alone, student numbers in HE rose by 39%. Whilst the determinants of the scale of change are numerous as acknowledged by a number of commentators, including Kogan and Hanney (2000, 2003) and Machin (1996, 1998, 2003), a governmental target of 50% of school leavers going into Higher Education by 2010 has exerted strain on the sector, with a portion of the

cost of expansion being addressed by reduction in levels of funding support for individual students (Blanden and Machin, 2004). Reduction in available resources has also impacted on the quality of learning facilities, academic salary structures, and has heralded an increase in financial hardship throughout the student community (Smith and Webster, 1997).

1.2.2 Widening Participation

The Widening Participation agenda, with its origins in the Report of the Robbins Committee of 1963 (which recommended sector development), has received powerful backing from successive governments. Subsequently, the notion of social inclusion was explicitly addressed in the influential Report of the National Committee of Inquiry into Higher Education (1997), which commented on the low participation of those from poorer socio-economic categories, and recommended that this be addressed (Greenbank, 2006). The government White Paper 'The Future of Higher Education' (2003) reiterated political commitment to widening participation, citing economic and social justice as primary drivers for this agenda. Since the publication of the White Paper, Widening Participation has remained a priority (Chettiparamb, 2008). One of the key consequences of Widening Participation has been an increasing diversity within the student body, including ethnicity, socio-economic background, prior educational experience, etc, this leading to concerns being raised in some quarters that it brings with it contingent problems relating to academic standards and resource requirements (Shaw et al, 2007).

According to Rautuporp and Vaisenen (2001), widening participation results in two generic student groups; school leavers and 'mature students'. Winfre and Yaffe (2000) noted that broadly for the former group, the challenge of academic and social adjustment is augmented by psychological developments relating to the growth of independence and personal identity. Contrastingly, they contend that older students generally display greater motivation and sharper focus; these capacities being founded on the life experience acquired before entering higher education. Such capacities in turn enhance the ability to make new knowledge and experience meaningful, based on reflection on past events

(Kasworm, 1997). This difference can lead to the emergence of different patterns concerning perception of courses, retention, and so on; patterns that pedagogies require to accommodate and engage with.

The impetus to make university education more inclusive, offering opportunities to a wider section of society, has also impacted on architecture education. It has led to an increasing diversity of students in terms of social and cultural background, perceptions and preconceptions of the profession and of architecture education, expectations of the educational process, educational background, learning styles, etc. Whilst the richness derived from such diversity might be beneficial to overall student learning, the phenomenon of widening participation nevertheless poses considerable challenges for an educational process established ostensibly to serve a narrower grouping (Stevens, 1998).

1.2.3 The Independent Learner

Over the last two decades the university sector has sought to implement a paradigm shift from being a provider of teaching to a producer of learning (Skolnik in Thorne, 1998)⁵. Along with the drive to make teaching more effective, consideration of this in business terms portrays a shift from a supply-driven to a demand-driven model in which the student expects to develop learning in ways that acknowledge and accommodate their individual condition (Cormack, 1999). Whilst this shift has placed a general emphasis on means of developing independent learner cultures, many of the pedagogies adopted in institutions remain unchanged from the days of didactically oriented, more selective university education (Parnell, 2001; Bailey and Brannen, 2002; Webster, 2002). However, it would be inaccurate to suggest that the prominence of the independent learner agenda inevitably renders more traditional methods as redundant. On the contrary, many of these methods continue to have relevance, but require use alongside new methods that develop essential skills such as

⁵ It is noted that agenda such as developing the independent learner were prevalent in Secondary education in the UK in the second half of the 20th century, following the Education Act of 1944. Consequently, it is acknowledged that the Higher Education sector responded relatively slowly to these agenda. Whilst a very substantial body of literature exists on the development of secondary education in the UK, this lies outside the scope of this thesis.

reflection and meta-cognition, these being central to the independent or autonomous⁶ learner (Webster, 2002). Equally, however, it is proposed that the shift in philosophical emphasis imposed through widening participation will prove a challenge to many educators, not only in terms of the inclusive development of essential students skills, but also in terms of new skills and attitudes required of academic staff.

1.2.4 The Enhancement Agenda

With the funding of universities coming largely from the public purse, the resultant need for accountability and transparency has contributed to the emergence of a culture of enhancement and the desire to drive up quality and standards. This culture also enables a clear demonstration of value. In Scotland in particular, the emphasis has moved from quality assurance to enhancement, this shift in agenda driven by the desire to focus effort on improving standards beyond the minimum threshold, and on raising the level of the baseline (Alexander, 2007). Viewed against the context of a declining unit of resource, this emerging culture of enhancement has effectively placed an expectation on institutions to achieve more with less (Milliner, 2003).

As part of the enhancement agenda, much attention has been focused in recent years on the 'First Year Experience', and a substantial and growing body of work exists aimed at understanding and addressing the complex areas of engagement and retention across the sector at a critical phase of student life (e.g. Yorke, 2000; Yorke and Longden, 2007). Indeed, in recognition of the critical role it plays, together with changes in conditions for many contemporary students, the 'First Year Experience' was identified as a key enhancement theme by the Scottish Quality Assurance Agency (2005).

The first year is of particular significance as it is typically the stage where student assumptions are reinforced or dispelled; expectations and standards set; patterns and methods of working established; the

⁶ See Holec's (1979) definition of autonomy, or the autonomous learner, in the Glossary.

formation of subject-specific or professional cultures initiated; and the foundations laid for the development of the independent learner (Krause et al, 2005). As such, the point of entry into university education represents a major event in the education of the individual, and marks a transition that presents a variety of challenges to students.

Commissioned by the Higher Education Academy and published in 2007, Yorke and Longden's Phase 1 Report on the First Year Experience in UK Higher Education presented generic findings across a breadth of subject areas and institutional types. Looking broadly at the sector, the report identifies three key areas of general weakness:

- A low level of satisfaction amongst participants in terms of the feedback given to students.
- Financial pressures contribute to anxiety levels in students, although this varies to some degree between the pre-1992 and post-1992 institutions (a reflection perhaps on social background and economic means).
- A low level of satisfaction with respect to student knowledge of Higher Education prior to embarking on a course of study, and more specifically knowledge and understanding of the course on which students had enrolled. Whilst the former is an issue that extends well beyond the bounds of any individual institution, the latter sits squarely within the sphere of influence of educational establishments.

These areas cover a broad territory embodying the academic process, information and the management of expectations, and pressures exerted by external factors, this highlighting the complexity of the contemporary student experience. Publication from this enhancement theme has also included reports on aspects of personalisation (Knox and Wyper, 2008), itself a major consideration at a time of the 'massification' of higher education, and peer support (Black and Mackenzie, 2008).

1.2.5 Student Attitudes and Expectations

The changing nature of student expectations of higher education has been the subject of a number of studies (inter alia Longden, 2006), the inherent issues being complex and multifarious. With multiple external commitments, fewer students engage fully in university life, certainly compared to the norms of the generations that commonly teach them (James, 2001). To some, university education is viewed more as a commodity, giving rise to judgements being made regarding cost and value (Altbach, 2002). It would certainly appear that the increasing cost of education that many students have to bear is impacting on the nature and level of expectation and commitment and, it might therefore be argued, the propensity to play an increasingly proactive role in the learning process (Rolfe, 2002).

Viewed through the lens of learner independence, the cumulative and coincidental impact of the above phenomena on UK higher education is very significant, and presents considerable challenges to institutions and the discreet subject areas taught within. Much of the published literature referring to the prevailing climate and agenda in UK higher education, and the more detailed issues relating to the first year, is of generic significance to the university sector. However, all these aspects also have some bearing and meaning at a subject specific level, and this is true of architecture.

1.3 Key Drivers for Change in Architecture Education

1.3.1 The Profession

The start of the 21st century bears witness to the profession of architecture at something of a crossroads, with a number of directions in which it could develop (Worthington, 2003). Indeed, as opposed to the singularity with which the Modern period tends to be categorised, the pluralism of the post-modern period is beginning to see a proliferation of interpretations of the role and professional persona of the architect (Deshpande, 2008). Concurrent with this, Foxell refers to the charge that is frequently laid at the feet of architects, in common with many other

professions at the start of the 21st century, that it is 'self-serving' and something of a cabal, leading to a diminution of professional standing in the public's eyes (Foxell, 2003). The architecture profession requires to respond to this by developing confidence in society through demonstrating proof of its value and worth in cultural, social and economic terms. Education will, of necessity, play a pivotal role in this process. The profession faces an uncertain and unpredictable future for which today's educational processes must prepare students if it is to sustain itself. This uncertainty and need for definition of roles demands that schools of architecture challenge existing assumptions and models, and encourage imaginative speculation about, and exploration of, future possibilities.

1.3.2 Professional Regulation of UK Education

In 2003 the two UK professional and statutory bodies, the Royal Institute of British Architects (RIBA) and the Architects Registration Board (ARB), introduced a set of criteria for the regulation of standards within accredited architecture schools. Intended as a means of establishing a degree of uniformity across national architecture provision (whilst maintaining diversity), the criteria have not been without their critics (Hawley, 2004). Indeed, some argue that they impose an unwelcome constraint, focusing educators only on the teaching of skills and knowledge that can be directly assessed and evidenced, and rendering the educational process too mechanistic (Morrow, 2007). In a broader but parallel argument, Heylighan (2004) contends that the notion of an outcomes driven system is inappropriate in an area of study where creative exploration performs a central role, due to the inherently unpredictability of outcomes in a exploratory investigation. Nevertheless, the RIBA ARB Criteria form a framework on which all accredited UK courses must be constructed although, beyond the conventions of professional culture, the means by which learning is achieved is less regulated or prescribed. Beyond the matter of professional competencies, and in the spirit of enhancement and the sharing of best practice, the Centre for Education in the Built Environment (CEBE) was established as one of 24 subject centres of the Higher Education Academy. This initiative was primarily aimed at developing a forum for dialogue and the collation

of a body of expert educational knowledge across architecture and allied disciplines.

1.3.3 Education Providers

Each of the broader phenomena described earlier that challenge higher education can also be seen to impact on architecture education specifically. Indeed the effect is amplified by the fact that any attempts to respond to major changes in context are being made in a climate of declining governmental resource, with numbers of academic staff in UK schools of architecture having reduced by 30% since 1988 (Milliner, 2003). Moreover, this shift in resource patterns has been concurrent with a steady growth in student numbers, exacerbated by a growth in the popularity of architecture as a subject of study, and the national Widening Participation agenda (RIBA, 2008). Along with those wishing to pursue professional qualification, this increase in numbers includes a minority who, whilst architecture students, possess no aspiration of entering the profession⁷. Consequently, most schools are experiencing pressures that, in various ways, serve to test conventions and orthodoxies (McGonigal, 2005). This is most clearly illustrated by the reluctance of many tutors to depart from the traditions of design studio teaching as analysed in detail by Schön in the 1980s, such as one-to-one teaching, and held by many as an exemplar of effective design teaching⁸, an issue that will be returned to later (Milliner, 2003). Low funding levels, reducing space standards (expensive resources for delivery), and performance measures seen by some as being contrary to maintaining desirable professional standards, have put further strain on educational provision (Rooney, 2005). Moreover, maintaining traditional models with effectively diminishing resource inevitably creates a less personal and more alienating learning environment (White, 2000). Viewed pessimistically, it may be argued that the overall prevailing climate has imbued a sense of protectionism that has served to stifle debate. Perhaps too, the climate might also have stimulated a widespread desire to preserve conventional studio-based

⁷ This phenomenon has, at RIBA / ARB Part 1 level, been encouraged by the RIBA and by specific institutions, and indeed relates to the broader agendum of Widening Participation.

⁸ In the context of this thesis, 'design teaching' refers to architectural design.

practice at all costs, diverting focus away from a more objective appraisal of what studio learning (itself wrongly described as a generic entity) actually entails, and how it might be constructively developed⁹. However, the development of debate about alternative models founded on objective appraisal of existing realities, pre-supposes a level of widespread educational understanding and the belief that the case for change contains a dimension of pedagogic enhancement and is not merely driven by economic conditions. For the reasons already outlined, together with other more detailed factors yet to be introduced, it is argued that the process of challenge for schools extends beyond future definition of the profession, to that of its own teaching practices.

1.4 Summary

Analysis of the broad context of higher education quickly reveals a fast changing landscape resulting from a set of powerful drivers. The fundamental nature of these shifts means that their impact is felt across all areas, including that of architecture education. From the perspective of cultivating learner independence, the agenda to widen participation in university education through attracting students from a broader spectrum of social and economic background, and with more diverse qualifications, learning backgrounds, and prior learning experience, is arguably of greatest significance. Overlay this with an emerging consumerist perspective that increasingly views education as a commodity and portrays the student as customer, and an agenda of enhancement in a climate of ever diminishing resources, the collective significance of present day challenges becomes apparent.

More particularly, architecture as a profession is equally witnessing significant change, and continues to exhibit some characteristics, such as its profile of ethnicity, that contradict the broader governmental agenda. In terms of educational processes, design studio resides at the centre,

⁹ For example, despite the ubiquity of design studio teaching internationally, in terms of physical place Milliner (2003) referred to a great variety of spaces where architectural design is taught, including 'courtyard, cellular, flowing open-plan, galleried, portable, spaces with no walls, only walls, and indeed there is a recognised school of architecture with no physical accommodation at all, nor, indeed, any staff' (p.1).

raising the question as to how studio-based pedagogy should evolve to address these numerous challenges, and secure a continued relevance for the contemporary student and professional. To answer this, it is first necessary to establish the pedagogic intentions and theoretical structure behind design studio as a learning medium. This will form the basis for discussion on the merits of existing pedagogies, and for consideration of future development to enhance the cultivation and support of independent learners in architecture. Consequently, Chapter 3 will explore the educational basis for studio, establishing a framework against which the realities of teaching practice as generally conducted can be later related and compared.

CHAPTER 2: FROM THE ATELIER TO THE ACADEMY

2.1 Introduction

In order to fully understand the system and structure of architecture education prevalent today, and the particular phenomenon of design studio, this chapter will present a brief insight into its historical roots.

The fundamental construct of design studio predates the emergence of architecture education in universities. It originated as an environment for working and, by extension, a learning medium for apprentices within the workplace. The replication of this format in the educational setting originally related to the desire to emulate the apprenticeship model in a more structured academic environment that conforms approximately to the notion of simulated practice (Kostof, 1977).

2.2 The Establishment of Schools of Architecture

2.2.1 Early Origins

Studio-based learning has its origins in the Medieval guilds and the apprenticeship system of old, in which tutees developed skills and knowledge from their masters. It is from the culture of apprenticeship that the dual learning model emerged, incorporating theoretical learning in the classroom context, and practical skill in the workplace context (Broadbent, 1995). This in turn became the model for first formalised schooling system, the Ecole des Beaux-Arts in Paris in the early 19th century. The Ecole itself had its roots in the Académie Royale de Peinture et de Sculpture and the Academie Royale d'Architecture, the latter of which was established by Louis XIV in 1671 to share knowledge and opinion, and which had a limited elite teaching role (Chafee, 1977). A fundamental intention behind the Académie was to formalise architecture within a structured professional institution. However, the widespread operation of 'ateliers' in which architects worked with their apprentices served to compromise its operation as design work tended to be undertaken by students within the ateliers themselves, and thus remotely from the

Académie where lectures were attended, and where it was intended that all learning takes place (Chafee, 1977).

It was the eminent French architect Jean-Francois Blondel who sought to address this problem of disaggregation within the education system, through the foundation of a new Ecole des Arts in 1740, the purpose of which was to provide all necessary aspects of learning in one location (Egbert, 1980). Blondel's Académie introduced a full-time regime whereby students studied a comprehensive programme for six days per week, thus spawning the educational model that still structures architecture education throughout the world today. Specifically, the studio or atelier system sought to create a parallel to the drawing studio or office of the practitioner, in an environment where students had a broad academic resource available to them. Whilst the school underwent a number of reincarnations around the time of the French Revolution, its teaching ethos persisted, and continued under the banner of the Ecole des Beaux-Arts from 1823 to 1968 when it was disbanded.

The Beaux-Arts curriculum was divided into three stages (Harbeson, 1927): 'aspirant', 'élevés', and 'diplomé' levels, and was founded on the following principles:

- Division of students into 'ateliers' (the root of current 'unit' systems)
- Senior students were used to help tutor 'aspirants'
- Design was taught by practising architects
- Design teaching spanned the entire period of study
- 'Esquisse' exercises were routinely undertaken

Projects were organised as 'concours' or 'charettes' and were judged by 'juries' or academics and practitioners¹⁰. These principles, practices and terminologies largely persist in contemporary architecture education, the

¹⁰ Durand produced his educational methodology '*Programme du Cours d'Architecture*' in 1799, which included a series of lectures accompanied by design exercises, this developing to a more expansive published curriculum in '*Précis des Leçons*' between 1802 and 1805 (Pfammater, 2000).

Beaux-Arts system having been 'exported' to the UK, USA, and other parts of the globe. In this way, the atelier or studio system founded in the Beaux-Arts became internationally adopted.

As identified by Pfammatter (2000), the rampant industrialisation that dominated the end of the 18th century also contributed to a shift in the educational paradigm in terms of the establishment of formal schools and the development of institutional curricula rather than the individualistically based studies typified by the master-apprentice relationship of the atelier. The pedagogy employed at this time had developed from the enlightenment and the belief that mankind had an insatiable desire to further knowledge and capability. This approach has been described as 'encouragement pedagogy' (Pfammatter, 2000, p.10).

The principal method of teaching in the Ecole des Beaux-Arts under Jean-Nicholas-Louis Durand, leader of the school at the end of the 18th century, revolved around the study of building typologies, this forming the dominant methodology for approximately 150 years. It was not until around 1960 that architecture education experienced a shift in emphasis, to a focus on problem solving¹¹ and 'problem-types' (Lackney, 1999).

2.2.2 International Influence of the Beaux-Arts

The French model was replicated in the UK, with apprenticeship or 'articled pupillage' (Stevens, 1998, p.174) being the sole means to professional qualification at the end of the 18th century. This tradition had its roots in the work of the philosopher and educator John Locke, who published 'Some Thoughts Concerning Education' in 1693. In this significant work he argued for the integration of practical and commercial endeavour with theoretical study. Together with the ideological dogma of the Ecole des Beaux-Arts extending across the Channel, this formed the cornerstone of the educational process for approaching two centuries (Crinson and Lubbock, 1994).

¹¹ See footnote no. 35 regarding interpretation of the term 'problem-based learning'.

It was as a result of the Great Exhibition of 1851 that the governmental incentive to purposefully link education with practice emerged. Ultimately this led to the creation of a School of Design 'for architecture, metalwork, and handicraft design' (Pfammatter, 2000, p.297) with the German architect Gottfried Semper at the helm. Nearly twenty years later came the establishment of the Royal Academy School of Architecture in 1870, whose first director, Phéné Spiers, was a prodigy of the Ecole des Beaux-Arts. Therefore, as in America, the influence of the French system as the dominant educational paradigm spread to Britain, with the studio at the heart of its pedagogy.

It was not until the aftermath of the American Civil War that the Beaux-Arts system made an impact on architecture education across the Atlantic. This was due to the work of a number of French educated practitioners, notably Richard Hunt in the late 1840s / early 1850s, and twenty or so years later, Louis Sullivan, and was instrumental in the spread of neoclassical ideologies to North America. This small group in turn spawned a broader educational image through its pupillage, such as at MIT, Philadelphia, and Berkeley. Later, in the 1930s and after, the influence of modern Europe and the Bauhaus became prominent through the number of European émigrés seeking new opportunity as the storm clouds gathered over Europe.

The development of the academy was also fuelled in particular instances by national agenda, such as Jefferson's desire to expand the profession to address the challenges in developing the USA, but despite the impetus initiated by him, it was not until the mid to late 19th century that American schools began to proliferate. Rampant urbanisation across Europe and, to a lesser degree the USA, added to the growing need for formalisation of professional structures, and related educational programmes.

The influence of the Beaux-Arts reached its zenith in the USA in the late 19th century, when American practitioners sought to be 'recognised as experts with specialised knowledge, obtained through long study' (Kostof, 1977, p.214). It was also driven by a desire to set higher standards that

were more uniformly adhered to. The coherence of the French Beaux-Arts system allowed it to be readily adopted as a means of imparting knowledge, and evaluating design proposals. The focus on studio appealed through its hierarchical relationship between tutor and tutee, satisfying the desire amongst the profession to be seen as a vocation requiring specialist knowledge and refined skills. Undoubtedly, it is the Beaux-Arts that represents the most profound single influence on contemporary architecture education in Europe and the USA.

In 1900, it was still the case that the majority of architects undertook their training through the apprenticeship system, and it is over the course of the 20th century that the process has been absorbed almost entirely into academia. However, the 'values and rewards' of the two cultures have never been fully reconciled (Boyer and Mitgang, 1996, p.9)¹².

In Europe, the establishment of the Staatliche Bauhaus in 1919 constituted a challenge to the highly prescriptive Beaux-Arts traditions, but nonetheless the notion of the studio never appeared to be questioned. Indeed the Bauhaus itself sought to perpetuate the idea of the apprentice or journeyman whereby students developed expertise through exposure to 'real' scenarios, technologies, and production processes¹³. In this way, the development of high levels of competence in synthesis, aesthetic judgement, and design thinking became the hallmark of the Bauhaus graduate (Lackney, 1999).

The Modern Movement in Europe had a major impact on American architecture education through the migration of many of the leading lights

¹² It is acknowledged that over the span of time between the Medieval Guilds, the Ecole des Beaux-Arts, and contemporary education in the university setting, the role of the architect has undergone considerable change. Emanating originally from the role of the master mason, the function of the architect has become increasingly more detached from direct local involvement in making, assuming the role of designer within a strict architectural grammar at the time of the Ecole des Beaux-Arts, to eventually become a professional operating within the pluralist, post-modern, global milieu of today.

¹³ The Bauhaus sought to integrate revolutionary thinking from the early 20th century into an educational process appropriate for the new industrial era. The 'Basic Course', developed to underpin all disciplines, incorporated four elements; aesthetic principles, colour theory, industrial design, and architecture. Yet, despite progressive ideas concerning the curriculum, the master-apprentice relationship remained the cornerstone of the practised pedagogy.

to the USA in the middle of the 20th century. For instance, Walter Gropius headed the Harvard School, while Mies van der Rohe became head at IIT in Chicago. There were others too, and cumulatively they left an enduring legacy on American architectural practice.

The current culture of design studio emerged from the philosophy of rationalism, and the notion of the studio as 'espace transitoire'¹⁴ (Winnicot, 1971) prevailing at the time of the Ecole des Beaux-Arts, and reflected in its teachings. As Fisher identifies, 'through the analysis of precedent and the application of reason we could arrive at a consensus about the truth in a given situation' (Fisher, 2000, p.69-70). He goes further to identify the additional layer of German ideology, that manifests itself through the preoccupation with celebrity practitioners, the true 'masters' of old, the polarisation of education and practice, and the emphasis on styles, phenomena which persist today.

2.2.3 Contemporary Education

"We are operating a 1900 year old education program directed toward delivering a 500 year old model architect as we head into the 21st century" (p.12-13)

(Palermo, 1996)

Palermo's somewhat contentious and provocative statement above levels the charge that the architectural profession, and the education system that serves it, are at best in need of re-evaluation and revision, and are possibly completely outmoded. Whilst his contention may represent an extreme view, it does harbour truths about which there is some consensus, and which this review of literature seeks to elucidate through discussion in Chapters 3 and 4. It is further noted that architecture education appears to have been relatively impervious to developments in

¹⁴ For definition of 'espace transitoire', see the Glossary.

art and design education, with which it shares the ethos of studio-based education¹⁵.

The history of institutionalised architectural education is a history of tensions, conflicts, and contradictions. The triumvirate of academia, the profession, and a system of education embodies a number of difficulties, not least in achieving an appropriate equilibrium between the demands of academe and those of practice, but also in ensuring vision and agility as articulated in the following quotation:

'Architecture schools are still relatively young in historical terms. Their survival shouldn't be treated as a historical inevitability... Since then (early 20th century) they (schools) have settled into increasingly stable, inert forms. Their survival during the 21st century will depend on their willingness to adapt to the multiple forces already reshaping how architects now live, work and learn' (p.71)

(Steele, 2004)

The pluralism of the post-modern period has seen a broadening of the range of approaches and positions adopted by schools, this being reflected in the spectrum of interests demonstrated by the world of practice. The paradigm of Modernism that dominated the 20th Century has been replaced by a plethora of diverse approaches exploring how best the future needs of society might be met. Yet this enquiry, whilst rich and varied, generally occurs within a uniform and homogenous educational setting, within which the medium and practices of design studio are central.

2.3 Endemic Tensions

The tensions that exist within architecture education form an important dimension of its context, and are outlined in this section.

¹⁵ An example of this is the Art and Built Environment (ABE) project funded by the Schools Council from 1976-78, and which explored how partnership between teachers and environmental designers can enhance and enrich the educational experiences of school pupils.

2.3.1 Architecture and the University: An Uncomfortable Alliance

'Architecture is a complex socio-technical field and requires both training in a number of skills and knowledge as well as an education to cultivate broader, less utilitarian and more extensive skills and knowledge. As such, architecture is and should be an area of both education and training' (p.88)

(Teymur, 1992)

Ever since the introduction of a formalised education structure, and as intimated in Teymur's quotation, tensions have surfaced between the profession and the academy regarding the true purpose and focus of architecture education. Most notably in recent times, the 'Oxford Conference', held in April 1958 under the auspices of the RIBA, was the first educational conference held in the UK since 1924, when it had been agreed that architectural education should reside within the university structure (Crinson and Lubbock, 1994). The fundamental stimulus of the conference came from a desire to improve what was seen as low quality architectural design. At the time, nearly as many student entrants to the profession were coming through the pupillage route as through the university system (Crinson and Lubbock, 1994). University-based education was advocated to be the means by which the corpus of knowledge particular to the profession could be advanced, and arguments were promoted for raising entry standards to education.

Much of the debate centred on the dichotomy between architecture as a vocational subject, and architecture as an academic discipline or field in its own right. Sir Leslie Martin, who had been a strong advocate of the Conference, was instrumental in propagating the view that architecture did indeed belong within academia, arguing that education must be closely allied to research, the principal vehicle for developing fields of knowledge. The tension between vocational need and academic breadth was reiterated in the Report of the Steering Group on Architectural Education, a strategic study into architecture education conducted for the

RIBA in 1992¹⁶. It identified the needs of practice as the 'driving force' behind education, including the shape, structure and nature of curricula, and the form of the supporting funding regime. A subsequent report entitled 'Architecture Education for the 21st Century'¹⁷ (Stansfield Smith, 1999) reiterated these tensions, identifying:

'growing anomalies between architecture education as translated by universities, and the training and education of architecture students as a vocation' (p.2)

(Stansfield Smith, 1999)

Stansfield Smith's report distinguished between architecture education and the training needs of the profession, recognising the 'broader base' of the discipline (p.3). As a further example of tensions, the report drew attention to necessary profession skills that require to be more explicitly embedded in the curriculum if the role of the architect is to avoid being increasingly diminished. In a similar vein to the first point, Burns (2001) asserted that schools should maintain some distance from the world of practice, whilst simultaneously acknowledging Saint's (1996) question as to how far the distance can be before becoming counter-productive to education's vocational remit.

As can be seen, and as Broadbent (1995) observes, a tense dynamic has long existed between the worlds of architectural education and architectural practice. Given the close, interwoven relationship between the two emanating from the apprenticeship model, this is perhaps inevitable. As Stevens notes in 'The Favored Circle' (1998)¹⁸, the institutionalisation of architecture education served to reduce the degree of control that practice enjoyed under the pupillage model, both in terms of the curriculum, and the direct relationship that the latter had with the market dynamics of practice. However, it is not the case that this tension should always be construed negatively as, Broadbent notes, this is to

¹⁶ Chaired by Richard Burton, this report is commonly referred to as the 'Burton Report'.

¹⁷ Conducted for the RIBA, this report is commonly referred to as the 'Stansfield Smith Report'.

¹⁸ As this is an American publication, the American-English spelling of the title has been used.

mutual advantage as practice can become complacent in which case education has a role to challenge and refresh. More recently, Cook and Hawley (2004), both eminent educators, have criticised the bureaucratisation of education through endemic cultures of audit, such as quality assurance and assessment exemplified by the Research Assessment Exercise (RAE), which they argue has increasingly militated against design retaining a high profile within academia. For example, they asserted that the heavy weighting awarded to academic writing as a legitimised form of research has served to marginalise design and hence the role of the designer¹⁹ within the process, generating a further area of friction within the subject.

In the twentieth century, throughout much of the Western world, architecture was consigned to the margins within the university system, sitting as it does outside the dominant research-based model developed from the sciences (Martin, 1959). Indeed, until very recently, institutional education has continued to be dominated by practitioners, as opposed to academics in the classical sense (Hawley in Chadwick, 2004). The result has been that as a discipline it has suffered from low levels of understanding from an institutional perspective (Schön, 1985). Design studio, in particular, is a form of teaching that is poorly understood by academia. In Schön's terminology it is 'deviant' in its relationship to the historic apprenticeship model, and the epistemology of practice (Schön, 1985, p.5). Elsewhere, where the dominant paradigm of professional learning embodies an epistemology of practice rooted in the contemporary research-oriented institution, professional knowledge and competence relates to a 'normative professional curriculum' (Schön, 1985, p.5).

The simulation of professional practice within the education process is not particular to architecture, but is shared by a number of other design disciplines. In recent years progress has been made in our understanding of the cognitive processes involved in design, but it still remains the case that the importance of the designed output in education remains the

¹⁹ Within the context of this thesis, the term 'designer' refers to those involved in architectural design.

dominant focus, with matters of process playing a lesser role in our judgements (Marda, 1997). This phenomenon has been a criticism levelled at studio-based learning across many design disciplines, promoted over an equivalent period of time by resistance to the teaching of prescribed design methodologies as a core part of overall pedagogical strategy (Salama, 1995).

Nicol and Pilling (2000) argue that despite its centrality in the educational process, studio possesses innate weaknesses such as its isolation, the primacy of the individual, and the lack of systematic and overt development of communication and other employability skills that set it at odds with the nature of professional activity. Yet despite the 'primacy of the individual' (Cuff, 1991), it is argued that little is done educationally to develop true learner independence. Nicol and Pilling (2000) also identify one of the points of greatest contention as being the balance to be struck between the development of professional competencies and the wider ambitions of a university education in the subject of architecture. The argument presented to counter the view that education must be sufficiently 'realistic'²⁰, is that the imposition of too many constraints, and perhaps at too early a point, can serve to hamper creativity which academia should be free to explore, and indeed in doing so may offer greater value to the profession.

On the other hand, Boyer and Mitgang's study of architecture education conducted in 1996, heaps praise on the studio. In particular its interdisciplinary capability is seen as being indispensable to an integrated curriculum such as architecture. To Boyer and Mitgang (1996), the practice versus theory issue distracts the profession from capitalising on the full potential of studio as the means of exploring architecture in its many dimensions. Boyer and Mitgang also observed that, throughout the course of a number of professional analyses of architecture education

²⁰ Whilst the focus of this study is not on curriculum content per se, it is acknowledged that the notion of realism has multiple interpretations, such as the ability of the learning experience as a broad simulation of practice; or realism borne out of an inclusive learning process that engages with multiple stakeholders and social groupings (Morrow, 2000).

carried out over the past 70 or 80 years, the dominant issues arising remain remarkably consistent. These include concerns regarding the preponderance of 'paper' architecture, an absence of 'real' research, the incongruence that architecture has with university culture, and a male dominated student body. The lack of connection between architecture and allied construction professions was also identified as an issue of concern. As long ago as 1967, the so-called 'Princeton Report'²¹ of that year identified this phenomenon in particular, calling for greater diversity in curricula and teaching methods. As with the 'Princeton Report', it is interesting to note that so many of the issues raised by comprehensive reviews appear to endure, recurring in today's educational and professional debates.

On a more radical note, sociologist Robert Gutman (1988) advocated that architecture leave the bounds of the universities, and return to the apprenticeship system of old, citing the need to conform with the academic protocols developed in other subject areas, and its distance from the needs of practice, as the reasons for this. This underscores the tension that exists between architecture as a bona fide academic discipline, and architecture education as a professional preparation and training (Fisher, 2000).

2.4 Professional Training or Liberal Education?

'The school is obliged to investigate, to probe, to experiment with possible solutions or sometimes alternative ones, in order to lead, to redefine or to revive the profession. The school thus has to refuse any simple mode of production' (p.89)

(Chang, 2004)

This quotation touches on the essential concern in university-based professional education, namely the question of the extent to which the role of education is to provide training to meet the demands of the profession, and the extent to which the unique ability of universities to

²¹ The full title of this 1967 study was *A Study of Education for Environmental Design: The Princeton Report*. Washington D.C.: American Institute of Architects.

postulate and challenge existing professional norms, a role that is seen by some as essential to the sustained health of the profession (Wigley, 2004).

The tensions existing between the academy and the world of professional practice broadly epitomise the epistemological distinction between theoretical knowledge and understanding, and the knowledge and skills associated with the practical use or application of that knowledge, or the basis of that knowledge. Accordingly, achieving an appropriately broad academic and intellectual experience whilst simultaneously satisfying the profession's requirements for an agreed level of competency amongst graduates, presents a fundamental challenge for educators, and an area where balance must be carefully maintained. This is underlined by the growing prevalence of those undertaking study in architecture without any ambition to enter the profession²², arguably placing greater emphasis than before on the conscious development of transferable skills.

The heart of architecture education historically has been the need to satisfy professional expectations of competence with respect to key areas of knowledge or skill. These professional requirements act as a subset of the wider academic field of architecture that presents opportunity for learning, and the development of new knowledge, beyond the core professional requirements. This relationship recalls the comments made by Sir Leslie Martin that no practice-based discipline can exist without research and the pushing of boundaries of expert knowledge, and the important role of universities within this process (Martin, 1958).

Vesely (2004, p.63) has written of what he regards as ambiguity between education and the profession, a phenomenon he contends is exacerbated by a common absence of consensus amongst educators about the fundamental *raison d'être* of the education they provide. This he refers to

²² In the UK, this phenomenon is currently evident at Part 1 level of the professional accredited process, whereas in some other countries there is a longer history of students considering architecture as a broad undergraduate education that develops skills that are relevant to a number of careers, pursuits, and postgraduate study opportunities.

as 'fragmentation', a condition, he argues, that currently pervades all aspects of the field.

Through their emphasis on core professional competences, the introduction of professional criteria appears to have reinvigorated discussion on the purpose or purposes of architecture education. To some, the adoption of a criteria-based regulatory system founded on the notion of learning outcomes, denies the opportunity for experimentation, as it is implicit that in the spirit of true creative freedom, outcomes become unpredictable. Furthermore, some academics, such as Heneghan (2004), maintain that the frameworks on which courses are typically built, such as credit-based systems, inherently limit learning aspirations in some students as they reduce the learning process to a point scoring system, indeed one that crudely equates learning to study time. Whatever truth lies in this, the corollary is that credit-based systems also offer guidance to the student regarding levels of commitment, this being particularly beneficial at a time when evidence suggests that many students face increasing pressure or burden from non-academic commitments.

In discussing new conceptions of professional education, Bereiter (2000) argues that the creation of the innovative and resourceful professional is more to do with aspects of tacit knowledge, intuition, and instinct than the acquisition of understanding of principles, facts and rules, and that few of these issues are dealt with in professional education. However, in the case of architecture, it will be seen in Chapter 3 that these facets of learning, together with knowledge and understanding and the acquisition of skills, form the core of design studio and hence the overall learning process.

2.5 The Ubiquitous Structure of Architecture Education

Whether architecture itself constitutes a discipline is a point of debate. It may be argued that due to its integrative and synthetic nature, it is more accurately described as a field; a field that integrates knowledge from diverse disciplines and areas. From an educational standpoint the significant issue here is that, whilst containing a corpus of knowledge, the bounds of that body cannot be effectively defined. In this regard it shares

characteristics with other creative areas such as the Fine Arts, with contingent challenges for students embarking on their studies. Furthermore, contemporary architectural design is characterised by pluralism and the emergence of many schools of thought (Stansfield Smith, 1999). Whilst some institutions have responded by following a defined approach, as was the tradition in many great twentieth century schools such as the Bauhaus, Taliesin, and IIT, others sought to embrace diversity. For the student this presents a difficulty, namely the 'dilemma of objectivity' (Schön, 1985, p.84). What should the basis be to evaluate different positions? Do these differing stances simply reflect different tastes, or are they founded on, and validated by, particular knowledge? For the undergraduate, these arguments are probably largely immaterial, but to the prospective postgraduate student, already informed in the subject and familiar with the debates, they take on a greater relevance and individual importance.

Schön (1985) maintains that the proliferation of knowledge related to the discipline, corresponding to the development of professional roles in the world of practice, threatens to undermine the integration strived for between design studio and didactic course components. However, the potential for fragmentation of the learning experience due to the different modes of learning typically adopted for different elements of the curriculum, could hardly be described as a new phenomenon. (Indeed, as has been seen, it existed in the atelier in the pre-Beaux-Arts period). It is typical in schools of architecture to find the curriculum delivered in two simultaneous strands; the first being a series of didactic elements discussing aspects of theoretical knowledge, and the second being that of studio-based design in which technical-rational information requires to be translated to practical cognition (Heylighen et al, 1999). Given its abundant rhetoric about integrated learning, this structural paradigm represents the great paradox of architecture education in that irrespective of the mantra of integrated learning, the process is typically fragmented (de Graff and Cowdroy, 2003). Indeed, whilst Schön advocated the integrative learning represented by design studio as an appropriate model for a range of professional learning, the great majority of architectural

courses are characterised by "dis"integration, in which a number of subjects are taught in relative isolation (Salama and Wilkinson, 2007, p.187).

Nevertheless, educators continually strive to achieve a learning experience that effectively integrates the explicit knowledge of theory with the implicit and tacit learning from design activity. Of course, learning is not confined to that which directly results from the course syllabus but, as Teymur (1992) observed, extends beyond the course to include the perceived priority of course components as indicated by staff behaviours and actions, methods of delivery, together with issues from the wider public domain such as fashion, the media, the prevalent value system of society, etc.

Whilst the broad template of architecture education tends to be ubiquitous²³, it is important to acknowledge, as Schön (1985) did, that the pedagogies within are not singular, with different types of studio possessing different emphases and adopting a range of different yet related pedagogical approaches. Nevertheless, the common desire to achieve a seamless integration between theory and practice embeds the design studio, as the setting for creativity and synthesis, at the heart of the educational process. Yet, notwithstanding its pivotal role, there exists a diversity of opinion regarding the true educational effectiveness of this key component, particularly from the viewpoint of the independent learner. Accordingly, Chapters 3 and 4 will reveal a number of the key arguments surrounding the efficacy of design studio, and in doing so will construct an argument for the further development of the pedagogies relating to it.

At this point it is important to acknowledge those responsible for the delivery of courses; the teachers. Any evaluation of pedagogy must

²³ Although the phenomenon of design studio is ubiquitous, differences in the implementation of pedagogies exist as a consequence of different political and funding contexts. This thesis is set within the context of UK Higher Education which imposes particular conditions and constraints on UK educational providers, and which elicits specific responses.

include as part of it an evaluation of the behaviours, values, and skills of the teacher. Webster (2001) has observed that the applied nature of architecture education, especially with respect to design studio, tends to yield a common rhetoric as follows:

- Experience of the educational process as student develops an intuitive understanding of appropriate teaching methods.
- Experienced practitioners inevitably perform as quality teachers.

These perceptions within the profession are disturbing, especially when considered in relation to theories of cognition and the acceptance that learners are not homogenous in their needs and learning capabilities. This issue will therefore comprise part of the discussion on studio teaching practices.

2.6 The Scott Sutherland School, Aberdeen: Position, Ethos and Challenges

This section gives an introduction to the school in Aberdeen that, as shall be explained later, plays a central role in the data collection for this thesis. It is therefore important to position the school's philosophy, and its approach to teaching and learning in architecture.

2.6.1 Position

The city of Aberdeen has two universities; the University of Aberdeen which is one of the oldest in the English-speaking world having been established in 1495, and The Robert Gordon University, a 'post 1992' university, although an institution with a history dating back to the 18th century. The co-existence of the two universities in a relatively small city is made possible by the significantly different foci that they possess. In the case of The Robert Gordon University, its identity is centred on professional and vocational education and graduate employability, this being rooted in its history as an Institute of Technology. Consistent with this emphasis, the subject of architecture has been taught for well over a century, and has been accredited by the RIBA for over 90 years. Indeed

the School was one of the first in the UK to be validated by the professional body.

The Scott Sutherland School of Architecture and Built Environment represents one of six Scottish schools validated by the RIBA and prescribed by the Architects Registration Board. The ethos of the school corresponds to that of the university in which it sits, placing a clear emphasis on the provision of education appropriate for future practitioners in its disciplines. Whilst students who may not wish to pursue a professional career that directly relates to their course of study are welcomed onto its courses, the vast majority of students enrol with the clear objective of gaining professional registration, and the school's courses have always been structured to serve this primary aim. Preparing students for the unpredictable world of future practice is critical to the ethos of the school, this being achieved through a combination of innovative course content and the development of core discipline knowledge and skills. Equally, the school strives to ensure a balance of skills and understanding that is relevant and meaningful within the work-place, with the result that graduate employment statistics are very high. Learning takes place in a conventional manner through a combination of studio-based project work and didactic course components.

In accordance with the school's ambition, the skills profile of staff has always leaned towards the world of practice, with a minority coming from purely academic backgrounds. In common with many schools, the staff compliment comprises both full-time academics and visiting practitioners, this mix supporting a collective staff view that is sympathetic to the philosophical position of the school. The phenomenon where tutors teach as they were taught is widespread, and pedagogic development slow, a condition that is typical of many schools²⁴.

²⁴ In support of this, see comments in Appendix 4, in particular those by Boddington and Webster.

The school is well provided for in terms of studio space, with dedicated facilities assigned to each year of the architecture course. As well as being spaces for project-based learning, studios are regarded as being central to the development of a professional culture and a sense of belonging through their social dimensions.

2.6.2 Ethos

The overarching aim of the course is to further the art of making buildings, and in doing so to provide society with useful and skilled practitioners. Achievement of this ambition is through the existence of a well orchestrated and delivered academic framework, integrating core staff with visiting academics and practitioners who bring fresh thinking and working methods. There is an adherence to three principal themes that underpin the academic development of the curriculum, these being:

- Innovation through a re-examination of tradition,
- Craft, and
- Technique

The rich and varied built and landscape context of the north-east of Scotland offers the conditions for a distinctive learning experience for students, with opportunities to relate their investigations to the research work of the school, to pertinent issues and activity within the local and regional community, and to national and international agenda, developments and phenomena.

2.6.3 Course Structure

The course is structured in a way that sees didactically based theoretical model running alongside studio elements, this pattern repeating throughout the majority of semesters within the course. Consistent with other UK schools, the first 3 years of study constitute Part 1 study with respect to the RIBA ARB Criteria, whilst the final 2 years contribute to Part 2. Students normally work in professional practice for a year between Stages 3 and 4 of the taught course.

2.6.4 Challenges

The factors impacting on the broader architecture education sector, as presented in Chapter 1, form the wider context for the Scott Sutherland School. The areas of widening participation, internationalisation, dwindling government funding levels (i.e. the unit of resource), the drive for enhancement, and the changing demands of the profession and its regulatory bodies, all pose challenges that increasingly demand a wider re-evaluation of teaching and learning practices.

2.7 Summary

The historic roots of architectural education extend back to the Medieval guilds, and only became formalised by the advent of the Beaux-Arts in 18th century France. Whilst laying down a basic structure that became the template for the education of architects throughout the Western world, it retained the master-apprentice relationship that originated in the days of the master mason. As educational process has migrated to the academy, this essential relationship has endured, forming the cornerstone of studio teaching within universities around the globe.

The adoption of architectural education by the university sector has generated a number of historic tensions, most notably those between the demands of vocational education and endeavour and the academy. Several studies over the last 70 to 80 years have demonstrated the perpetuation of a number of issues and concerns such as the fundamental relationship between the subject of architecture and universities, the nature of architectural research, and the under-representation of the female gender, to name but a few.

As has been seen, architecture education embodies a number of differing interests, each of which represents a specific purpose; the interests of the overall academic field, the requirements of the profession and practice, and the needs of the individual beyond the specifics of the subject area. These have been seen to introduce dilemmas and dichotomies for the educational process, ranging from the very positioning of the subject

within a university setting, to the specifics of the curriculum and its delivery and implementation.

Beyond the strains arising from the respective interests of academia and the profession, studio has been criticised on the grounds that it possesses a number of educational shortcomings. For instance, the fact that the primacy of the individual is still predominant in an educational process that simultaneously does little to promote the structured development of the independent learner, is a supreme irony.

With design studio representing such a universal paradigm, one that has been celebrated in the studies of Donald Schön amongst others, how might it evolve to address contemporary and predicted conditions, whilst also enhancing its effectiveness as a learning setting and a vehicle for advancing learner independence? Indeed, given its ubiquity, what exactly are its weaknesses or failings? To begin to answer this, the following chapter will explore the theoretical framework and pedagogy of design studio in greater depth, and will establish its educational basis in order that its effectiveness may be robustly appraised in Chapter 4.

CHAPTER 3: DESIGN STUDIO: A THEORETICAL MODEL FOR HOLISTIC LEARNING

3.1 Introduction

"Design studio... is the kiln where future architects and designers are moulded" (p.67)

(Salama and Wilkinson, 2007)

"Design studio is the heart and the head of architectural education"
(p.165)

(Dutton, 1991)

As emphatically stated by the two quotations above, design studio represents at once the core environment, learning medium, and event in architecture education. It is the place where learning is integrated and applied, where social bonds are developed, and where the nascent architect is gradually accepted into the professional fold. It has existed at the heart of the process since the establishment of formalised education for the profession, and is commonly regarded as being its cornerstone. The esteem with which studio-based learning is imbued is considerable, and it has formed the focus of many studies, including that by the philosopher Donald Schön in the early 1980s, the conclusion of which was a powerful endorsement of studio as a potent learning environment.

Echoing the work of Schön, Ernest Boyer and Lee Mitgang in their work 'Building Community: A New Future for Architecture Education and Practice' (1996) claim that the studio-based learning model, held up as a sacred cow in architecture, has a value and relevance that extends to other academic disciplines not only at university level, but also at primary and secondary stages of education. In architecture education, in addition to being the fundamental place of learning, design studio also acts as the place where socialisation and professional assimilation begins to be developed, or as Dana Cuff (1992, p.43) elegantly expresses it, the place where 'the ethos of the profession' is born.

Design studio was conceived as a learning environment that simulated the essential characteristics of the atelier, both in terms of its physical attributes and disposition, and the processes carried out within. Whilst the link with practice is not unique in professional education, architecture arguably presents the clearest exemplar of this phenomenon (Schön, 1985). The ubiquity of design studio in architecture education internationally is testament to the inherent flexibility that its fundamental template possesses, which enables schools to pursue sometimes radically diverse agenda, approaches, and ideologies. However, these distinctions tend to be more an issue of philosophical position and curriculum content, than of fundamental pedagogical difference.

3.2 The Central Role of Design Studio

"The architectural design studio occupies the core of the education of architects" (p.1)

(Salama, 1995)

Schön (1985, p.6) described the architectural studio as an 'exemplar of education for artistry and problem-setting'. Emanating from historic apprenticeship models, the design studio acts as a forum for individual and collective learning through project-based learning, or 'learning-by-doing', under the guidance of teaching staff. The international model of architectural education adopts studio as the central activity of the learning experience from the outset. The primacy of the studio environment in architecture is well documented, for example by Ledewitz (1985), who regarded studio as the principal vehicle in the development of skills, the acquisition of a new language and, crucially, the development of the student's design process and way of thinking. Importantly too, it is where the student is initiated into the culture of the profession and the professional values which largely serve to perpetuate and replicate an historical ideal (Cuff, 1991).

Given the enduring format of studio-based teaching in architecture, it is implicit that it possesses specific strengths that continue to have

application and relevance in contemporary education. It is at once the place that defines the act of producing architectural proposals, of becoming and being an architect, and the forum which integrates otherwise disparate strands of learning through application to a series of indeterminate problems. It is also the place that allows students to develop a social culture, and where students become progressively acculturated into professional beliefs and value systems. In this respect, studio is instrumental in the definition of the culture of a school, this having been identified as being as important to student learning as the specific curriculum offered (Nicol and Pilling, 2000). Anthony Roberts (2003) goes further, arguing that studio represents an ethos that extends beyond the physical bounds of space, and that develops primarily from a collective will of people to work together. The ensuing dialogue produces creative debates, even conflicts, and it is this frisson that is the defining quality of studio working, one that positions it clearly at the heart of the educational process.

3.3 The Ethos of Design Studio

"Design studio... is perhaps the most intense and multi-dimensional "classroom" experience in all of higher education" (p.2)

(Pressman, 1993)

Although design studio has accommodated and embraced change over time, educationally, professionally, and latterly perhaps most dramatically, technologically, its fundamental characteristic as a social environment for project-oriented learning still pertains, remaining as the dominant paradigm.

The historical apprenticeship system was based on a concept of emulation, a clearly articulated and prescribed 'grammar' of architectural form and, correspondingly, the development of design within carefully constructed and defined boundaries of taste, as initially exemplified by the prevailing architectural context at the time of Louis XIV of France. Whilst the core teaching 'tool' of studio has been maintained, today's

architecture education typically encourages a much more liberal, free and complex exploration of possibility than the tight strictures of the Beaux-Arts (Broadbent, 1995)²⁵. Implicit in this contemporary view is the pedagogical belief that students should develop as independent learners, and that they, rather than the tutor, should be at the centre of the educational process. It might therefore be claimed that the way in which studio is used has been required to have undergone some re-evaluation and evolution, although the extent to which this transformation has truly occurred is a point of some contention, as shall be seen.

It can be argued that the studio setting offers unrivalled potential for experimentation, exploration, and expression. In parallel with this it presents a dynamic and vital forum for critical discussion and debate, for extending boundaries, and for testing proposals. The term 'thickly authentic environment' was coined by Shaffer and Resnick (1999, p.198) to describe those in which there is a congruence between the learning activity and a combination of:

- Objectives that have broader relevance beyond the classroom,
- Objectives that are meaningful to the individual student,
- Ways of thinking within an established discipline, and
- Assessment methods used.

Where there is a coincidence and alignment of these factors, a 'thickly authentic environment' is created, such as in the case of design studio where individual learning takes place through projects that are meaningful to the student, and are undertaken and assessed 'according to the epistemological and procedural norms of an external community' (Shaffer, 2003, p.6). It is perhaps this rich confluence of pedagogical processes, phenomena, and theories that makes the design studio such a rich and powerful educational tool. Moreover, as is argued by Brown and Campione (1996), it is the integration of these facets in a systematic way that creates its true potential.

²⁵ See footnote no. 12, Chapter 2, Section 2.2.2.

3.3.1 Studio Culture

It has been said that cultures in architectural education determine cultures in the world of practice, and that in this way, the traditional model emanating from the Beaux-Arts has been perpetuated (Fisher, 2000). However, it may be argued that the reverse equally applies, particularly where the educational process possesses such a strong relationship to the practice through the involvement of practitioners. However one views the push and pull of this relationship, the issue highlights the role that studio plays in instilling a sense of community, and in defining behaviours that endure. This is supported by a survey conducted by the AIAS Studio Culture Task Force in 2002 which found that students use the studio as a vehicle for developing a sense of belonging to the architectural community. However, notions of community tend to be accompanied by other behavioural concepts, such as competition. This also emerged in the survey which found that students perceived that the greater time they spent in studio, the better they would perform, and that a macho culture of 'personal sacrifice' pervaded. This brief example demonstrates that studio embodies a range of complex, intertwined issues, many of which contain both positive and negative associations. These will be discussed later.

Accepting Marshall McLuhan's (1964) edict that 'the medium is the message', the indications given to students about the nature of design activity through the vehicles of space and time, that Shaffer (2003, p.4) terms 'surface structures', are critically important. Traditionally, studio has a high level of space for students, and time management is typically slack, with working hours and often staff involvement, extending well beyond that which is formally timetabled. This suggests that design is something that evolves over time, and is an indication to the student of the required / desired level of engagement. In this regard, design studio represents a comparatively informal environment that is conducive to creativity, experimentation, exploration, and expression. This constitutes a major attraction to students, as well as satisfying expectations of the conditions required when studying a creative subject (Kellogg, 2004). There is much evidence to demonstrate the generic importance of

alignment between student expectations and the experience delivered (Miller, Bender and Schuh et al, 2005), and in this respect architecture fairs well. Contrastingly, however, the casualness of studio²⁶ also appears to generate difficulties for students who increasingly require to work to fund their passage through higher education, or have equivalent external commitments that have to be accommodated and balanced.

Studio carries with it an associated mythology, which pervades every school and with which the new student becomes rapidly familiarised. This tradition includes a set of beliefs and values which inevitably conditions students in terms of their understanding of expected behaviours, values and norms, and hence their resulting learning experience²⁷. The culture of studio is not an entirely universal phenomenon²⁸, but within the differences existing between schools can be found an underlying base of shared values and norms. To the majority of students and staff it encapsulates the essence of architecture education and the act of learning to be an architect (Koch et al, 2002).

3.3.2 The Social Value of Studio

It is argued that the most significant attribute of design studio is the culture that it develops between students, as well as staff and students. Both the social dimension of studio, and the opportunity for collaboration and sharing, act as stimulants to learning (Parnell, 2001). It is clearly the case that many consider that studio culture, its behaviours, values, and norms, represents one of the most enduring qualities of architecture education, and one of the most memorable. Ultimately it is not so much the project work that acquires lasting significance, but the culture that the learning environment propagates (Koch et al, 2002). The contribution of studio culture out-with the formal curriculum has been referred to as the 'hidden curriculum' (Dutton, 1991, p.167), and it would appear that these aspects are as significant to student learning as the course itself. Whilst

²⁶ Relative to many other learning settings, in particular those found in the UK secondary education system

²⁷ For a list of commonly encountered myths relating to be found in design studio and architecture schools, see Appendix 5.

²⁸ See footnote no. 2 in the Introduction.

aspects of the formal learning process, such as the review process or 'crit', can be notoriously demanding on the student, and at times pedagogically questionable (inter alia Anthony, 1999), they too are cast in a positive light when considered with the benefit of hindsight, due largely to the spirit of camaraderie that is nurtured between peers over the period of a course. Indeed it would appear that there exists something of a spirit of survival in the face of duress and adversity amongst many students, as documented by Koch et al (2002, p.6) the AIAS Studio Culture Task Force report of 2002 entitled 'The Redesign of Studio Culture'. Typically studio culture generates close bonds between individuals and a strong sense of community, this being advantageous to the learning experience as well as in future social and professional lives. These bonds can be very powerful and frequently endure over the course of a lifetime. Thomas Fisher describes this in terms of a 'fraternity' culture (Fisher, 1999). Indeed the process of learning through socialisation is a powerful component within the 'hothouse' environment of studio.

3.3.3 Social and Academic Integration

One of the strongest mechanisms for supporting the diversity of learners within a cohort is the cultivation of a community that builds a strong inter-relationship between the learning process and social activity. The work of Vincent Tinto (1993) has highlighted the importance of the social and academic integration of students if they are to become and remain engaged in the education process. He identified three stages characterised as 'rites of passage', 'transition', and 'incorporation' (Tinto, 1993). In the context of architectural education, the process of socialisation is relatively rapid for the majority of students, this being facilitated significantly by design studio, although experience shows that this socialisation process can become constrained by the adopted learning behaviours themselves in that the intensity of curriculum demands negate strong affiliations to be established outside the discipline (Koch et al, 2002).

Through consideration of the writings of socio-cultural theorists such as Leo Vygotsky, Shaffer (2003) has observed how learning takes place through the internalisation of social processes of evaluation, and contends

that therefore 'the norms of the community become a framework for individual thinking and individual identity' (p.5). The process by which the student participates in practices adopted by a community, was also identified by Wenger (1998) as being central to learning. Indeed, Wenger noted that communities of practice typically form in groups united by discipline interest as a means of disseminating and exchanging knowledge, and of sharing resources for learning. Thus the learning process involves both individual and social dimensions.

3.3.4 Developing a Professional Persona

The defining nature of professions is that of a social grouping bound together by its specific knowledge and expertise, accepting that this is itself an evolving entity (Duffy, 1998). The binding of the group also comprises standards, codes, and principles of practice that confer a degree of cohesion. The issue of professional definition is itself a complex one, and one that lies outside the scope of this study. The above definition will thus be accepted for the purposes of this work.

The profession of architecture has historically aligned itself closely with the fine arts. This has been reinforced by the emergence of a formal education structure from the Ecole des Beaux-Arts, and the unity of the education system serving to lend cohesion to the profession. Thus the studio, through its practices and processes, engenders a sense of professional persona in a remarkably brief period. The much documented notion of the 'hidden curriculum', which will be discussed later in this chapter, acknowledges the process of osmosis that achieves this, as much of the learning or assimilation is implied within activity as opposed to being explicitly stated or taught.

Alongside the professional persona, the learning process is also instrumental in the development of the student's individual persona, and hence of confidence. Whilst the social dimension of learning within studio is of fundamental importance, the agenda for facilitating learner independence primarily concerns the individual. Through exploration of

specific learning theories, the following section discusses issues relating to processes involved in personal learning within the context of architecture.

3.4 Theoretical Underpinnings

Of the multitude of learning theories that exist, there are two strands of thought that provide the fundamental theoretical underpinning for studio-based design teaching; that of constructivism and experiential learning, and that relating to individual learning processes, preferences, and 'styles' (Salama and Wilkinson, 2007). This section will discuss each of these in turn.

3.4.1 Constructivism and Experiential Learning

In traditional educational theory, the dominant paradigm for many years was that of didacticism, based on consideration of the learner as a passive recipient of knowledge, the 'empty vessel' (Usher et al, 2001, p.80). The advent of constructivism as a theoretical framework offered a radically different perspective, philosophically, epistemologically and pedagogically; one that was both active and student-centric. Unlike behaviourist theories, in the constructivist paradigm the notion of student passivity is replaced by one of active learning whereby the student's learning develops through exploration and enquiry and, in doing so, the individual assumes greater responsibility and ownership for their own development (Dinand, Zaim, and Ozgur, 2003). It regards each learner as an individual entity, uniquely conditioned by his or her background, perspective and prior learning.

John Dewey's statement of 1915, that the creation of an expressive output is key to thinking and learning, is recalled in the case of design studio, particularly when considered in terms of the work of Kelly (1955) and Piaget (1972). Constructivist theory has its origins in the work of Kelly's Personal Construct Theory (1955), which postulated that the learner develops through the process of 'adaptation', incorporating the dual processes of 'accommodation' and 'assimilation' (Piaget, 1972). The former involves the learner adjusting their understanding of the world through new experiences; whilst the latter describes the process whereby the individual alters their hypothesis, or view of the world, to correspond

to new information. In this way, the 'constructivist' process involves the assembly and structuring of information, relating it to knowledge that is already familiar (Nicol and Pilling, 2000). The overall objective of constructivism is meta-cognition, in which the learner engages with the process of reflection on the structure and nature of the problem that they face as well as their approach to the challenge, and doing so generates or constructs innovative approaches or strategies for resolution. As such, constructivism forms an obvious theoretical framework for design and design education (Cunningham, 1991). The active and exploratory nature of constructivist learning links it theoretically to Dewey's concept, although Piaget's work sought to provide a deeper understanding of the cognitive development process through which knowledge and learning are constructed.

Dewey's ideas about experiential learning, published in 'Experience and Education' (1938), were based on the belief that knowing and doing are inextricably linked, and that learning takes place within the context of activity. Accordingly, Dewey advocated the integration of knowledge and skills development into the lives and experiences of the learner, and effectively defined a theoretical context for the practice of studio-based teaching as developed in the Beaux-Arts. His ideas viewed learning as an interactive sequence of creativity, observation, reflection, and further action, this notion being further developed later in Kolb's Experiential Learning Cycle, and in Schön's work on reflective practice and the notion of learning-by-doing (Webster, 2004). Dewey's thinking therefore aligns powerfully with Astin's (1995) assertion that students are most likely to derive optimum benefit from their education if they are 'meaningfully and psychologically involved' in the learning experience (Rautopurp and Vaisenen, 2001, p.2).

According to constructivist learning theory, the tutor assumes the role of facilitator, directing students in ways that ensure that they will learn from their experiences, as it is in this way that skills, language, method and process are best inculcated (Ledowitz, 1985). Ultimately the objective is for the student to become an independent and effective thinker, and the

accommodation of the individual's perspectives, opinions and experiences crucially conveys the sense of the individual being valued in the learning process. Indeed, learning is derived from dialogue between student and tutor, in which the experiences, perceptions and values of both parties contribute and are seen to have equivalent validity. Moreover, discussion that demonstrates richness through the breadth and divergence of opinion, is critical to the development of independent thinkers and learners (Brown and Moreau, 2002). Constructivism also seeks to capitalise on the richness embodied by the differences in learners, and strongly opposes the notion of students as 'empty vessels'.

The process of reflection (discussed in detail later in this chapter) in the development of personal knowledge is central to constructivist thinking in which, quite literally, the student assembles knowledge from experience, which is also informed by individual background and context. Indeed the interpretation and meaning placed on the physical environment in which we live is of great significance to the student or architect, perhaps as much as the influence of knowledge and information available within a professional context (Levitt, 2003). In other words prior experience and conditioning form a vital ingredient in the learning process.

3.4.2 The Individual Learner

As already discussed, the concept of Constructivism is inextricably linked to that of the individual learner and, by association, to the phenomenon of diversity within learning groups. In discussing individual learning, there are two fundamental dimensions that require to be addressed within the personal context of the learner; that of the learning process, and that of subject matter and curriculum content. Corresponding to these dimensions, this section will discuss two learning theories which have been pre-eminent in the development of our understanding of cognition; Jung's Theory of Psychological Type from which learning style theory has predominantly emerged, and Gardner's Theory of Multiple Intelligences which has served to expand conceptions of human intelligence (Silver, Strong and Perini, 2000).

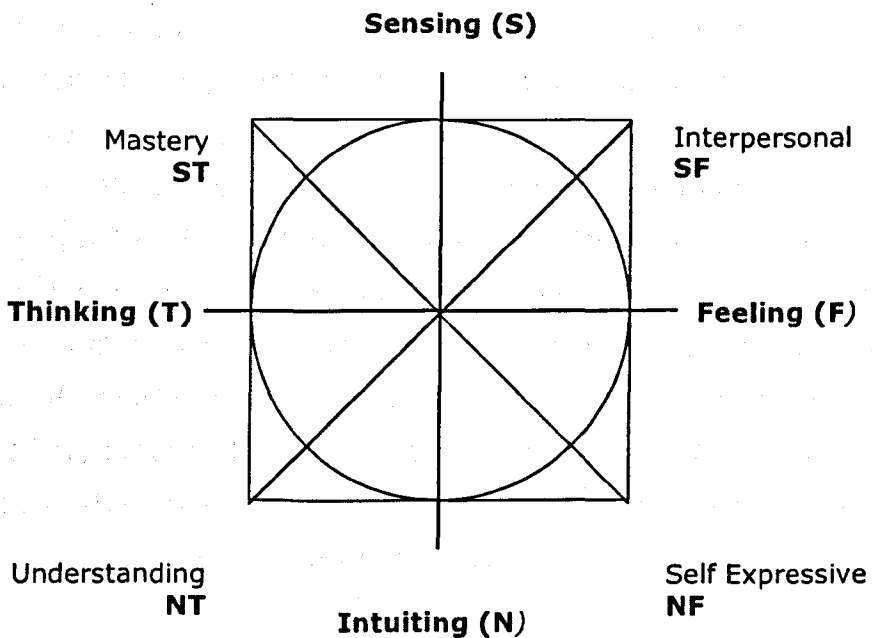
3.4.3 Jung's Theory of Psychological Type

Published in 1921, Carl Gustav Jung's Theory of Psychological Type, one of the most complete theories developed to explicate human personality, identified four behavioural attributes that produce a range of different personality types when paired in different combinations (Wicklein and Rojewski, 1995). Jung identified that all learning processes require both cognitive functions of judgement and perception²⁹, and related the bipolar functions of 'sensing' and 'intuiting' to perception, and 'thinking' and 'feeling' to judgement (Krause, 2007). With reference to Figure 01, for most people, one of the pairings in the diagram is dominant or most representative or characteristic of the individual's learning preference. In any given context one dominant characteristic is displayed. Each characteristic in turn influences the perception and judgement of the individual, and relates to the 'dependencies' that individuals develop for particular behavioural attributes over those that oppose them.

Jung's theory is also founded on the observation that the variety of behaviours exhibited by people is ordered, logical, and rational, and results from subtle differences in mental and attitudinal functions (Stevens, 1994). Jung proposed that each person displays two attitudinal types which relate to the individual's means of processing information; 'extroversion' and 'introversion'. These describe how the individual relates to the setting and utilises the four mental functions described above, although the mental function remains unaltered by the nature of the relationship (Silver et al, 2000).

²⁹ Jung identified two essential cognitive functions; perception, or how people absorb information, (concretely by seeing, or abstractly by intuition) and; judgement, or how individuals process information (logically by thinking, or subjectively by feeling) (Silver et al, 2000, p.21).

Figure 01: Cognitive Profile Model based on Jung's Psychological Types



Jung's Mandala, from Silver, Strong, and Hanson (1996), p.14.

Extroversion, as might be assumed, describes a relationship with people, places, etc., whilst introversion relates to ideas, concepts and thoughts (Lamberth et al., 1978; Lawrence, 1982; Myers & McCaulley, 1985). The attitudes of the introvert and extrovert are mutually exclusive, although they can alternate depending on the circumstances and context. In essence, Jung's theory asserts that individuals react in different ways to the same scenario or sets of stimuli on the basis of their attitudinal and preferential differences.

Jung's Theory of Psychological Type reveals a number of behavioural attributes that are predictable, and points to the individual's broad orientation to tasks and people, as well as the resources that the individual can bring to learning situations. However, it does not assess the personality of the individual as determined by background and genetic composition. This distinction is crucial. In other words, the theory's value lies in the provision of a method of delineating a broad categorisation of people that can be usefully harnessed in consideration of learning.

3.4.4 Learning Styles

The notion of learning styles was introduced in the 1970s, but has latterly become an area of increasing interest amongst educationalists, leading to the generation of a significant literature base. The term 'learning style' refers to Kraus, Reed, and Fitzgerald's definition of the individual's preferred method for receiving information in any learning environment (Demirbas and Demirkan, 2003). Fox and Bartholomae (1999) consider this preference to have a biological and developmental root, creating personal characteristics that govern how individuals perceive, process, and retain information (Chou and Wang, 2003). However, as Riding and Cheema (1991) stated, the concept of learning styles was not a new one, but extended the prior and more specific notion of cognitive style, to describe the learning process in its totality.

'Learning style' is a term that has often been deemed synonymous with 'cognitive style'³⁰, a position contested by Kolb who contended that the former is more inclusive, addressing Bloom's domains of 'cognitive, affective, and physiological styles' (James and Blank, 1993; Roberts et al, 2006). This was echoed by Keefe (1979), who considered the cognitive dimension to be but one of several components, leading to a definition of learning styles as follows:

'characteristic cognitive, affective, and physiological behaviours that serve as relatively stable indicators of how learners perceive, interact with, and respond to the learning environment' (p.4)

(Keefe, 1979)

In a similar vein, James and Blank's (1993) definition of learning style, capturing the spirit of Kolb, offers a further useful definition:

'...the complex manner in which, and conditions under which, learners most efficiently and most effectively perceive, process, store, and recall what they are attempting to learn' (p.48)

(James and Blank, 1993)

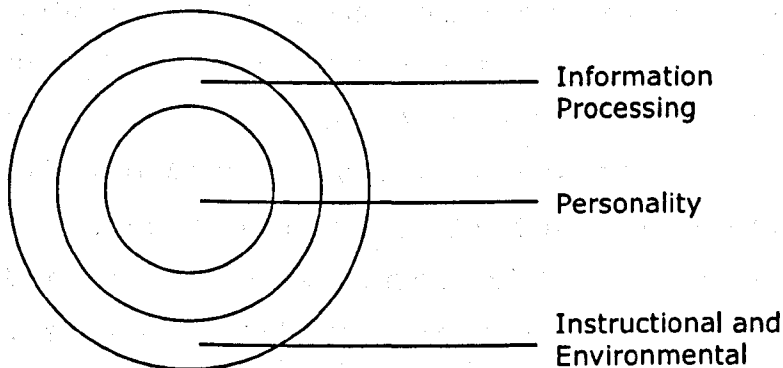
³⁰ The terms 'learning style' and cognitive style' are used inconsistently in the literature (Hede, 2003)

Whilst some controversy has existed around the concept of learning styles, it is generally accepted that students do approach knowledge acquisition and skills development in different ways. The problem, however, is how these differences are categorised, and a lack of understanding about the degree to which the learning style of an individual can mutate (Dinand et al, 2003). Indeed there are numerous constructs of learning styles, and differing perspectives on how these may be categorised.

Despite the existence of many constructs, these diverse interpretations generally exhibit a common root in Jung's Theory of Psychological Type and hence broadly equate to one another. The complex area of learning style theory was conveyed by Curry (1983, 1987) in what became known as the 'onion model' (see Figure 03).

Curry's model groups learning style instruments into three concentric layers depicting those relating to personality and psychological type, information processing, and those influenced by environment.

Figure 02: Curry's 'Onion Model' (1983)



Taken from Curry (1983).

The relationship between a student's learning style and their learning environment has also been an area of dispute, with a variety of opinions expressed regarding the benefits of a match or mismatch (Dinand et al,

2003). It is important to note that individuals do not themselves display all the characteristics of any psychological type. There are many complicating factors that influence the individual, such as cultural, environmental, and hereditary phenomena. It is recognised that particular types do tend to be attracted to particular areas of work, and one can therefore reasonably suppose that they are similarly drawn to specific educational fields and subject areas. Additionally, as Silver, Strong and Perini (2000) confirm, the use of learning styles is not static, although research suggests that individuals tend to adopt preferred styles over the others. Notwithstanding these complexities, it is likely that in a cohort of any size, there will be represented a number of different learning styles at any point in time, each of which should be accommodated by the adopted pedagogy if it is to be inclusive. Effective learning is assisted by an understanding of the different learning styles and approaches that students exhibit, and the construction of a learning environment that accommodates these on an equitable basis. It therefore follows that the provision and nature of learning support appears to lie at the heart of the issue, together with the need for enhanced clarity regarding the learning process and the values it embodies.

3.4.5 Teaching Styles

In parallel with the concept of individual learning styles has emerged that of teaching styles, this proposing that individuals have tendencies to approach teaching and instruction in different ways, including the possession of characteristics that can be broadly categorised. As logic might suggest, where these can be aligned one might expect to achieve benefit for both tutor and tutee (Robotham, 1999). For instance, this was concluded in a study of the relationship between learning and teaching styles in the field of engineering, where dominant tendencies in both student and staff were also found, suggesting the inclusion of certain teaching methods in the approaches of faculty (Felder and Silverman, 1988). The possibility of a student reacting negatively to a learning situation that opposes their preferential style, was identified by Kolb in 1984, this being reinforced by further studies by Felder (1993). Conversely, however, Robotham (1999) also proposed possible

advantages in the learning setting being at odds with the learning style of an individual in that this scenario could promote the development of all learning modes in the individual. It is probable that any cohort will include learners who collectively exhibit a diversity of learning styles, and that this profile is likely to mutate over time depending on the learning environment and the reactions that the individuals concerned have to it. Rather than attempting to crudely categorise learners within a specific group, Robotham (1999) argued, that were teaching to include methods designed to engage a diversity of learners, the spectrum of learning styles would thereby be addressed and engagement and active participation fostered across a cohort. However, work by Wicklein and Rojewski (1995) also suggested that there may be a correlation between dominant learning style and professional orientation, an aspect also alluded to by Kolb, Boyatzis and Mainemelis (1999) in their discussion of the influence of specific environments and professional cultures and value systems on the learning of groups.

3.4.6 Gardner's Theory of Multiple Intelligences

The work of Howard Gardner posited an alternative view of learning to that promoted by Jung, placing emphasis on a personal response to curriculum content and learning matter rather than the process of learning itself.

In a departure from the previously dominant paradigm that viewed intelligence as a singular entity, Gardner (1993) proposed that it is multi-dimensional and has many manifestations, consisting of eight categories as follows³¹:

- Verbal-Linguistic Intelligence
- Logical-Mathematical Intelligence
- Spatial Intelligence
- Musical Intelligence
- Bodily-Kinesthetic Intelligence

³¹ See Appendix 3 for a summary relating to each intelligence category.

- Interpersonal intelligence
- Intrapersonal Intelligence
- Naturalist Intelligence

As with Jung's learning styles, Gardner contends that whilst an individual demonstrates dominant tendencies in one or two areas, everyone possesses all of these categories of intelligence, and utilises them depending on the context. Indeed the potential for others types to exist has not been ruled out by Gardner. In other words, intelligence is not a pre-ordained, fixed entity as suggested by previous theories such as those leading to the IQ test, and is capable of being developed (Silver et al, 2000).

Whilst Piaget's ideas on Constructivism form the root, the Theory of Multiple Intelligences challenged the narrow notion that intelligence is a fixed entity measured principally by language and logic. Rather, Gardner expanded the thinking of Piaget to offer a pluralist approach, embracing cognitive psychology, anthropology, sociology, and other domains in an attempt to better explain human intelligence. In Gardner's (1983) words, Piaget's theories required augmentation that introduced the 'possibility of similarity in linguistics with the symbol systems that are associated with musical, bodily, spatial and personal symbol systems' (p.25). Moreover, Gardner contended that intelligence is dynamic and can be developed through teaching and learning. Importantly too, Gardner postulated that categories such as logical-mathematical intelligence are universal in human intelligence, whereas other categories such as musical intelligence are highly conditioned by one's cultural context.

Although the Theory of Multiple Intelligences has become pre-eminent within the field (Silver et al, 2000), other concepts of multi-faceted intelligence have been postulated in recent years, including Sternberg's (1988) Triarchic Theory and Goleman's (1995) Emotional Intelligence Model, these alternatives being indicative of a more widespread dissatisfaction in the singular definition of intelligence of the preceding paradigm.

Whilst Gardner's theory was widely accepted by educators, and stimulated the widespread implementation of new teaching practices, it was initially simultaneously criticised for its lack of empirical basis (Shearer, 1994). However, a number of assessment instruments have since been developed and validated over the last twenty years, including the Multiple Intelligence Developmental Assessment Scales (MIDAS), 1987) and the Hillside Assessment of Perceived Intelligence (HAPI, 1994), and the Multiple Intelligences Indicator, a self-descriptive assessment instrument developed by Silver, Strong, and Perini (2000).

3.4.7 A Combined Theoretical Framework

Whilst the two theories of Learning Styles founded on Jung's Psychological Types and that of Gardner's Multiple Intelligences exhibit distinct differences, they do not work in opposition³² (Chau, 2008). Indeed it has been recognised that there exists a correspondence that enables them to be applied simultaneously (e.g. Guild, 1997; Silver et al, 2000; Dunne et al, 2001; Denig, 2004). For example, each theory is student-centred and supports the case for the accommodation of learner diversity through the challenging of traditional teaching and learning practices (Denig, 2004). Earlier, Silver, Strong and Perini (1997) had similarly identified a complementarity between the two theories, the strengths of one countering the disadvantages of the other. This phenomenon arises from the fact that Multiple Intelligences deal primarily with issues of curriculum content, whilst Learning Style theory, based on Jung, focuses instead on the learning process (Silver et al, 2000). Founded on this observation, it was proposed that true holism may be achieved educationally through the combination and integration of these theories, and that in doing so the full diversity of human learning may be embraced in a robust pedagogical process (Silver et al, 1997). Expanding on this, they proposed the integration of theories by means of a series learning strategies designed to reduce the impact of limitations and maximise strengths. This is a concept that will be returned to later.

³² In discussing the integration of Jung's Theory of Psychological Type and Gardner's Multiple Intelligences, Chau (2008) cited Silver Strong and Perini (2000), as well as Harvey's Intelligences-Learning Styles Menus.

3.5 The Epistemology of Design Studio

3.5.1 Constructivist Roots

The theory of constructivism takes its epistemology of knowledge from a process of construction. The notion of the personal nature of knowledge construction formed the kernel of Kelly's Construct Theory (1955), which also proposed that the cognitive and learning styles of the individual, condition the ability to learn (Webster, 2004). In architectural design, knowledge and understanding of the cognition of 'designerly thinking' is acquired through the assembly of models and the production of drawings. In this way students not only acquire the cognitive structures of knowledge involved in the design process, but acquire knowledge, essentially tacitly, of the process of design thinking itself. Hence process plays a critical role in the learning of the student, that ultimately generates a physical output that enables the product of the learning to be communicated in the public domain. Public presentation enables external input and insight into the aesthetic and functional attributes of the product that further inform the overall learning experience. Over time, through the process of assemblage and construction, the student develops adeptness and ability in thinking as a designer. In this regard, the formal output acts as a physical manifestation of the knowledge that the student has acquired, and their ability to structure that knowledge in appropriate and meaningful ways. It therefore follows that learning is fundamentally a process by which knowledge is acquired, and interpreted and represented by a physical output, a process referred to by Papert as one that 'contributes to knowing rather than to knowledge' (Oxman, 1999, p.6). Finally, the learning environment of the studio offers a setting for learning to be 'situated', occurring in space, and through activity, that makes it meaningful. This also corresponds to Ackerman's (1996, p.25) notion of 'cognitive apprenticeship' which derives from constructivist principles, and which proposes a learning model which 'enculturates students into authentic practices through activity and social interaction in a way similar to that evident, and evidently successful, in craft apprenticeship'.

Constructivism, rather than determining or prescribing a particular pedagogy, instead explains how knowledge is acquired through learning-by-doing (von Glaserfeld, 1989). Within this process, the importance of the prior experience of each learner is critical to his or her knowledge development, and to the way in which acquired knowledge transforms his or her view. This was emphasised by Gredler (1997), who observed the importance of the social relationship between the learner and tutor as also being of great influence. Within the context of architectural study, the importance of this dimension may be seen particularly during the early phase of a course where the student has limited subject knowledge. Here, the relationship between student and tutor serves to cultivate, not just knowledge and understanding, but also an appreciation of professional values and behaviours. As an active learning process, studio-based design activity automatically places the student at the centre of the learning experience, and accordingly invests responsibility for learning substantially on the student. Equally, effective learning relies on the sustained motivation of the student and this, as von Glaserfeld (1989) noted, is strongly dependent on student perceptions of, and confidence in, their ability to learn. In the case of design this derives from reflection on work already completed, and the sense that progressively the student is acquiring the artistry associated with the qualified practitioner. Feedback therefore acts as a key learning component for the student embarking on study within the field, and performs a critical role in influencing levels of confidence and motivation. From the perspective of an individual student, the concept of structuring learning so as to stretch and challenge has evident value, provided that the limits of this are contained within the 'zone of proximal development' (Vygotsky, 1986, p.187), i.e. the extent to which a student is stimulated by the need to extend him or herself, and the extent to which the construction of knowledge is transformed by the social and educational context. However, rarely can all students be responded to in this way when part of a larger cohort, all of whose learning is founded on different contexts, and who represent a spectrum of ability and ambition.

3.5.2 The Independent Learner

'Independent Learning is that learning in which the learner, in conjunction with relevant others, can make the decisions necessary to meet the learner's own learning needs' (p.3)

(Kesten, 1987)

The notion of the independent learner has developed in tandem with that of the lifelong learner, the latter being borne out of the proliferation of knowledge, notions of CPD especially in professional spheres, and more flexible and fluid permutations of career paths and other forms of personal development. Indeed, as Hughes (2001) identified from analysis of the QAA Benchmark Statements, virtually all referred to independent learning, most commonly in connection with subject specific and transferable skills. Increased awareness of diversity within the student body, and the benefits of positively engaging the innate richness residing in such diversity, has also stimulated the desire to develop pedagogies that promote independence in the learner.

It has been identified that misunderstandings can occur in discussing the independent learner (Broad, 2006; Gilham, 1995), with terms such as the 'autonomous' or 'self-directed' learner being widely used as substitute terminologies, despite having separate if related meanings³³. Independent learning concerns issues of process, these varying according to the subject, the learning setting and the practices within, as well as the personal conditioning, background, attitudes, behaviours, and ability of the student. Consistent with the notion of 'relevant others' in Kesten's definition above, Biggs (2003) identified that all learning is relational, and hence by definition interdependent, the role of the independent learner being to identify and exploit key relationships in the service of their own

³³ Autonomy was defined by Holec (1979) as 'the capacity or ability to take charge of one's learning', i.e. the capability for independent learning.

Self-directed learning was defined as 'a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes', i.e. the motivation for independent learning (Knowles, 1975).

learning needs. Another critical determining factor in independent learning is that of student confidence in their ability to progressively take responsibility for and ownership of the learning, i.e. their disposition to dependence or independence. Related to this is the crucial role of the facilitation of learning rather than more traditional didactic approaches (Moon, 1999). Over the course of this and the subsequent chapter, these aspects will be discussed within the context of architecture education.

3.5.3 Learning Approaches

It is recognised that there is a close relationship between the approach that a student takes to learning (i.e. 'surface' or 'deep'), and the quality of the output as a manifestation of that learning (Marton and Saljo, 1984). In the case of surface learning, material is superficially learned, or design models and precedents replicated without full recognition or understanding of the specific conditions and context. Conversely, where deep learning occurs, the knowledge constructed is understood and meaningful at the level of the individual. As Marton and Saljo (1984, p.4) observe, in the case of design, deep learning is a constituent part of the development of an individual's tacit 'theory of design'. The four key facets relating to the facilitation of 'deep' learning were identified by Biggs (1989) as being:

- Internal motivation and ownership of the learning task, which is cultivated by involving the student in the identification of learning material, and the planning of the learning process.
- Active learning that is far more productive at engendering deep learning than passive means.
- Interaction and discourse that enables the exploration of thinking through the exchange of ideas, which also promotes reflection
- A well-constructed knowledge base, in which new learning bears a meaningful relationship to existing knowledge.

The first point above corresponds to the central need in the development of the independent learner to make learning personally meaningful, and recalls the studio setting's alignment with Shaffer and Resnick's concept of

the 'thickly authentic environment'. It is thus contended that the facilitation of deep learning is fundamental to embedding independent learning. Additionally, when viewed against Biggs' four factors, the process of learning-by-doing, involving dialogue and discourse as a means of cultivating critical reflection, suggests that studio-based learning should prove a powerful agent in the development of deep learning, at least in theory.

In contrast, the factors identified by Biggs that promote 'surface' learning were defined as:

- Heavy workload that negate the opportunity for discourse and reflection.
- Relatively high levels of contact time that increase tutor dependencies and remove opportunities for independence.
- Excessive quantities of course material that increase the likelihood of superficial learning as a consequence of volume.
- Lack of opportunity to study in depth that reduces the probability of the student taking ownership of the learning process
- Lack of personal choice that can serve as a de-motivating factor
- Assessment methods that induce anxiety can be counter-productive to deep learning.

Whilst the factors relating to deep learning related to core issues of pedagogical design, the six points above are more concerned with the management and implementation of the learning process. Reference to literature such as the AIAS Studio Culture Task Force Report (Koch et al, 2002) indicates that architecture does not perform well in relation to these factors, suggesting that differences exist between the pedagogy of design studio as a theoretical construct, and as a practiced reality.

3.5.4 Knowledge in Design Studio

The epistemology of architecture involves the designer's ideas that represent a personal interpretation of an architectural problem that has an infinite number of solutions (Shaffer, 2003). This aspect of design

education offers the opportunity to develop rich debate through comparative discussions about the work of individuals, involving references to established precedent, theoretical ideas, and the work of peers. The personal nature of the inquiry allows this to take place without limiting or constraining the creative flexibility of the individual student. Design studio is historically epitomised by an absence of a single body of knowledge, or 'canon of design principles' (Shaffer, 2003, p.6) relating to any one project, or to any specific level in a course of study, within overall limits. This freedom to develop and articulate ideas relative to the broad knowledge of the profession / discipline, and within a pedagogic framework of project work and formative feedback, is one of the defining characteristics of design studio. Thus, design studio accords with the assertion that effective learning environments demonstrate an aligned structure, pedagogy, and epistemology (Shaffer, 2003). The time, space, available expertise, and media of expression form the structure, whereas the organisation of learning activities in the typical project / review structure provides a pedagogy through its approach to acquiring understanding of architectural ideas. Finally, the understanding of architectural ideas itself becomes a coherent epistemology when integrated with the structure and pedagogy of studio. This supports the view advanced by Schön (1985), that theory and practice (design activity) are inherently intertwined within the design studio. Students, in solving set problems, begin to cultivate their own identities as designers, although work is largely assessed in terms of the values, knowledge, and understanding of the professional community, ostensibly represented by the tutors.

The design studio acts as a 'unique situational laboratory' in a wide range of areas, and utilising a number of teaching approaches (Travar and Radford, 2003). In this respect it is frequently promoted as a vehicle for optimal learning. Much has been written about the community aspects of studio, and the importance of social interaction as a means of promoting communal learning, as well as the sense of togetherness that often supports individuals when faced with demanding challenges (inter alia Koch et al, 2002). Dialogue, whether casual or task oriented, is central to

effective learning, and the methods by which educators facilitate meaningful conversation, and support the construction of knowledge collectively and individually is crucial. Thus, Yinger and Villar (1986) observed, effective learning 'takes place in a multidimensional setting where learning is jointly constructed by instructors and students working together' (Dinham, 1987, p.5). However, despite the qualities of studio that lend themselves to rich inter-personal or inter-disciplinary working, the disconnection between academia and the world of practice opens up questions about the ease with which this could be realised (Worthington, 2000).

As has already been established, the fundament of studio-based learning is that of learning through doing, and the accumulated experience of repeated application. The centrality of learning by experience refers to the importance of tacit knowledge within the educational process. Polanyi (1966) defines tacit knowledge as that which is inseparable from the individual, i.e. that which is acquired through experience. Indeed the process of creating architectural propositions necessary involves the complex fusion of explicit theoretical knowledge with implicit or tacit knowledge. This accords with Kant's assertion that knowledge results from the combination of logical thought and practical, sensory experience (Heylighen, Bouwen & Neuckermans, 1999). Oxman (2004, p.68) contends that knowledge forms a key characteristic of design thinking, citing knowledge of typologies, or families of design archetypes, as an example of a 'knowledge structure' that informs the generation of new situated solutions.

Architects learn through ritualistic behaviour involving the exploration, testing, and development of ideas emanating from discussion with an experienced designer or, more commonly in the practice setting, shadowing the experienced practitioner. Hardin describes the processes as being both 'edifying and exhausting', the former because of its creative nature, and the latter due to the shift to learning through total cultural immersion rather than accomplishment in applying a specific body of knowledge (Hardin, 1992, p.215). Cuff contends that espoused theory,

i.e. explanation and substantiation of design strategy or decisions, fails to sufficiently describe all the design actions, but refers more closely to the 'beliefs and ideals' of the designer (Cuff, 1991). Consequently, the incidence of conflict or contradiction between espoused and 'theory in use', i.e. theory that influences and guides actions, is widespread. Schön (1983) found the artistry of thinking and acting as an architect to be an obscure and ill-defined process, shrouded in mystery. Unsurprisingly, therefore many students embarking on a course of study initially find the design process opaque and difficult to grasp. Equally this challenges tutors when they perceive a lack of understanding of rudimentary issues, which cannot be quickly remedied through instruction as the requisite learning can only occur within the context of learning-by-doing (Schön, 1983).

In many respects studio-based learning in architecture is closely allied to the processes adopted in Problem-Based Learning (Roberts, 2004), originally developed to address difficulties in the medical area of professional education, a field exhibiting comparable phenomena of rapid knowledge growth and fragmentary information (De Graaf and Cowdroy, 2003). Problem-Based Learning³⁴ incorporates Carl Rogers' concept of 'student-centred learning', and embraces the notion of learning-by-doing. Arguably, however, the 'doing' of the medic differs from that of the architect in that the medic's task is primarily about discovery, or 'uncovering', whereas the designer is required to construct something new from the information at his or her disposal. The creative connecting of conditions or facts relating to a design problem with concepts that could be used to structure their resolution, has been likened to the psychological concept of 'associationism' (Thorndike, 1965). Proposals resulting from this process are considered within the context of the cultural values of the profession, and if deemed successful, form part of the personal or collective field of reference that is drawn upon in the future consideration of similar scenarios (Lawrence and Sharag-Eldin, 2000). Alternatively, the

³⁴ According to Roberts (2004), some teachers of architecture reject the notion of a relationship between studio-based practice and Problem-Based Learning (PBL). This rejection is founded on a misinterpretation of PBL, and a misguided belief that it concerns problem-solving, which is suggestive of deterministic approaches or finite solutions.

process of problem-solving was viewed by Kohler as a 'restructuring of the perceptual field' in which the problem is reinterpreted to generate strategies that may lead in turn to a solution (Marx and Hillix, 1963)³⁵. However, irrespective of the interpretation of process, new knowledge is constructed in both cases.

3.5.5 Reflection and Praxis

'Because there is no recipe, learning to judge well must happen by trial and error and is best done in the shadow of a master of that elusive art, and in the company of peers who aspire to the same ability' (p.11-12)

(Habraken, 2007)

The traditional and foremost paradigm for architecture education developed primarily in the studio setting, has revolved around the dissemination of knowledge, design sensibility and notions of 'good taste', the latter being largely professionally derived. Explicit delivery cannot of itself impart the complex knowledge involved in the design process, but students also require to develop skills of synthesis, and it is here that traditionally the role of the 'master' is most influential. The study of the particular approaches, methods or techniques of others typically acts as the catalyst for individual creative endeavour since, as Arthur Koestler (1964) contested, creativity and design do not emerge from a vacuum, but instead draw on a range of sources, observations, or fragments of knowledge in the production of something new (Abel, 1995)³⁶. Architects rely on both a body of knowledge, and a method of inquiry and invention, and the process of reflection is instrumental in developing knowledge and in the synthesis of ideas.

³⁵ The study of psychological development, including the work of Lewin (1951), Bruner (1962), Arnheim (1969) and Ehrenzweig (1971), represents a substantial specialist field, investigation into which lies beyond the scope of this thesis.

³⁶ It is acknowledged that Theories of Creativity can be categorised as follows: psychoanalytical, as exemplified by Freud (1908) and Kin (1952); behaviourist as demonstrated by Skinner (1972); and Humanist as exemplified by Jung (1933) and Koestler (1964). Detailed examination of these theories lies beyond the scope of this thesis.

According to Boud and Walker (1991, cited in Hatten et al, 1997), reflection is the 'the processing and re-evaluation of perceptions, which then become the basis of transformed or new knowledge, and decisions on further action' (p.7). Fundamentally, the reflective practitioner acts as a researcher who develops new knowledge through the application to, and testing of theory through specific situations or problems. Crucially, this building of theory and knowledge is inseparable from the action of doing. Further consideration of the process of reflection has given rise to concepts of 'single loop' and 'double loop learning' (Argyris and Schön, 1974). The notion of 'single loop learning' relates to experiential learning in conditions that are essentially static and predictable. Problem solving therefore refers to a body of experience with solutions that are tried and tested. However, architectural design involves indeterminate problems for a society with rapidly changing and evolving needs. In other words, the conditions within which the profession operates are largely unpredictable. The process of challenging and modifying the frames of reference used in learning is known as 'double loop learning'.

Architecture education is indivisible from the act of making; of drawing, modelling, collage, etc (Carpenter, 1997), and as such represents one of a very small group of practically-driven subject areas within higher education. The process of design may be considered as a form of experimentation by which results are measured against a range of criteria. Such criteria are implicitly understood by staff and become the core of discussions between the tutor and the student. In this way judgements are debated, and moves argued and contested, the criteria effectively imbuing the process with a degree of objectivity which itself correlates to the preoccupations and persuasions of the designer. As a process it is notoriously 'mystical', such mystique arising from both a belief that learning incorporates intuitive abilities, and on account of the great difficulty encountered in articulating things that are tacitly acquired through experience (Schön, 1983). Learning is achieved through an iterative cycle of action, reflection-in-action, and action, in other words through 'learning-by-doing'. According to Ledewitz (1985), design studio acts as the main learning vehicle for the acquisition of a range of design

and communication skills, the development of visual and oral language, and fundamental processes of thinking and reflection (Austerlitz et al, 2002). This process of 'reflection-in-action', in which students and practitioners engage in what he terms 'on-the-spot research', was seen by Schön as a defining characteristic of studio (Schön, 1983, p.102).

The particular ability of design studio to generate a culture of reflective practice, which Schön documented in detail, is unquestionable. His seminal work 'The Reflective Practitioner' (1983) investigated the design process in detail, highlighting the iterative nature of the process of design generation. Progressively, through a sequence of analysis, hypothesis, production, and reflective analysis, the solution emerges in an ever more refined form, to completion. Such a process embodies aspects of intuitive action, where the designer makes moves or judgements that he or she may not be able to rationally explain. The role of tacit knowledge acquired through a series of projects that repeat this design process, thus becomes increasingly apparent in the work of the designer as he or she begins to harness the body of knowledge unconsciously absorbed over time. Of course the acquisition of experience does not of itself assure learning. Rather, student learning is dependent on how experience is utilised (Boot and Boxer, 1980). Reflection requires the student to re-appraise perceptions and opinions in the light of the experience gained; the resultant perceptual development forming the basis for new or transformed knowledge (Boud and Walker, 1991).

Studio and the notion of 'reflection-in-action' are fundamental to education in architecture as well as other disciplines such as art and design. To new students the studio is a complex and challenging environment. It is a place where they are introduced to a plethora of new concepts and viewpoints, but it is also a place that demands simultaneous and rapid engagement with two tasks; that of design, and the process of learning to design. At a fundamental level, architects must learn to deal with complex, indeterminate problems, and Schön contends that architecture students must continually strive to acquire new skills and knowledge without a clear understanding of what it is they need to learn.

That is to say they must 'do' before knowing what to do, this involving particular ways of thinking. This invites an analogy with language acquisition where thought (architectural concepts) and speech (visual forms) develop independently from one another until the skills are developed to articulate concepts visually and forms conceptually (Delage and Marda, 1995,). Similarly the student requires to develop means of cohesively articulating ideas and concepts between drawings and models, demanding the parallel development of visual and conceptual skills. It is when these facets coincide that the student attains what is recognised as 'architectural thinking'.

Schön's theories correspond to the 'Experiential Learning Cycle' developed by Kolb and Fry in the 1970s, in which they describe an iterative learning process of personal experience–personal reflection–personal meaning–personal action (see Figure 03). Kolb and Fry consider the reflective component to be the critical factor in learning, and in the process of deriving new meaning from personal experience. The success of Kolb's cycle is reliant on the attainment of an appropriate balance between experience, reflection, theory, and progressive action (Light and Cox cited in Yatmo and Atmodiwirjo, 2001). Schön draws a distinction between 'reflection-in-action' and 'reflection-on-action'. Reflection-on-action is associated with some form of disconnection between the specific conditions of a project and the tacit knowledge of professional action. In other words drawing on the knowledge gleaned from past experience fails to directly satisfy the conditions of the problem, necessitating a process of reflection to determine new action that will lead to a solution.

Reflection-in-action takes place in the present where action and reflection occur simultaneously, whereas reflection-on-action involves a (re)-appraisal of actions from a historic perspective, even if this history is very recent. Schön's studies of the 'reflective practitioner' have documented a process of learning which, theoretically at least, addresses the needs and personal experiences of the individual, promotes self-directed study, and which has 'learning-by-doing' at its centre.

Figure 03: Kolb's Experiential Learning Cycle

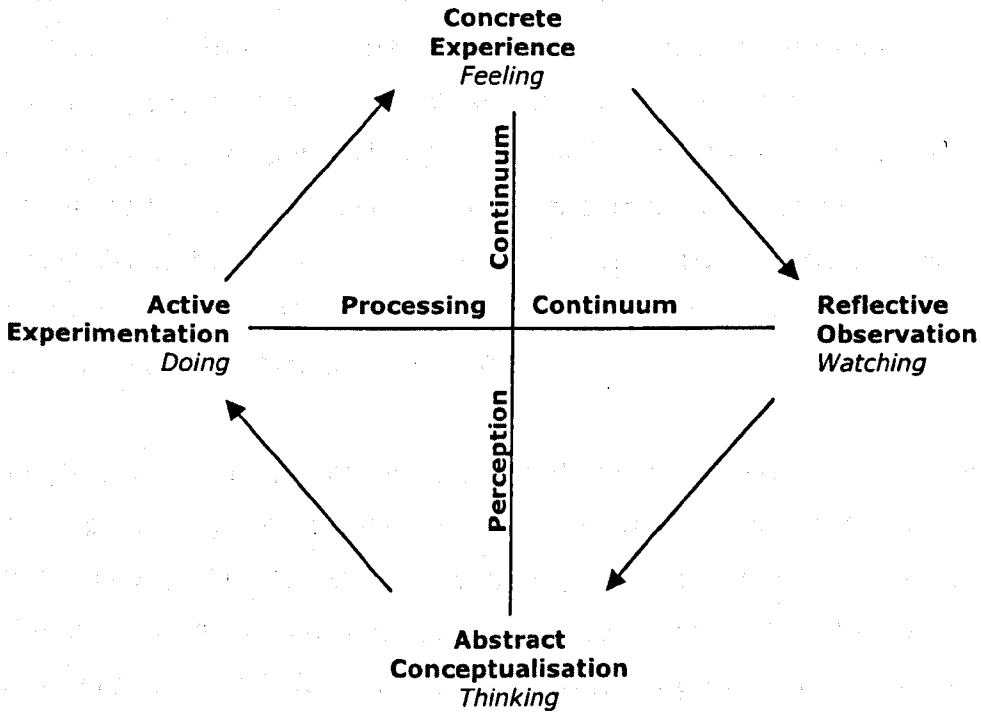


Diagram from Kolb D. (1984). *Experiential learning: experience as the source of learning and development*. Englewood Cliffs, New Jersey: Prentice Hall.

Students engaged in this process thus develop skills in transformative learning through reflection (Schön, 1991; Mezirow, 1990). Schön and Argyris (1974) contended that the truly reflective practitioner engages in the shaping of the society³⁷ in which he or she functions, and that this is achieved through what is termed 'praxis'. This has been defined as 'informed, directed and committed action which forms the basis of social order' (Hatten et al, 1997, p.7).

Equally, the development of critically conscious learners through adoption of processes of reflection, constitutes 'praxis' (Brookfield 1987; Kemmis 1985). Schön regarded praxis as a vital skill for success in professional spheres where both the knowledge particular to a profession is developing, as is the practice context within which knowledge sits. Additionally, public perceptions and expectations of a profession also

³⁷ Here, 'society' can be interpreted variously. For example, it may be seen to refer to the community at large, as well as to the professional community.

change, recognition of a professional grouping being founded on the continued acknowledgement of expert knowledge or skills of value to society at large. In a field where the volume of information and knowledge is increasing exponentially, and where the nature and form of practice are also undergoing profound change, the ability of students to develop the skill of engaging in reflective practice as a means of learning is evident. Importantly, it has also been noted that reflective practice encourages students to consider their learning beyond the purely academic end of achieving an award (McPartland, 2003).

Although Schön's interpretations have dominated much of the thinking over the past 25 years, they have not been without their critics (inter alia Dutton, 1991; Eraut, 1994; Webster, 2000). However, a general consensus has developed regarding the importance of reflection within the learning process, and the value of an iterative cycle of task oriented and reflective activity has been demonstrated (inter alia Kolb, 1984; Boud, 1985; Cowan, 1998).

During the 1990s, understanding of the cognitive properties of design was advanced, offering new potential for the development of this field. Marda (1997) draws a parallel between the design studio process and craft education in which artistic presentation dominates over the articulation of principles. It is further argued that the Achilles heel of studio as traditionally approached, is that evaluation focuses on the final output or product rather than on the measurement of 'increments of knowledge' acquired as a result of studio (Oxman, 1999, p.3). Irrespective of considerable evolution in studio teaching, educators have doggedly held onto their emphasis on the object, the output; the neglect of design methodological process as legitimate pedagogical content, and the lack of explicit definition of the requisite knowledge foundations of design. Oxman (2004) asserts that beyond the dialectic process involved in studio as a 'reflective practicum' (Schön, 1987, p.157), and the characteristic of visual reasoning, 'knowledge' represents a third characteristic of design thinking. This is exemplified by information relating to typologies, or design 'families', which constitute a knowledge structure of design.

Hirst (1973), in 'Liberal Education and the Nature of Knowledge', argued that the formation of judgements and skills of evaluation and appreciation are sophisticated cognitive processes that cannot be communicated solely with words. Preceding Schön, he thus contended that knowledge is not something that can be entirely learned through scholarly study, but must be acquired from a 'master'. In architecture education there are commonly relatively discreet strands of knowledge that require to be integrated and applied. Ability in the central act of integration or synthesis is acquired through observation, either by means of study of 'masters' through eminent exemplars, or traditionally through the tutoring of staff who assume the role of the master in the learning context. This echoes Arthur Koestler's statement that creativity depends on the formation of connections between known but previously disconnected facts and ideas, and not from a vacuum³⁸. However, Schön proposes that architects commonly make decisions on aesthetic grounds regardless of the intricacies of the underlying context, this being interpreted by Pearce (1995) to mean that decisions frequently do not have a purely objective basis. This relates closely to Schön's notion of 'reflection-in-action' involving evaluation and appraisal, indeed a kind of research occurring within the medium of architecture itself.

3.5.6 Tacit Knowledge and Professional Assimilation

It is widely considered that the profession of architecture constitutes a distinct grouping with its own innate culture. Bermudez (1992) cites the following characteristics as being indicative of a professional sub-culture:

- Subculture of architectural community defined by :
- Clear hierarchy and power structure
- Initiation rituals – university admission
- Effective assimilation system – architectural education
- Defined territory of activity

³⁸ See footnote no. 36.

- Own language
- Own ethical, aesthetic and epistemological beliefs
- Particular domain of knowledge and technologies
- System of governance and self-regulation
- Own media
- Own history
- Myths

The existence of such a group that might justifiably be termed an 'architectural community'³⁹ has been evidenced by a number of studies, (Seiberlich, 1989; Gutman, 1988; Rapoport, 1987; et al), and the culture developed by this professional group is regarded in architecture education as a key determinant of the environments that we create. The cultural values pertaining to the profession at a macro level tend to be cultivated through the actions of more localised communities, although the loop is closed through the communication of the wider profession with local constituencies. This cyclical activity thus promotes a continuity of existing norms and values and the perpetuation of 'institutionally validated architectural paradigms', i.e. the culture revolves substantially around traditional values and practices (Bermudez, 1992, p.186).

The process of assimilation⁴⁰ describes the acclimatisation to, adoption of, and socialisation to the culture of the architect or the architectural profession. Reference to other disciplines suggests that the degree of assimilation achieved can either impede or enhance learning (MacDonald, 1995). Successful assimilation into the learning process establishes the basis for lifelong learning and continuous professional development, skills in independent learning rapidly becoming an imperative given the speed of evolution of specialist knowledge and professional responsibility. Fundamentally, the process of assimilation is determined by the individual, and their ability and willingness to adapt to the new culture in which they are active. The speed of assimilation can in turn regulate the

⁴⁰ The notion of cultural assimilation relates to Kelly's Personal Construct Theory as discussed in Chapter 3, Section 3.4.1.

learning process, either constraining or stimulating learning. Brown (2000) identified four stages in the process of assimilation in learning a language, observing too that the need to assimilate a different culture can impact significantly on the learning process itself.

The four stages are:

- Euphoria
- Culture shock / alienation
- Amonie⁴¹
- Assimilation or adaptation

It may be argued that the early stages of linguistic instruction are strongly analogous to the process of commencing architecture education, and that consequently these stages are of relevance too. Indeed, the development of skills in architectural composition involves the learning of a visual language, this being derived culturally within the profession.

Alternatively, taking a different approach, Santirocco (1995) proposed four dimensions of acculturation into academic study as being the intellectual, pedagogical, community, and professional factors⁴². Intellectual acculturation is being inducted into a professional group through the process of learning, and as such is a progressive process. Pedagogical acculturation is closely allied to the intellectual process, it being the process by which the student develops professional competence. Acculturation into the academic community involves making aspiring professionals aware of the place that their learning has in the context of the wider profession. Professional acculturation is the evolutionary understanding of the behaviours, values, and standards that are appropriate to and are expected by the professional community. In its

⁴¹ According to Brown (2000), 'amonie' refers to a state of recovery from culture shock, in which the individual shows signs of acclimatisation to the host culture or conditions (see Glossary).

⁴² Whilst Santirocco proposed 4 dimensions of acculturation into academic study, the word 'acculturate' has been replaced by 'assimilate' elsewhere. This terminology is considered less suggestive of a prescribed and pre-ordained culture, and more responsive to pluralist approaches advocated by much of the literature.

broadest sense, acculturation within the field of architecture embodies the processes of design itself discussed elsewhere, but also the values, beliefs and behaviours that are particular to the profession, and which are collectively derived by the professional community. These constitute attributes that cannot be articulated or formally taught, yet which are central to defining the individual as a member of the professional grouping. The concept of the 'hidden curriculum' first emerged in the 1970s, referring to the tacit values, attitudes and norms imbued by means of the social interplay within the learning environment as much as by the curriculum itself (Giroux, 1981). The notion of the 'hidden curriculum' concerns itself primarily with the ideology of knowledge, whereas the explicit curriculum focuses on the knowledge itself. The specific origins of the hidden curriculum may be traced back to the era of the master-mason with its innate culture of secrecy in which knowledge was rarely recorded in the ways in which we are now familiar. The way that such histories evolve tends to create ritualised practices, the reasons and justification for which are often unclear, particularly for those new to the field (Vowles, 2000). Schön and Argyris (1974) describe the evolution of a 'mastery / mystery game' where 'mystery began to be taken as a symptom of mastery'. It is argued that vestiges of this culture and practice remain in contemporary architectural education, but largely escape scrutiny or challenge.

Architectural education exemplifies the two conceptions of knowledge identified by Polanyi (1966); intellectual or explicit knowledge disseminated in academia, and tacit knowledge embedded in the process of making and 'learning-by-doing' (Schön, 1985, p.6). As Williams Robinson observes, the latter is typically held subconsciously and communicated graphically without a verbal or mathematical description and is thus represented in a code that is not readily comprehended by the 'lay' person. The knowledge imparted via a given curriculum can never be regarded as neutral, but rather as serving underlying selected ideologies, these being identified as professionally or socially preferable to others.

In a similar vein Kathryn Anthony (1999) draws parallels between primary and architectural education, referring to an agenda above and beyond the basic curriculum content, this hidden curriculum involving the communication to students of the values and ethics of the profession, a process that typically adopts the staff as role models. Clearly the tutor-student dynamic is critical to the process by which the tastes, culture, and ethical and value systems adopted by a profession are imparted; these fundamentally determining the language and behaviour of studio, as well as the criteria for assessment of student work. Seen from this perspective, the power implicit in the tutor-student relationship becomes a tool for ratifying the students' acquisition of knowledge deemed 'acceptable' under the terms of the professional 'code' (Dutton, 1991; Cuff, 1992). The 'review' or 'crit' performs a pivotal role in this process through its progressive initiation of the student into the profession by means of the approval of its acknowledged representatives, i.e staff and visiting practitioners. During this process of assimilation the student often struggles to appreciate the relationship or connectivity between different aspects of their learning, this made more challenging by virtue of the fact that explicit criteria are 'interwoven' with those which are essentially implicit and untaught (Vowles, 2000, p.259). Cumulatively, over the span of the education process, the successful student is trained to 'think like an architect' (Weaver, 1997).

As a concept, assimilation extends far beyond the bounds of knowledge or skills acquisition, to aspects of personal behaviour, values, beliefs, and judgements. For instance, students typically vie with one another through the education process to demonstrate commitment to the task of professional assimilation through symbolic behaviours, such as working all night and sleeplessness. Adoption of such rituals is quickly regarded as a badge of honour, and an indication of one's commitment to the cause (Koch et al, 2002). The development of a sense of belonging forms a powerful component within the overall learning experience, and in the student's self-perception of progression and achievement. In a study conducted in Denmark, Thomsen (2006) observed that architecture students defined their subject as a way of life, as an all-embracing entity

that contributes significantly to the definition of self, compared to many other disciplines where the boundary between professional activity and personal lifestyle was identifiable.

3.5.7 The Tutor – Student Relationship

Schön argued that the primary relationship within the studio is that which exists between the tutors and the students, characterising this relationship as one of tutor as coach, with the student 'learning-by-doing' through the practical activity of design. This was very much in the spirit of John Dewey who declared that the student 'has to see on his own behalf and in his own way the relations between means and method employed and results achieved. Nobody else can see for him and he can't see just by being 'told', although the right kind of telling may guide his seeing and thus help him see what he needs to see (Dewey, 1910). What remains constant, however, is the establishment of studio as an experimental 'hot house' that in some respects simulates the practice environment of the atelier.

In Schön's 'reflective practicum' both student and tutor have knowledge beyond which they can articulate (i.e. tacit knowledge)⁴³. It is the role of the tutor to express their personal reflections when conducting demonstrations, and their opinions when judging the work of the student. The student, however, reflects on what he or she already knows, what learning is resulting from the doing, and the problems encountered in synthesising complex and contradictory information in the generation of a coherent design proposition. Successful dialogue and 'coaching' requires the identification of an interface between these reflections, and hence a bridge between the experiences of the student and the view of the tutor about what the desired learning from the project is. The skill of the coach⁴⁴ is to adjust the level and nature of the discussion so that it is

⁴³ Schön contended that tacit knowledge is learned in three ways; through the 'practicum' as a learning environment that bears some approximation to conditions of professional practice; by processes of apprenticeship; and, less commonly, through self-instruction. (Waks, 2001)

⁴⁴ Three facets of coaching have been identified by Schön; a process of student guidance through demonstration; aligning (expert) demonstration to have meaning in relation to the (novice) actions and thoughts of the student; developing a relationship with the

appropriate to the individual, whilst also directing the dialogue in such a way so as not to trigger the defensive behaviour of the student through the imposition of ideas or making manifest the knowledge asymmetries that exist.

Heylighen (1999, p.7) talks of the uniquely 'multi-lingual' and 'multi-layered' nature of studio dialogue, the student and tutor oscillating between languages and layers, this describing the complexity of the interaction in learning. However, within this process of oscillation, Habraken (2007) contends that architecture has lost a common professional language, the educational realm instead adopting the language of the critic founded on personal responses to propositions rather than resorting to an objective de-personalised language. Additionally, it is argued that for a learning process that has such dependency on high quality, open dialogue between tutor and student, certain forces exist beneath the surface that can compromise the intention of the very learning methods used. This will be explored further from the perspective of both the student and tutor in the next chapter, together with other difficulties arising from the practice of studio teaching.

3.6 Summary

Through the discussion within this chapter, the concept of the studio-based teaching model and its operation has been presented, including its historical origins and ethos, the underlying learning theory, the epistemology of knowledge in architectural design, incorporating the key processes of reflection and professional assimilation. Based on a long-standing pedagogy borne out of the apprenticeship system of the atelier, the pivotal role that design studio plays universally is evident, and its position as the cornerstone of architecture education is beyond question. The reasons for this are clear and well-documented, including the fact that it offers a relatively flexible and informal setting that is conducive to creative endeavour, facilitates social and peer learning, and develops a communal spirit that cultivates a professional culture including shared

student (this made problematic by dependencies, power asymmetries, etc.) (Waks, 2001, p.45)

values, beliefs and behaviours. As has been discussed, it is the nature of architectural design as a field in which knowledge is constructed by the individual, and used with didactically derived knowledge in the resolution of complex and indeterminate problems, that establishes the centrality of studio as an integrative learning medium. Indeed the very power of studio emerges from its multi-faceted nature.

Whilst studio was initially highly prescriptive in both content and method, its contemporary manifestation reveals a much more liberal programme. However, the flexibility, diversity, and pluralism of the studio model today still refers more to matters of ideology and philosophy than to pedagogy. It has also been established that the body of research relating to pedagogy is small and that, as a result, studio practices have remained relatively unchallenged. It might be further suggested that the lack of critical reflection on pedagogy corresponds with the challenge made by some that the profession generally, and the educational process particularly, is preoccupied with product rather than with underlying processes. It would also appear that another significant contributory factor has been the overwhelming dominance of Schön's analysis of studio-based learning.

The centrality of reflection 'in' and 'on' action, as a means of constructing knowledge has been established, the indeterminacy of architectural problems involving the process of 'double-loop' learning. Indeed, the role of praxis in the development of the critically conscious student with refined skills of judgement and evaluation is also evident. Equally, the process of 'learning-by-doing' introduces the concept of tacit knowledge and the importance of assimilation into the culture, values, and practices of the profession through the ritualistic behaviours of the design studio.

As with studio, constructivist learning theory is inextricably linked with the concept of the independent learner and the development of knowledge that is personally meaningful and which builds on individual experiences, background and attitudes. Through the theories of Carl Jung and Howard Gardner, we have seen that diversity exists in forms beyond cultural,

ethnic, or socio-economic groupings, and exists within seemingly homogenous cohorts in terms of the variety of learning styles and approaches likely to be contained within. It might be argued that the relative invisibility and intangibility of this dimension of diversity causes it to be commonly overlooked in the work of educators and, within the field of architecture, the dearth of available literature concerning this aspect would support this. Yet engaging the breadth of students is fundamental to effectively facilitating learner independence across a cohort.

Consequently, the next chapter will shine a more critical light on the operation of design studio teaching, and will investigate areas of teaching practice that have been questioned and challenged. It is intended that this will enable the reality of studio practice to be viewed against the theoretical model, revealing key areas of development and enhancement that would enable the intent behind design studio to be fully realised.

CHAPTER 4: LOST IN TRANSLATION: FLAWS IN IMPLEMENTING THE STUDIO MODEL

4.1 Introduction

'Far from being Schön's exemplar of a setting for reflection-in-action, the studio is a place removed, and in this removal from the norm of social life it becomes a place where power can be enacted in an unchallenged way. In effect this mixture of autonomy and power in schools of architecture creates a double prison yard for our apprentice gymnasts to perform in: an outer fence policed by the values of the profession, and an inner fence policed by the authority of the school. It is maybe not surprising that a sense of fear pervades architectural education...' (p.167)

(Till, 2005)⁴⁵

In the previous chapter it was established that design studio continues to serve as the cornerstone of architectural education, and that the fundamental properties and characteristics of its pedagogy have an enduring relevance. However, a number of studies over the last 10-15 years have applied greater focus to some of the practices contained within. Equally, Schön's analysis of the studio model and of the 'reflective practitioner', which has formed the dominant paradigm and reference point for the past two decades, has begun to be challenged. Indeed, in addition to charges of vagueness in the definition of his ideas (Sodersten, 2003) it has been established that there are aspects of the process as documented by Schön, that are questionable when viewed against the underpinning theory, and which may even compromise the intended learning experience (inter alia Dutton, 1991; Till, 2004).

Given the universality of the studio model and the span of time in which it has been operated, the body of research relating to it, and to architectural education more broadly, is relatively limited. Nevertheless, a number of studies reveal several problematic areas. Pedagogic issues emerge

⁴⁵ In the notes to his acclaimed paper 'The Lost Judgement' (2005), Till acknowledged criticism by Juhani Pallasmaa of his position, to the effect that the strength of his remarks created a parody of architectural education. Indeed Pallasmaa asserted that many schools are more 'humanist and self-aware' than portrayed here. However, Till confirmed his deliberate use of 'exaggerated' parody as a tool for challenging 'normative power structures'.

relating in particular to the processes of studio tuition and project review⁴⁶, these acting as the principal vehicles for the acquisition of knowledge, skills and professional values. These processes broadly conform to a pedagogic template that, although adopted internationally, presents a number of operational weaknesses that remain seldom challenged (Wilkin, 2000). To some, these failings constitute a fundamental erosion of the intent behind studio. For example, Thomas Dutton (1991, p.165) expresses a powerful indictment of studio, claiming that the typical teaching conventions adopted are 'marked by seriously flaws' (p.165), and indeed often act in opposition to their pedagogical intentions.

Having already discussed design studio as a conceived entity; its roots, intention, and potential as a model for learning in architecture, the aim of this chapter is to reveal from a number of perspectives, dissonances that exist between studio as model and studio as widely practiced.

4.2 External Agents of Change

4.2.1 The Gauntlet of Governmental Agenda

Government sponsored agendas in the UK, such as that of Widening Participation and the drive to increase the percentage of school leavers entering tertiary education, are imposing new conditions on a form of professional education that has until now, as Stevens (1998) observes, been designed to replicate its profile socially, culturally, and economically. Widening Participation brings with it a burgeoning variety of perspectives, diversity of learning styles, and cultural standpoints, and any development of the educational process requires to address these facets. Concurrent with the focus on diversity has been that applied to the transitional and crucial nature of the First Year Experience by the Higher Education Academy and QAA Scotland, for example. Through initiatives such as the QAA Enhancement Themes, the process of transition to higher education from a range of backgrounds and prior experiences has

⁴⁶ The review of studio project work is also commonly referred to as a 'crit'.

received prominence within the sector (Thomas et al, 2005). Universities are rightly faced with the ethical and legislative obligation to accept students in a manner that reflects the principle of equal opportunities, and to provide a learning environment that enables all students to engage, acclimatise, and progress, including acknowledgement of the multiple commitments of today's student. Indeed the challenge for educators is the development of a learning experience that is equitable in the way that it balances the experiences of diverse students through the learning process, in many respects requiring transformational change.

The generic shift in emphasis from tutor-centric learning models to ones that place the student at the centre of the learning experience has been stimulated by educationalists, and has considerable repercussions for learning institutions. Firstly, for many educators, developing student-centred approaches represent in practical terms a significant change in culture and, accordingly, the development of new skills and practices. Secondly, the process of transition to achieving a student-centric learning model coupled with the appropriate tutor skills, demands an initial resource commitment that some institutions may find particularly challenging to support.

In this chapter these aspects will be viewed through the specific lens of studio-based practice in architecture education.

4.2.2 Inertia or Impetus?

'Nostalgia is just a way to make the present seem insufficient by mythologizing the past, subtly reinventing and reshaping an idealised history' (p.23)

(Wigley, 2004)

Schools increasingly struggle to maintain an educational process derived from the 19th century in a climate that has seen a 30% reduction in the UK since 1988 of academic staff in architecture schools (Milliner, 2003). This shift in the resource context has arguably stretched staff to a point

that demands consideration of how learning is supported and facilitated. Commonly, for example, funding pressures increasingly consign the historic practice of one-to-one tuition (with its roots in the apprenticeship model) to the past as staff-student ratios creep ever higher. To some within education this is viewed as a 'cultural loss' (Harris, 2003), representing a diminution of teaching leading in turn to a 'firming up of the design programme specificity and process in order to reduce the role of the teacher in the educational process' (p.1). The existence of the perspective of loss can compound educational effectiveness through a constraining of the design programme, a common reaction used as a means of managing this shift in teaching resources. However, the notion of loss assumes that previously studio is perceived to have been operating at an optimal level; something that this chapter seeks to challenge. Furthermore, in the quotation above the academic Mark Wigley warns of the danger resulting from the inertia of nostalgia and resistance to change, emanating as it frequently does from an ignorance or denial or contemporary conditions, or from ideological positions on the part of individuals. However, it has equally been established that the profession conforms to definitions of a distinct culture, and as Fisher (2000) observes, a characteristic of a culture is to oppose change, this trait perhaps explaining the slow transformation effected to date.

Conversely, claims are made by some that pressures being exerted on the traditional studio model threaten to undermine its inherent richness, requiring reappraisal of its operation in order to maintain its clarity of purpose (Harris, 2003). It is further argued that the educational processes that schools typically seek to defend possess inherent weaknesses which resource depletion merely threatens to amplify. The specific challenge that design studio faces today is the development of a pedagogy that can flourish in the prevailing climate with respect to resources, and which also addresses the weaknesses of current practice, with particular regard to constructivist ideologies and the accommodation of the individual at the heart of the learning experience. Accordingly, it is suggested that today's conditions, coupled with the emerging body of research, warrant a deeper analysis and re-evaluation of the effectiveness of current practice, thus

viewing the contemporary context as a lever for development that can yield educational benefit and through which a true enhancement of studio practice may be achieved.

The following sections will further explore from the perspective of practice the key areas addressed from a theoretical standpoint in Chapter 3, namely diversity, the accommodation of learning styles, Constructivism and the independent learner, reflection and praxis, feedback and review, the tutor-student relationship, and tacit knowledge and professional acculturation.

4.3 Embracing Diversity

'In addition to issues of race and gender, architectural education constantly ignores other groups who are less often cited as minorities, but clearly qualify' (p.18)

'Our fear is that the inertia and machinations of the dominant ideologies and practices that favour Eurocentrism, cultural chauvinism, individualism, hierarchy and patriarchy in architectural schooling still reign' (p.18)

(Koch et al, 2002)

The uniformity and ubiquity of architectural education in the west is remarkable, as is the historical sociological profile of the profession. Whilst this homogeneity is weakening, particularly in terms of the diversity of the contemporary and projected student community, it is suggested (Anthony, 1999; Morrow, 2000) that the pace of this remains too slow. Regardless of the pace of change, there is an imperative for the education process to respond to and understand difference amongst students in terms of cultural and social background, but also from the viewpoint of their previous learning culture and individual learning style. However, the fact that the student profile has, until recently, been relatively homogenous in these terms, has arguably denied recognition of the fact that students as individuals have specific learning needs and preferences. Ironically, the very notion of the tutor as learning facilitator or 'coach', as advocated by Schön, is based on the premise that the tutor is able to understand and

engage with the student as a unique learner (Brockbank and McGill, 1999). From this perspective it is thus argued that architectural pedagogy has paid scant regard to the concepts that lie at the heart of Personal Construct Theory, or to the changes implicit in the evolution of tutor from traditional teacher to facilitator (Webster, 2004).

4.3.1 Multiculturalism

In common with generic trends across the sector, the profile of the contemporary student cohort in architecture demonstrates greater diversity than was traditionally found. Boyer and Mitgang (1996) advocate the 'celebration' of diverse student backgrounds and cultures and, critically, representation of these differences in the curriculum and learning environment itself. In other words, the whole experience should be both socially and culturally inclusive. Intriguingly, Ahrentzen and Groat (1992) demonstrated through research in the USA that schools with a high percentage of ethnic representation and female students tended to have the 'most hospitable environments', although the criteria for determining this are unclear. The globalisation of today's profession, and hence client base, presents another powerful argument for greater inclusion. Nevertheless, analysis of the profile of student members of the profession in the UK and USA (CABE, 2004; Boyer and Mitgang, 1996), for example, indicates an overwhelming dominance of a white membership, and the quotations above from the AIAS Studio Culture Task Force point bluntly to the distance that architecture education has yet to travel to achieve this ambition. Boyer and Mitgang (1996) argue that architecture education, like practice, should have both public and private ends. Every student has personal motivations and aspirations, yet architects in both education and practice also provide a public service. Hence architecture education should address the current and future issues of concern to society, and in doing so, develop a clearer social relevance and purpose, removing some of the perceptions and preconceptions of elitism and exclusivity, and stimulating a broader social spectrum of interest and engagement. However, this is fundamentally an issue of curriculum design and, whilst the subject of embracing ethnic and cultural diversity must

address both curriculum content and teaching practice, it is the latter on which this study is focused.

Generic reference to the student body as if it were a homogenous group can tend to conceal the fact that different life experiences, cultural perspectives, and preconceptions, expectations, and aspirations (of self as well as of institution), impact significantly on the educational experience, and how one acclimatises to and engages with it. Such differences emanate from both social groupings and from cultural and ethnic groupings and, as society becomes ever more multi-cultural, as in the case of the United Kingdom, there is increasing demand for the different perspectives embodied in society at large to be represented and embraced by the education process. In the USA, where the issue is equally pertinent, ethnic diversity was also found to be poorly represented in the architecture curriculum, with few schools having core studies in non-Western architecture (Boyer and Mitgang, 1996). Allen challenges what she views as a singular view of architectural education, one that she sees as being dominated by Anglo-American thinking, despite the multiculturalism of contemporary university education. Such a dominant 'accepted' way of thinking recalls Foucault's concept of 'totalising discourse' in which an overriding paradigm or perspective subordinates all others (Foucault, 1976).

A UK study carried out by the Commission for Architecture and the Built Environment (CABE) in 2004 highlighted a number of factors within architecture education that create obstacles to the engagement of ethnic minority groups, as follows:

- A lack of role models within university staffing
- The range of design projects commonly fail to address the breadth of cultural experience and interest within an ethnically diverse student group
- Lack of cultural diversity and breadth within the curriculum
- The failure of the review process to accommodate and embrace minority groups

It should be noted that as well as affecting engagement of enrolled students, these factors may also impact on application and recruitment rates.

4.3.2 Gender

In the area of gender, it is clear from studies both in the USA and UK (De Graft-Johnson et al, 2003; Ostroff, 2006) that the architecture profession is lagging behind in its ability to achieve an appropriate level of female representation. Whilst female student numbers have improved in many institutions, entry ultimately to the profession appears much lower. Consequently, not only are female practitioners under-represented, but so too are females in academia. Indeed it has been argued that the profession has a deep-rooted male paradigm, and that schools serve to propagate the behaviours, attitudes, values, and rituals innate to this (Ahrentzen and Groat, 1992; Sara, 2004). As with minority ethnic groups, the female gender is under-represented in academia, and once again the form of the review has been identified as an inhibitor oriented more towards masculine behaviours and sensibilities (Ahrentzen and Groat, 1992; Anthony, 1999; De Graft-Johnson et al, 2003). Accordingly, Anthony (1999) identified the necessity for new teaching methods that are responsive to a more inclusive constituency.

4.3.3 Socio-Economic Representation

Stevens argues that architectural education has to date systematically operated in a way that ensures the replication and preservation of professional models. This, he contends, includes a predisposition that disadvantages those from the 'lower strata of society' (Stevens, 1998, p.189). Stevens' habitus is cultivated through exposure, attitude, imbued aspiration and confidence, and perhaps lineage, and acts as a tool through which the student understands the educational process, its underlying value system, and the rules of engagement with the course of study. Thus, it is argued that students from backgrounds in which cultural or artistic interest has been high, are already predisposed to the primary concerns of an architecture course. In the case of those not favourably predisposed, disadvantage exists not only in performance on a course of

study, but also at the initial point of application to study, this position being supported by an historic study of UCL architecture students undertaken by Abercrombie, Hunt, and Stringer in 1969. Although beyond the scope of this study, one challenge therefore exists in attracting a more diverse intake, or perhaps more accurately, convincing a broader spectrum of students that they are capable of achieving through the study of architecture.

Under the prevailing funding culture surrounding higher education, many students are now required to work to fund their studies. Furthermore, Harvey et al (2006) noted that first year in particular represents a period of reorientation, personally and academically, with varying results depending on the individual and their circumstances. They also noted that generically, first year students are prone to misjudge their ability and skill level, which can lead to disappointment, frustration, or disengagement. For a course as all-consuming as architecture typically is, this reveals the need to manage the expectations of both students and staff in terms of engagement, commitment and standards. This corresponds with the generic observations of Yorke and Longden (2007).

4.3.4 Diversity of Ambition

As discussed in Chapter 2, a dichotomy exists between schools acting as training establishments to serve the profession, and educators in a broader academic sense. Many staff still appear to assume that to study architecture inevitably leads to a professional life in architecture or, at the very least, an aspiration to join the profession. This assumption is probably borne out of the particular origins of architecture education. Yet, alternative further study and career pathways exist, and are increasingly being explored by graduates (Anthony, 1999).

It is argued that, regardless of the close relationship that a course may have to a profession or its membership, educators are obligated to consider more widely other motivations, aspirations and ambitions that students may have. This is particularly true at a time where career paths appear increasingly less linear.

4.4 Accommodating Learning Styles and Multiple Intelligences

'The object of education is not so much in the teaching of principles of making art as in the development of the student's personality and view of him/herself and the world' (p.182)

(Pallasmaa, 1996)

It is claimed that within architectural education there is virtually no accommodation of the individual dimension of learning, and it is furthermore suggested that teachers in architecture require to develop a 'critical understanding of the cognitive and social aspects of the learning process' in order to enhance effectiveness (Webster, 2004, p.1).

Robotham (1999) asserts that in order to achieve significant improvements in student learning, there requires to be a greater level of understanding of the cognitive processes affecting individuals. At this point it may be argued that discussion of pedagogy commonly centres on issues which are shared by all learners, whereas the ways by which the individual learner's needs, or learning style, might be better accommodated and addressed are debated less, and are less well understood.

Design, and here one includes architecture, differs from most academic subjects in that its body of factual knowledge is small. Understanding of theory must be acquired through the processes of practice and reflection. In this way the student develops a personal knowledge base that, through its overlaps with that of others involved in the subject, collectively constitutes a tacit theory of design and design values. Whilst Schön's ideas are founded on Constructivist concepts of individual learning, in which the student's learning is dependent on their learning style and their prior knowledge, in practice the notion of individual learning receives little acknowledgement in architecture education (Webster, 2000; Salama and Wilkinson, 2007).

The generic relationship between academic performance in a variety of learning contexts and the learning and cognitive styles of the individual,

has been discussed widely (e.g. Kolb, 1985; Honey and Mumford, 1992; Riding, 1991, 1997; Laurillard, 1979, 1993; Ford, 2000). More specifically, Roberts (2007) studied the relationship between cognitive style and performance in architecture, concluding that there was little evidence that substantiated a positive link, although students possessing certain cognitive styles appeared to have less likelihood of completing their studies. However, it has been determined that the varying cognitive styles of students have a bearing on the individual's approach to learning in design, although it is important here to recall Kolb's distinction between cognitive style and the more inclusive learning style⁴⁷. With reference to Kolb's Experiential Learning Theory, Demirbas and Demirkan (2003), in evaluating the effects of the learning styles of design students in a design process, have demonstrated that all stages of Kolb's Experiential Learning Cycle occur in the design process, and that there is a correlation between identified learning style types and different stages in the design process. This correlation suggests that some students may be more favourably disposed to particular stages of the design process than others, particularly given Robert's (2001) contention that architecture education involves the development of new cognitive abilities. In particular, these concern the visualisation and the synthesis of multi-dimensional pieces of information.

4.4.1 Learning Styles and Multiple Intelligences

The relationship that exists between tutor and tutee requires to be better understood and carefully handled to counter implicit 'power asymmetries' (Dutton, 1991, p.176). The influence of the tutor on the tutee that derives from the imbalance of expert knowledge can be easily underestimated. Enhancing understanding of the learning styles of students and teaching styles of lecturers and tutors is therefore beneficial to improving learning, and to facilitating the transition and assimilation of new students to the pedagogical processes involved. Schindler (2005) claimed that students with similar learning styles to those of their tutors tended to perform better. Conversely, however, Tucker (2007) reported a learning style drift

⁴⁷ For Kolb's distinction between cognitive style and learning style, see Chapter 3, Section 3.4.4

between first and third year cohorts, such that the profile of learning styles for all first year students mutated by the time they had entered the third year. Thus the potential for such movement reinforces the position stated in Chapter 3; namely the adoption of pedagogies that are inclusive.

As has already been seen, Gardner's Theory of Multiple intelligences also has a bearing on individual learning, this also requiring deeper understanding. In referring to multiple intelligences, D'Souza (2007) noted the importance for educators in architecture to value and accommodate diversity and to empathise with a range of cognitive strengths. Engagement with intelligences in this way would, he believed, begin to open up new, inclusive ways of thinking and learning, that place the student at the heart of the process rather than learning being determined by the tutor. D'Souza (2007) argued that understanding architectural design as a variable range of intelligences will enable the comprehension of differences amongst designers, and hence how these intelligences are developed in the studio setting. The challenge for educators therefore lies in the design of learning materials and support structures that engage with learning styles and multiple intelligences, and that are appropriate to each level of study.

Whilst this section focuses on the needs of the individual learner, the role of the collective cannot be underestimated. Indeed, the social properties of the studio setting are frequently cited as being a positive attribute of the learning experience, and will be returned to later in this chapter.

4.5 The Independent Learner: Facilitating Individual Knowledge Construction

'I believe that in architecture perhaps more than any other field, students must become progressively independent and responsible for their own education at an extremely early phase' (p.2)

(Pressman, 1993)

'...the dominant 'intuitive' tutor-centred design tutorial practice, a vestige of the historical master / pupil lineage, is currently frustrating rather than promoting deep and transformative student learning' (p.110)

(Webster, 2004)

The two quotations above appear to be in diametric opposition, yet on closer examination a similarity emerges. Referring back to issues of dependency and the skills and confidence required to act independently, Pressman merely identifies the imperative for students to develop attitudes and skills that facilitate independence, whilst Webster suggests that traditional practices threaten to continue to hamper progress towards the goal of creating truly independent learners.

The much-used term 'student-centred learning', which relates closely to the theory of constructivism, calls for some definition. The degree to which study is 'student-centred' relies on a number of factors including the curriculum content and structure, the nature of the team responsible for delivery of the course, and the overall environment in which learning occurs. Within this, a critically important relationship is that between the tutor and the learner, as well as the way that the tutor articulates and frames their role in the learning process. According to Rodger (1969) the facilitation of learning by the tutor involves four major aspects:

- 'Establishing a suitable climate for enquiry
- Helping the learner clarify their goals and purposes
- Making available the widest possible range of resources for learning from which the learner can choose those most appropriate for their own purposes
- Regarding oneself as a flexible resource to be utilised by learners'

However, whilst the studio-based experience appears to be essentially student-centred, Yanur (2006, p.65) observes that the role of the students is frequently merely 'adaptive, passive and reproductive'. In other words, rather than generating new knowledge and meaning, the student primarily replicates that of the tutor. Similarly, Dutton (1991)

argues that studio represents a 'teacher-centred' experience, where learning is often only successful where students have understood and accepted the language and frames of reference of the staff involved. Once again, these views refer to the legacy of studio's apprenticeship origins, and to a process of transmission, albeit one in which the student actively participates in the process. It is further contended that the underpinning assumptions and values of staff are seldom questioned, particularly during the early years of study where the student has a greater dependency on the views of tutors. This in turn recalls Schön's (1983, p.304) 'mastery / mystery game' where mystery is seen as a symptom of mastery, and where the dominant and predetermined view of architectural reality emanates from the tutor (Yanar, 2006).

Addressing Roger's four factors has implications for the learning infrastructure and the physical environment of studio, for the skills and expertise of those responsible for teaching, and for the design of courses and their delivery. Accordingly, it is argued that these areas warrant re-appraisal as part of the ongoing development of pedagogical strategies.

From the perspective of the learner, and consistent with the ethos of constructivism, Nicol and Pilling (2000) identified five essential components of effective learning as being:

- An active process,
- The use of authentic learning tasks that develop professional competencies,
- Reflection on learning to develop artistry in practice,
- Collaborative learning as a means of enhancing individual learning, and
- Self and peer assessment to develop skills relating to lifelong learning.

The fundamental pedagogy of design studio in architecture education appears to sit well alongside these criteria although, as shall be seen, deeper analysis of some of the practices and conventions of studio-base

design teaching begins to expose weaknesses that could serve to undermine its overall intent. Of these, some have been revealed through deeper understanding of cognition, whilst others have emerged as a consequence of shifts in the broader landscape of higher education.

4.5.1 The Learning Experience

'Constructivists acknowledge that you can set up a learning environment with a content schema and provide learners with performance support tools to help them integrate and assimilate information, but recognise that the learners must take full responsibility for constructing their own knowledge and understanding. The outcomes are not pre-defined, as the learners' understanding will depend on their prior experience, knowledge and reason for accessing the information' (p.1)

(Brown, Hedberg, and Harper, 1994)

Critically, at a time when lifelong learning is increasingly important, constructivism, if facilitated appropriately, instils skills of enquiry, independent learning, reflection, and a commitment to learning. Indeed, the very process of constructing knowledge innate to architectural design typically imbues an enthusiasm for the expansion of knowledge, for the application of ideas. The higher cognitive skills of synthesis and critical evaluation are developed to a sophisticated level, which together with the ability to work in conditions of uncertainty or incomplete information, provide valuable skills of value to many fields outside architecture (Schön, 1985).

In the initial stage of architecture education, students, frequently daunted by the expansiveness of the subject, are understandably anxious to gain a 'toe-hold' through knowledge. A complex, knowledge-rich and multi-dimensional subject, students grapple with their understanding and definition of architecture, and will seek out answers in whatever way they can (Heylighen et al, 1999). Furthermore, in embarking on a course in architecture, the student is quickly confronted with a fundamental change to their principal mode of learning. Rather than acting as a recipient of knowledge, the student is required at an early stage to analyse problems

and scenarios, and construct knowledge pertinent to the specific context in which they are working (Parnell, 2001). For most this represents a radical shift in their engagement with learning, and with academic staff who correspondingly assume a different role from that typically encountered previously.

For those coming from an educational environment rooted in a didactic tradition, the use of problem-based learning methods and the absence of a definitive body of knowledge can be similarly disconcerting, with the common result that the student places great reliance on the 'expert', and thus definitive, knowledge and opinion of the tutors involved. Over time, students begin to appreciate that opinion and (constructed) knowledge differ between different members of staff, this often generating confusion or, put another way, pressure on the individual to rely on their own constructed knowledge. It is also the case that constructed knowledge may differ significantly between peers, given that the base of experience on which new learning is built may be very diverse. Progressively the student contextualises prior experience and constructs a new identity in relation to staff and fellow students (Parnell, 2001).

Students are typically confronted, often initially as a surprise, with the reality of there being no definitive or determinate solution, instead only a range of approaches. Moreover, the richer the dialogue around the work, the greater the number of strategies presented. The student is then tasked with evaluating these in terms of their appropriateness to the given problem or brief, and in terms of their correspondence with his or her personal values and beliefs; this initially presenting a considerable challenge. For students at an early point in their studies, and frequently lacking in confidence in terms of their grasp of the subject and their ability to debate their position, this situation can prove a daunting and confusing period. The conflicts arising from the diversity of input can lead to what is termed 'disjunction' (Savin-Baden, 2000) where the student becomes frustrated, confused, and de-motivated. It is a phase that has the potential to place a great deal of power in the hands of the tutor, particularly as disjunction forms a key part of the adopted pedagogy. If

remaining unchecked, this phenomenon can lead to negative reactions to learning, necessitating its careful management and control through dialogue (Parnell, 2001). Equally, the voice of the student can easily and quickly be negated by the dominant view of the tutor who commonly imposes his or her own preferred language and perspective on the current architectural discourse, before inviting the students to express themselves. In this way, the student is uncritically socialised into the status quo (Yanur, 2006) and, in Schön's terms, begins to 'think like an architect'. Yet, as Brown and Moreau (2002) argue, the development of skills in critical thinking necessitates that students construct their own value system through the learning experience.

Teaching within the design studio plays an instrumental role in the acquisition of both verbal and visual language, and hence knowledge. It is suggested that communication in architecture relies on 'the human ability to transcribe concepts and ideas into language' (Molholt and Peterson, 1993, p.1). It stands to reason, therefore, that a lack of these language skills will significantly limit communication and understanding. This must surely be one of the greatest hurdles that a student new to the subject must overcome, and again illustrates how the power asymmetry between tutor and student can be established so quickly through the dependency of one on the other. On the other hand, it might be argued that such a phenomenon may be countered to some degree by the development of the students' ability to critically evaluate their own work, both individually and collectively. Wingham (2003) suggests that more important in the development of these skills is the appreciation in the student that knowledge is not an entity to be found and consumed, but is a more fluid commodity that is itself created through the process of dialogue, criticism, and reflection. In this way effective construction of knowledge resides in the development of a culture or code that orders the nature and language of communication and tutor-student interaction, and which engenders a realisation that theory and knowledge are things that can be developed through the ongoing work and the dialogue surrounding them. Thus the early stages in the learning process require to be designed and structured with great care in order to establish the template for future interaction

and learning, and to imbue a strong sense of motivation, the latter having been identified by Weisberg (1993) as being central to creativity. Unfortunately, despite some notable exceptions such as the work of Morrow et al (2003) as documented in 'Building Clouds Drifting Walls', this phase is often neglected, with staff frequently failing to sufficiently understand what they are doing (and hence the consequences thereof), resorting to habit in the absence of a clear pedagogical pathway.

Just as the student seeks to develop an artistry of the practice of architecture, so too must the tutor develop equivalent skills in coaching. The artistry of coaching thrives in the studio setting due to its physical capability to accommodate the functions of making and doing, its cultural traditions, and its systems and patterns of organisation. Schön refers to this as a 'reflective practicum', and differentiates it from seemingly parallel settings in other professional areas, such as laboratories, where theoretical knowledge is applied to practical problems. There are of course the parallels of learning through practice structured around specific complex problems, and of demonstration and criticism from 'master' practitioners. But whereas the student begins to construct knowledge borne out of this experience, such knowledge may be at variance with that which is prescribed as important by the established curriculum. As a result the learning acquired through practice may not be afforded an equivalent value by tutors, particularly if the knowledge imparted didactically is not itself applied through this project-based process. This has particular implications for the practice of utilising visiting professionals within the teaching team.

Consistent with the issue of clarity of pedagogy, Jackson (2000) called for the development of projects in both scope and meaning, transforming them from design oriented projects to educationally oriented assignments. He saw such a development as aligning with constructivist principles whilst offering a means of avoiding the pitfalls associated with the relative knowledge and values of students and tutors. According to Raaheim and Wankowski (1981), adopting such an educational focus itself requires skill in the educator in order to ensure that sufficient guidance is offered to

enable learners identify areas of difficulty without detracting from their sense of ownership of the project.

4.6 Reflection and Praxis

'It is only by practising constant comparison that we can achieve a highly sophisticated ability to make distinctions' (p.196)

(Ammann, 1998)

Critical thinking is essential in architecture students, not just because it is the ubiquitous mantra of higher education today, but because the core pedagogies are founded on dealing with criticism (Stead, 2003). As a process, reflection calls on the ability of the student to analyse and understand their personal attitudes and emotions in the development of new perspectives (Boud et al, 1985). This ability itself assumes that key cognitive abilities exist, or are being developed, within the individual, notably the skills of analysis, evaluation, and synthesis. After all, both the processes of designing and of independent learning are founded on the ability to formulate sound judgements based on critical reflection, as encapsulated in the quotation above.

Yet, as mentioned previously, the ideas of Donald Schön have not escaped criticism. Indeed the very notion that the studio is an exemplary setting for engendering reflective practice in the student is questioned (inter alia Dutton, 1991; Eraut, 1984), the existence of significant power asymmetries being cited as a compromising factor. In the twenty years since the publication of Schön's highly influential studies, a number of commentators have identified weaknesses in studio teaching practices, this critique contributing to the case for the development of clearer pedagogic methodologies in order for studio to fulfil its educational potential.

As already established, much is written about the value of reflective learning (e.g. Schön, 1983, 1987; Kolb, 1984; Boud and Walker, 1991; Brockbank and McGill, 1999), but it is important to differentiate between

the act of reflection and that of learning through reflection. However, it would be incorrect to suggest that learning is implicit in the act of reflection. How the product of the reflective process is utilised will ultimately determine the learning, and that is heavily dependent on the pedagogic process in which the reflection takes place. Nevertheless, few architecture schools make explicit requirements for reflective skills or practices in architectural design despite its centrality as advocated by Schön et al (Sodersten, 2003).

A number of potential barriers to the process of reflection have been identified as follows (Goatly, 1999):

- External factors such as people, social pressures (e.g. discrimination), and the environment
- Personal perceptions, levels of confidence, expectations of self and of others, etc.
- Poor preparation
- Lack of appropriate space or time
- Fatigue
- Levels of motivation

Given the centrality of the reflective process to the study of architecture, the structure of the adopted pedagogy, and the supporting learning infrastructure, should seek to address these issues and in doing so provide an overall learning environment conducive to positive development.

Reflection is embedded in the educational process through the notion of 'praxis'. Praxis refers to the activity that we undertake that is informed and intentional, and lies at the root of our existence as critically conscious beings (Hatten et al, 1997). Schön asserts that praxis is instrumental in assuring the enduring relevance of the professions, in conditions where knowledge is rapidly expanding and the context for professional practice constantly evolving. This demands a process of action-reflection-action, or

Argyris and Schön's 'double loop learning'⁴⁸. This process is of particular significance to architecture as it relates to indeterminate complex problems that require the framing of a context in their resolution. As has been seen, the definition of a setting for a specific problem relies on unconscious or tacit knowledge, or what Schön (1983) terms 'knowing-in-action' (p.50).

As the student's ability develops, so their accumulated tacit knowledge formed through learning-by-doing expands and becomes the primary vehicle through which design approaches or responses are initially formulated. Developing expertise utilises a myriad of pieces of information that constitutes tacit knowledge, and which if made explicit could overwhelm the conscious mind (Schön, 1991). For the educator, this poses a difficulty in that it renders the complete articulation of a design process virtually impossible, thus the importance of an iterative learning process that adopts reflection and praxis as its key components are critical.

The approach of learning-by-doing through a process of iteration requires means of disseminating feedback both formally and informally. The review process constitutes the principal method of giving formal feedback, both formatively and summatively. However, on a more informal level, discussions within the studio setting also constitute feedback, although this may not always be recognised as such by the student (Angus, 2003). Parnell (2001) advocated that, as well as performing a feedback function, peer discussion can also aid the development higher cognitive skills, particularly those that alleviate the phenomenon of disjunction.

The immersion of the student in the parallel activities of 'reflection-on-action' begs the question as to the effectiveness of requiring students to design (involving higher cognitive skills) without having the opportunity to develop an understanding of how design or architecture are defined, and of what they encompass. Peter Eisenman, the eminent American architect,

⁴⁸ For 'double-Loop learning', see Chapter 3, Section 3.5.5

used the analogy of being taught musical composition by being asked to compose. During the initial stages of the learning process there is little basis from which to reflect on one's action, at which point students tend to require close tuition and support. This places the tutor in a position of great power. Furthermore it may be argued that the prevailing outcomes-driven education system that commonly leads to emphasis in teaching on design as product, subverts the principal facet of an architectural education, namely the development of a design process or method. In 'Designerly Ways of Knowing', Cross (2006) contends that design has its own distinct 'things to know, ways of knowing them, and ways of finding out about them'⁴⁹, but that these need to be more clearly articulated. Schön's parallel activities introduce a phenomenon that students often grapple with, namely an initial lack of clarity, which in turn sets up an asymmetrical power relationship between student and tutor. Thus a social dynamic is established which governs successive learning, with its echoes of the traditional master-apprentice relationship. Schön argued that architecture education is primarily concerned with the artistry of design, something that involves tacit knowledge and which develops through the process of reflective practice. This artistry is not unique to architecture; the characteristics of operating in a context of complexity, uncertainty, uniqueness, and value-conflict being shared by other professional disciplines, such as law and medicine (Schön, 1987). Typically, and in response to public criticism, other professions have gravitated away from normative curricula towards artistry in an effort to address matters of complexity and uncertainty. As with architecture, educational processes have been developed where reflection-in-action performs a central role, enabling problem-setting and ad hoc experimentation.

Somewhat ironically in light of Schön's studies on studio-based design processes that reveal the crucial role of reflective practice, Nicol and Pilling (2000) argue that the construction of courses to explicitly promote reflection and self-evaluation are not yet the norm. Yet it is also widely accepted that the development of critically reflective skills is beneficial to

⁴⁹ Here, Cross refers to design within the Art and Design context, although the point made is equally applicable to architecture.

the learning process, and to preparing for practice. Educational research conducted by Kolb (1984) and Cowan (1998) has demonstrated an improvement in learning where reflection and teaching are structured in an integrated and systematic manner. Cultivating independent learning requires students to develop an ability to judge their individual design output, and to evaluate the progression of their learning throughout the course.

4.7 Feedback and the Review Process

'It is impossible to overstate the role of effective feedback on the students' progress in any discussion of effective teaching and assessment' (p.193)

(Ramsden, 1992)

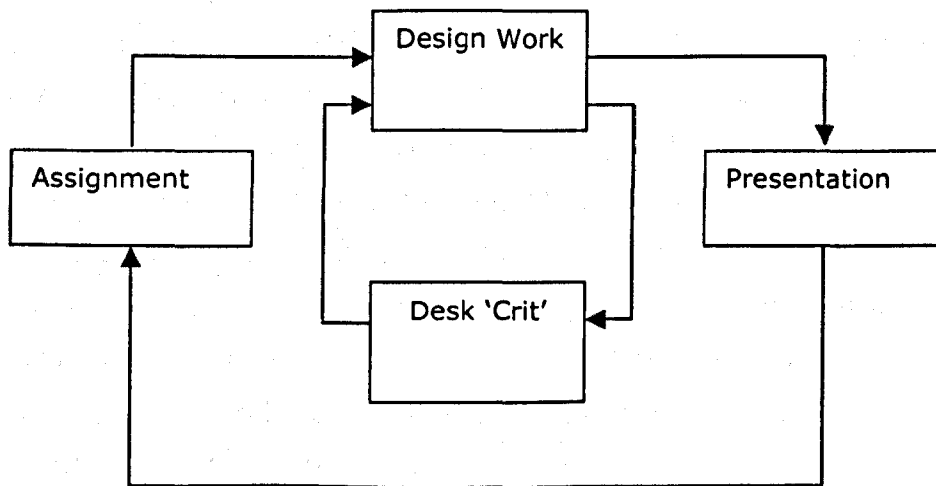
Generally, without any prior introduction to the subject area of architecture, there is evidence from student feedback to suggest that the learning process is initially opaque and surrounded in mystique (Anthony, 1999). The review serves as both a forum for feedback, and a social exchange that communicates the social norms of the profession. However, the lack of clarity surrounding the subject appears to be frequently exacerbated by the studio's public review process, which many find intimidating and confusing, leading frequently to the phenomenon of 'counter-learners' (Schön, 1987, p.154), i.e. those who simply give the tutor what they think he or she wants. In order to promote debate, students must have the necessary 'tools' and the confidence to use them, and in order to instil an ethos of self-directed endeavour there must be clear understanding of how to interpret and utilise information gathered.

Shaffer (2003) characterised the pedagogical structure of design studio as being akin to two connecting cycles⁵⁰, the first describing the iterative relationship between design work and the 'informal' tutorial taking place at the drawing board (see Figure 04). The second described the presentation process of the more public review, which takes on a more

⁵⁰ This is akin to Argyris and Schön's (1974) 'double loop learning'.

formal and explicitly critical guise. The iteration between loops extends over time between the desk-based tutorial and the formal review for the duration of a project and, in this way, learning progresses.

Figure 04: Shaffer's Learning Cycles



Taken from Shaffer (2003, p.22).

4.7.1 The Review

'Aspects that should be maintained include debate and discussion about design from many different viewpoints, even those of the students, leading to an even greater dialogue than the current system offers... Aspects to be removed include the psychologically destructive and sometimes unethical behaviour stemming from antagonism, fear, boredom, insensitivity and competition - all of which promote unhealthy attitudes to design practice' (p.158)

(Anthony, 1999)

As introduced in Chapter 3, the design review is a phenomenon emanating from the Beaux-Arts that has become something of an institution in architecture education, and forms one of the most studied facets of architecture education over the last twenty years, with particular regard to its effectiveness (inter alia Anthony, 1991; Wilkin, 2000; Parnell and Sara, 2004). Aside from the more informal feedback derived from studio-

based dialogue between tutor and student, the review acts as the vehicle for the formal communication of feedback. At best it is at once a social event, albeit one that is emotionally charged (Austerlitz and Aravot, 2007), a formative assessment, and a vehicle for communicating and imbuing the attitudes and behaviours of the profession. Yet, whilst having the capability of being a powerful learning medium, it has also attracted a degree of notoriety because of the negativity and insensitivity that can result, with potentially detrimental consequences to learning (inter alia Anthony, 1991; Willenbrock, 1991, Wilkin, 2000). Yet, although understood to be flawed in certain respects, the review continues as a mainstay of the learning process, one of its over-riding strengths being seen in the opportunity it presents to provide a link between the endeavours of design studio with the world of professional practice. This dimension of 'reality' forms the mainstay of the common defence of its negativity, even brutality, and perhaps says more about the machismo characteristic of the profession than of sound pedagogic practice (Henderson and Till, 2007). Alternatively, in the interests of presenting a balanced view, the review can also prove a celebratory and empowering event.

Numerous questions have been raised about the efficacy of practices that are commonplace, in particular relating to the nature of dialogue given the obvious 'power asymmetries' that exist amongst participants (inter alia Dutton, 1991). To some the review acts as an essential preparatory experience for professional life in which one can develop a 'thick skin' as well as important communication skills. To others it is seen as a means of judging the academic quality of a school, this inviting a more adversarial and critical approach as a measure of rigour. However, it is more in judging the educational effectiveness in the development of design skills that the concerns are often raised. For example, Argyris (1981) noted conflicting agenda between students and tutors that can become manifest in review events. Other commentators consider reviews to encourage an adversarial approach to clients in the realm of practice (Boyer and Mitgang, 1996), present a platform for the ego of panel members, or at worst, a process of ritualistic humiliation. But it is also important to

present the corollary, which is that a well managed, academically focused, and controlled review can be an enormously rich learning experience.

From the student perspective the review remains one of the most controversial aspects of the learning process. Reasons for this include the fact that reviews can cause anxiety and negativity that compromises the existence of open dialogue, and which counters their fundamental pedagogical intent (Nicol and Pilling, 2000). Furthermore, some studies have presented evidence of gender or racial bias within the review setting (Frederickson, 1992). Jackson observes that, based on a culture of encouragement and success, contemporary secondary school education tends to be reward oriented, with the result that the abrupt exposure to a culture of criticism demands a degree of cultural and psychological modification (Jackson, 1999). As Anthony observes, the value that students derive from studio appears to increase as they progress through their studies (Anthony, 1999). Indeed, to many, the review is considered a rite of passage and a key barometer of one's readiness for acceptance into the profession (Anthony, 1999).

In most circumstances the review acts as the culmination of a project, and represents the summation of the learning embodied within. Research has indicated that although students acknowledge the role and value of the review as an integral part of the learning experience, its potential in terms of deep learning is hampered through a common absence of a structure to the discussions, and the lack of a shared view amongst the staff (Anthony, 1991). Frederickson identifies poor communication between review panel members as being a factor that reduces the effectiveness of the educational experience (Frederickson, 1992). Paradoxically it is diversity of opinion that provides the richness of the review process, suggesting that structure may offer the key to enhancing learning in this context, despite some commentators suggesting that explicitness in structure and criteria is contrary to the creativity of architecture. The need for tutors to exercise objectivity in their criticism has been noted by Altas, who maintains that it is incumbent on the tutor to identify a variety of approaches in terms of their own language and philosophy (Ciravoglu,

2004). Vowles (2000, p.262) observes the review's role in the perpetuation of the image of the architect as 'virtuoso' (akin to Howard Roark, hero of Ayn Rand's 'The Fountainhead'). In a similar vein, Ochsner (2000, p.196) notes the tendency for some tutors to replicate their personal, negative experiences through their own behaviours, a process described as 'counter-transference'. Through the processes described, the profession reconstructs and replicates itself in its own image, a model which is arguably anachronistic for contemporary society given the latter's diversity and quest for equality.

In an attempt to counter this phenomenon, White (2000) advocates adoption of student-led reviews as a means of countering the potential negativity of the traditional review format, proposing it as a more positive learning device that also celebrates the efforts of the studio. This sentiment is echoed by Ilozor (2006) who called for the reframing of the review process to enable the students to derive greater benefit as a rich learning experience.

As with studio-based education generally, whilst approaches and attitudes remain largely dominated by tradition, there are nevertheless exemplars of innovative and progressive development. In the case of the review, this includes the 'Oregon' or 'reverse review' in which students present their work in a manner akin to a fair, with tutors and students touring the work and engaging in discussions where the power dynamic is more balanced. Alternatively, White (2000) explored the notion of the student-led review as part of a wider initiative aimed at creating a more pluralistic environment founded on dialogue and collaboration, and where students assume greater responsibility and control of their learning. However, Webster (2007), having categorised rituals within the review process, and having recorded a schism between intent and action on the part of tutors, called for a more fundamental 're-ritualising' through alternative practices.

Whatever the specifics of the pedagogy employed, for the educational process to be truly effective, students must be able to understand and recognise the criteria against which their work is assessed. Fundamental

to this is the development of an understanding amongst the students that criteria are open to debate, challenge, and scrutiny. Herein lies the true value of studio in that it represents a community of individuals who broadly share similar interests and motivations, and who jointly develop an understanding of the criteria and the broader educational process through their shared experience. Such an understanding relies on the existence of open, constructive dialogue.

4.8 The Tutor – Student Relationship

'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' (p.166)

(Shaul, 1991)

The Beaux-Arts tradition of studio-based design projects, a process of structured discussion supported by informal conversation, and the public presentation of work, to this day represents the international template for learning in the process of architectural design. The detailed studies carried out in the 1980s by Donald Schön analysed the nature of the dialogue between tutor and tutee around the activity of the 'desk crit'. They concluded that discussion is critical to the student's ability to learning to design intelligently through a process of internalising actions and processes that can only be successively carried out initially with assistance from staff. This is echoed by Vygotsky's notion of the 'zone of proximal development' of 1978 that describes the relationship between development and learning (Shaffer, 2003, p.5).

The nature of student-staff contact typically found in design studio has an intensity and specificity rarely replicated in the teaching of other professional areas. This is intended to facilitate the contextualisation of learning to the individual and, in a learning process that is inherently

complex and 'mysterious', allows the tutor to gain a more intimate understanding of the development of individuals.

Although intended as a discursive environment, inadvertently the operation of studio commonly acts in opposition to this, particularly in the initial stages. Research by Argyris found studio to commonly be a tutor-centric learning environment, in which effective learning was limited by the extent to which students comprehended and accepted the tutor's view (Dutton, 1991). This describes an environment in which there is a high dependence on teaching staff, and where students constantly seek legitimacy of their work through establishing connections between their ideas and those of the tutor.

As already discussed, knowledge in architecture is complex and multifarious, as well as often being conflicting and inter-related. Design involves the resolution of complex indeterminate problems, involving uncertainty and value-conflict. Skilled designers must possess attributes that enable issues to be synthesised in the derivation of a cohesive solution. For the student, the complex nature of the design process, and the diversity of knowledge involved in the process, represent significant learning challenges. The centrality of learning-by-doing in the pedagogic process means that knowledge is being constantly developed and reinforced, and is hence always 'under construction' (Heylighen et al, 1999, p.7). As a design develops, the student engages in an iterative dialogue between the structuring conceptual idea, and the developing solution. This typically involves periods of intense creative activity interspersed with periods of rational evaluation, and it is this interaction that makes design so difficult to teach, and presumably for the student correspondingly difficult to learn or understand as a process. However, as demonstrated by Heylighen, concept generation is not purely the domain of the gifted but is a skill that can be developed in all students. At the heart of this process is dialogue, the frequency and richness of which is directly related to student understanding (Berger and Luckmann, 1966).

Regardless of what one may presume about the tutor-tutee dynamic, one cannot escape the fundamental fact that as the academic assumes the authority to assess the student's work, they are never on equitable terms regardless of the maturity of the student. Here assessment refers not only to the grades and feedback that are officially imparted, but also to the subtle subliminal messages that can be communicated which tell the student how they are regarded, or whether or not they are 'approved'. Thus, social relationships in the studio are hierarchical; this imbalance of power negating or significantly constraining the conditions or opportunities for true dialogue. Indeed Dutton (1991) claims that:

'Dialogue rarely exists across the boundary between teachers and students, even in design studio. Usually structured in vertical relations, teachers speak in ways (often unconsciously) that legitimise their power, and students orient their speech and work to that which is approved. Such a setting is marked by persuasion, however subtle, as the principal tone of discourse' (p.172)

(Dutton, 1991)

The power imbalance between student and tutor which can result in the phenomenon of 'counter-learning' (Schön, 1983), requires 'counter-pedagogical strategies' to create the conditions for effective dialogue and student learning (Dutton, 1991, p.166). By contrast, pedagogical research has revealed that generically in higher education the actions of the student are more important to learning than those of the tutor (Shuell, 1986). Effective learning necessitates an engagement with new material and information leading to the individual taking ownership of it in ways that are personally meaningful. The teacher is thus the facilitator of the learning process, helping 'bridge the gap between the structures of the discipline and the structures in the students' minds' (McKeachie, 1992, p.14).

In an analysis of different approaches to teaching, McLaren (1999) identifies three categories of tutor; the 'entertainer', the 'hegemonic overlord', and the 'liminal servant'. The 'entertainer' is characterised by a relatively unstructured, anecdotal style that though informative, tends to

stimulate superficial learning. By contrast, the 'hegemonic overlord' is highly prescriptive, tending to impose a view on the student that limits the latitude within which they can 'acceptably' operate. This most closely echoes the historic master-apprentice relationship, and it is perhaps unsurprising that in a local study at one UK school, this characteristic was found to be predominant (Webster, 2000). The final category, the 'liminal servant', acts as a facilitator of student learning, assisting the student in the development of their personal knowledge through addressing both cognitive and social considerations. As Lawson recognises, within the context of design, education demands a fine balance between direction that will lead to the acquisition of skills and knowledge, and avoiding the imposition of a mechanical process of working which stifles imagination and innovation (Lawson, 2003).

Students who are confronted with difficulties, including the need to deal with McLaren's 'hegemonic overlord', will resort to short-cuts, these typically including the imitation of the work of others (Alcroft, 2003). It is common for such sources to correspond to the tastes 'endorsed' or promoted by the tutor (Wilson, 1981 in Alcroft, 2003). This accords with Schön's description of the 'counter-learner', and also reinforces the concept of surface learning raised by Jackson earlier⁵¹.

The creation of a balanced and open tutor-student relationship is of critical importance not only because of the more overt aspects of teaching and learning referred to above, but also because it is instrumental in the student's acculturation into the values and norms of the profession. The most effective learning takes place where the dialogue accommodates the needs of the learner through acknowledgement of prior learning and learning styles. These are the conditions that stimulate active participation and ownership, and correspondingly discussion and debate as a means of developing and testing the personal knowledge base (Feigenberg, 1991). Thus there have been a number of calls for reorganisation of the studio in an attempt to generate dialogue through a spirit of collaboration rather

⁵¹ For Jackson's observations about cultures of criticism, and abrupt transition to them, see Section 4.7.1.

than perpetuation of the conventional model rooted in the master and apprentice tradition (Willenbrock, 1991; Yurekli and Yurekli, 1995).

Studio-based teaching has historically utilised the peer group within learning (Nicol and Pilling, 2000). Yet the adoption of peer learning has further potential to alleviate the detrimental effects of power asymmetries. Indeed, more generically, Piaget regarded peer co-operation to be central to the development of reflection, discourse and critical abilities (Falchikov, 2001). Equally, Vygotsky's concept of the 'zone of proximal development' (introduced in Chapter 3, Section 3.5.1) emanated from ideas on co-operative learning. In essence, Vygotsky proposed that the development attained by a learner with guidance either from a tutor or peer, will be greater than that achieved alone. This in turn alludes to Kesten's definition of independent learning, and the role of 'relevant others' in satisfying the learning needs of the individual.

4.9 Tacit Knowledge and Professional Assimilation

As stated earlier, studio carries with it an associated mythology, which pervades every school and with which the new student becomes rapidly familiarised. This includes a set of beliefs and values which inevitably conditions students in terms of their understanding of expected behaviours, values and norms, and hence their resulting learning experience.

Whilst the vehicle of studio is adopted internationally, its utilisation by diverse ethnic groupings means that the culture of studio is not an entirely universal phenomenon. However, within the differences existing between schools can be found an underlying base of shared values and norms. As already stated, to the majority of students and staff it encapsulates the essence of architecture education and the act of learning to be an architect.

4.9.1 The Social Value of Studio

In Chapter 3 the value of studio as a social agent was introduced. Whilst it possesses many significant attributes, such as the culture that it develops

between students, it also presents a number of drawbacks, particularly for the contemporary student. Indeed, as students become more peripatetic, enabled by IT, with increased pressures on their time, (such as the need to work to maintain their studies), schools are increasingly challenged with the question of what defines the studio culture of the future?

The demands of studio are extremely time consuming, especially when compared to study patterns in many other subject areas. Expectations are heaped on students to fill their time with analysis, discussion, evaluation, synthesis, modelling, drawing, etc, all essential components of learning in architecture, yet ones that can become all consuming. In a very short time span, the student adopts the behaviours that have become the norm both within education and the practice setting. The issues within this extend beyond the realm of achieving a balanced life, to an inevitable dislocation from other activities, events, and phenomena in the wider world. Given the role that architecture plays in society and communities, this could be viewed as somewhat ironic. Indeed, as Cuff suggests, 'certain actions and attitudes are tacitly justified by a system of professional beliefs - an ethos - that is rarely challenged' (Cuff, 1991, p.21).

4.9.2 The Role of Behaviours

While studio cultures are facilitated by physical environment, their success is ultimately determined by the behaviours and social interactions that take place within. Indeed, the architectural theorist Reyner Banham drew a comparison between the tribal longhouse and the ritualistic behaviours and practices evident within design studio (Till, 2004), and in doing so highlighted the means by which physical context and behaviour formulates values. Moreover, as Till observes, Banham (1996) commented on the hermetic realm of the profession within which such practices typically take place.

The notion of socialisation and its importance in the acculturation of students into the profession was documented by Dana Cuff in 'Architecture: The Story of Practice' (1991). This work adopts a social

science perspective, which proposes that the educational system specific to architecture plays a central role in the development of a professional ethos'. Conversely, however, Cairns (1997) views studio as being a setting that distances the student from the realities of contemporary architectural practice, an opinion shared to some degree by Nicol and Pilling (2000) who contend that the studio perpetuates the notion of the highly gifted individual rather than dealing with the norms of the profession.

On the other hand, assimilation can also involve the removal or denial of preconceptions that are misguided or counter reality in some manner. In the case of design education, acclimatisation is overlaid with two additional layers of complexity; those of prejudice and assumption. There is a perception, borne out by common representations of history, of the architect as the lone muse, the gifted individual whose work is the product of a singular talent emanating from intuitive and innate creative ability. This perception must be dismantled in order for dialogue to be achieved, and for design to be seen as having a reasoned and rational basis rather than the product of indulgence or creative whimsy.

Alternatively, assimilation is referred to by Stevens as a process of 'inculcation'. This, he considers to be a central component of architecture education (Stevens, 1998), a process of absorption, of accretion, that occurs over an extended period of time as tacit learning. It is impossible to articulate the learning, being governed as it is by individual experience as well as traditional academic study. Bourdieu terms this 'charismatic inculcation', through its fundamental role in shaping the being, rather than the development of a specific body of knowledge that can be prescribed (Stevens, 1998, p.197).

Recalling Stevens' notion of 'habitus', personal experience acquired over one's lifetime prior to studying involves exposure to varying value systems, cultural facets, and attitudes which predisposes certain groups within society to architecture education or to other subjects and disciplines. Pursuing this argument further, the subjective dimension of

design studio inevitably appears as an area where students with an inherently developed 'habitus' are equipped to perform better than those without. Indeed, as Anthony points out, the 'jury' process within studio embodies assessments of 'being', and the development of the professional, as well as those of the design proposals themselves (Anthony, 1999). This element of subjectivity is claimed by Stevens to be a defining characteristic of the education process that lends value, as well as Schön's mystery, to design as an activity. So, acculturation is achieved through constant reference to examples that demonstrate qualities that are highly valued by the profession, and by statements and behaviours that convey the values held in esteem or which define aspirations. Through this process, the student develops their individual design sensibilities, design skills and, of key importance also, the capability to discuss architectural ideas.

With reference to the different course components typically found, including a range of didactic courses some of which adopt objective assessment, Stevens asserts that it is the quest to move all aspects of learning into the subjective domain of studio that fuels the constant desire for integration between course components. This perhaps extends the argument too far, denying the very obvious benefits of developing the sophistication of studio work through the application of theoretical knowledge.

The student, and indeed to a lesser degree the wider public, is curious about the value systems held by architects, and seeks to determine their roots. Public understanding of the profession and its overarching ideology is made problematic and unclear by virtue of the fact that the value of design quality is less tangible compared to the benefits offered by other professions, and is further undermined due to the ability of non-professionals to engage in the activity (with mixed results). It is the profession that defines the broad behaviours and beliefs of practitioners, and projects this to the wider community, including students and prospective professionals. Consequently, the second report of the AIAS Task Force on Studio Culture announced the development of school

policies in many US schools, with the aspiration of creating 'a seamless, quality-driven, healthy experience from enrolment into practice' (Anon, 2008, p.28).

Referring to the practice context, which in many respects is analogous to the educational setting, Argyris and Schön (1974) contended that where the professional ethos is challenged, and the experienced architects assume control over that the relative novice employees, the office begins to take on a form that departs from the discursive, creative, and more egalitarian studio or atelier. Where this occurs, the 'theory in use' of the partner creates a self-fulfilling prophecy thwarting the espoused studio model. The fact that so much of the knowledge in the situation is tacit prevents the novice from reading the situation and contributing positively and fully to the process. In other words, it is experience that is essential to the development of expert knowledge, much of this tacit and intuitive. Such observations of the practice setting directly mirror the 'mastery/mystery' phenomenon recorded by Schön.

A school, and by extension a studio, should be a place where students (and staff) feel supported. Indeed, as Knowles (1975) identified, self-directed learning commonly occurs in collaboration with others⁵². Similarly, Munby (2008) noted the invigorating capacity of peer discussion, as well as being the stimulus for critical evaluation and reflection. The basic premise that architects, through design, address the needs of others, suggests that it is the schools that should be cultivating the requisite sensibilities of care, support, and compassion through their own practices. In their book 'Building Community', Boyer and Mitgang (1996) define a set of conditions necessary for the creation of a constructive, positive, and supportive studio culture. Issues cited include interpersonal aspects such as mutual respect, acknowledgement of contribution, the embracing of diversity, positive and open communication, and celebration of success, as well as political factors such as the absence of dogma, and the creation of a sense of

⁵² Knowles' observation corresponds to Kesten's definition of Independent learning (see Glossary).

empowerment. Although these conditions may appear rather obvious and self-evident, reference to literature (inter alia Dutton, 1991; Anthony, 1999; Till, 2004) quickly highlights the particular gauntlet that they lay down to architecture educators, especially when considered from the viewpoint of developing independent learners through processes that embrace diversity, engage with wider disciplines and subject areas, encourage open discourse within design studio, and recognise the wider extra-curricular demands that impact on the overall student experience.

4.10 Issues of Transition Beyond the Architectural Curriculum

Both the studio environment and the practice setting play a pivotal role in the development of social abilities and peer interaction, as well as generic and transferable skills. It is generally accepted that the issues associated with transition to university education extend beyond the specifics of the selected academic subject or discipline. As mentioned in the introduction, some aspects relate to the pre-enrolment stage, whilst others are of a social, psychological, or economic nature. Ozga and Sukhnandan (1998) identified the relationship between retention and a student's readiness for university life, as well as the compatibility of their course selection. Notwithstanding this, however, institutions can significantly influence this dynamic through the nature and level of learning and pastoral support offered. In a study of perceptions of the transition to university within the subject of law at the University of Plymouth, a number of issues were identified which have a resonance with architecture (Spencer and Childs, 2003). The first of these relates to the overall process of change that was found to create apprehension and anxiety for many, whilst also representing a more positive challenge to others. Alongside broader social issues and aspects relating to independent living, study workloads and the shift in responsibility to the student for organising studies were cited as key learning factors. Interestingly, many school-leavers felt they had been 'pushed in the deep end' and, conditioned by former experience, missed the prescribed structure of secondary education. The second area was summed up as 'integration', including many concerns about interaction and acceptance by the peer group.

Compared to many subject areas, the learning environment of studio within architecture offers scope for the rapid development of a strong sense of community and peer support, although these conditions could equally underscore any sense of alienation. Equally, and notwithstanding the potential pitfalls associated with disjunction⁵³, the nature of relatively close tutor contact that architecture students are exposed to, tends to provide a beneficial level of mentorship, informal study support, and pastoral care. Indeed, as Robinson (2007) noted, the use of mentorship as a vehicle for learning is largely overlooked, denying a rich opportunity for both mentors and mentees in the development of the critical awareness and capacity for sound judgement that is crucial to independent learning.

The final area described the generic skills that university students acquire or require in order to operate effectively, all of which conform with the transferable and employability skills valued by the professions and industry. Spencer and Childs (2003) break these down into the following four categories:

- Cognitive: argument, analysis, evaluation, objectivity, problem-solving, etc
- Practical: research, time management, organisation, library skills, IT skills, etc.
- Interpersonal: verbal and written communication, group interaction and organisation, etc
- Affective: confidence, self-motivation, self-discipline, commitment, determination, etc.

Once again, the design studio presents a setting that addresses the development of many of these although, Nicol and Pilling (2000) claim, there is an untapped potential for the cultivation of independent, lifelong learners. The basis for this assertion is that few courses have sufficiently clearly defined pedagogic frameworks that progressively modify the

⁵³ For Savin-Baden's definition of 'disjunction', see Section 4.5.1.

balance between instruction and guidance and levels of student responsibility in facilitating the transition from being highly supported to becoming an independent learner. The importance of reflection and self evaluation and criticism is central to the notion of learner independence, requiring their deliberate and considered integration into the curriculum, and acceptance by staff of the central role that they play in fulfilling this overarching pedagogic aim.

4.11 Summary

Through this chapter, a number of issues have been discussed ranging from initiatives and drivers for change in the macro environment, to particular matters specifically relating to design studio pedagogy.

It has been shown how the confluence of agenda at governmental level, including the 'massification' of Higher Education, Widening Participation, the First Year Experience, and creating independent learners⁵⁴, is generating a strong impetus for change across the sector. However, the universality of traditional studio-based teaching practices, supported by Schön's analytical work in the 1980s, has generated strong resistance to change and has led to Harris' notion of cultural 'loss'. Indeed, commitment to traditional practice has been reinforced by the absence of alternative models.

Historically, architecture education has offered little recognition of the diversity within the student body, and of the individual. Whilst greater emphasis has been placed on diversity in recent years in terms of gender, ethnicity and, through Widening Participation, socio-economic background, it is argued that further 'hidden' diversities exists; those of learning disposition, motivation and expectation. In accordance with Robotham's (1999) assertion that enhancement of student learning necessitates a deeper understanding of the individual, it is argued that pedagogies designed to promote independent learning must embrace the individual. This is especially so where the underpinning theoretical

⁵⁴ The independent learning agendum bears a direct relationship to that of lifelong learning.

premise is that knowledge is personally constructed, as with constructivism. Based on the theories of Jung and Gardner discussed in Chapter 3, and building on the work of Demirbas and Demirkan (2003) and Roberts (2002, 2006) which explored issues of learning style in relation to architecture specifically, it is proposed that understanding of learning styles offers a means by which the individual can begin to be more explicitly accommodated through the design of inclusive learning processes. Similarly, D'Souza (2007) contended that Gardner's Multiple Intelligences have a bearing on individual learning, and reinforced the need for architecture educators to value and accommodate diversity, and to place the student at the heart of the learning process. It is therefore proposed that the challenge for educators lies in the design of learning materials and support structures that accommodate learning styles and multiple intelligences.

The role of the academic in facilitating individual knowledge construction, is central to architecture education and to the notion of a student-centred learning process. Yet, with reference to Rodger's (1969) determinants of facilitated learning, the degree to which the process is truly student-centred is contingent on the tutor-tutee relationship and on clarity of learning objective. Recalling notions such as 'power asymmetries' and dependencies, a number of studies have noted that, despite the intention of a creative, exploratory learning process centred on the individual, studio-based learning in reality constitutes a teacher-centred experience (Dutton, 1991; Yanur, 2006). Indeed, although appearing to fair well with respect to Nicol and Pilling's five components of effective learning, it is argued that deeper analysis of practice exposes weaknesses that compromise the fundamental intent of studio learning.

The processes of reflection and critical thinking perform a central role in studio-based learning, requiring pedagogies to develop skills of analysis and evaluation. Here, Schön's analysis is challenged on the basis that power asymmetries between tutor and student can compromise learning. Indeed, it is further posited that few architecture courses incorporate methods that overtly develop reflective skills and practices, despite its

centrality to learning (Sodersten, 2003). Indeed, it has been further demonstrated that the behaviours and practices commonly found in studio closely correspond to Goatly's (1999) barriers to reflection. The process of reflection is also reliant on feedback. Literature suggests that that lack of clarity regarding the indeterminacy of the subject is commonplace, which when coupled with the frequently intimidating nature of the review process (Anthony, 1999), can easily lead to dependencies and the phenomenon of the 'counter-learner' (Schön, 1983). It has also been suggested that practices such as the review can engender adversarial approaches in professional life (Boyer and Mitgang, 1996). Observations of this kind have led to exploration of student-led reviews (White, 2000), and attempts to reduce the negative consequences of power asymmetries and destructive criticism.

It has been shown that studio-based learning is dependent on effective dialogue, yet the true open-ness of discourse has been called into question. Power asymmetries and hierarchies can create dependencies that impact on the open-ness of dialogue, and erode the role of the student, potentially subordinating their 'apprentice' views to the dogma of the tutor or 'master'.

The role of the studio as an important social agent has already been introduced. Whilst clearly forming a key strand of the overall pedagogy, studio is also a place where, through intensive interaction and academic challenge, a culture is developed that encourages behaviours and perpetuates beliefs that run counter to notions of contemporary educational thinking or professional practice. It is also argued that the culture quickly becomes hermetic and seldom challenged, and is ultimately exclusive in that its practices and behaviours favour particular groupings over others.

Through consideration of the macro environment in which architecture education sits, and the importance that the concepts of constructivism and the independent learner place on accommodating student diversity, it is argued that existing pedagogies require to become inclusive processes.

It is further argued that learning styles and multiple intelligences provide a means of developing this inclusivity.

Additionally, although celebrated by Schön as an exemplar of creative, critically reflective, and student-centred practice, it has been subsequently shown that the central planks of studio-based learning as typically practised, namely those of dialogue, reflection, and the facilitated construction of independent knowledge, are flawed and at times operate in opposition to intention. The case is also made that the culture that studio establishes, whilst of great value to learning, also cultivates behaviours, practices and values that are exclusive and potentially counter-productive. In summary, therefore, it is proposed that a schism exists between the intentions of studio-based teaching and the realities as typically practised.

CHAPTER 5: SUMMARY OF LITERATURE REVIEW AND AIM OF RESEARCH

5.1 Summary of Literature Review

This review of literature has systematically progressed from the general to the specific, starting with the positioning of architecture education in a wider context of UK Higher Education. This point of departure has revealed a number of generic pressures in the sector, such as funding, Widening Participation, Enhancement, etc, which by definition are contributory to the challenges facing architecture education at present. Rapid and constant change characterises today's Higher Education sector, demanding agility and adaptability in the design and delivery of learning within respective fields. Equally, as part of this process, it requires an ability to objectively reflect on and appraise the suitability and effectiveness of adopted methods and pedagogies.

By tracing the origins and development of architecture education and design studio in particular, the direct lineage of the contemporary design studio model is illustrated. This demonstrates that studio, as a model for integrated and applied learning, has slowly evolved over a period of approximately 250 years, with perhaps the most dramatic shift occurring in the twentieth century when architecture education became subsumed into the institutional structures of academia.

Design studio is widely acclaimed as a learning medium, most notably by Donald Schön's analysis published as 'The Reflective Practitioner' in 1983. It remains the cornerstone of architecture education, possessing innate properties and qualities that make it an enormously powerful and significant agent in the learning process. The fact that the fundamental approach to teaching through the studio is adopted universally is remarkable, as is the lineage of this method. Certainly there is clear evidence to support its positive attributes, and to justify its continued existence as a dynamic, engaging, and adaptable learning medium. Studio encapsulates the potential to evolve and develop to address new and

significant challenges facing university education generally, and the subject of architecture specifically.

However, the past 10 to 15 years has seen the emergence of a body of research that critiques and challenges the pedagogical practices typically operating in design studio. Some commentators (inter alia Dutton, 1991) have expressed the view that the continued widespread endorsement of much current studio practice is flawed, and that Schön's ideas have acted as a legitimising agent, their dominance serving as a mere convenience that justifies the status quo (Till, 2005). Recent research has tended to focus on the underlying pedagogic theory as a means of prizing open the lid that the rhetoric around Schön's work has represented, and has begun through criticism and analysis to generate counter arguments and positions. Importantly however, the nature of the growing critique does not concern the theoretical construct or conception of studio, but rather tends to focus on aspects of the teaching practices involved in its operation which, as has been revealed, compromise the intended integrity and effectiveness of the educational model. The emerging discourse aimed at maintaining and enhancing the effectiveness of studio has occurred at a time when external factors are driving change with increasing momentum and urgency. It is postulated that the coincidence of these conditions is fortuitous, providing the leverage for a broader and deeper debate, and acting as a catalyst for new ideas and thinking.

As conceived, design studio represents a system and structure that facilitates the development of complex, sophisticated learning, that ideally places the learner at the centre of the process, and which draws together and integrates learning from a broad range of disciplines and fields. However, in practice its operation demonstrates deficiencies that undermine this conceptualised model. Such deficiencies result from a lack of understanding of the potency of behaviours, views, and actions; the fact that studio teaching is politicised; and from the widespread failure of academics to engage with the fundamental pedagogic arguments that underpin studio teaching. Moreover, the increasing diversification of entrants into a subject area that has had a historically homogenous

student profile necessitates the development of learning strategies that are inclusive and which embrace all⁵⁵. This is true of both learning support and pastoral care.

The failure of architecture education to accommodate the individual needs of the learner (Webster, 2004) is at odds not only with the generic emphasis on developing learner autonomy, but also with a primary intent of design studio and constructivist theory to develop creative and professional skills built on the knowledge and experiences of the individual. The diversification of the student population culturally, ethnically, economically, and so on, not only demands that this be acknowledged within the learning process, but also offers the opportunity to enrich the learning experience for all through capitalising on the experiential breadth and multiplicity of perspectives which is likely to exceed that of traditionally homogenous groups (Stevens). Furthermore, given the role of the individual implicit in independent learning, consideration must also be given to learning styles which constitute an aspect of diversity that is less visible and hence frequently overlooked.

The notion of independent learning has ramifications for the student, academic staff, and the learning setting or environment, as proposed by Rogers in his consideration of student-centred learning. With the majority of students coming from a background typified by highly structured didactic learning and a culture of reward, the transition to a system that requires them to assume greater ownership and control of their own learning, and to a subject area that has an ill-defined body of knowledge and which embodies a culture of criticism, is a daunting experience for many. During the initial stages, a culture of dependency can quickly develop between student and tutor, this forming the basis of power asymmetries that have a lasting and profound impact on the nature of communication, dialogue and respect between parties. Some encounter the phenomenon of disjunction (Savin-Baden, 2000) when faced with

⁵⁵ For the purposes of this research, the aspect of diversity that was studied related to learning dispositions and the ways in which people learn, this representing an important distinction with how diversity is commonly defined.

conditions that undermine confidence and reduce motivation. These issues underscore the importance of the development of skills that enable staff to act as coach (Schön, 1983, 1987), recognising and accommodating the characteristics of individuals important to learning, such as prior experience and perspective.

The hierarchies that emerge in the social relations within studio create asymmetries between staff and students, and a dynamic that staff must understand. Failure to do so can lead to Schön's 'counter learner', rather than the open dialogue and discourse that the concept of studio is predicated on. The role of behaviours cannot be underestimated, particularly as they perform a key role in communicating the cultural values and collective 'persona' of the profession.

Whilst the centrality of reflection in the learning processes of design studio has been extensively documented by Schön and others, few courses are designed to explicitly develop skills in reflection (Nicol and Pilling, 2000). Indeed, in relating Goatly's barriers to reflection to the findings of the AIAS Studio Culture Task Force (2002), it becomes evident that studio practices are inadvertently hindering the development of core skills. The review process, traditionally often a negative even brutal experience, also performs a critical role in the reflective process. Although many schools have revisited traditional practices relating to the review in an attempt to make them less adversarial and remove conflicts in agenda, others continue to defend their criticality, viewing the process as a rite of passage to professional competence. However, in creating the independent learner, self-confidence and motivation form a fundamental component. It is therefore contended that more is required to be done regarding the structured development of reflective skills built on personal confidence, through the definition of pedagogic processes.

The opacity of the learning process is a factor that challenges many students, especially given the 'hidden curriculum' that relates to the professionally derived ideology of knowledge, and the fact that knowledge itself is largely constructed and tacit in nature. It stands to reason,

therefore, that the ownership of learning desired of contemporary students necessitates a clear understanding of the learning process, pedagogic structures, and the respective roles of staff and student at different stages within the process.

The role of the studio setting as a learning medium, community forum and social agent is widely documented, corresponding strongly with Nicol and Pilling's five points for effective learning. However, the way that studio is inhabited and engaged with continues to evolve, particularly given the economic pressures forcing an increasing number of students to maintain part-time employment in order to support their studies. Equally, advances in IT have created a more peripatetic student, thus changing relationships with studio as a place or environment.

The areas for enhancement that are clearly suggested by the review of literature call for the development of integrated and holistic strategies and approaches to foster independent learning that relate to the student body, academic staff, and the learning environment. It is this that defines the scope of the forward study and the development of the research aim.

5.2 Research Aim and Objectives

5.2.1 Aim

One of the fundamental tenets of studio-based pedagogy in architecture is that the individual learner develops skills and knowledge according to the principles of constructivist theory, to a point where he or she has acquired a level of academic maturity, professional ability and competence. However, the preceding summary of the literature review identifies the need for greater consideration and accommodation of the individual in the learning processes involved in architecture education. In particular, the case is made for the consideration of enhancements to studio teaching practices that address the areas of the student, academic staff, and the learning setting.

Current initiatives designed to encourage social inclusion and equity of opportunity for all, are having major consequences across the sector as well as at a subject specific level. The current homogeneity of the architecture profession, relative to others, points to a time when students, the 'raw ingredients' of the education process, were a comparatively predictable group or entity in terms of academic ability and background, exposure to social and cultural milieu, and in terms of their socio-economic grouping. This phenomenon is now consigned to history, challenging educationalists to develop processes that embrace diversity in the development of independent and autonomous learners.

Simultaneously, changes in the political and university environment within which architecture education sits are exerting pressure on current pedagogies, and on those responsible for their implementation. The evolving conditions present new challenges for schools of architecture that demand the reconsideration of support structures for tutors and students, as well as offering the opportunity for addressing shortcomings in existing teaching practices.

Consideration of the issues summarised in Chapter 5.1 reveals a level of connectedness centred on the concept of the independent learner. Consequently, the aim of the study is to make an evidence-based case that the development of the truly independent learner in the discipline of architecture requires the formulation of new inclusive pedagogic strategies that explicitly accommodate the individual in the studio-based learning process, and address identified shortcomings in existing studio-based teaching practices (as summarised above). This thesis further seeks to identify the key components to be considered in formulating an appropriate strategy in terms of the learning process and its management and delivery by academic staff.

It is postulated that pedagogic development requires to address three primary areas; staff development in terms of skills as well as knowledge and understanding to accommodate and engage the individual within increasingly diverse learner groups; explicit guidance and support for

students to enable them to develop the confidence required for effective engagement with, and progressive ownership of, their learning; and the operation, use, and value of design studio as the principal environment for integrated learning and exploration.

5.2.2 Objectives of Research

Based on the premise stated in the aim above, the following research objectives have been identified:

- To address the value of design studio for the 21st century learner, in the context of a mass education system where independent learning forms a fundamental strand of the development of professional aptitudes.
- To develop an understanding of architecture design studio from a student perspective.
- To identify the potential for student diversity to enrich the learning culture of design studio.
- To identify the key components to be considered in formulating a strategy for enhancing the studio-based learning process and its management and delivery by academic staff.

THE STUDY

CHAPTER 6: METHODOLOGY FOR ACHIEVING RESEARCH OBJECTIVES

6.1 Introduction

Based on the research aim articulated in Chapter 5, this chapter sets out the theoretical framework for the development of the methodology.

6.2 The Purpose of the Study

The purpose of the study is to obtain detailed information that enables the case that the development of the truly independent learner in the discipline of architecture requires the formulation of new inclusive pedagogic strategies that explicitly accommodate the individual in the studio-based learning process, and address identified shortcomings in existing studio-based teaching practices, to be substantiated. The objectives incorporate the identification of factors to be considered in facilitating support for the development of independent learners, and accommodate the increasingly diverse student body undertaking studies in architecture. The aim of the study is achieved through the implementation of a research methodology incorporating a number of data gathering techniques embracing both quantitative and qualitative information. The latter was deemed particularly important in order to gain a view of the learning experience that derives an authenticity from the fact that it has been acquired through the lived, and observed accounts of the students. Indeed, the descriptive nature of this thesis is of central importance, concerning itself with perceptions, attitudes, and processes and their effects (Best, 1970).

6.3 Epistemology and the Research Paradigm

Due to the positioning of education and pedagogy within the social sciences, the underpinning paradigm forming the basis of the epistemology of this study is derived from this field. According to Habermas (1971), there are three paradigms within the social sciences; critical-theoretical, empirical-analytical, and interpretive. Being based on the study of people, their behaviours, actions, reactions and perspectives,

founded on their subjective comprehension and interpretation of their circumstances (Pollard, 2002), the interpretive paradigm forms an appropriate theoretical base. It places a focus on realities that are socially constructed and which are subjective, being affected by both historical and cultural contexts. Accordingly, it is argued that the interpretative paradigm, with its assumption that the innate differences in people limit the value of using natural sciences models for studies that embody personal perceptions and behaviours, acts as the most appropriate basis for this research. However, as shall be seen, mixed methods were used within this interpretative framework in order to enrich the study and enhance validity.

6.4 An Ethnographic Methodology

Being concerned with issues relating to people and pedagogic processes, this thesis lends itself to an ethnographic methodology. Indeed, ethnography is frequently used in the study of educational conditions. This study corresponds to the definitions of ethnographic research attributed to LeCompte and Preissle (1993)⁵⁶ and Hitchcock and Hughes (1989), in that it investigates the cultural and sociological phenomena of particular groups. i.e. first year architecture students. Spradley's (1979) definition of ethnography as 'the work of describing a culture', has a particular resonance with architecture education through its holistic nature and its deep connection with professional and social communities and values. Fetterman (1987) challenged the widespread belief that ethnography is purely an area of qualitative research, and that it cannot be used alongside quantitative analysis in educational evaluation. Instead he contended that, in order to explain particular phenomena, the two can be combined, and that ethnography can benefit from the use of both qualitative and quantitative methods. Correspondingly, this thesis incorporates both qualitative research in order to derive descriptions and

⁵⁶ LeCompte and Preissle contended that qualitative or ethnographic research (they used the terms interchangeably), possesses the following dimensions:

- It generates phenomenological information, i.e. the views of the participants in the study
- Data is gathered from real, un-contrived situations
- The research seeks to obtain a holistic view, and to determine key relationships and causalities
- A variety of data gathering techniques are used

narratives, and quantitative methods aimed at identifying meaningful patterns and categories. The study, which through the range of data gathered, seeks to establish a holistic view of the student experience (primarily in first year), was carried out within the context of a working school of architecture, the study tracking the experience of cohorts on a longitudinal basis.

6.5 Developing the Methodology: A Combined Approach

6.5.1 Adoption of Multiple Approaches

This study should be viewed against the background of a growing interest and rationale for multi-method research. Whilst conventionally there was seen to be a division between quantitative and qualitative research, it is increasingly argued that this split has been exaggerated, this argument emanating from Bryman (1988). The notion of triangulation is directly linked to that of multi-method research, based on the idea that multiple methods can enhance confidence in the findings, as well as compensate for any deficiencies arising from use of a single method. Consistent with this, Greene et al (1989) identified the following justification for combining quantitative and qualitative methods:

- 'To achieve convergence of results
- To identify overlapping facets that emerge on closer inspection using multiple methods
- To augment the information gained from an initial approach
- To identify and examine contradictions obtained from multiple sources
- To add scope and breadth to a study
- To guide the use of additional sampling, data collection, and analysis techniques'

(Greene et al, 1989)

Developed from Mouton and Marais' (1990) contention that educational research lends itself favourably to a mixed method approach, this thesis

adopts a methodology that combines qualitative and quantitative methods within the overarching ethnographic approach. Recalling Fetterman (1987), Mouton and Marais' justification for this was that the two methods can display a compatibility that can yield deeper and more informative insights into teaching and learning phenomena.

The concept of combining research methods has been one of considerable debate, the idea being widely challenged until relatively recently (e.g. Hathaway, 1995; Higgs, 2001; De Vos, 2002). The basis of the challenge lay in the difference between the two underpinning paradigms; those of 'positivism' and 'anti-positivism' (Cohen and Manion, 1996). Alternatively, these paradigms were respectively described by Hathaway (1995) as being 'empirical-analytical' and 'interpretive'⁵⁷, each determining different methodologies, epistemologies, etc. Nevertheless, increasingly, arguments for combining methods have been advanced, notably by Creswell (1994), who proposed three models for combined methods⁵⁸. Creswell's position recalled the notion of 'complementary multiplism' (Mark and Shotland, 1987), in which the use of multiple methods, employed in complementary ways, gave a number of diverse perspectives. The case for methodological combination is reinforced by consideration of the limitations of quantitative and qualitative methods. In the case of quantitative methods, criticism has been made that they focus on general patterns and predictability, neglecting more subtle, in-depth information. On the other hand, the subjectivity and perceived lack of rigour of qualitative methods has been challenged (Schulze, 2003).

6.5.2 Triangulation

In 2003, based on his earlier work, Creswell proposed the 'concurrent triangulation model' involving the parallel use of qualitative and quantitative approaches to 'confirm, cross-validate, or corroborate findings within a single study' (Creswell et al., 2003). This involves a

⁵⁷ The 'interpretive' paradigm is sometimes also referred to as the 'interpretative' paradigm

⁵⁸ Creswell's 3 models for combined research methods are:

- Two-phase model
- Dominant / less-dominant model
- Mixed methodology model

single stage process of data gathering and analysis, involving both qualitative and quantitative data sets. During the analysis, results are integrated into a single interpretation incorporating the relating of quantitative results to qualitative findings. In so doing, triangulation⁵⁹ allows a more comprehensive and holistic perspective to be defined.

In order to gather a broad spectrum of data, and ultimately a holistic view that is representative of the whole data subject groups, a number of data collection methods were used. These also served the purpose of 'triangulating' information gathered over the course of the study, and testing initial interpretations through more detailed enquiry in the latter phase of data gathering. In this respect the study adopts the characteristics of 'bricolage'⁶⁰ referred to by Denzin and Lincoln (1994).

6.6 The Qualitative Component

The study adopts a fundamentally ethnographic approach, utilising two cohorts of first year students as the primary subject group, and framing the findings from this against the broader literature that refers to the wider community of architecture students that the subject group represents. This approach is appropriate due to its capability to record complex and inter-related phenomena that directly or indirectly impinge on one another. Furthermore, ethnography lends itself to the gathering and collation of multiple perspectives and opinions relating to the architecture education process⁶¹.

The variables within any experiential study of student life within the transitional year into higher education and a new course of study, inevitably contains numerous variables, but the study seeks to establish patterns relating to these areas that can be most readily influenced as part of ongoing pedagogic development.

⁵⁹ In 1978, Denzin coined the term 'triangulation' to describe the use of multiple methods for the purpose of enriching a study. Of the four types of triangulation identified by Denzin, the methodology adopted in this thesis accords with data triangulation and methodological triangulation.

⁶⁰ Denzin and Lincoln (1994) coined the term 'bricolage' for the use of multiple methods and perspectives.

⁶¹ "The goal of qualitative research is to "gain a 'holistic' (systematic, encompassing, integrated) overview of the context under study" (Miles and Huberman, 1994, p.6)

Groat and Wang (2002) identify four key elements of qualitative research as being:

- Study within a natural setting
- Emphasis on interpretation and meaning
- Focus on how respondents make sense of their own circumstances
- Adoption of multiple approaches

Although incorporating some quantitative material, the over-riding research methodology is qualitative in nature, as is the essence of the subject matter itself.

The above elements correspond with the study in the following ways:

6.6.1 Study Within a Natural Setting

Whilst the study has relevance beyond the particular circumstances of the Scott Sutherland School of Architecture and Built Environment in Aberdeen, data collection focused primarily on the local setting, taking it as a typical example of a UK school of architecture. Focus on the school enabled a longitudinal study to be undertaken, the results of which will be viewed against the issues raised by the literature review, which are of generic application across the sector. However, in order to avoid the pitfalls of too localised a study, data were also gathered from the wider academic community through interviews with senior academics in the field of architecture, these individuals being chosen on the basis of their activity and reputation in the area of pedagogy, and their association with pedagogically progressive schools.

6.6.2 Emphasis on Interpretation and Meaning

The nature of the data gathered through questionnaires and group interviews, and semi-structured interviews, places the interpretation of the author at the centre of the study. However, as a means of corroborating the legitimacy and accuracy of interpretations made from the information gathered, group interviews were conducted to test and elucidate issues emanating from initial data collection methods.

6.6.3 Focus on how respondents make sense of their own circumstances

This area of focus lies at the heart of the study, and acts as a primary motivation for implementing the study in the first place. Issues relating to independent learning and acculturation to a subject area and profession are fundamentally concerned with the perceptions and experience of the student, and hence to the respondent. The methodology must therefore address individual characteristics and facts relating to the individuals within the subject group, in order to acquire a detailed profile of the overall cohort. Issues such as background, prior learning, broader transitional and social issues, perceptions of experience, and learning styles are therefore included.

6.7 The Quantitative Component

Quantitative research originated in the natural sciences as a means of studying physical phenomena, but is increasingly being applied to the social sciences, including educational research (Berry, 2005). For the purposes of this thesis, and to add depth to the qualitative data, variables⁶² in the research were identified and plotted to illustrate broad patterns and trends across cohorts. Surveys, in the form of the Questionnaires, were used to gather data relating to specific variables, enabling patterns and trends to be plotted. Such information was typically simple in nature, such as the recording of frequencies of occurrence of particular phenomena, or of perceptions and viewpoints.

Of the quantitative data generated, variables tended to be non-numerical in nature, such as Likert scale ratings, or ordinal with respect to a qualitative scale. This data enabled the generation of frequency distribution graphs and the percentage occurrence of particular variables within the responses⁶³.

⁶² The term 'variable' is defined as a particular characteristic, phenomenon, or perception of the cohort (Berry, 2005).

⁶³ Both frequency distribution graphs and percentages relating to frequency of occurrence of particular responses / perceptions are utilised in Chapter 8 and, in a more comprehensive form, in Appendix 1.

6.8 Ethical Considerations

The study has been conducted fully in accordance with the Revised Ethical Guidelines for Educational Research (2004), produced by the British Educational Research Association (BERA). Consequently, the research complies with BERA's underpinning principles. i.e. that it is respectful of the person or persons involved, knowledge and democratic values, the quality of educational research, and academic freedom. Equally, the ethic of truth and academic integrity was observed through the accurate recording and representation of data and findings. Additionally, as a matter of good practice in ensuring appropriate ethical standards at an institutional level, the proposal, research aim and objectives, and outline methodology were considered and approved by the Research Degrees Committee of the Robert Gordon University in 2004.

The primary and over-riding ethical concern surrounding the study was that the welfare of the students, as active subjects within the study, should be protected in full, and that the methodology rendered information non-attributable or, in the case of group interviews, adequately assured the volunteering students that views expressed would have no influence on their performance, would not fuel staff attitudes and perceptions of them, or have any other negative or detrimental consequence. Accordingly, participation was on the basis of 'voluntary informed consent' in accordance with item 10 of the BERA guideline, and prior to the research commencing.

Given the author's dual role, namely that of researcher and Head within the school in which the subject groups were enrolled, steps were taken to ensure that this did not influence the behaviours of respondents and participants. This was achieved through the engagement of third parties, themselves experienced researchers, who were independent of the activities of the school, and who were thus unknown to the students. All third parties used consented to their involvement on the basis of being fully informed of the study and its processes, and retained the right to withdraw throughout the study.

The study fully respected the autonomy of the individual through offering the opportunity for all participants to freely and securely articulate views, and through the ability of anyone to opt out of the process. Consent was informed (i.e. based on sufficient information about the study and its purpose), voluntary and free from coercion. No incentives were used to encourage participation, and the use of colleagues minimised the potential for students to comply with invitations to contribute on the basis of the author's position. In order to ensure that the students could exercise appropriate judgement relating to participation, the purpose of the study was introduced at the outset, and reiterated at all stages throughout the data collection period.

6.9 Parameters of the Study

A number of key parameters were determined as documented below:

6.9.1 Focus on a Single School

The research was focused principally on the architecture students of the Scott Sutherland School in Aberdeen, although the findings were triangulated with the views of selected academics and with the broader literature. As the pedagogy adopted by the School corresponds with the ubiquitous methods and approaches discussed in the literature, the School could be regarded as typical in this respect. The intimate knowledge of the school that the author possessed ensured that the full context for the courses was understood, enabling knowledge-based judgements to be made in interpreting the data, whereas in a cross-school study there would be no equivalent knowledge of background context over the duration of the study. For these reasons, it is argued that a cross-school comparison would have yielded no discernible advantage, and would have proved considerably more complex to implement.

Whilst the characteristics of the subject groups are considered typical of architecture cohorts nationally⁶⁴, in order for the results to have broader

⁶⁴ The subject groups were judged to be typical of architecture students nationally, based on consideration of the following:

validity the course must also be typical of architectural provision both in terms of its curriculum and modes of delivery and assessment. The compliance of the courses with the prescribed criteria for UK Architecture Education, the QAA Subject Benchmark, and the External Examiner process which invites comparability with standards, methods, and resource levels nationally, form the core of the justification for this.

The principal areas of study related to gathering data over the span of the academic year, which related to student experiences during the first year of university study, perceptions of the courses and their components, and emotions and feelings relating to their studies. Correspondingly, these areas served to structure the use of specific questions posed through the various adopted data gathering techniques. Group interviews were also held with the original subject group when they had reached their fourth year of study, offering an opportunity to record reflections based on experience acquired since the initial survey.

6.9.2 Interpretation of Diversity

It is recognised that diversity has multiple interpretations (see Chapter 4, Sections 4.3 and 4.4) However, for the purposes of this research, the aspect of diversity that was studied related to learning dispositions and the ways in which people learn, this representing an important distinction with how diversity is commonly defined. This focus corresponds with Kelly's Personal Construct Theory of the notions of inclusivity and the individual as discussed in the literature review.

6.9.3 Time Scale of the Study

The study, which was structured in two phases, spanned a total period of 4 years. This enabled a detailed investigation of two subject groups in the first year of their studies, followed by a further reflective study with the original cohort some 3 years later. The timescale also enabled the

-
- Entrance qualifications for the Scott Sutherland School broadly correspond to those in other schools.
 - The data gathered from the subject groups bear a strong correlation to the issues raised in the literature.
 - The External Examination process in the UK serves as a benchmarking processes across the sector.

identification of issues from the first survey that had begun to be addressed by subsequent school and institutional enhancement activity. Equally, the process offered the opportunity to reveal issues of a more fundamental nature that remained unaffected by enhancement activity.

6.9.4 Validity and Reliability

It is critical that the adopted methodology ensures that the collecting of evidence is both systematic and rigorous, and the following section sets out the methods relating to the research objective in greater detail. In order to give legitimacy to the research, the cohort preceding the study was used to pilot questionnaires in order to inform the final design of the data collection processes. The process of piloting acknowledged the work of Oppenheim, 1992; Morrison, 1993; and Wilson and McLean, 1994. For further detail relating to validity and reliability, see Section 7.3 of this chapter.

6.9.5 The Primary Data Sources

The subject groups consisted of two first year cohorts for the degree courses in architecture at the Scott Sutherland School of Architecture and the Built Environment at The Robert Gordon University in Aberdeen, UK. The first group survey took place in Session 2004-05, with students enrolling on their courses in September 2004. The second repeated the process with the first year cohort in Session 2007-08. The ability to contact every member of each cohort removed the need to sample, i.e. the research effectively became a cohort study (Cohen et al, p.174). As the focus of the research related to issues of learner independence built on the learning experience of Stage 1, it was considered essential that new cohorts be used as the main research samples for data collection. Qualitative and quantitative data relating to all objectives were gathered from the primary subject groups. In order to ensure that a sufficient body of data was gathered, each full cohort was used. Additionally, and in order to obtain the benefit of the reflections of senior students from the course, a group interview was conducted Stage 6 students in Session 2004-05. The following section sets out the methods adopted.

Figure 05: Table showing student cohorts used

Session	Questionnaires, Group Interviews	Group Interviews
2004-05	Stage 1	Stage 6
2005-06		
2006-07		
2007-08	Stage 1	Stage 4 (original Stage 1)

The same subject group was returned to some 3 years later whilst on a professional experience year in the workplace, thus allowing them to articulate a more reflective view of their experience, and the ability to put initial reactive responses within a broader context. This phase of the research process constituted a 'follow-up study', selective sampling occurring within this (Borg and Gall, 1979) (p.174).

6.9.6 Resource Implications

As the author is based in the school of architecture, the study was relatively straight-forward to carry out. In accordance with the ethical considerations discussed earlier, assistance was obtained from academic staff elsewhere within the university, to implement group interviews. Additionally, staff responsible for the first year of the courses assisted in the issuing and collection of questionnaires on behalf of the author. Consequently, the resource implications in undertaking an ethically and methodologically robust process, appropriate to the objectives of the study, were minimal.

Chapter 7: The Methods

7.1 The Structure and Instrumentation of the Research Process

7.1.1 Rationale for Methods Used

The methodology employed to address the established research objectives was based on the same reflective processes that fundamentally underpin the pedagogy of architecture education. Aimed at tracking the changing profile of perception of the learning experience across two cohorts of first year architecture students, the study was designed as a longitudinal survey comprising a range of data gathering methods. It was considered important that the methodology enabled comparisons to be made over time, and between cohort groups, reducing the probability of chance events, or the influence of any idiosyncratic occurrences. In other words, the comparison of findings across two cohorts, three years apart, enabled the extrapolation of underlying phenomena, irrespective of course development, or that developments had failed to address. The methods comprised a series of questionnaires and group interviews, designed in relation to one another to gather different kinds and levels of information. They also sought to generate a combination of quantitative and qualitative information. The timing of the use of these tools was also significant over the course of the academic year.

Data collection commenced with Questionnaires issued to each entire cohort, the purpose of which was to gather factual information about the group composition and to maximise the gathering of diverse opinion that through a process that invited inclusion, could be considered as being representative of the cohort⁶⁵. The questionnaires thus gave a sense of the whole in the data gathered, whilst preserving and demonstrating anonymity in the research process. In terms of a methodological strategy, given the longitudinal nature of the study this was deemed particularly important. Key research questions related to cohort composition,

⁶⁵ Data gathering through questionnaires applied to first year students only. Additional data was gathered from Stage 4 and 6 students through group interviews in order to obtain their reflections on the learning process and the broader student experience.

expectation and motivation, transition to university education, and perceptions of the learning experience. The range of opinion generated, and the trends contained within, then informed the issues to be explored in the group interviews in which discussions, whilst being non-attributable, inevitably lost their anonymity. In this way, aspects of the study progressed on a dynamic basis, with information gathered in the initial phase being used to structure the design of certain subsequent activities. In particular, the group interview questions were largely governed by the responses to the initial questionnaires, and acted as a means of opening up a deeper conversation covering areas that were emerging as being of critical importance to the subject group. Additionally, questionnaires were designed to provide continuity of enquiry, enabling the tracking of key issues or areas over the research period.

The purpose of group interviews was to gain a depth of understanding through the ability to explore themes identified from the questionnaire results, in a more dynamic and discursive forum. Thus, the relationship between these data gathering methods was central to the study. Participation in group interviews was on a voluntary basis, although the final group composition was selected from the pool of volunteers in order to ensure that the theme of diversity was addressed in terms of gender, age, and ethnicity.

Figure 06 shows a flow diagram that illustrates the development of the research process, while Section 7.2 discusses in greater depth the data collection methods adopted. The survey was small-scale in nature, in the spirit of Jackson and Marsden's 1962 study of working class adults in the secondary education system. In the first cycle, early analysis of the first two questionnaires confirmed that the group's responses generally echoed the broader literature review and the findings of sector-wide studies such as the AIAS Studio Task Force (2002). The subject group could therefore be quickly confirmed as being typical of students in first year of architecture education nationally and throughout the Western world.

7.1.2 Phase One

The data gathering process was initiated in Session 2004-05 by the issue of Questionnaire 01 on the day of enrolment for the new course intake. At this point the subject group had yet to gain any experience of course delivery. Hence, the questionnaire sought basic factual information aimed at generating a profile of the cohort in terms of their background, motivations, initial perceptions and exposure to the subject area prior to enrolment, as well as emotions about embarking on university studies. The diversity of students within the cohort was thus determined, together with the range of responses, reactions and views of the transitional experience. Given the importance of preserving anonymity and reassuring the respondents that their participation would be entirely non-attributable, the questionnaires did not seek to track individual students throughout the year, but instead traced the broad cohort trends whilst simultaneously amassing qualitative responses and statements relating to key points in time. Of equal importance, as the study aimed to develop strategies for accommodating and embracing a diverse group of learners, it was the broad trends that were of critical importance rather than the particular profile of any individual within.

Questionnaire 02 was issued at the mid-point of the first semester (the academic year is of two semesters duration), this being aimed at gathering initial perceptions of the academic experience, including delivery and support, as well as the broader challenges relating to transition to university life. Whereas the literature review identified issues worthy of study that specifically relate to design studio, the second questionnaire began to explore initial perceptions and broad trends concerning the different components of the learning experience without implying an emphasis on studio. This was intended to observe how rapidly and powerfully studio emerges as a prominent element of the overall experience. Although findings will be discussed in detail in a subsequent section, it is worth noting here that studio indeed came to prominence in these early studies, this structuring the design of the first Group Interview which took place in the latter half of semester one. The first Group Interview enabled the development of a deeper understanding of

perceptions and reactions to the studio environment and learning, through conversation. Qualitative statements were opened up for wider discussion amongst the group who, whilst volunteers, it was expected would represent all the courses, a gender mix, and a diversity of background (In retrospect, the research confirmed that was in fact the case).

The deepening of the enquiry was further progressed through Questionnaire 03 which was completed in the mid-point of the second semester, at the point where students were scheduled to have received feedback on their first semester performance, this including the results of summative assessment. Questionnaire 03 enabled tracking of perception to be continued, whilst simultaneously posing questions that explored specific areas in greater depth. A second Group Interview was subsequently held that bore the same relationship to the questionnaires as that of the first semester. The process was completed by the issue of Questionnaire 04 on the final day of the academic year. This completed the tracking process and asked respondents for their reflections over their first year of study in its entirety.

A further Group interview was held with senior students (Stage 6 in Session 2004-05) with the purpose of gaining an insight into their thoughts on the learning experience when viewed through a longer reflective lens. Whilst not central to the study, this element was aimed at enabling the identification of similarities and congruencies between the experiences and perceptions of the two groups.

7.1.3 Phase Two

The second part of the method involved returning to the original subject group in Session 2007-08, at the point where students had completed three years of study, and are undertaking a professional experience year in the workplace. The purpose of this phase of the study was to gain a understanding of student reflections on learning at a point where they have ability to reflect from a more knowledgeable, informed, and acculturated position. Being in the workplace, the subject group were also able to contextualise their learning relative to the world of professional

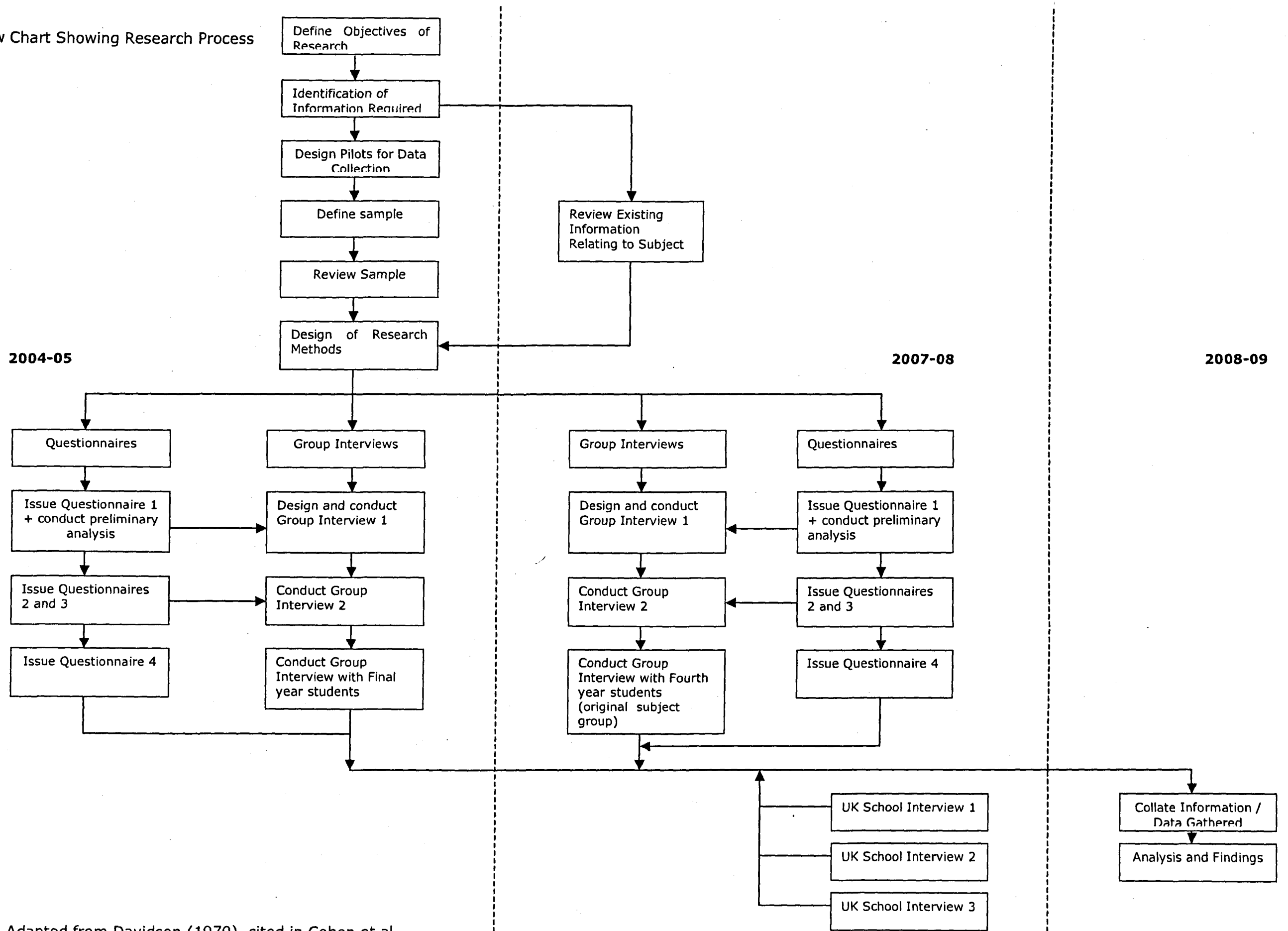
practice, this adding a further richness to the study. Two group interviews were held, the questions being determined by issues arising from the literature review and from processing of the data gathered from the cohort three years earlier. As before, for reasons of anonymity and objectivity, group interviews were conducted on the author's behalf by an experienced researcher with no connection with the school. As before, all participants were volunteers.

In addition to this, the full survey process undertaken with this group in Session 2004-05 was repeated with the Stage 1 cohort in Session 2007-08 (questionnaires and group interviews). The aim of this was to establish consistencies in experience and perception at a particular stage of study over a 3 year period.

7.1.4 Phase Three

Finally, and with the intention of ensuring that the study could be related to wider pedagogic developments and initiatives at a national level, three semi-structured interviews were held with senior UK academics. These were selected for their profile, reputation, and expertise in the area of architecture pedagogy, and for their association with schools that are engaged in pedagogically progressive and developmental activities.

Figure 06: Flow Chart Showing Research Process



Adapted from Davidson (1970), cited in Cohen et al (2000, p.170).

7.2 Data Gathering Techniques

Data were gathered using the following techniques:

7.2.1 Questionnaires

A series of four questionnaires issued to the entire subject group at key points in the academic session, with a view to understanding perceptions of experience at each point, and hence also to identify any significant shifts in perception over the duration of the study. All questionnaires were designed to identify quantitative patterns in the qualitative data whilst also enabling collation of material on feelings, motives, reasons and explanations (Silverman, 1993), and were issued on behalf of the author by staff who were independent of the study. The fundamental purpose of the questionnaires was to gather and track perceptions of academic and non-academic phenomena relative to time⁶⁶. The questionnaires, which were completed and returned voluntarily and anonymously via studio-based staff, incorporated open, closed, and scaled questions, and provided information that was both qualitative and quantitative in nature. The size of each cohort enabled the survey sample to include everyone, this reducing the effects of 'sample mortality' (p.127), whereby member of the sample withdraw, potentially distorting the results⁶⁷.

In order for tracking to be achieved, planning of questions was undertaken across all four questionnaires. Care was taken to ensure that language was both simple and clear, removing any ambiguities. Clear instructions for completion were also provided. This was especially important given that the students were not yet immersed in academia, and may have felt intimidated if presented with complex, specialist, or overly formal language.

As a means of addressing the practice of specifying the information sought and the means by which the study will be administered (Ghauri et

⁶⁶ Through the use of a series of questionnaires, the cohort studies (Borg and Gall, 1979) formed a longitudinal survey. Longitudinal surveys are acknowledged to be good for identifying trends or patterns, and identifying causal relationships (Cohen et al, 2000).

⁶⁷ See the percentage response rates in Figure 07 in this Section.

al, 1995), each questionnaire was preceded by an introduction by the author stating or reiterating the purpose of the research and the intended benefits and consequences of it, and where the particular questionnaire fitted in relative to this. It was emphasised that students were not obligated to complete a questionnaire, and that, where they did, anonymity would be maintained.

7.2.2 Questionnaire Design and Format

All questionnaires were paper-based, adhering to the same format and layout aimed at clarity, simplicity, and transparency. The format had been piloted with a limited group during the session preceding the full study to test for legibility, comprehension, and clarity. The strategy for questionnaire design involved a number of initial questions that were straight forward and factual, leading in turn to a set of questions of open format. The strategy for questionnaire design was informed by accepted research practices, the ordering and sequencing of questions broadly conforming to the published literature, moving from objective, to more complex subjective information for which qualification is sought. Additionally, both funnelling and filtering techniques are employed (Oppenheim, 1992) to direct respondents to specific questions.

Questionnaires were semi-structured with a variety of open, closed, and scaled questions. These included the use of dichotomous questions, followed by open questions to act as a sorting device. Youngman's (1984) observation that there is a natural tendency to answer a dichotomous question positively, with resultant bias, is countered by the addendum of an open-ended question. Rank ordering questions were utilised to enable respondents to prioritise issues and responses. Whilst factual information was gathered by use of closed questions, qualitative data was obtained through the combination of scaled and open questions, the former aiding the categorisation of information and the latter offering respondents the opportunity to freely record perceptions and opinion. The rationale for different types of questions is expanded below.

7.2.2a Closed Questions

Closed questions were used to gather factual information, especially in the initial questions of each questionnaire. In this respect they also served as useful 'ice breakers' at the introduction to each questionnaire. However, due to the limitations of closed questions with respect to opinion, perception, and emotion, data of this type were gathered ostensibly through open questions.

7.2.2b Open Questions

The majority of data were gathered by means of open questions in which the respondents were given the opportunity to record feelings, perceptions, and personal opinion. In a number of instances, closed questions were followed sequentially by open questions in an attempt to gather rich qualitative information.

7.2.2c Scaled Questions

Scaled questions were utilised where perceptions or opinions required measurement or categorisation, or where there was benefit to be derived from responses being ranked. Typically, five point Likert scales were adopted. Whilst it is acknowledged that this can encourage 'central tendency bias' (p.254) whereby the respondent avoids the extremes of the scale, the five-point scale is ubiquitous, being arguably more accurate than an even-numbered scale that forces the respondent to commit to a view that may not be entirely representative. Similarly, ordinal scale questions were used, which asked the respondent to rank prescribed items in order of importance.

Figure 07: Table recording key questionnaire information

Session 2004-05	Date of Completion	Significance of Timing	Percentage Response	Number of Respondents
Questionnaire 1	22 Sept. 2004	Induction Day	78.2%	68
Questionnaire 2	26 Nov. 2004	Mid Semester 1	60.9%	53
Questionnaire 3	09 March 2005	Mid Semester 2	48.3%	42
Questionnaire 4	20 May 2005	End of Session	59.8%	52

Session 2007-08	Date of Completion	Significance of Timing	Percentage Response	Number of Respondents
Questionnaire 1	19 Sept. 2007	Induction Day	94.3%	67
Questionnaire 2	26 Nov. 2007	Mid Semester 1	78.9%	56
Questionnaire 3	19 March 2008	Mid Semester 2	35.2%	25
Questionnaire 4	16 May 2008	End of Session	80.3%	57

(Copies of all questionnaire templates are included on the disc of Supplementary Information, together with the Microsoft Excel spreadsheets tabulating the data gathered).

7.2.3 Group Interviews

Group interviews were held to explore, in a discursive setting, a number of thematic areas arising from the literature review and relating to some of the results of the questionnaire responses, and to allow multiple views to be expressed and amplified as an elaboration of the questionnaire responses. This use of interviews is in accordance with the views of McNamara (1999). As the subjects share a common purpose, the format of the group interview is appropriate, as was the nature of the topics explored, which did not require the sharing or divulging of personal material. The element of the study accords with Best's description of much educational research as being concerned with existing conditions, perception, beliefs, and opinions, etc (Best, 1970).

Groups were limited to between 6 and 14 volunteers (Krueger, 1988; Stewart and Shamdasani, 1990; Millward, 1995). A total of around 15 were invited as a means of ensuring a critical mass irrespective of non-attendees. Expressions of interest in volunteering for Group Interview membership were invited, with assurances given that participants could speak openly and without prejudice, and from this a group was asked to participate. The group membership was finally selected from those volunteering in an attempt to achieve gender representation, 'mature' students, diversity of background, and coverage of all courses. All

interview sessions were conducted in the semi-formal yet familiar setting of a seminar room within the school.

The concerns of Hitchcock and Hughes (1989) concerning the potential for the attitudes, beliefs, and behaviours of the researcher to influence the responses from participants was recognised. In order to maintain objectivity, and to neutralise the potential difficulty arising from the author holding a prominent position to the subject group, to which they may be required to defer, experienced researchers were used to hold focus group meetings. Both of these individuals (a different person was used during each of the two sessions surveyed) were unknown to the students and had had no prior involvement with the School⁶⁸. The use of independent researchers reduced the risk of bias, and the presence of pre-conceived notions⁶⁹. However, whilst this solution addressed this aspect of the study, it was important too, for the sake of responsiveness, that the researchers had a prior understanding of the broad characteristics and dimensions of architecture. This was achieved through prior dialogue within the School over a number of meetings, this preparation being seen as critical to the process. In this way, attempts were made to achieve a high degree of symmetry between researcher and subject group. The potential for reactivity amongst participants was minimised through the careful introduction of each session by the facilitator, including reiteration of assurances to students regarding privacy.

Interviews were of 1 to 2 hours duration in accordance with the findings of Desvougues and Smith, 1988; Stewart and Shamdasani, 1990; Millward, 1995; Rolfe and Bennett, 1995. In the prior design of questions for the group interviews, care was taken to ensure that they did not predetermine or condition the nature of responses. Questions were developed in advance, with pre-determined wording and sequence, to ensure that identified themes were explored in greater depth, although the facilitators

⁶⁸ The use of an experienced researcher with no direct link to the subject groups effectively managed the risk of introducing dynamics akin to the power asymmetries discussed in the literature review.

⁶⁹ However, Fielding and Fielding (1986) and Denscombe (1995) noted that total interviewer neutrality is virtually impossible (Cohen et al, 2000).

also sought to offer sufficient latitude to capture the full breadth of responses made, and to provide the flexibility necessary to pursue relevant issues as they arose. The use of group interviews introduces the notion of the 'human instrument' in the collection of qualitative data, providing the ability to be adaptable and responsive in seeking out meaning within the responses of participants.

Figure 08: Schedule of group interview activity is given below:

Session 2004-05	Date Held	Significance of Timing	Number in Group
Group Interview 1 (Stage 1 cohort)	12 November 2004	Mid Semester 1	13
Group Interview 2 (Stage 1 cohort)	02 May 2005	End of Session	8
Group Interview 3 (Stage 6 cohort)	06 June 2005	End of Course	8

Session 2007-08	Date Held	Significance of Timing	Number in Group
Group Interview 1 (Stage 1 cohort)	11 February 2008	End Semester 1	14
Group Interview 2 (Stage 4 cohort)	11 February 2008	End Semester 1	11
Group Interview 3 (Stage 4 cohort)	15 February 2008	End of Part 1	8

Two sessions were held with the each of the main subject groups (i.e. the Stage 1 cohorts) to eliminate the possibility of a unique and atypical set of responses that could arise from a single event. The importance of the interviewer – interviewee dynamic was acknowledged, and discussed in advance as part of the preparatory process, in order to achieve an appropriate balance between formality and informality. Each session was tape recorded with the full prior consent of participants, following which transcripts were prepared and checked against the audio - tapes by the author prior to coding.

(All coded group interview transcripts are included on the disc of Supplementary Information).

7.2.4 Elite Interviews

In order to relate the research conducted at The Robert Gordon University to the broader context of UK architecture education, semi-structured interviews were held with senior academics recognised for pedagogical innovation and teaching and learning excellence in the field of architecture. The intention of the interviews was to mine the depth of experience and expertise represented by the selected interviewees, in relation to identified thematic areas and issues. It was also hoped that the elite interview process would yield individual and personal insights that would add a richness and colour to the study.

In the field of social sciences, the phenomenon of the elite interview is used most commonly when the interviewee is in a position of power or is a member of the 'reputational elite'. However, for reasons relating to the latter category, such a method was also deemed to be pertinent in this study, specifically in planning interviews with leading, prominent academics. The criteria for the choice of academics necessarily meant that the pool of potential interviewees was limited in the UK. Whilst an international perspective would have proved interesting from an academic and pedagogic perspective, the underlying context for this study is the resource climate prevailing in the UK, this differing markedly from some other countries. Indeed, the specificities of funding, quality assurance regimes, and regulatory body involvement, describe unique contexts for different countries.

The schools with which each selected individual was associated are also recognised for pedagogic development in the field, although it is emphasised that the views expressed by them were personal. The interviewees were as follows:

- Anne Boddington, Director for the Centre for Excellence in Teaching and Learning through Design (CETLD), and Dean of the Faculty of Arts and Architecture at the University of Brighton. Ms Boddington has substantial experience in the leadership of academic development and practice, research and consultancy

within the fields of architecture and design, and has worked extensively with a number of key bodies including RIBA, ARB, DEED, CHEAD, the QAA, and international organisations. She is also a member of the AHRC Peer Review College.

- Helena Webster, Deputy Head (Academic) and Reader at the Department of Architecture, School of the Built Environment at Oxford Brookes University. Ms Webster has been a National Teaching Fellow from 2006-08, and to date is the only one to have been appointed from the field of architecture.
- Professor Jeremy Till, Director of Architecture at University of Sheffield (at time of interview), and Head of School between 1999 and 2005. In 2007 Professor Till was awarded by the University of Sheffield the inaugural Senate Teaching Award for excellence in teaching leadership. Prior to Sheffield, he taught at the Bartlett School at University College London, and in October 2008 took up the post of Dean of Architecture at the University of Westminster in London. In 2006 Professor Till was selected to curate the British exhibition at the Venice Biennale. His work as an educator, researcher and practitioner is internationally recognised.

Following selection, all academics were written to requesting an interview, explaining the purpose of the study, and clarifying the place of the interview with respect to the methodology as a whole. Subsequently, notification of the thematic areas to be discussed was posted to all parties. Interviews were conducted within the space of one week, each being of approx. 2 hours duration and semi-structured in nature. All interviews were recorded with the prior consent of the interviewee. The semi-structured format ensured that each addressed the same questions, whilst also allowing other comments or issues to be captured. In the spirit of Silverman (1993), interviewees, whilst covering the same thematic areas, were given the opportunity to fully articulate their individual views. So as not to stem the flow of the interviewee's responses, the sequence of

questions and thematic areas was decided as the interview unfolded, in accordance with Patton's 'Interview Guide Approach' (1980).

The purpose of these interviews was to place the study of students at Aberdeen within a wider national context, as well as to gather evidence of ongoing developmental work in other UK schools. In order to avoid confusion of interpretation or authorship, and to minimise the risk of loss of vitality and potency through paraphrasing of the interviewees' words, the findings from this exercise were written using the words of the academics wherever possible. In order to manage the ethical dimension arising from this decision, each participant was sent for approval a draft of the chapter together with an electronic file of the original recording for reference. Implicitly, this process also ensured that each individual accepted the author's interpretation of their own words.

Interview	Venue	Date
Anne Boddington	University of Brighton	14 January 2008
Helena Webster	Oxford Brookes University	15 January 2008
Professor Jeremy Till	University of Sheffield	17 January 2008

Lastly, whilst the power dynamic between interviewer and interviewee(s) can negatively influence the process (Neal, 1995), the interviews with academics represented interviews within the researcher's peer group, helping to minimise the potentially detrimental effects of power.

7.2.5 The Purpose of Assessing Learning Styles and Teaching Styles

The study incorporated the assessment of learning styles and teaching styles in order to demonstrate the diversity across the cohort and the teaching team respectively, and to identify any styles occurring with high frequency within these groups.

Given that the study is focused on addressing diversity whilst simultaneously responding to some of the weaknesses identified within the learning experience, it was important to verify the existence of diverse learning styles and teaching approaches within the subject group and the staff team responsible for course delivery.

In the field of engineering, both Barrett (1991) and Felder and Silverman (1988) analysed the learning styles of students and their teachers, using the Myers-Briggs method, an assessment tool founded on Jung's Theory of Psychological Type. They demonstrated that a lack of alignment between dominant learning styles and teaching styles produced a negative impact on learning. Felder and Silverman (1988, p.680) cited poorer performance, a sense of alienation 'as if they were being addressed in an unfamiliar foreign language', and reduction in likelihood of developing an interest in the course materials as consequences. In response, Felder proposed that these difficulties could be minimised if the teaching styles of lecturers were adapted to accommodate all student learning styles. In other words, if the curriculum, its delivery and assessment were to address all quadrants of Jung's diagram (Figure 01 in Chapter 3, Section 3.4.3), all students would be taught in ways that match their dominant style to some degree. This, he contended, would promote effective learning, attitude and engagement. A similar study of Chemistry students undertaken by Breur Krause (2003) using the Hanson Silver Learning and Teaching Styles Inventories, similarly founded on Jung's theory, yielded similar broad conclusions.

Nevertheless, whilst of interest from the viewpoint of overall cohort characteristics, the issue of dominance is not the key issue here. Whilst one clearly wishes to engage and stimulate the majority group, the same is also true of those learners in minority groups.

7.2.6 The Hanson Silver Learning Styles Inventory for Adults (LSI)

A number of learning style inventories exist, most of which are based on Jung's Theory of Psychological Type, and many of which build on the work of Myers et al (Silver and Hanson, 1996). Both self-diagnostic tools⁷⁰, the Hanson Silver Learning Styles Inventory for Adults and Teaching Styles Inventory were selected because they represent one of only two

⁷⁰ Sewall (1987) and Garner (2000) assessed a range of self-diagnostic inventories in terms of reliability and rigour. Such tools are widely used as tools for guiding the development of inclusive learning experiences (Polhemus et al, 2005).

techniques that use a different instrument to assess learning and teaching styles (Carifio and Everitt, 2007). The other model is Canfield's Learning Style Inventory and Instructional Styles Inventory. By implication, the many other models that exist, through their use of the same tool to assess both learning and teaching styles, evidently regard these properties to be similar in nature (Carifio and Everitt, 2007). However, in comparing the two models, Hanson and Silver had more clearly articulated the theoretical basis for their inventories, i.e. Jung's Theory of Personality Type. Originally developed in 1980, the Learning Preferences Inventory underwent an iterative process of refinement until the publication of the Learning Styles Inventory for Adults in 1997.

Using the Hanson Silver 'Learning Style Inventory (LSI) for Adults', a diagnostic tool for adults itself based on Jung's theory of psychological types, the learning styles and preferences of the individuals in the first year student group were identified. The Inventory is a basic 'self-descriptive' (Silver and Hanson, 1996, p.54) tool that enables the identification of overall learning styles and preferences, ranking these 'Dominant', 'Auxiliary', 'Tertiary', and 'Inferior'. The dominant style is that most practised by the individual, and as such is most readily 'accessible'. Progressively and sequentially the other styles require greater effort to access, as they are less frequently practised. This is especially true of the inferior style.

The Hanson Silver model is simple in its operation and in the processing of data gathered, reducing as it does the 16 learning styles of the MBTI to four (Carifio and Everitt, 2007). For the purposes of this research which, as far as learning and teaching styles are concerned, seeks to illustrate broad trends and the overall profile of the subject cohorts, the simplicity of the model was considered appropriate. The Hanson Silver Learning Style Inventory for Adults is a self-descriptive diagnostic tool that measures preferences in relation to the categorisation with respect to learning characteristics⁷¹. Of two versions that exist, the self-diagnostic

⁷¹ Reference Figure 01 in Chapter 3, Section 3.4.3.

model used in this study does not measure the qualities of 'introversion' and 'extraversion' that reflect the learner's orientation to their environment, whilst the other, a more complex instrument, does. Considering the simple purpose of using the Inventory, i.e. to demonstrate the diversity across the cohort and the teaching team respectively, and to identify any styles occurring with high frequency within these groups, the dimensions of 'introversion' and 'extroversion' were not measured⁷². The use of this LSI model in a number of studies added further confidence regarding their reliability and standing within the field. The absence of consensus regarding the definition of a learning style extends to discussion on the taxonomy by which learning styles can be evaluated. However, James and Maher (2004) observed an increasing acceptance of three principal attributes; cognitive, affective, and physiological, and based their critical evaluation of learning style inventories on consideration of these factors. In their study of 20 learning style instruments, the Hanson-Silver Learning Style Inventory was ranked in the highest category of 'usability' (this being a function of validity, reliability, research base, and ease of application) (James and Maher, 2004, p.52). Additional evidence regarding the reliability and validity of the Hanson-Silver Learning Style Inventory exists in the work of Gulkus, Hanson and Silver (1984), Barker and Gulkus (1988), Barker, Gulkus, and Moore-Armitage (1989), and Barker, Moore-Armitage, Baron, and Gulkus (1990). However, in the absence of a universally accepted taxonomy of learning style dimensions, James and Blank proposed three criteria for the selection of an appropriate inventory:

- The suitability and robustness of the theoretical underpinning of the model or instrument
- The existence of research data supporting the robustness of the instrument
- Practicality

⁷² The bi-polar dimension of extroversion and introversion are attitudinal, representing orientation to learning, and to life, but exist independently from the paired functions depicted on Jung's mandala. Introversion and extroversion are also prone to modification depending on circumstance and situation (see Chapter 3, Section 3.4.3).

Ultimately, given consideration of these criteria, the Hanson Silver model was selected. The basis for this was that the learning styles assessment within this study serves a relatively simple purpose in demonstrating broad profiles and trends within overall cohorts, coupled with ease of use, and the pre-eminence of the theoretical base for the model (i.e. Jung).

7.2.7 The Hanson Silver Teaching Styles Inventory (TSI)

Similar to the Hanson Silver LSI, this tool is based on a series of self-descriptors, and forms a cursory subjective assessment of personal teaching behaviours and decision-making tendencies¹. Whilst the results of the TSI identify categories of behaviour according to patterns of dominant, auxiliary, tertiary, and inferior tendencies, the findings nevertheless represent generalisations as the model lacks the capability to precisely diagnose the teaching style of any individual. However, the general profile presented does reveal the principal features of a person's teaching style.

Importantly, it is noted that teaching styles can be influenced by a number of variables such as the learning environment and context. Additionally, teaching styles may differ from learning style and persona of the individual concerned, with some teachers consciously or sub-consciously modifying teaching styles to different learning situations or learners (Silver and Hanson, 1996).

7.2.8 Limitations

Whilst appropriate for the purpose outlined above, the nature of the assessment exercise has limitations. Firstly, the broad descriptions of personality type relating to both learning and teaching styles are general in nature, conforming to stereotype. Secondly, the brief nature of the assessment exercises themselves have limitations in terms of the participant's level of engagement with their purpose and the degree to which the prescribed processes are adhered to. Additionally, the generalisations of the assessments are abstract in nature in that they pay no cognisance to context, and hence do not take into account the

potentially strong influence that the specificities of setting and environment can bring to bear.

description

Furthermore, whilst typologies and taxonomies are commonly used in educational research, they are prone to criticism by those that view subjects through a precise, scientific lens. However, in the case of the Hanson Silver models, literature was sourced that supported the validity of these specific models within defined limits (Carifio and Everitt, 2007).

7.2.10

7.2.9 Process

All students in each subject group were invited to complete a non-attributable Learning Style Inventory. Inventories were made available by studio-based staff, and students were invited to return completed forms anonymously to an administrative office. Using this model, the profile of each respondent was charted, and trends identified across the cohort.

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In order to ensure optimum engagement with the assessment processes for both learners and teachers, the exercises were introduced and explained to the participants within the context of the wider study, and the processes of participation and completion were explained. Despite the fact that all outcomes are inherently general in nature, the assessments served their intended purpose appropriately in that they revealed the broad spectrum and divergence of learner and teacher characteristics within the subject groups. The study relates to the profile of overall cohorts and how the student experience relates to it, rather than the detail of specific learner or teacher 'types'.

Session	Learning Style Inventory	Percentage Response	Number of Respondents
2004-05	Stage 1 cohort	56.3%	49
2007-08	Stage 1 cohort	78.8%	55

Teaching Styles Inventories were adopted and circulated to all staff engaged in delivery of the architecture courses together with an invitation to participate. The tool is self-diagnostic in nature, designed to identify

the teaching style profile of the individual tutor. It operates by inviting the tutor to respond to seven decision-making categories, ranking in order descriptions that best reflect the ways the individual academic makes instructional decisions.

(Copies of the templates for the Learning Styles Inventory and Teaching Styles Inventory are included on the disc of Supplementary Information).

7.2.10 Multiple Intelligences Indicator for Adults

In order to assess the profile of Multiple Intelligences across each cohort, and the diversity inherent within them, the study adopted the Multiple Intelligences Indicator for Adults, developed by Silver and Strong in 1988. This enabled the profile of each respondent to be charted, and hence the profile of the collective from each academic session studied. These were processed in accordance with the scoring system developed by Silver, Strong, and Perini (2000).

Session	Multiple Intelligences Indicator	Percentage Response	Number of Respondents
2004-05	Stage 1 cohort	9.2%	8
2007-08	Stage 1 cohort	34.4%	24

(A copy of the template for the Multiple Intelligences Indicator for Adults is included on the attached disc of Supplementary Information).

7.3 Reliability and Validity

Until relatively recently, the notions of reliability and validity tended to be applied to quantitative research, although Morse et al (2002) proposed that they also have relevance to qualitative methods. Prior to this, Lincoln and Guba (1985) proposed that reliability and validity in qualitative research is more usefully translated to 'credibility, neutrality or confirmability, consistency or dependability, and applicability or transferability' (p.219). Indeed, the transferability or capacity for generalisation, is considered a defining aspect of qualitative research as distinct from quantitative.

The validity of research is evaluated by the degree to which it addresses the research objective or question. For qualitative research, typified by its subjective dimension coupled with the researcher's involvement as part of the context that is being researched (Lincoln and Guba, 1985), absolute validity is an abstract concept. Rather, validity ought to be maximised (Gronlund, 1981).

7.3.1 Internal Validity

Taking Lincoln and Guba's criteria for internal validity⁷³, this study demonstrates the following:

- **Prolonged engagement in the field:**
The longitudinal nature of the study, the repetition of the first year cohort study, and the incorporation of the retrospective views of senior students addressed this.
- **Triangulation**
The use of multi-method research enabled triangulation.
- **Persistent observation**
The combination of the longitudinal aspect of the study and the use of multiple methods ensured that observation was continual over the research period.
- **Member checking**
The Use of group interviews as a means of deepening understanding of responses to questionnaires, also provided a means of confirming meaning and intention behind responses, and hence to maximise accuracy of representation.

⁷³ Lincoln and Guba (1985) proposed that internal validity (i.e. the degree to which the findings accurately describe the phenomena being researched (Cohen et al, 2000, p.), is demonstrated by prolonged engagement in the field; triangulation; persistent observation; peer de-briefing; negative case analysis; and member checking.

7.3.2 External Validity

External validity describes the ability to legitimately apply the findings of the study to other contexts, and forms another distinguishing characteristic from the positivist, natural sciences paradigm. Lincoln and Guba (1985) articulate four threats to external to validity, each of which will be addressed in turn⁷⁴:

- 'Selection effects'

In this study, the placing of the research construct within a broad theoretical framework that itself describes the ubiquitous phenomenon that is studio-based learning, coupled with the integration of interviews with academics external to the research, determine wider relevance.

- 'Setting effects'

Whilst it was perhaps inevitable that some of the views expressed would be a direct consequence of their context, efforts were made to identify all factors that were specific to context, and which would not be transferable (see Section 7.4 on Data Analysis).

- 'History and Construct effects'

Neither the context nor the construct was a function of unique circumstances in this study.

As has been discussed, the methods incorporate triangulation⁷⁵ as a means of testing validity and minimising the potential for bias in interpretation. Fitzpatrick and Boulton (1994) refer to the potential for the patterns derived from quantitative research, to be used to corroborate

⁷⁴ According to Lincoln and Guba (1985, pp.189, 300), there are 4 threats to external validity (Cohen et al, p.109):

- 'Selection of effects': referring to constructs that are only of relevance to a specific group.
- 'Setting effects': where results are determined by a specific context
- 'History effects': where situations being studied have arisen for unique reasons.
- 'Construct effects': where constructs are unique to particular group.

⁷⁵ The method of triangulation adopted here is the use of different methods to check accounts received relating to particular aspects of the learning experience, and to explore these further.

interpretations emanating from qualitative methods^{ll}. However, potential difficulties with this position have been identified (e.g., Bryman, 1988; Devine & Heath, 1999; Mason, 1996; Mitchell & West, 1996; Silverman, 1993; Temple, 1997), leading to the observation that the epistemological basis for adopting a multiple method as a means of improving validity, must be stated (Meetoo D, Temple B, 2003). Within the field of social science, many believe that there are multiple views of reality, these perspectives being established by the participants in the research process (Berger and Luckmann, 1991). As this study involves aspects of diversity and individuality, this social science view is deemed appropriate, with quantitative methods introduced to determine the frequency of occurrence of particular viewpoints, and hence to assist the interpretation of data gathered.

In this case the use of multiple methods involving questionnaires and group interviews was intended to generate valid and reliable perspectives of the realities being studied, and hence to act as a triangulating agent.

It is accepted that interpretations of qualitative data are inherently subjective. However, the combination of quantitative and qualitative data in the methods described, enables the frequency of opinion or sentiment to be recorded, whilst the extensive use of the respondents' words (largely consisting of simple statements) in the analysis of the data reduces opportunity for misinterpretation.

7.3.3 Reliability

Although the issue of reliability remains contentious within the field of qualitative research, Denzin and Lincoln (1994) proposed three ways in which reliability could be demonstrated⁷⁶. With respect to these means, this research is considered to perform well, assisted by the survey of two

⁷⁶ Denzin and Lincoln (1994) proposed 3 ways of addressing reliability (Cohen et al, 2000, p.119):

- Stability of observations: consistency of interpretation / observation were study to be conducted elsewhere
- Parallel forms: likelihood of observation / interpretation changing were more emphasis placed on other phenomena in the study
- Inter-rater reliability: likelihood of observation / interpretation being replicated by another researcher

distinct cohorts, albeit from the same institution. Reliability may also be said to be increased, due to characteristics being revealed in the data that demonstrate consistency and correlation with the literature. Alternatively, Lincoln and Guba (1985) described the reliability of qualitative research as 'trustworthiness', this definition being further articulated as 'credibility, transferability, dependability, and confirmability'. The use of triangulation techniques, coupled with the prolonged nature of the longitudinal survey incorporating two full survey cycles, improves dependability. So too does the audit trail provided from raw data to the chapter on results and discussion⁷⁷

⁷⁷ The Appendices volume has a disc enclosed which contains tabulated questionnaire data on Microsoft Excel spreadsheets, coded group interview transcripts, and Interview audio files.

Additionally, the Appendices provide detailed individual analyses of Learning Styles Inventories and Multiple Intelligence Indicators.

Figure 09: Critique of Selected Learning Style Instruments

Learning Style Instrument	No. of Sub-scales	Dimensions			Developed for Adults?	Adult Norms Available?	Evidence of Validity?	Evidence of Reliability?	Strength of Research Base	Cost	Overall Instrument Usability	Comments
		I	M	P								
Barbe-Milone	3		X		Yes	No	1	1	1	P.D.	3	10 items
MMPALT II	7		X		Yes	No	2	3	2	Not Avail.	1	Time consuming
Swassing-Barbe	3		X		No	No	1	2	2	-	1	ditto
Grasha-Riechmann	6			X	Yes	Yes	2	3	3	2	3	Widely used
Gregorc	4	X			Yes	Yes	2	2	2	2	3	ditto
Hanson-Silver LSI	4	X		X	Yes	Yes	2	2	3	2	3	Jung based
Hemispheric Mode Indicator	1	X			Yes	Yes	2	2	2	2	3	Easy use and scoring
Herrmann	4	X			Yes	Yes	3	?	3	3	2	Expensive
Kolb	4	X			Yes	Yes	1	2	2	2	3	Widely used
Schmeck	14	X			Yes	Yes	3	3	3	Not avail.	2	-
Witkin	1	X			Yes	Yes	2	2	3	2	3	Research
Canfield	17	X	X	X	Yes	Yes	2	3	2	3	2	No. of forms
Honey and Mumford	4	X			Yes	Yes	2	2	2	3	3	Easy use
Keirsey	4	X		X	Yes	Yes	2	0	2	1	3	MBTI based
Myers-Briggs	4	X		X	Yes	Yes	3	3	3	2	2	Training need
Sternberg	13	X			Yes	Yes	2	2	2	1	2	Complex
CITE	9	X	X	X	No	No	1	1	2	P.D.	3	Comprehens.
PEPS	20	X	X	X	Yes	Yes	2	2	3	2	2	-
Hill	28	X	X	X	Yes	No	1	1	2	P.D.	1	V Complex
NASSP	24	X	X	X	No	No	2	0	3	2	1	Rigorous

Dimensions: 1=information processing; M=perceptual modality; P=personality

Validity / reliability / research / usability: 0=unable to determine; 1=low, weak; 2=moderate; 3=strong

Cost: P.D.=public domain; 1= low unit cost; 2=moderate unit cost; 3=high unit cost

(the monetary values per copy cited in the paper have been omitted as they are based on 1993 costs and are unlikely to remain valid)

Taken from James and Blank (1993, pp.47-57). (NB: shading added to boxes by the author)

7.4 Data Analysis and Presentation

The data generated by this research is predominantly qualitative in nature, with quantitative data being gathered to reveal broad trends and patterns. As will be discussed later in this section, and in accordance with this function, quantitative data was analysed simply using Microsoft Excel. Consequently, the more analytical capabilities offered by more sophisticated programmes was not exploited as it was not considered beneficial to the study. As a result, in terms of its significance, all quantitative analysis is to be afforded equivalent status to qualitative analysis in this research.

The analysis of qualitative data commenced with the segmentation and organisation of the information gathered, followed by a process of explanation involving the categorisation of participant's responses, and the identification of trends and patterns. Qualitative data from the study were analysed using narrative summary techniques in which data were selected, ordered in accordance with categories relating to the literature review findings, and presented as an interpretive narrative. This is appropriate given the complex, multi-dimensional nature of the phenomena being studied. Using the principle of triangulation, the process of defining patterns was reinforced by quantitative information.

'Units of analysis' were created as the basis for the categorisation of data, with coding being developed in response to the data recorded from the range of qualitative methods used, and from the literature⁷⁸. The categorisation, or 'domain analysis' (Hammersley and Atkinson, 1983; Lincoln and Guba, 1985) is reflected in the headings in Appendix 1, under which the analysis is recorded. Linkages identified between domains in Appendix 1 makes sure that 'context-grounded-ness' (Cohen et al, 2000, p.149) is maintained.

According to Cohen et al (2000), where qualitative analysis is involved, the danger of the subjectivity of the researcher selecting data to

⁷⁸ See Appendix 1 for the schedule of Codings used.

substantiate a preconceived position or argument is ever present. Crucially, therefore, care was taken to ensure that the data selected were representative of the total data set.

Regarding external validity and the notion of generalisation, efforts were made to identify factors that were specific to context, and which would not be transferable. With reference to 'setting effects' identified by Lincoln and Guba (1985), whilst some of the views expressed were a direct consequence of their context, efforts were made in analysing data to acknowledge this by discussing findings against this specific contextual background.

7.4.1 Questionnaires

Following a process of 'editing' to check for correctness of completion (Cohen et al, 2000, p.265), all questionnaire results were coded⁷⁹ and collated into a single document that summarised the full range of responses, and recorded the frequency with which themes or specific issues emerged. Whilst Sudman and Bradman (1982) argue the benefits of involving the respondents in the coding exercise in order to enhance the validity of the analysis (Cohen et al, 2000), and given that the proximity of the author to the subject group would have rendered this possible, the ethical concerns regarding anonymity and position dismissed this as a viable option.

The data from each questionnaire were entered into a Microsoft Excel spreadsheet for analysis⁸⁰. Having explored research software such as SPSS and NVivo, it was decided that these did not offer any substantial benefit over Excel in terms of the analysis required. Indeed, the capacity of Excel for the visualisation of quantitative information, including longitudinal profiles, coupled with the ability to collate and code qualitative data, was highly appropriate.

⁷⁹ The coding categories are included in the disc attached to the Appendices volume.
⁸⁰ See disc enclosed with Appendix volume.

The variables in the quantitative data included both non-numerical data related to the Likert scaled questions, and categorical data in the form of ordinal data where values were attributed to qualitative scaled questions. This enabled the analysis of quantitative data to be simplified, incorporating the visualisation of trends, patterns and profiles through graphs.

7.4.2 Group Interviews

In order to avoid any loss of the richness of data, beyond that which is inevitable through transcription being a process of 'selective transformation' producing abstracted and de-contextualised material (Kvale, 1996) all interview tapes were transcribed in full. Analysis of data from the Group Interviews began with a process of coding the transcript, identifying all the issues raised and categorising them. Within this process, some elements of data could be assigned multiple codes, depending on their relationship to the research. Codings were recorded using the same numerical system as adopted for questionnaire data.

Through observation of frequencies, the initial coding exercise allowed the identification of overall patterns and generalisations, and the distillation of material into broad clusters. Each cluster was designated a code, the categories for which were defined from the data, and which broadly align with the principal issues arising from the literature review.

7.4.3 Learning Style Inventories

The Learning Styles Inventories were analysed in accordance with the prescribed method as set out by Silver et al (2000) in 'Learning Preference Inventory: User's Manual'.

7.4.4 Teaching Style Inventories

The Teaching Styles Inventories were analysed in accordance with the prescribed method as set out by Hanson and Silver (1998) in 'Learning Styles and Strategies' and Silver et al (2000) in 'So Each May Learn: Integrating Learning Styles and Multiple Intelligences'.

7.4.5 Multiple Intelligences Indicators

The Multiple Intelligences Indicators were analysed in accordance with the prescribed method as set out by Silver et al (2000) in 'So Each May Learn: Integrating Learning Styles and Multiple Intelligences'.

7.4.6 Presentation of Findings

The primary audience intended for this research is that of educational practitioners in the field of architecture. The presentation of this study acknowledges the recommendations of the 'Good Practice in Educational Research Writing' guide produced by the British Educational Research Association (BERA, April 2003).

Accordingly, throughout the presentation of the study, privacy and confidentiality have been maintained, and qualitative information in the form of comments was rendered anonymous and non-attributable. Both qualitative and quantitative material was analysed in full in an integrated manner, the results of which are presented in Appendix 1. Qualitative data is presented in the form of quotations (the source of each being acknowledged), whereas quantitative data is represented visually using histograms or longitudinal linear profiles, together with the use of percentages.

Chapter 8, 'Results and Discussion', draws from the full analysis, presenting the salient points in the context of an argument derived from the analysis. However, in the interests of reliability, through reference to Chapter 8, Appendix 1, and the materials included on the disc attached to Volume 2, data may be tracked from its analysed form to its raw state.

RESULTS, DISCUSSION AND CONCLUSIONS

CHAPTER 8: RESULTS AND DISCUSSION

8.1 Introduction

This chapter discusses the findings from the data analysis in relation to the aim, namely to make an evidence-based case that the development of the truly independent learner in the discipline of architecture would be enhanced by the design of inclusive pedagogies that explicitly accommodate the individual in the studio-based learning process, and address identified shortcomings in existing studio-based teaching practices⁸¹. In doing so, an argument is presented for reconsidering design studio pedagogy as a means of embedding independent learning in the process of architecture education.

The observations made at the outset of the literature review regarding the prevailing climate in terms of resources and the governmental agenda for UK Higher Education, clearly established the context for this thesis. As has been shown, this context defines the imperatives with respect to the development of learner independence and the accommodation of the individual, whilst also establishing the constraints within which pedagogic developments are required to take place. Rather than the notion of learning processes tailored to individual and bespoke needs as being an appropriate response, this thesis instead proposes the development of collective learning processes that are inclusive in their accommodation of diverse and disparate needs. During the first year of university education, most learners are at an early point in the development of their independence, and as such are relatively dependent, especially where learning processes and subject matter are new. However, a distinction is to be drawn between independent or autonomous learning, and learning in isolation. Indeed, even the most mature independent learners do so in the context of 'relevant others' (Kesten, 1987)⁸², incorporating peers and networks that they regard as trustworthy and respected. Capacity for

⁸¹ A number of weaknesses or failings of existing studio-based practice are identified in the literature review, particularly in Chapter 4.

⁸² For Kesten's definition of independent learning, see Glossary.

independent learning develops as the ability to judiciously select appropriate knowledge and assimilate the views of others with one's own thoughts increases, this capability being fundamental to the notion of lifelong learning. It is for this reason that the study analysed trends and profiles across each cohort as well as the range of perspectives within, rather than tracking the detailed responses of individuals over time.

8.2 Method

This chapter seeks to integrate the findings from the three main strands of data collection, namely those of the inventories of learning styles and multiple intelligences⁸³; the perspectives of selected academics from progressive schools; and data from questionnaires and group interviews. These findings are analysed and discussed within the context of the research aim. Data collected from students of the Scott Sutherland School are related to the wider viewpoints represented by selected UK academics, where specific issues are considered to have a broader relevance.

The totality of data gathered was systematically collated and analysed, the full results of which are included in Appendix 1. This chapter draws together key points from the various strands of this comprehensive analysis (see Appendices 1-4), and integrates them in formulating an argument that responds to the defined research aim. Points, statistics, graphs and quotations extracted from the complete analysis for inclusion in this section are cross-referenced throughout for ease of comprehension.

The chapter is divided into sections as follows:

- The Case for Change
- Independence and the Individual in the Context of Architecture Education
- Aspects of Transition In Architecture Education

⁸³ Given that the focus of the study is centred on student perceptions, the decision was taken not to use the Teaching Styles Inventory results, although these are presented in Appendix 2. This decision was reinforced by the very low returns for these inventories, which would have compromised the validity and reliability of their analysis in terms of generic relevance.

- Developing Understanding of Studio-Based Learning
- Developing Confidence: The Independent Learner and the Peer Group
- Implications for Academic Staff
- Summary

Whilst the focus of the work relates to pedagogies within design studio, initial sections relating to early perceptions of the student experience and transition to university, inevitably refer to the course as an entity, as well as to non-academic factors of significance.

8.3 The Case for Change

8.3.1 Introduction

Drawing principally from the data drawn from Interviews with senior academics, this section discusses reflections on the realities of common pedagogic practice; the consequences of the ubiquity of the model of professional education with respect to understanding of learning theory; and that tensions existing between vocational training and broader academic interest. In this regard this section develops some of the themes established in Chapter 4 of the literature review.

8.3.2 Reflections on Pedagogic Realities

In addition to the factors in the wider environment that are driving change across the higher education sector, such as Widening Participation, contemporary conditions also continue to exert pressure on existing studio-based learning models in architecture education (Inter alia McGonical, 2005; Rooney, 2005; Chettiparamb, 2008). Yet, as has been seen, the drivers for re-evaluation of many of the educational practices that conventional studio teaching encompasses, are increasingly coming from within the discipline, fuelled by a growing understanding of gaps between pedagogic intent and practiced reality, as captured below:

"The rhetoric is that design studio is student-centred learning, and compared to other disciplines, it's a hell of a lot better, but once you

interrogate practices in design studio you realise that in some cases it has the potential to be student-centred but often it's actually much more like transmission"

(Webster)

"a huge confusion that they (some 'leading' schools⁸⁴) have (is that) because they are producing avant-garde form, they think they're avant-garde, but actually they're dramatically conservative in all their practices – and I think that's been a real confusion. I think that confusion in architectural education is what has stopped it – because there is continual production of fresh form, globally, it has actually masked the conservative nature of the processes in production"

(Till)

As the quotation above suggests, the open-ended, creative nature of design enquiry, which in many instances leads to radical thinking in terms of product, can be readily mistaken for forward-looking pedagogy. In reality, however, as further supported by statements included elsewhere in this chapter⁸⁵, the creation of exciting and innovative product is more often the result of a prescriptive task-driven approach, than of a pedagogy that emphasises the learning process and which embraces the individual. In this sense, learning methods owe more to the Beaux-Arts model than to constructivism (Kelly, 1955; Piaget, 1972) and contemporary educational thinking regarding independence.

Despite awareness of a disparity between concept and practice having led to a range of initiatives exploring the enhancement of various aspects of studio learning over the last 10-15 years, the dominance of a singular pedagogic model, and its legitimisation through Schön's theorising of it (inter alia Dutton, 1991; Till, 2005), has generated a widespread inertia, which in turn has rendered development very slow. The growing critique of the dominant paradigm is exemplified by the following quotations:

⁸⁴ In order to aid the clarity of quotations, the author has added comments in brackets where necessary

⁸⁵ See Till's comment on p.159.

"Schön pretends that (architecture education) is a nice, empowering, reflective thing when it's absolutely, completely the reverse; completely sexist, completely dominating..."

(Till)

"I think one of the major problems is (that) we believe the students need us more than they actually do. We think students only learn when they're with us, and all the evidence suggests that that's not true"

(Webster)

The two statements above, together with the previous observations, suggest a widespread lack of understanding of the educational principles and ideas that underpin studio-based teaching. Referring back to Chapter 2, in which the evolution of contemporary teaching practice was discussed, it can be seen how the highly prescriptive learning process of the atelier has been translated into the contemporary university setting via the Ecole des Beaux-Arts, with minimal adaptation. The fact that little analysis of the pedagogy itself had been conducted prior to the publication of Schön's 'The Reflective Practitioner' (1983), also suggests that acceptance of the task-driven approach, and a pre-occupation with product, is deep-rooted amongst tutors. This view is further supported by the following statement from a final year student, which draws a parallel between the proximity of studio tutoring methods and the highly supported, task-oriented learning culture commonly associated with the secondary education:

"What I've always found interesting is that inevitably there are going to be differences in personality from tutor to tutor, but in terms of structure, I think what it (the learning process) lacks is that although we are at University and are expected to be more independent... because our course is so focussed on studio-based teaching, which is one-on-one, it is more closely linked to, say, Secondary School education, than... I would imagine other degrees to be"

(Stage 6 student)⁸⁶

⁸⁶ Where relevant, Appendix 1 notes the frequency with which specific sentiments occurred within the student responses. Additionally, the specific questions that elicited the quotations used are coded, and may be tracked back to the questionnaire data or group interview transcripts (see disc of 'Supplementary Information').

In other words, despite statements by students and academics of the newness of learning methods, it is argued that in many cases this in fact refers more to content than pedagogy. It should be noted that many students commented on the learning setting, which is an integral part of learning methods, as well as being an environment that is directly associated with the production of output dictated by set tasks.

8.3.3 Understanding Underpinning Learning Theory

It would also appear that the fact that many educators lack a fundamental understanding of relevant learning theory acts as a principal inhibitor of pedagogic evaluation and development, with few educators possessing the 'tools' necessary for substantial progress to be made:

"The language of pedagogy is alien, which is problematic, and its one thing that the CETLD⁸⁷ is dealing with"

(Boddington)

This phenomenon can be seen to emanate from the universality of studio teaching and the resultant 'handing down' of tutoring technique, this pattern ironically mirroring the master-apprentice model that the architecture profession still largely subscribes to, and that has come to be the source of much challenge by educators. It is therefore proposed that the impact of wider environmental factors offers potential as an agent for more radical change, although great care is required to ensure that the many universally acknowledged and acclaimed properties of studio teaching are retained and enhanced. Nonetheless, interviewed academics argued strongly that increasing numbers and resource limitations demand change, and that the perpetuation of tradition coupled with failure to objectify current realities poses considerable risks. Furthermore, whilst the positive educational attributes of studio are important to retain, it is argued that where change has been effected, it has tended to occur incrementally rather than through a holistic view of development being

⁸⁷ CETLD: Centre for Teaching and Learning Through Design, at the University of Brighton.

taken. The statements below, whilst acknowledging the magnitude of the challenge, identify potential benefits to be accrued from change:

"There are extrinsic pressures - architecture's going to get increasingly squeezed by funding, and that's clearly going to create great challenges... the only good thing about that is that it might finally make us understand what we do, and for me architectural education is still a 'black box', and the pedagogy is naturalised, we feel its always been there, and its correct, yet we hardly know anything about it at all"

(Webster)

"one of the great things about increasing numbers, despite everybody squealing... is that it depersonalises education. Now I think there's a degree where that becomes unmanageable... but I think the 'sitting by Nellie' model where you model everyone in your own image (god forbid!) - you think 'how do you balance a number and mass as one of the ways of doing it?'"

(Boddington)

8.3.4 Educational Tensions

There is evidence to suggest that the essential dichotomy of architectural education still persists; namely the tension between training required for vocational ends, and the broader scope of endeavour desired by academe. It would appear that this forms the subtext to a number of issues, such as tutoring methods. For example, the approach referred to in the quotation below alludes to the historic task-driven apprenticeship model from which formal educational processes grew, and which appears antithetical to contemporary pedagogic thinking:

"(In some schools) the most brutal tutor is the most popular, and actually architecture students, particularly at places like (name of school) don't want independent learning, they want product⁸⁸ - they want to ensure that they're going to come out with product, and the best way to do that is to go into brutal, prescriptive, determinist, and

⁸⁸ In this context, 'product' refers to the student's portfolio as the tangible output from their course. This is often imbued with qualities that are identifiable with the tutor, or unit leader, who effectively assumes a role akin to the Beaux-Arts studio master.

generally formalist units⁸⁹... which is a function of professional values"

(Till)

The continuing dichotomy raises some fundamental questions; ones that the profession has been grappling with at least since the Oxford Conference of 1958⁹⁰, as captured below:

"If architecture is to take its proper place in the University and if the knowledge which it entails is to be taught at the highest standard, it will be necessary to establish a bridge between faculties... Furthermore, the Universities will require something more than a study of techniques and parcels of this or that form of knowledge"
(p.441)

(Martin, 1958)

The tension between academia and professional practice that existed at the time of the original Oxford Conference is echoed in the Boddington's words below:

"If we're going to continue architecture in the academy, we have to recognise that its not a training ground, its an academy, and what that means – and I don't think we talk about it... its uncomfortable"

(Boddington)

The tensions between academia and the profession are implied by the AIAS Studio Culture Task Force reports (2002, 2008), which arguably present architecture education from a perspective that leans towards the vocational. Evidence gathered in this study also suggests that this tension, or confusion of purpose, is present amongst the student body⁹¹, and can at times be reinforced by the practitioners involved in course delivery. The two student quotations below indicate a perception of strong vocational purpose, although the second acknowledges a breadth beyond this:

⁸⁹ 'Unit' refers to a studio-based group with a clearly designated academic leader, similar in principle to the 'atelier' of the Beaux-Arts.

⁹⁰ See Chapter 2 for reference to the 'Oxford Conference' of 1958.

⁹¹ It is acknowledged that data from students has been recorded from a single school. However, many of the findings in this study support the broader literature, and where issues are specific, these are highlighted as such.

"I think it (the course) gives you a definite career as well at the end of it really; an architect as opposed to some other courses when you can study but it does not give you a definite job at the end of it... you know that if you pass it (the course) you are going to be an architect"

(Stage 4 student)

"It does sort of train you up for work, it is a sort of training programme as well... it opens you up... to new totally different ways of looking at things. It kind of does a bit of everything..."

(Stage 4 student)

It would be overly simplistic and imprecise to suggest that part-time staff, typically consisting mainly of practitioners, necessarily reflect any difference in view about architecture education from that of full-time faculty. However, as it is not uncommon for them to be more detached from educational debate within the institution, they frequently mirror the teaching methods that they encountered as students, thus perpetuating historic practice. This was supported by the following comment:

"Part-time staff are incredibly resistant to change – enormously resistant – not because they've got good reason to be but because, you know, it's always been like that"

(Webster)

Boddington noted that in opening up the debate about process and method, of all the disciplines within her faculty, architecture had proved to be the most resistant with a number of staff displaying difficulty in thinking beyond a 'containment model' (Boddington) aimed at perpetuating the status quo. She further observed that staff frequently use the stipulations of the regulatory bodies as a foil, although in her view these organisations are often the least resistant parties in developing a discussion about learning methods. Thus, for Boddington, developing a deep understanding of the learning process, and building a dialogue about teaching and learning methods, is seen to be a key development need in staff, especially if the ultimate expectation is that students will construct their own methodologies.

The manifestation of the enduring tension within both the student and staff bodies gives cause for concern, particularly when, as the literature indicates, tension also remains at institutional level⁹². Lack of clarity about fundamental purpose and *raison d'être* is perhaps inevitably augmented by the professional accreditation system which, in the UK, assesses the capability of courses to produce competent students at three points in the education process. However, being competency based, this process is also outcomes driven, this characteristic perhaps explaining the staff response encountered by Boddington. Whilst the arguments relating to accreditation processes lie beyond the scope of this work, the basic point about the need for clarity for all regarding the purpose or purposes of architecture education within a higher education context, is nevertheless made.

8.3.5 Summary

The case for change in studio-based pedagogy, and indeed in architecture education more widely, has two central planks. The first is defined by the political and fiscal landscape of UK higher education, which has generated conditions that impose increasing stress on existing models. The second plank is the result of the growing critique of the existing pedagogic paradigm as elucidated and endorsed by Schön, which has begun to prise the lid off Webster's 'black box' and challenge many of the existing values, assumptions, and methods contained within. Yet from many there is great resistance to change, made manifest by the 'containment' attitude identified by Boddington. Furthermore, whilst the positive educational attributes of studio are important to retain, it is argued that where change has been effected, it has tended to occur incrementally rather than through a holistic view of development being taken.

From the perspective of embedding independent learning, many existing practices, including those associated with design studio, appear to undermine this ambition. For instance, the common focus on 'product',

⁹² This is likely to vary depending on the nature and mission of each specific institution within which architecture forms part of the academic portfolio.

strongly reinforced by the value with which the profession imbues the student portfolio, propagates a culture of task-driven learning rather than a student-centred ethos of self-discovery and exploration. Underneath this phenomenon lies a long-standing tension between the vocational needs of the profession and the broader interests of academia. In a separate vein, understanding of the educational theories underpinning studio-based teaching practices are typically poor, this historically impacting on the rate of developmental change and indeed recognition the need for it.

Through consideration of these two central planks, the imperative for change is clear in order to ensure the health and sustained value of architecture education in the 21st century.

8.4 Independence and the Individual in the Context of Architecture Education

8.4.1 Introduction

It is contended that the objective of fostering independent learning can only be achieved in an inclusive manner if the pedagogies adopted are designed to accommodate the diversity that exists within any given cohort. Within this context, this section discusses the diversity existing within the subject groups from a number of different perspectives, including prior exposure to architecture, learning dispositions, motivation and expectation.

8.4.2 Diversity of Background, Education and Experience

As a central strand of this study involved charting the profile of diversity of learning styles and intelligences, and perceptions of the educational process as well as personal issues impacting on it, individuality was determined through these aspects rather than by analysis of results relating to gender or ethnicity per se.

At the point of enrolment, the surveys measured a number of cohort profiles; specifically the education or lived experience immediately prior to enrolment, the length of time that had elapsed since the student's last

formal educational experience, and the nature and perceived influence on application of any prior exposure to the subject of architecture. Additionally, the principal motivations for studying architecture were recorded together with perceptions of what the key skills are that are required of architects. Whilst the initial questions provide a limited insight into the learning characteristics of the groups, the latter two areas afford some understanding of perception of the subject or profession prior to study.

Considering first the range of experience immediately prior to enrolment⁹³, both cohorts contained an experiential diversity, and hence it may be assumed a broad platform of learning; formal, observational and accrued through lived experience. In both cases a substantial percentage had not enrolled directly from school (29.4% in Session 2004-05, and 38.8% in Session 2007-08), although the breakdown of these percentages into different groupings is quite variable (see Figures 10 and 11).

Reference to Figures 10 and 11 also reveal a range in the experience of students prior to enrolment and, one might reasonably suppose, in the maturity of students. It is particularly notable that a substantial percentage of respondents not entering directly from school (totalling 13.3% in Session 2004-05, and 29.9% in Session 2007-08) had prior experience of either further or higher education. It is assumed from this that these students will have been familiar with issues of transition to greater learning independence, possibly different modes of learning, and greater social autonomy in terms of managing personal affairs. However, it is also possible that in some cases the change in direction that enrolment to architecture represents could in some way be a response to an adverse reaction to aspects of transition.

⁹³ It is recognised that experiential diversity is determined by total life experience, and not simply from that derived immediately prior to enrolment.

Figure 10: Experience Immediately Prior to Enrolment (2004-05)⁹⁴

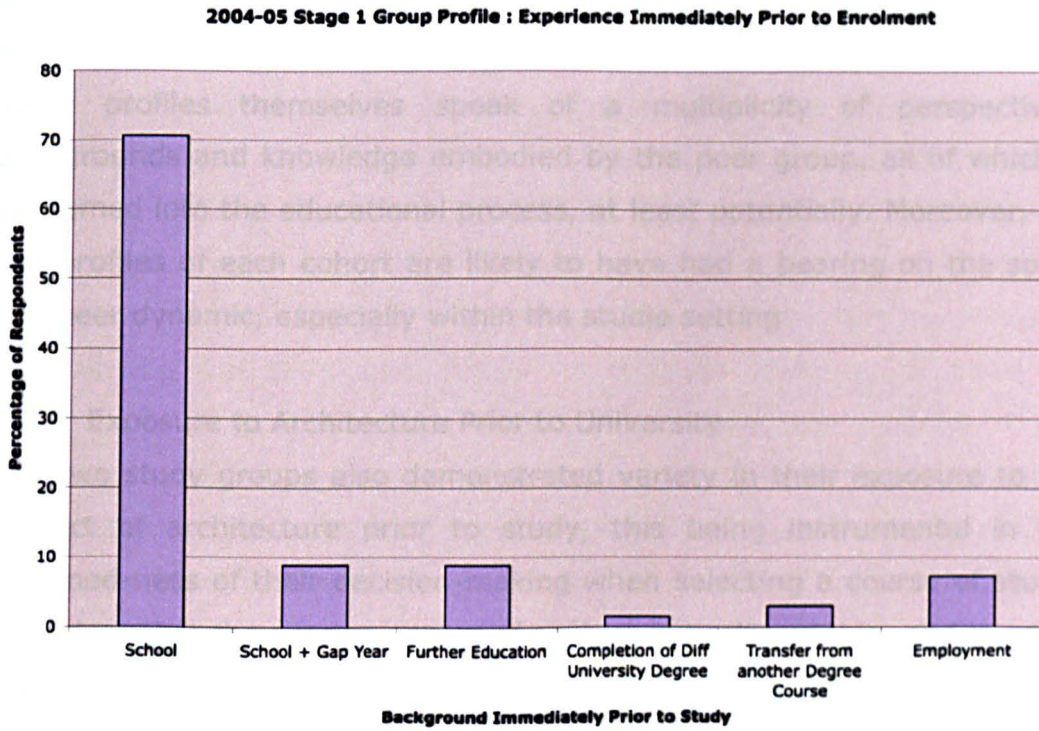
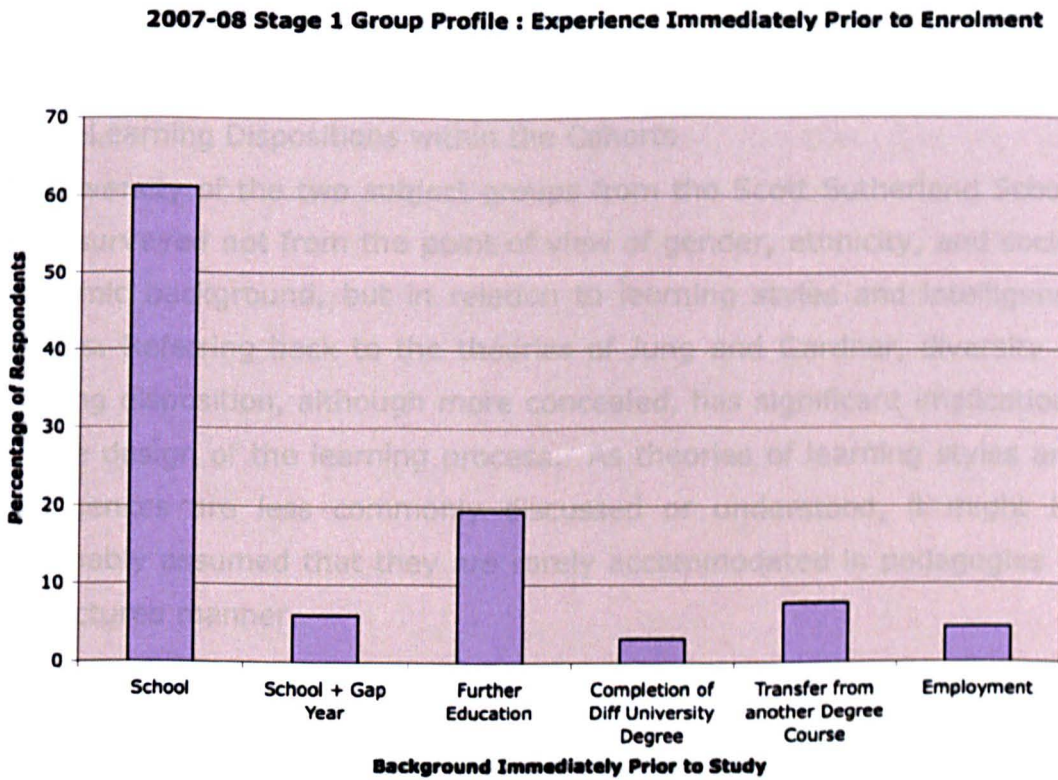


Figure 11: Experience Immediately Prior to Enrolment (2004-05)



⁹⁴ All graphs in Chapter 8 relate to data gathered from Stage 1 students.

Both cohorts also contained students who had entered academe from the world of employment, with experiences in worlds as diverse as financing, nursing and gardening (see Appendix 1, Section 1.2.2). Cumulatively, these profiles themselves speak of a multiplicity of perspectives, backgrounds and knowledge embodied by the peer group, all of which is subsumed into the educational process, at least potentially. Moreover, the age profiles of each cohort are likely to have had a bearing on the social and peer dynamic, especially within the studio setting.

8.4.3 Exposure to Architecture Prior to University

The two study groups also demonstrated variety in their exposure to the subject of architecture prior to study, this being instrumental in the informed-ness of their decision-making when selecting a course of study. It is clear that the precise nature of contact is itself variable, and in some cases multiple in terms of the prescribed categories, ranging from very superficial to familial relationships, to the comparative commitment of work placement (although these tend to be brief). However, it is notable that the dominant form of prior contact was through placement or work experience, suggesting a strong interest in the subject beforehand.

8.4.4 Learning Dispositions within the Cohorts

The diversity of the two subject groups from the Scott Sutherland School were surveyed not from the point of view of gender, ethnicity, and socio-economic background, but in relation to learning styles and intelligence profiles. Referring back to the theories of Jung and Gardner, diversity of learning disposition, although more concealed, has significant implications for the design of the learning process. As theories of learning styles and intelligences are less commonly discussed or understood, it might be reasonably assumed that they are rarely accommodated in pedagogies in a structured manner.

8.4.5 Learning Styles

Applying a different diagnostic tool to assess learning diversity, the profile of Learning Styles was collated for each cohort using the Hanson Silver

Learning Styles Inventory⁹⁵ ⁹⁶. As with Multiple Intelligences, it is widely accepted that learning styles are a dynamic entity, developing over time in response to prevailing conditions and contexts (Silver, Strong and Perini, 2000). Once again, therefore, it is possible that the results have been influenced by the students' initial experiences of architecture education, and indeed that individuals have sought to modify their responses in ways that they consider meet expectations of them as student architects. Were it possible to evidence the former, it would demonstrate the developing nature of engaged learners, whereas the latter would skew the results artificially. However, the purpose of the exercise was not to produce a definitive record of extant learning styles, but to portray the breadth of diversity exemplified by the cohorts studied at a given point in time. Viewed overall, the results of the Hanson Silver Learning Styles Inventories for both cohorts revealed a diversity of dominant, auxiliary, tertiary and inferior styles across each cohort group as shown in Figure 12 ⁹⁷.

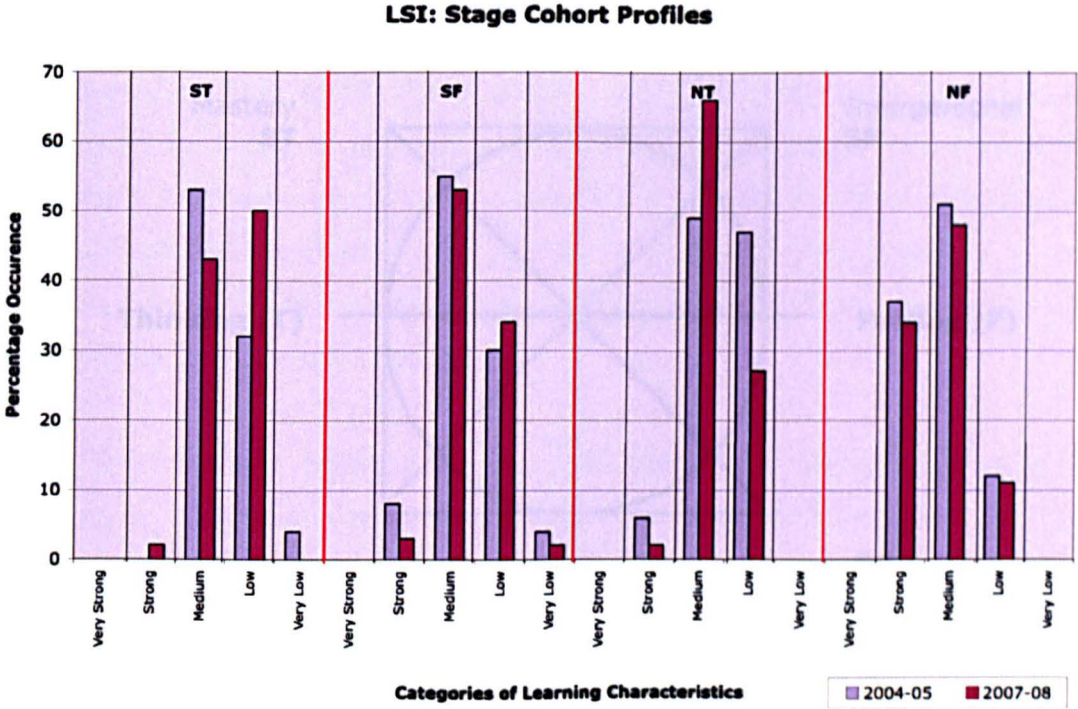
Figure 12 shows that whilst the frequency of occurrence peaks in the 'moderate preference' category for each learning style, the 'Intuitive-Feeling' (NF) dimension scores consistently highly, whilst the 'Sensing-Thinking' (ST) style registers lowest. It is noted, however, that very few readings were obtained in the categories at either extreme of the scale (see Appendix 2). Indeed the 'Intuitive-Feeling' category represents the only one for which a sizeable percentage of respondents indicated comfort with the learning style.

⁹⁵ Full results of from the Hanson-Silver LSI survey may be seen in Appendix 2.

⁹⁶ See Chapter 7 for explanation of methodology in the use of the Hanson-Silver LSI.

⁹⁷ More detailed discussion of the different learning styles and their interpretation has been consigned to Appendix 2 as it does not form a central position in the development of the argument. Figures A100 to A103 in Appendix 2 show in greater detail the overall learning style profiles for each session, and display a close correspondence between cohorts.

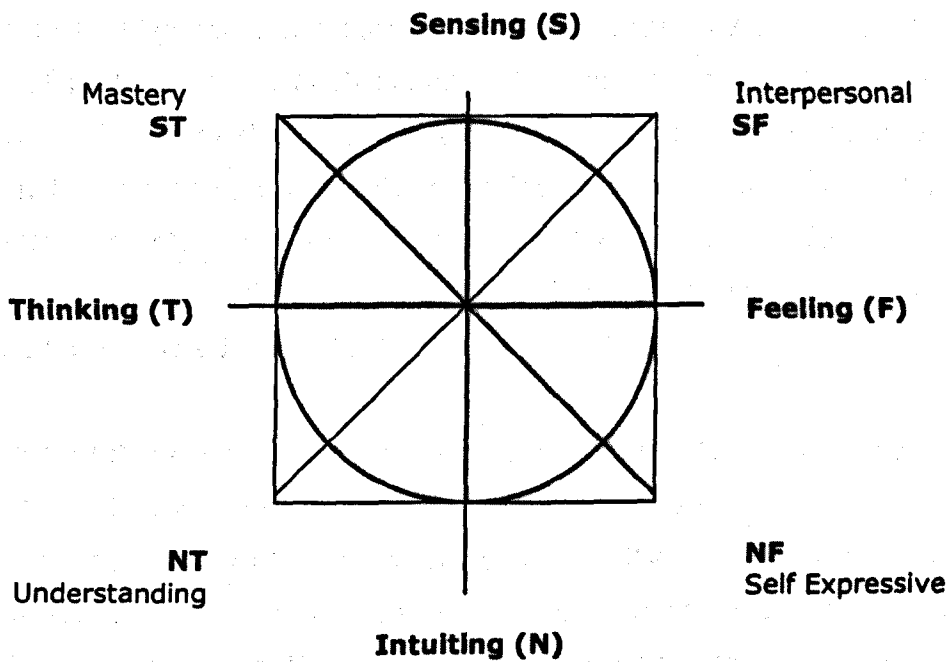
Figure 12: Learning Style Inventory Cohort Profiles



However, it is important to note that the inferior, tertiary and auxiliary dimensions of learners equally require to be accommodated and developed, the four learning styles representing the quadrants of Jung’s mandala (see Figure 13). Hence, in an argument corresponding to that applied to Gardner’s intelligences, it is contended that the development of an inclusive pedagogy must address all four quadrants of the diagram.

It is proposed that through consideration of the architecture curriculum ‘wheel’ (see Figure A134) based on Gardner’s Multiple Intelligences, and the four quadrants of Jung’s Learning Styles (shown below), an integrated educational process can be developed with the components necessary to accommodate the diversity of contemporary learners. Indeed, it is further argued that such accommodation of diversity is essential to the embedding of independent learning in an inclusive manner. There is also a need for its accommodation to be made explicit to the student, thereby instilling confidence, a mainstay of independent learning.

Figure 13: Cognitive Profile Model based on Jung's Psychological Types



Jung's Mandala, from Silver, Strong, and Hanson (1996), p.14.

Referring to Till and Boddington's comments about the need to place far greater emphasis on method as opposed to content, such direction of focus would provide the opportunity to explicitly integrate concepts of learning style and intelligences into teaching methods and, in doing so, raise levels of understanding amongst academic staff. Equally, the call from students for more precise and clear guidance about process and expectation, is more likely to be satisfied through the enhanced ability of staff to articulate the educational processes involved, particularly with respect to intention and learning outcomes as opposed to the project as learning vehicle.

8.4.6 Multiple Intelligences

Application to architecture education of the notion of Silver, Strong, and Perini's 'Curriculum Wheel' based on Gardner's Multiple Intelligences, indicates how the eight identified intelligences relate in varying degrees to the learning process, and to aspects of the experience and the nature of

the subject itself⁹⁸. Although the small sample sizes prevented the reliable identification of trends in intelligence profiles in terms of dominant and subordinate intelligences, the surveys for each year clearly revealed the diversity of profiles across each cohort, with both 'high' and 'low' ratings registering in 7 out of 8 categories (the exception being the 'naturalist' category). Furthermore, the results revealed a diversity of dominant and subordinate characteristics, with 'spatial' and 'logical-mathematical' in the former category, and 'intrapersonal' and 'naturalist' in the latter as exemplified in Figures 14 and 15⁹⁹.

Given the nature of architecture as a creative, three-dimensional subject employing objective reasoning and numeric computation in its formulation, coupled with the need for artistic ability and mathematical or science qualifications for course entry, the dominant intelligences identified are unsurprising. However, it is significant too that for some, the intelligences that register as subordinate in the majority of cases, represent dominant characteristics for others, this reinforcing the existence of diversity within the cohort groups. This phenomenon demonstrates the importance of learning and assessment methods that address all intelligences in order to be inclusive, or to avoid delivery methods that disadvantage specific groups or individuals. Referring to the Figure A134 (Appendix 3), these findings imply the merit of consciously and deliberately accommodating all facets of the 'curriculum wheel' through the designed pedagogy.

⁹⁸ For Silver, Strong and Perini's 'Curriculum Wheel', adapted to Architecture, see Figure A133 in Appendix 3.

⁹⁹ Figures 14 and 15 are indicative of the range of results from the survey. Appendix 3 contains detailed analysis of each of Gardner's intelligence profiles, for each cohort.

Figure 14: Spatial Intelligence Profile: Session 2007-08¹⁰⁰

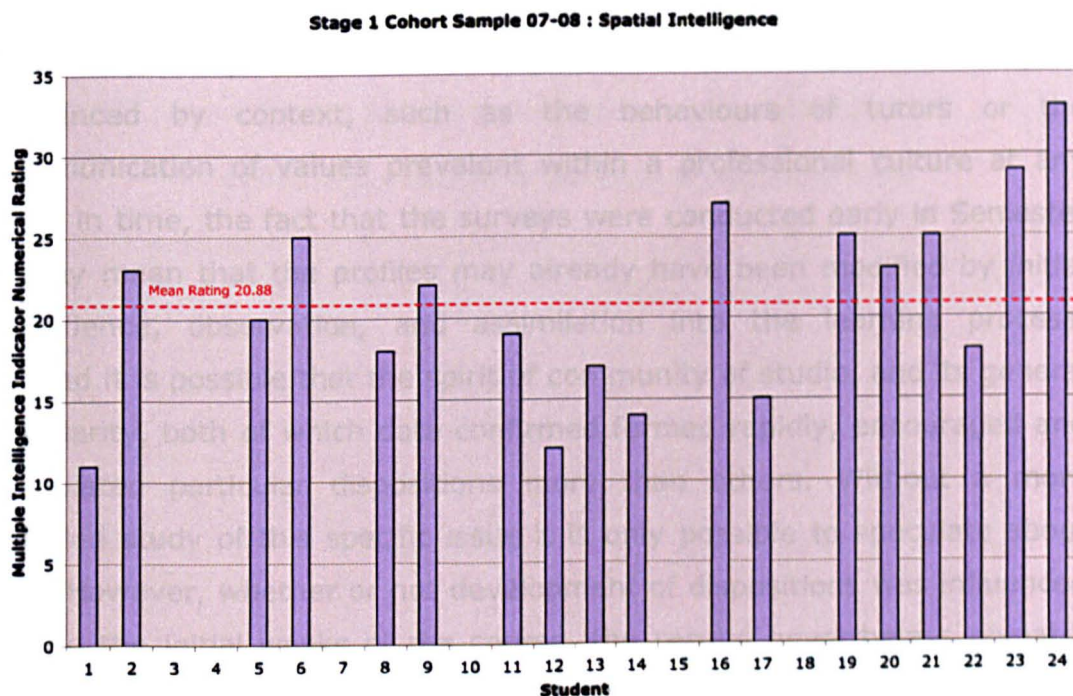
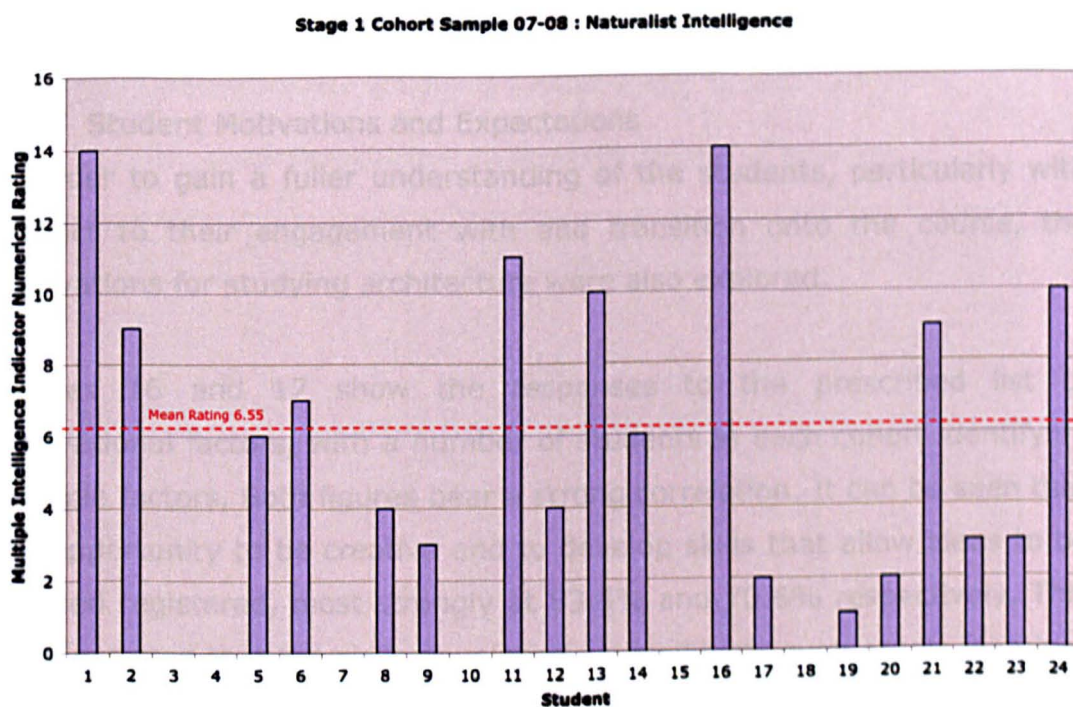


Figure 15: Naturalist Intelligence Profile: Session 2007-08.



¹⁰⁰ All graphs in the text relate to Stage 1 cohorts (session dates are shown). Stage 4 and Stage 6 group interviews generated purely qualitative data.

It is recognised, however, that intelligence profiles are dynamic, evolving over time in response to complex sets of conditions (Perkins, Jay, and Trishman, 1993). Given that the disposition to think in particular ways is influenced by context, such as the behaviours of tutors or the communication of values prevalent within a professional culture at any point in time, the fact that the surveys were conducted early in Semester 2 may mean that the profiles may already have been modified by initial experience, observation, and assimilation into the learning process. Indeed it is possible that the spirit of community of studio, and its general popularity, both of which data confirmed formed rapidly, encouraged and stimulated particular dispositions more than others. Without a more detailed study of this specific issue it is only possible to speculate about this. However, whether or not development of dispositions was influenced during the initial weeks of the course, the results nevertheless reveal a range of broad sensitivities to different types of intelligence. This diversity recalls D'Souza's (2007) contention that understanding architectural design as a variable range of intelligences will enable the comprehension of differences amongst architects¹⁰¹.

8.4.7 Student Motivations and Expectations

In order to gain a fuller understanding of the students, particularly with respect to their engagement with and transition onto the course, the motivations for studying architecture were also explored.

Figures 16 and 17 show the responses to the prescribed list of motivational factors, with a number of students in each cohort identifying multiple factors. Both figures bear a strong correlation. It can be seen that the opportunity to be creative and to develop skills that allow ideas to be realised registered, most strongly at 83.8% and 70.6% respectively. This demonstrated that the skills developed ostensibly through studio learning, i.e. architectural design and its communication, constituted the most significant attraction to students at the outset. This was perhaps

¹⁰¹ See Chapter 4, Section 4.4.1.

unsurprising as building and spatial design are the functions and skills that are commonly associated as the preserve of the architect.

Figure 16: Motivation for Studying Architecture: Session 2005-05

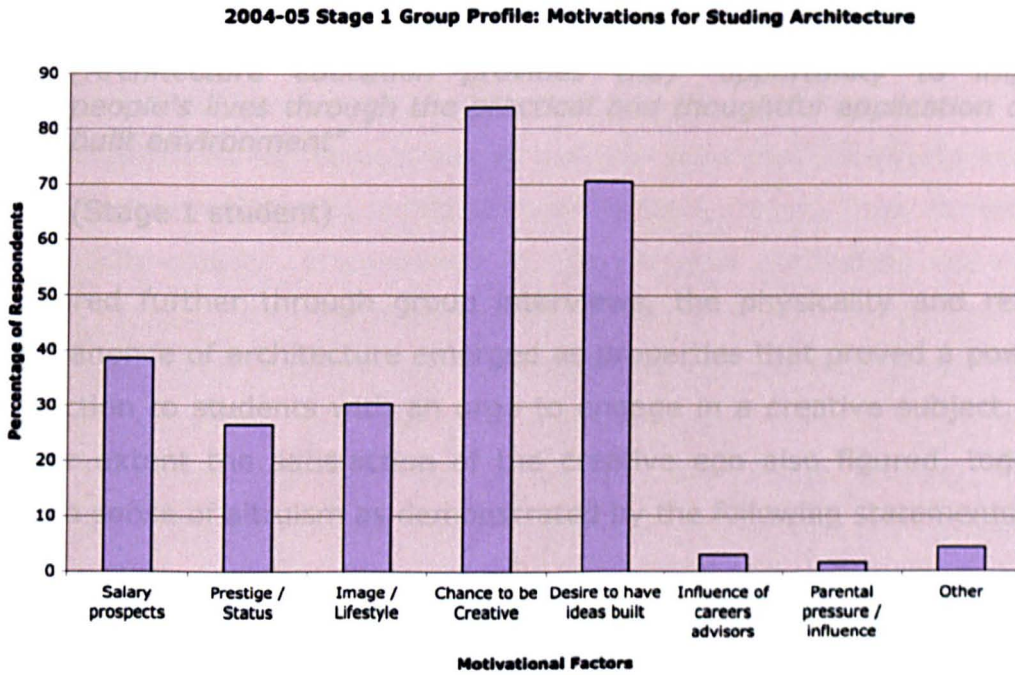
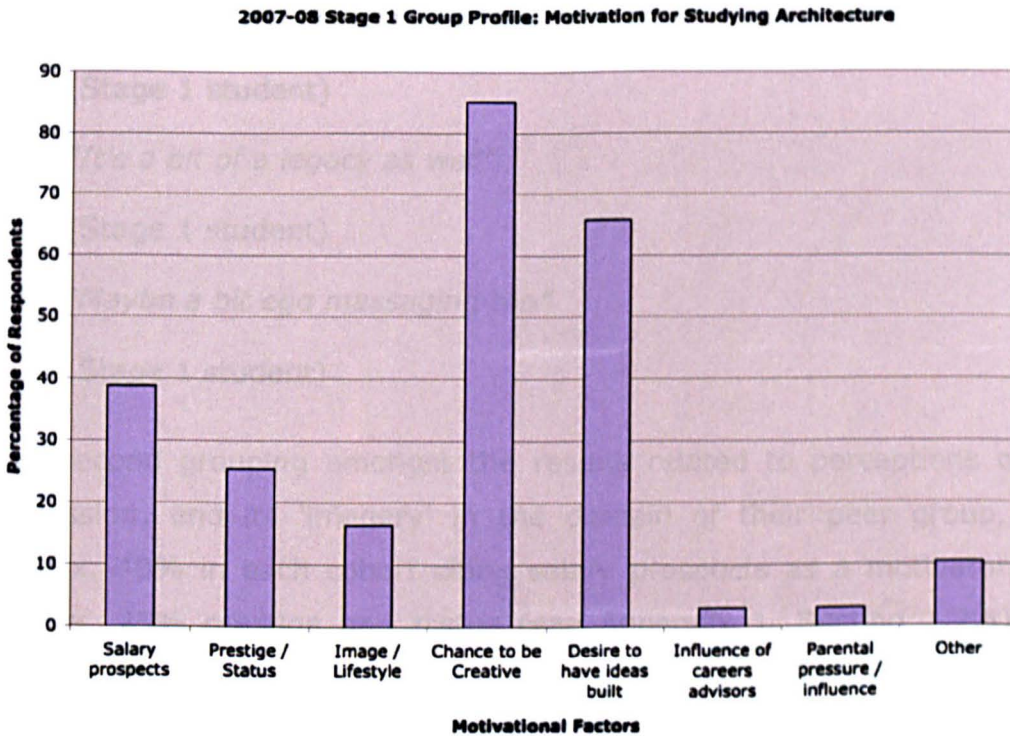


Figure 17: Motivation for Studying Architecture: Session 2007-08



This was supported by the following comments:

(I am attracted by) "admiration of great, good looking buildings that stand out among others"

(Stage 1 student)

(Architecture education provides the) "opportunity to improve people's lives through the practical and thoughtful application of the built environment"

(Stage 1 student)

Explored further through group interviews, the physicality and relative permanence of architecture emerged as properties that proved a powerful attraction to students with an urge to engage in a creative subject. To a lesser extent the satisfaction of the creative ego also figured, together with a sense of altruism as demonstrated by the following statements:

"you get to see what difference you've actually made, like it's physical, it's there, whereas with a lot of other things it's just you know you've done it but not a lot of other people will notice"

(Stage 1 student)

"Achievements make everyone's life better"

(Stage 1 student)

"It's a bit of a legacy as well"

(Stage 1 student)

"Maybe a bit ego massaging too"

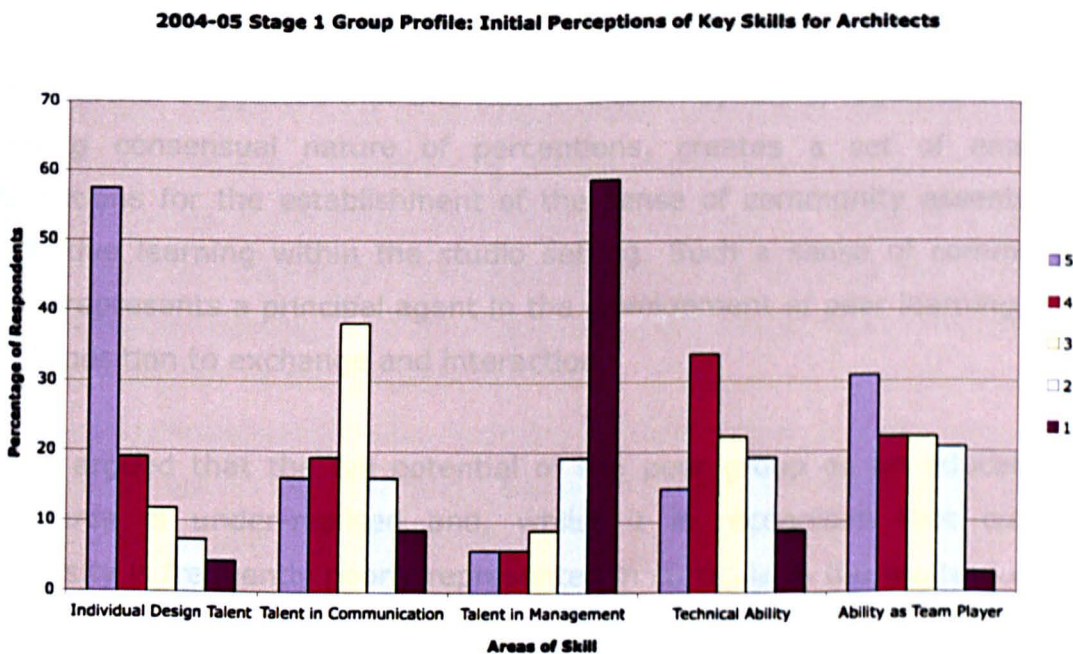
(Stage 1 student)

The second grouping amongst the results related to perceptions of the profession, and its 'imagery' in the domain of their peer group, with approx. 40% in each cohort citing salary prospects as a motivator, and approx. 25% prestige and status (see Appendix 1, Section 1.2.4). For others, the pragmatic clarity of entering into a subject that defines a direct career path was also a driver, this recalling the earlier discussion regarding vocation. Finally, respondents rated 'very low' the influence of

pressure from parents and careers advisors, although this figure may have been distorted by a reluctance to admit this at the very point where they are embarking on their studies, where they meet their peers for the first time and where they might seek to convey independence.

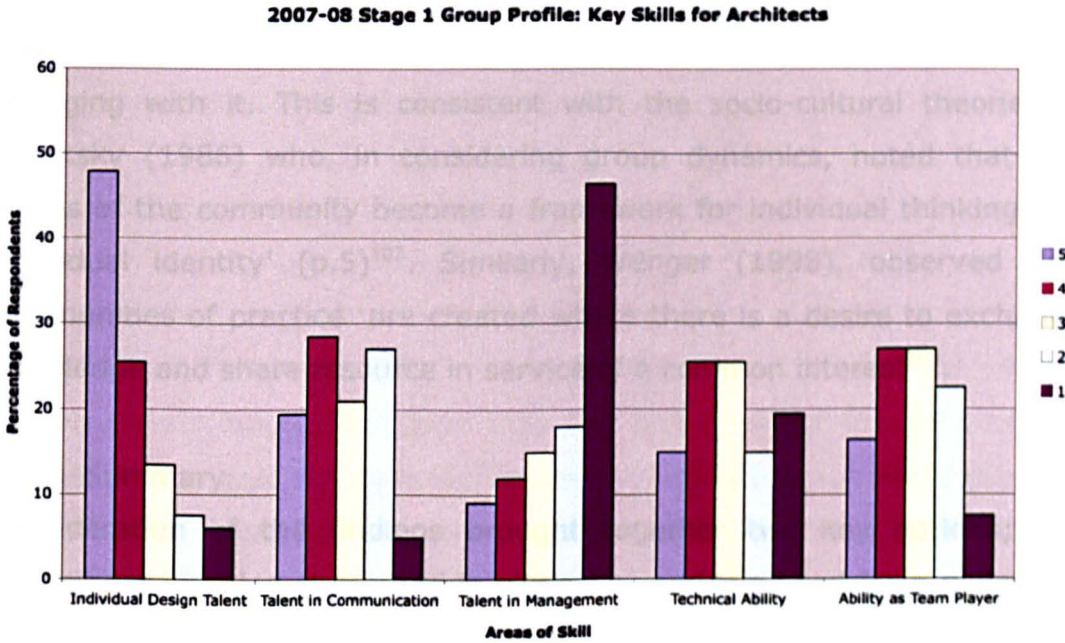
Recognition of the importance of creativity was reinforced by the results shown in Figures 18 and 19 that indicate the perceived dominance of design talent in the perceptions of the key skills that architects require, and which reveal a congruence between subject groups. Thus, insight into core skills closely corresponded to the principal motivating factors for study, imbuing the cohorts with a strong sense of common purpose. The overall similarity of profile and weighting between 'technical talent', 'talent in communication', and 'ability as a team player' denoted a perception that these are important aspects serving the design process. Such strength of consensus was also found in the perceptions of management skills, although in this case the inverse applied as these were viewed as being of least importance. This will be returned to later in discussion on the learning process.

Figure 18: Initial Perceptions of Key Skills for Architects: Session 2004-05



The high level of alignment between motivation, perception, and aspiration appears conducive to engagement with the subject and the general process of transition, at least in terms of academic content. Moreover, it is interesting to note that an ability to 'act as a team player' was also rated relatively highly by each cohort, implying that not all students regarded creativity to be the sole preserve of the individual.

Figure 19: Initial Perceptions of Key Skills for Architects: Session 2007-08



It is further suggested that this view of a team dynamic, together with the strong consensual nature of perceptions, creates a set of enabling conditions for the establishment of the sense of community essential to effective learning within the studio setting. Such a sense of community also represents a principal agent in the development of peer learning, and a disposition to exchange and interaction.

It is argued that the full potential of the peer group as an educational resource is under-realised and, whilst it is recognised that cultural diversity is frequently poorly represented in curricula in the western world (Boyer and Mitgang, 1996), there also exists a 'hidden diversity' that can be harnessed, borne out of the diverse learning and life experiences of students. The benefits of this extend beyond the immediate curriculum to

the development of confidence through dialogue, the sharing of opinion and experience, and to symbolise that personal views, however unrefined, have validity within the learning process. Nevertheless, and importantly, it is also acknowledged that the learning process may involve disabusing preconceptions as much as appropriating latent potential for the construction of knowledge and understanding. It is suggested that exploiting the richness and diversity of the peer group as a resource can serve to cultivate confidence, belonging, and the sense of community central to studio, all of which play an instrumental role in student ownership of the learning process and a sense of independence in engaging with it. This is consistent with the socio-cultural theories of Vygotsky (1986) who, in considering group dynamics, noted that 'the norms of the community become a framework for individual thinking and individual identity' (p.5)¹⁰². Similarly, Wenger (1998), observed that communities of practice are created where there is a desire to exchange knowledge and share resource in service of a common interest¹⁰³.

8.4.8 Summary

Consideration of the findings brought together two key notions; the diversity of learning styles and intelligences and the need for a pedagogy that is inclusive in its accommodation of these; and the range of expectations founded on perception and preconception that exist within a cohort, and which require acknowledgement to enhance engagement and hence ease transition. From these, a third theme is suggested, that of the peer group as a resource, embodying as it does a range of relevant experience that can enrich the learning process, and act as the stimulant for dialogue, debate, and the cultivation of critical skills. Taking the accommodation of the diversity embodied in a cohort as a pre-requisite for embedding independent learning, these three themes are later considered within the theoretical context of constructivism, which lies at the heart of studio-based learning.

¹⁰² For Vygotsky, see Chapter 3, Sections 3.3.4 and 3.5.1
¹⁰³ For Wenger, see Chapter 3, Section 3.3.3.

Analysis of diversity of learning disposition, previous learning and experience, and prior exposure to architecture, reveals the considerable potential that exists within the peer group, and which is largely unrealised as a learning resource. The release of such potential assumes adherence to constructivist principles, which seek to harness and build on existing knowledge and experience, rather than the historic notion of filling 'empty vessels' through the educational process. Moreover, in exploiting the richness embodied within a cohort, opportunity exists to reinforce the sense of community that is central to the ethos of studio-based learning, and the cultivation of confidence at an individual level, that is a crucial component in developing learner independence.

8.5 Aspects of Transition in Architecture Education

8.5.1 Introduction

This section presents a succinct overview of the main student perceptions gathered, relating to transition into the first year of the architecture course. In doing so the principal academic and non-academic challenges are identified, together with initial impressions of studio-based learning, thus establishing an introduction to the salient issues that will be discussed in later sections.

Any educational process occurs within a context that extends beyond academia, embracing specific and personal circumstances relating to the individual participants. Consequently, the transitional process of entry into the course of study incorporated aspects that are generic and subject-specific, academic and non-academic. It has already been seen that the composition of each cohort included a majority entering university education directly from the secondary school environment, but also a substantial minority who had either experienced further or higher education already, or who had acquired additional, varied experiences during the period between leaving school and enrolling on the architecture courses. Thus, transition is to some extent particular to the individual, the challenges arising reflecting their personal circumstances and perspectives. For instance, in each cohort approximately two thirds of

students lived away from home, in many cases for the first time, potentially introducing a broad range of issues related to that significant developmental step. It is also evident that a number of students relish the opportunity to study a subject of their own choosing, this perhaps representing the first major act of independence in their education, and certainly one of significant magnitude with respect to their futures.

8.5.2 Overall Perceptions of Challenge

Over the span of an academic session, a diverse range of perceptions of the experience of transition to architecture education were recorded, a selection of which are discussed later in this chapter. This breadth was attributed to the range of individuals comprising the subject groups, and the complex array of issues, academic and non-academic, that influence the level of challenge presented by embarking on university study. Much of these were circumstantial, including whether or not the student was living away from home, their financial means, motivation level, and innate characteristics with regard to socialisation. Others related more directly to the academic process, including the nature of the learning environment, engagement with the subject and its component parts, the cost of study, intensity of workload, changes in learning methods, and so on.

Although the academic subject itself was regarded as the most positive aspect of the transition to university, concerns had less to do with the subject than with the broader educational process. In particular, new learning ways of working were the cause of some apprehension as they represented change and hence uncertainty. Viewed overall, the most positive reflections of transition to architecture education related to perceptions of personal growth and to the studio environment. However, the degree to which views were shared with respect to these aspects, masked an underlying diversity that encompasses a spectrum ranging from the independent, exploratory student, to those exhibiting the first signs of Schön's 'counter-learner' (1987)¹⁰⁴, this being discussed next in this chapter.

¹⁰⁴ For Schön's concept of the 'counter-learner', see Chapter 4, Section 4.7.

Figures 20 and 21 present an overview of the collective perceptions of the degree of challenge in the process of transition to architecture education within the university setting, these being shown for each cohort.

Both graphs display similar patterns. Initial perceptions reflected a combination of excitement, anticipation, and uncertainty on enrolment. However, it was considered that the learning process could have been made more explicit at induction, although it was also recognised that deep understanding requires involvement over time, being experiential in nature. At the mid-point of each session (Q3, shown in pink) the number of students who regarded transition to be 'very challenging' peaked. This perceptions of the degree of challenge was attributed to a combination of greater uncertainty, the perception of higher staff expectations, and the academic content also becoming more difficult, issues that will be returned to later.

By the end of each session, it was evident that students felt more comfortable with the transition experience than at any other point, presumably as the learning process became increasingly familiar, understood, and manageable, and when knowledge and understanding of performance was greatest. This phenomenon is represented by the peak of each graph, (shown in yellow), moving towards the right as the academic year progresses. In other words, it would appear that perceptions of challenge presented by the many academic and non-academic factors impinging on the student, bear a relationship to feelings of confidence borne out of familiarity and understanding.

It is important to note here that whilst many students found the cumulative effect of academic and non-academic factors challenging, the majority enrolled with an expectation of being challenged academically, although in a number of cases the magnitude of the cumulative effect was perhaps not fully appreciated.

Figure 20: Longitudinal Tracking of Perceptions of Transition: Session 2004-05

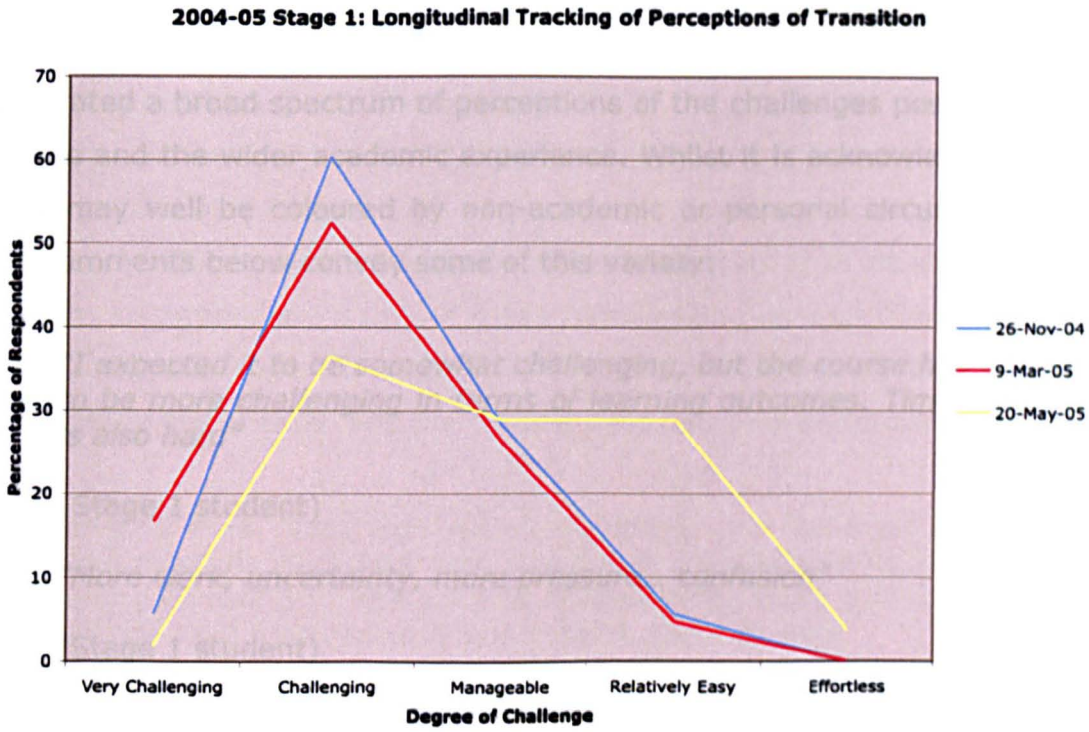
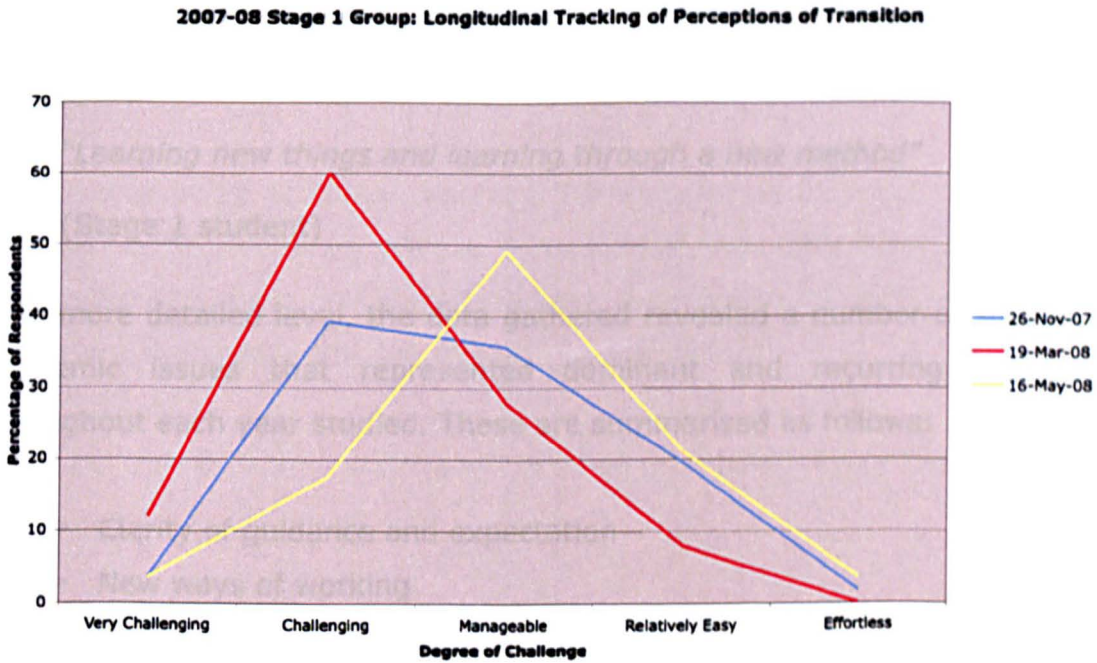


Figure 21: Longitudinal Tracking of Perceptions of Transition: Session 2007-08



8.5.3 Key Academic Challenges

As has already been seen, the cohorts studied contained a high level of diversity experientially, attitudinally, and in terms of learning disposition. It is therefore unsurprising that such diversity at an individual level generated a broad spectrum of perceptions of the challenges posed by the course and the wider academic experience. Whilst it is acknowledged that they may well be coloured by non-academic or personal circumstances, the comments below convey some of this variety:

"I expected it to be somewhat challenging, but the course has proved to be more challenging in terms of learning outcomes. Time keeping is also hard"

(Stage 1 student)

"More work, uncertainty, more pressure... confusion"

(Stage 1 student)

"I think it was a hard adjustment realising that you had to be in for a long time, and once you had done that long day, you still had to go home and do another few hours work"

(Stage 6 student)

"Challenging, engaging, hands on"

(Stage 1 student)

"Learning new things and learning through a new method"

(Stage 1 student)

At a more detailed level, the data gathered revealed a number of specific academic issues that represented dominant and recurring themes throughout each year studied. These are summarised as follows:

- Clarity of guidance and expectation
- New ways of working
- Assuming responsibility for own learning
- Workload pressures and time management
- Feedback and understanding of progress

These factors form the core of future discussion, and are considered in detail later in the remaining sections of this chapter.

8.5.4 Key Non-Academic Challenges

As with academic aspects of the student experience, a diverse range of perceptions was gathered with respect to non-academic challenges. The quotation below conveys the multifarious pressures that most students have to accommodate, many of these representing an experience as new as the subject itself. These include financial management, being away from family and friends, and the need to establish new social networks.

"there's a lot more than just Uni(versity), you have got to sort of start living on your own, you have got to start being able to deal with your own money... it's not just all University stuff, there is a lot of outside stuff that you have got to think about as well"

(Stage 1 student)

It was evident from the results that the variety of student backgrounds meant that individuals coped with independence and transition to study in a range of ways, and in varying degrees. Many of the factors determining student ability to cope were circumstantial, including finance, motivation level, and the individual's innate propensity towards socialisation.

On a social level, students reported the opportunity to meet new, like-minded people as being a positive dimension of university study, including those from backgrounds that extended their frame of reference. This sentiment is illustrated by the following statements¹⁰⁵:

"Many people from other countries and backgrounds to interact with"

(Stage 1 student)

¹⁰⁵ Appendix 1 contains a more comprehensive analysis, from which these statements have been drawn.

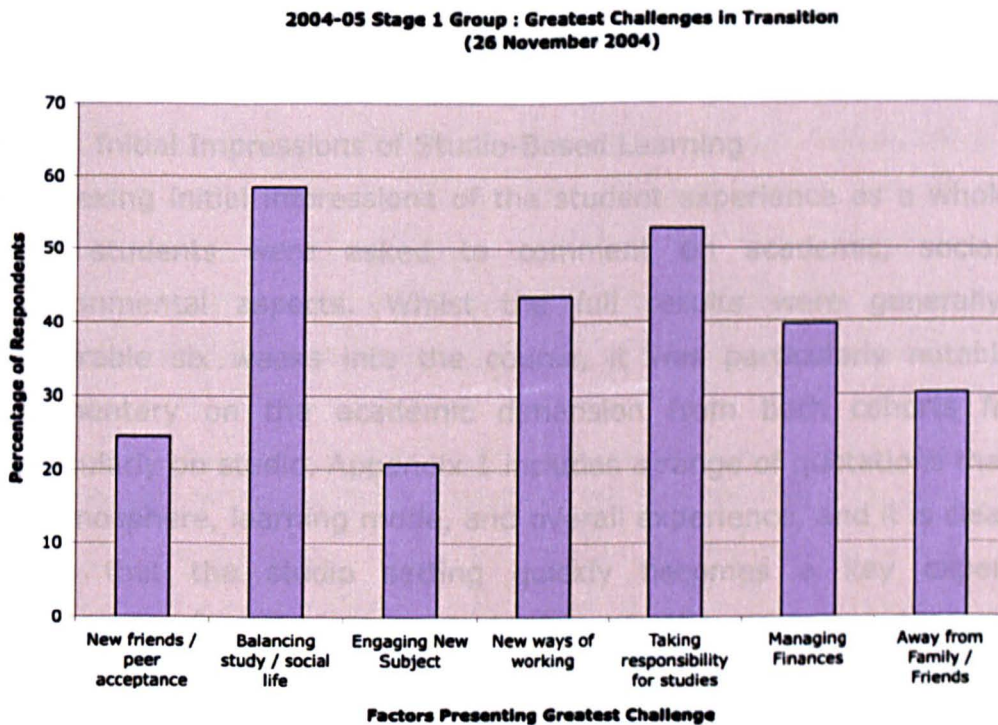
"Meeting new people through team work etc., making friends within and out-with university"

(Stage 1 student)

The salient challenges that emerged in the first semester related to achieving a sustainable balance between study and external commitments, including social life, and taking responsibility for one's own learning. However, as can be seen from Figures 22 and 23, all factors on the prescribed list¹⁰⁶ registered as being of significance. However, whilst a number of the factors overlapped, the areas that presented the most significant challenges were found to be as follows:

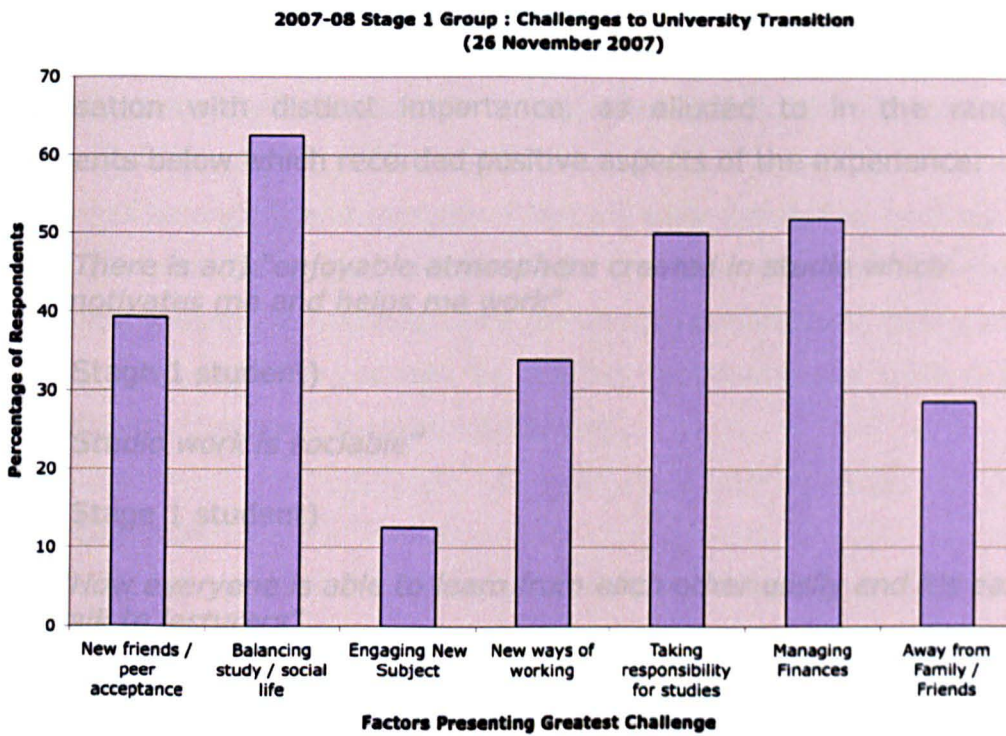
- Dislocation from family and friends
- Financial management
- New social networks
- External commitments (e.g. work)

Figure 22: Perceptions of Greatest Challenge to Transition: Session 2004-05



¹⁰⁶ See Questionnaire 2, question 10.

Figure 23: Perceptions of Greatest Challenge to Transition: Session 2007-08



As the focus of this thesis is on pedagogy, these non-academic issues are discussed in later sections of this chapter where there exists a relationship with teaching and learning issues.

8.5.5 Initial Impressions of Studio-Based Learning

In seeking initial impressions of the student experience as a whole, first year students were asked to comment on academic, social, and environmental aspects. Whilst the full results were generally very favourable six weeks into the course, it was particularly notable that commentary on the academic dimension from both cohorts focused particularly on studio. Appendix 1 includes a range of quotations that refer to atmosphere, learning mode, and overall experience, and it is clear from these that the studio setting quickly becomes a key experiential component for students, in terms of the learning process and socialisation. It is also a place considered conducive to creativity and motivation, and where methods adopted begin to dissolve traditional boundaries between tutor and student found in more didactic modes of

study¹⁰⁷. In particular, the social dimension was viewed especially favourably, perhaps as a result of the dramatic contrast with typical secondary environments, but also because the intensity of the course coupled with the nature of learning methods employed, imbues socialisation with distinct importance, as alluded to in the range of comments below which recorded positive aspects of the experience:

(There is an) "enjoyable atmosphere created in studio which motivates me and helps me work"

(Stage 1 student)

"Studio work is sociable"

(Stage 1 student)

"How everyone is able to learn from each other easily and it's easy to talk to lecturers"

(Stage 1 student)

"Working in groups to solve problems and be creative"

(Stage 1 student)

The sentiments expressed above represent the great majority of the cohorts studied, and convey a sense of a collective (i.e. the peer group), and of a welcome informality. However, certain reservations were expressed by a few, ironically with respect to the informality and sociability of studio, or arguably to do with the lack of discipline of the individual and the relative absence of structure compared to that to which students were previously accustomed (e.g. the secondary school system):

"Having everyone around you because of it being open plan. You can get distracted easily by everyone, but this also happens at home"

(Stage 1 student)

¹⁰⁷ It is acknowledged that whilst responses to the studio environment are generally very positive for a range of reasons, the students lacked a comparator. Accordingly, it is hypothetically conceivable that an alternative learning environment, or approach not identified here nor experienced by the students, could have equivalent validity.

The studio environment quickly emerged as a key experiential component, combining and integrating learning (including that achieved through socialisation) and stimulus, as well as partially dissolving the conventional tutor / tutee relationship. Indeed the notion of studio constituting a base that the student inhabits is clearly welcomed and quickly accepted, with one respondent drawing the analogy of studio as 'home', thus conveying notions of belonging and support. From an early point, the peer dynamic of studio appeared to play a central role in coping with the challenges of transition, through its provision of a forum for conversation, peer support, and informal exchange, as well as offering opportunity for close pastoral care through the tutor-student relationship.

8.5.6 Summary

Embarking on a course in architecture constitutes a very significant commitment, and presents a panoply of challenges for the individual. Results showed that whilst there was initial excitement, anticipation and expectation, these generating mixed emotions, perceptions of challenge quickly arose. Challenge was both academic and non-academic in nature, although they tended to become intertwined, impacting on one another over time.

In terms of academic challenge, this was perceived to increase with uncertainty, and with perceptions of escalating staff expectations and increasing difficulty of curriculum content. Uncertainty related to clarity of guidance and understanding of the learning process, as well as feedback and the individual's ability to gauge their own progress and development. The placing of greater onus on the individual with regard to managing his or her own learning also registered as being significant, particularly in the face of intensive workload. Non-academic challenge included issues such as financial pressures, balancing external commitments with study, dislocation from family and friends, and the need to develop new social networks.

Studio-based learning represented a new experience for the majority, and rapidly came to be perceived as a key experiential component of learning

and socialisation. Its innate social dynamic and relative informality, compared to the secondary school environment from which the majority had come, was particularly welcomed as a learning setting, although for a few the relaxed nature and structure created a distraction. Importantly, when considered in relation to the challenges summarised above, the studio was quickly seen to have a support function beyond its strict academic purpose, providing a place of dialogue, assistance, and advice.

8.6 Developing Understanding of Studio-Based Learning

8.6.1 Introduction

This section explores in detail issues of studio-based learning, drawing on the data gathered from the student cohorts studied and the academics interviewed. Initial discussion returns to the theoretical underpinnings of studio-based learning, and considers the definition and clarity of learning intentions, understanding of which is crucial to any effective learning process. These intentions are considered primarily from the perspectives of the student. Aspects relating to the accommodation of student diversity, together with consideration of factors necessary for embedding independent learning, are integrated into the discussion throughout. The learning process is discussed through the student lens in terms of support, guidance, and performance. Finally, student challenges relating to factors that are critical to facilitating learner independence, are discussed.

8.6.2 Definition and Communication of Learning Intentions

8.6.2a Constructivist Underpinnings

The primary precept of constructivism is that it recognises and values the individual, embraces the diversity of knowledge and experience embodied by a cohort at any point in time, and serves as a central component of the learning process. The platform created individually and collectively by such knowledge and experience is founded on the educational, cultural and social circumstances and backgrounds of cohort members, which will determine aspects within the learning process that are both positive and

negative. Allied to this also, is the notion of diversity in the ways by which individuals learn, as introduced in Chapter 3.

As discussed in Chapter 3, another fundamental premise of constructivist theory is that student learning is developed through processes involving the active engagement of the learner. Progressively, via this process of exploration, enquiry, and challenge, the learner assumes ever-increasing levels of responsibility and ownership for their personal development and learning. Similarly, the structuring and assembly of new information is carried out relative to existing knowledge and experience. The process of meta-cognition in turn applies reflection on a given scenario from the perspective of individually held knowledge and information, generating inventive approaches to defining responses or solving problems. Thus, through the theories of Dewey (1915), Piaget (1972), et al, constructivism is fundamentally linked to the notion of the independent learner. Yet, as has also been established in the literature review, despite constructivism forming the cornerstone of studio-based design education, there are aspects of practice that are acknowledged as contradicting this underlying ethos, albeit unwittingly.

8.6.2b Product over Process

The two statements below, made by senior academics, offer further support to the contention that some typical studio-based teaching practices are counter to theoretical intention:

"As an architect, but as a designer too, you have two kinds of designing going on, one which is the designing of the method, and the other which is the designing of the thing, and what we tend to talk about is the designing of the thing, not the method. And if we don't talk about it as teachers then its almost impossible for a student to then construct method, because we don't make the distinction explicit between those two things"

(Boddington)

"the Achilles heel of architecture - understanding that design tutors operate so there is an over-dependence on them, and there are loads of reasons for that; one is ego, you know it feels good when students sit at your feet... draw up your diagram, so people who have

read even basic books... suddenly realise that that's not good. The students might not be learning anything at all, but are just following your instruction. Its not what the tutor does that matters, its what the student does that matters"

(Webster)

In the first quotation, Boddington refers to a neglect of the importance attributed to designing methods of working, as opposed to product or 'the thing'. Yet, with respect to achieving independent learning, it is the ability to develop method or process that forms a key tool. By contrast, Webster's statement refers to staff attitudes and approaches, highlighting the fact that the self-awareness of staff plays a crucial role in promoting independence, and in cultivating the critical skills and confidence required to progressively lessen dependency.

The first of the two statements below speaks of the creation of the independent learner commencing during the early stages of the course, as the first part of a deliberate pedagogic structure. The second emphasises the role of process within architecture education, and the need to develop a learning culture that truly develops critical consciousness:

"You have to change the task driven model of secondary education into something which is independent - you can't do this overnight without teaching people how to learn and how to structure things, which is hard - it's how you put safety nets under them"

(Boddington)

"First year has to be seen as an issue of pedagogy... I don't think its an issue of architecture, architecture is just a kind of vehicle for the pedagogy. If you make it an issue of architecture then you inevitably will embody the value system of architects, whereas if you make it a thing about pedagogy and learning, you know, critical pedagogy, in a critical manner, then I think you avoid the fact of it being about architecture and you make it about learning, and whatever that might mean in relation to the profession"

(TIII)

Whilst this thesis has not researched the secondary education system, it would be inappropriate to comment on the veracity or accuracy of the

statement above. However, evidence from the student survey points to the dominance of a task-driven approach, as exemplified by three principal aspects. Firstly, as will be discussed later, some students regarded a wider understanding of the learning process over the duration of the course to be unimportant, citing workload as the main reason.

"It is good to know where you are going in the project you are on, but as to what's coming after the project you are on, it's not particularly relevant"

(Stage 1 student)

In other words, their focus was on the current project, this priority presumably reflecting tutor attitudes, and/or pressures imposed by tutor expectations. Moreover, the fact that time spent understanding the broader learning context for project work was considered sacrificial to some (at least temporarily), suggests that workload was stifling or denying capacity for reflection and deeper thinking about what the students were fundamentally learning by doing. Secondly, almost all student references to guidance related to projects rather than to modules as components or packages of learning, although learning outcomes were largely claimed to be understood:

"More detailed explanations for new projects in order for full understanding of what is required"

(Stage 1 student)

"Unsure of what is required in some areas of projects"

(Stage 1 student)

Thirdly, reference was made by the students to the need for a structured and progressive approach to independent learning, as articulated below:

"It (support) should be more of a progression, you have to get challenged more as you go through not challenging you the first day... just leaving you. It should be more of a progression how they support you, how they do that, encouraging more..."

(Stage 4 student)

Taken together, the factors above demonstrate the existence of a task-driven approach; one that potentially inhibits the development of independent learners. With reference to Boddington's criticism of the secondary system, these findings bear some correspondence to Lambert and Lines' view (2000) that secondary education is substantially driven by assessment, and is further supported by the following comment:

"When you are so used to exam-based learning... and you come here and suddenly that is turned upside down. And, although you've still got exam-based learning on that side (lecture-based components), but on the more important side, the studio, design-based side, is completely subjective"

(Stage 6 student)

The focus on product was directly questioned by final year students who expressed doubt about the effectiveness of the learning process both in terms of intensity of workload and pre-occupation with physical output:

"I wonder if you could actually learn the same without having to produce quite so much"

(Stage 6 student)

"All I'm asking is that the situation whereby you are forcing students to edit, re-edit and edit again, is that actually making them the best they could possibly be? I'm not 100% ..."

(Stage 6 student)

The dominance of task-oriented approaches in architecture education is further supported by Boddington in the following statement:

"If you said (to academic staff) 'if you took all the content (project briefs) out and said 'what's the pedagogic framework for this?', then people (academic staff) are lost... not interested"

(Boddington)

The views of Till and Boddington above recall Astin's (1995)¹⁰⁸ assertion that for student engagement to occur, the learning experience must be both meaningful and psychologically involving. In other words, the explicit invitation to the student to become an active and valued participant in their learning, is key to initiating a process leading to the truly independent learner. Yet, in order to give significance to such an invitation, it is implicit that absolute clarity exists in the staff team about the nature of the intended learning (for which any number of projects could serve as the vehicle). However, it was implied through repeated and frequent reference to projects by students, that project outputs were commonly viewed as the totality of learning. It is further argued that absence of clarity regarding learning intention and pedagogic process, to which Boddington's comment above refers, inevitably creates a focus on the project as learning 'object', propagating this misconception. Correspondingly, it could be said that the primary intention of the learning embedded in projects lacks full transparency, making it more difficult for the student to fully contextualise each project within their overall learning.

At a fundamental level the theme that united the thoughts of the academics interviewed was the importance of establishing a clear learning process in the initial year of study. Aware that some institutions are exploring pedagogically innovative processes in specific areas, the underlying tenor of comments from academics was the need for a more radical, integrated, wholesale re-appraisal rather than piecemeal change:

"...there is another model which as far as I know nobody has explored which is saying "OK, I'm going to help you construct your own model... you're going to explore this subject, and you decide what it is and who you want to be - that's more liberating but more difficult pedagogically"

(Webster)

However, the pragmatic difficulty in achieving this within a functioning school was acknowledged.

¹⁰⁸ For Astin, see Chapter 3, Section 3.4.1.

Irrespective of the learning process adopted and the learning intentions defined, their success ultimately resides in the clarity with which they are communicated to the students. Equally, successful implementation is contingent on student comprehension of both process and intent. This is particularly so with respect to embedding learner independence, and the desire to lessen dependencies in the students over time.

8.6.3 Summary

This section revealed a correspondence in the views of interviewed academics and students that both the learning process, and the intentions and objectives of the process require to be clarified. Greater understanding of the learning progression was also sought by students. There was also evidence of task-driven projects, and of the dominance of emphasis on product rather than process. Furthermore, referring to Astin's observation that engagement with learning is only effective when the learning process is meaningful, such processes require to be inclusive. The primary responsibility for the development of an understanding of the learning process in the student body lies with academic staff, although, in the absence of widespread understanding of pedagogic frameworks within which learning takes place, the ability of staff to achieve this was considered limited by academics.

8.7 Student Understanding of Learning in Design Studio

8.7.1 Introduction

Based on data drawn from the student questionnaires and group interviews, this section discusses student understanding of the learning process in design studio, viewed longitudinally over the course of the academic session.

8.7.2 New Ways of Working

Architecture education utilises pedagogies and learning methods that present fresh challenges and experiences for many who study the subject. Some of these methods are specific to the discipline whilst others share approaches with other subjects that hold 'learning-by-doing' at their

heart. In this study, the learning methods encountered by students were consistently perceived to be different from those encountered in prior learning, by a substantial majority in both cohorts (77.6% in Session 2004-05 and 85.7% in Session 2007-08 – see Appendix 1). However, the precise nature of the difference proved to be complex, including aspects relating to environment, process, and responsibility, each of which will be explored in greater depth.

For many, the studio represented a new and unfamiliar way of working. Indeed, 43.4% saw 'new ways of working' as one of the greatest challenges in Session 2004-05, with 33.9% taking a similar view in Session 2007-08, although as shall be seen, the methods involving studio as a learning environment were received very positively in general. The challenge presented by studio-based learning led to demands for clarity of guidance with respect to process and expectations, and for this to be continually reinforced and reiterated over time. With respect to clarity of objectives, the peer group within studio quickly assumed importance and, as shall be discussed later in this chapter, along with the anticipated benefits, the peer dynamic afforded by the studio setting was found to play an important yet unintentional compensatory role in the learning process.

"It's difficult sometimes to motivate yourself because of a lack of direction and push from the tutors"

(Stage 1 student)

"Sometimes, things are only explained properly once you have completed a task, so you have to do it again"

(Stage 1 student)

8.7.3 Understanding Tutor Expectations

As stated earlier, the subject of architecture represents new territory for most students, both in terms of the academic content and the process of learning and skills development. Given these conditions, it is reasonable to assume that there will be a measure of uncertainty amongst new students, and this was indeed borne out by the data gathered. It therefore

follows that the degree to which information about the learning process was made explicit was central to the students being able to orientate themselves and understand the component parts of the course and their relationship to one another.

At a more detailed level, the process of architectural design and representation taking place within the studio is a similarly novel experience for most, with the challenge of understanding process amplified by issues of complexity, judgement derived from professional values, and subjectivity. Findings revealed a body of student opinion that considered the guidance received as poor, lacking clarity and specificity¹⁰⁹. This impression forms a context for the following pair of comments which demonstrate that in a state of uncertainty, and perhaps anxiety, the cohort acts consensually in informally defining a way forward. The latter of the two comments suggests an attitude of safety in numbers, or the development of a 'herd mentality' in the absence of clarity or confidence.

"You are not really sure what you are supposed to be doing until a few other people have started and they say "this is what we think is happening", so everybody does that"

(Stage 1 student)

"The way I think of it is, if that's the way everyone else is doing it, they (the tutors) can't really tell me specifically that I'm wrong"

(Stage 1 student)

The benefits of the studio environment and the community spirit it supports have already been introduced from the perspective of enabling discussion and the derivation of consensus regarding aspects that remain unclear to the group (as intimated by the first quotation above). However, the latter statement proposes that this ability can also be used negatively or defensively, with students unprepared to take risks in conditions of uncertainty that may distinguish them from their peers. This further

¹⁰⁹ Whilst this lack of clarity may not be representative of all schools, this data serves to highlight the consequences of material that is perceived by the students to have deficiencies.

underlines the importance of clarity of briefing instructions and guidance, especially as risk taking and the pushing of creative boundaries is vital to the learning of design, and to the development of innovative and imaginative work. Fundamentally, however, this behaviour demonstrates both a commitment on the part of the students, and a desire for clarity and understanding.

Views expressed in group interview with the second cohort suggested an intentional element of secrecy about the learning process, and that there is a form of experiential learning in studio that is based on trial and error. Reflecting on Schön's characterisation of 'learning by doing', there is without doubt an element of truth in this observation.

"It's kind of just like trial and error because you just kind of learn it yourself..."

(Stage 1 student)

"I think design studio (tutors) really like to keep things as surprises anyway"

(Stage 1 student)

Comment has already been made about perceptions of the sufficiency of tutor guidance, to which there is a direct relationship to the communication of staff expectations and standards. Throughout the academic year the level of student understanding of tutor expectations was tracked, the results of which are illustrated in Figures 24 and 25. The different cohorts displayed different characteristics, the first showing that the general level of understanding improved over the course of the year, peaking at the end at the point where provisional results were issued alongside feedback. However, understanding on completion of the first year is also likely to be attributable to a process of familiarisation with ways of working, and in many cases a growing sense of comfort with these, eased further by peer interaction and a sense of community. Finally, the end of the year is itself a point of reflection that enables the student to contextualise the full range of experience since enrolment. By

contrast the later cohort indicated a dip in understanding at the mid-point of the year, this coinciding with the point at which sentiment regarding lack of feedback was riding high. Whilst the information gathered referred to the entire course, it was evident that feedback had been a problematic area in specific modules, denying the students information that enabled them to gain insight into standards and expectations via tutor commentary. The subject of feedback will be returned to later.

Figure 24: Longitudinal Tracking of Understanding of Tutor Expectations: 2004-05

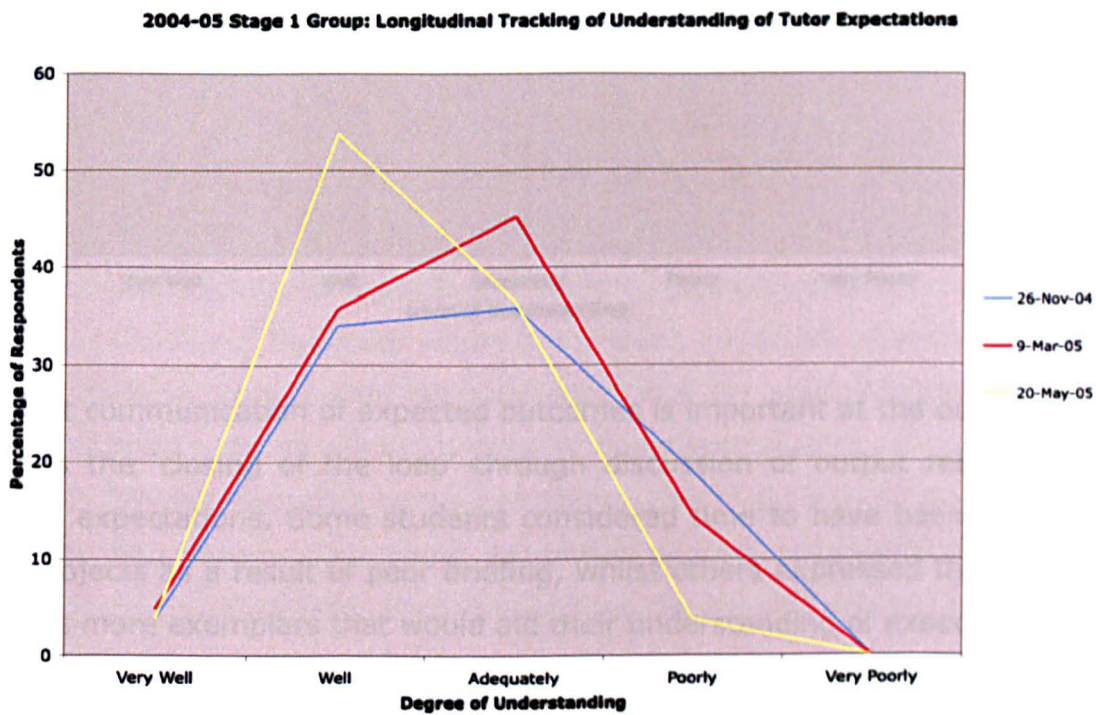
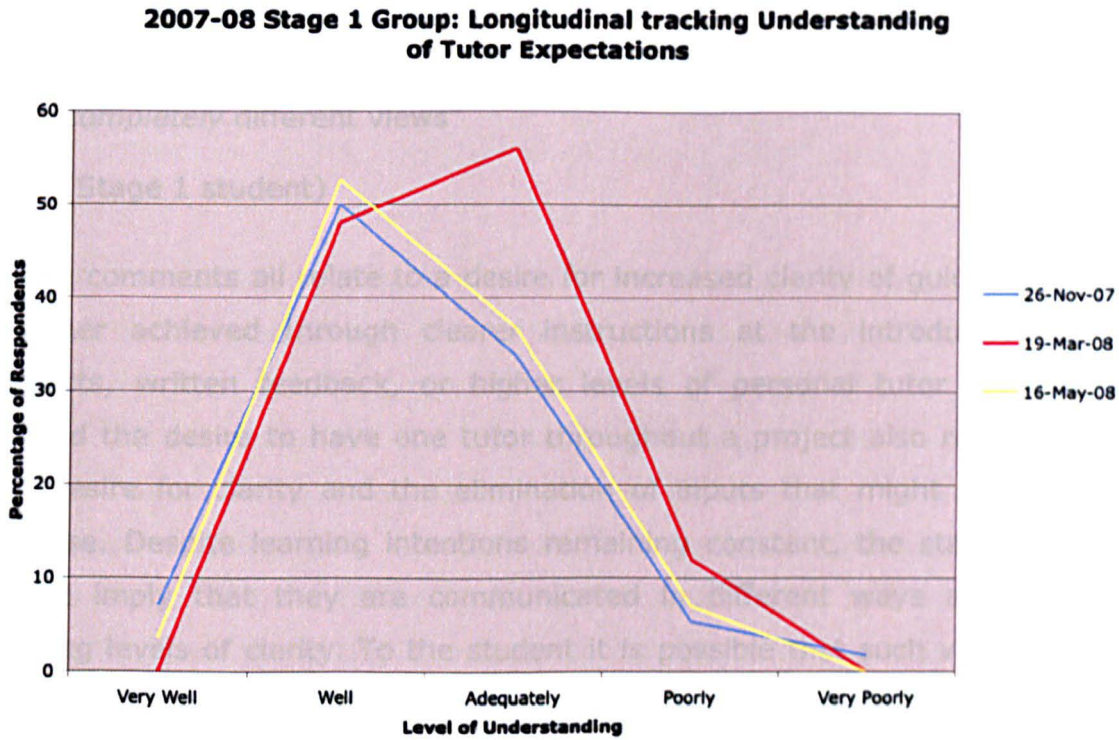


Figure 25: Longitudinal Tracking of Understanding of Tutor Expectations: 2007-08



Whilst communication of expected outcomes is important at the outset, so too is the 'closing of the loop' through discussion of output relative to those expectations. Some students considered time to have been wasted on projects as a result of poor briefing, whilst others expressed the desire to see more exemplars that would aid their understanding of expectations. As the comments below suggest, uncertainty due to a perceived lack of information led to the peer group implementing consensual decision-making processes, with gaps in knowledge and understanding being 'filled in' or compensated by the informal actions of the cohort:

"There is a certain amount of shoulder checking. You can always check to see what everyone else is up to, then you kind of go forward from there"

(Stage 1 student)

The phenomenon of contradictory views amongst tutors also proved to be the cause of some confusion as illustrated by the statement below:

"(I would like) more coherent advice from tutors, as it can be very contradictory in studio"

(Stage 1 student)

"(I would like) one tutor throughout a project instead of five with completely different views"

(Stage 1 student)

These comments all relate to a desire for increased clarity of guidance¹¹⁰, whether achieved through clearer instructions at the introduction of projects, written feedback, or higher levels of personal tutor contact. Indeed the desire to have one tutor throughout a project also relates to the desire for clarity and the elimination of inputs that might serve to confuse. Despite learning intentions remaining constant, the statements above imply that they are communicated in different ways and with varying levels of clarity. To the student it is possible that such variability is perceived as subjectivity, causing them to focus on issues grounded in the specificities of the tasks within the project. In an environment that is pressured for time, it may be anticipated that the student elect for the 'path of least resistance' in the shape of a single tutor although, referring back to Till and Webster's earlier comments, this might also be a path that fosters dependency. The group interviews sought to achieve a deeper understanding of student perceptions, these discussions yielding a number of comments as shown below:

"at the beginning of our project we are given a brief, and listings on the brief, but then, gradually as we go through it we are told different things that maybe aren't in the brief, that haven't been told to us"

(Stage 1 student)

"Three different tutors in the studio at the same time and two of them might come round to you, and one of them might tell you one thing and the other would tell you another thing. So you are left more confused than when you started out. You know that can be

¹¹⁰ Clarity of guidance was identified by students as one of the key academic challenges. See Section 8.4.3 of this chapter.

very misleading, but I suppose that's just a thing you have to decide for yourself"

(Stage 1 student)

"Just pick which one (tutor), just pick the voice you want and move on"

(Stage 1 student)

It is further evidenced by the above that students confuse guidance relating to their design output or product, with the learning objectives of the process that uses the project as its learning vehicle. This corresponds to the earlier discussion on methods, and aligns with Boddington's concerns about the subordination of process as an explicit component in the design of pedagogies. As it is perhaps natural that the student seeks tutor approval of their emerging design work, especially at a point when the staff represent the only architectural authority they can draw on, it is therefore unsurprising that the respondents interpreted the question¹¹¹ as referring to tutor expectations of their individual work, as opposed to expectations of a more generic standard for the course module. However, the comments raise questions about the ability of tutors to employ different teaching strategies as a means of directing students, and in enabling them to understand, contextualise and benefit from diverse opinions as a component of their learning. In other words, the ability of the tutor to create a range of support systems to accommodate diverse individuals, thereby fostering the interpersonal relationship and student confidence essential to independent learning, is questioned. Equally, the comments highlight the importance of self-awareness as an attribute of the tutor, and of the tutor's need for understanding of the causal relationships between various teaching practices and actions, and student behaviours, interpretations and responses.

The clarity of guidance material and project briefing information was perceived to be unsatisfactory by many. Whilst this may be atypical, it at least serves to speak of the importance of clear, lucid guidance. It is

¹¹¹ In Group Interview with Stage 1 students.

evident that the absence of this is compensated for by the consensual action of the peer group, enabled by the communal environment of studio. Indeed the importance of the peer group and the role that studio played in propagating a peer dynamic, was constantly reinforced. The consensual action of the cohort relates to the observation by Heylighen et al (1999) that in situations where understanding is poor, students seek out answers in whatever way they can¹¹². Students who had experienced mentorship from their seniors noted the benefit of this, although it was felt that this requires to be structured to work consistently. Whilst students viewed staff as approachable, they did not consider the opportunity to seek clarification at a later point as a substitute for clear guidance at the outset. In fact responses suggested a hesitancy in seeking staff advice out-with scheduled times for fear of appearing to 'waste the time' of staff whilst aware that there were expectations on the students to demonstrate greater independence. Comments from final year students suggest that for some this sentiment remains throughout the course. Equally, however, the peer bonds that form early, and which play such a pivotal role in student learning, quickly become deep and enduring.

8.7.4 Overview of Learning

The acquisition of understanding of the learning process is central to the orientation of the student academically, and to their smooth transition to university study. Such an understanding requires appreciation of the role of the tutor as well as that of the student. Additionally, the nature of staff-student interaction within studio is of central importance, ranging from individual or group discussion to the review process and the public presentation of work.

Whilst the findings demonstrated high levels of satisfaction with the introduction to teaching and learning processes fundamental to the course, comments were received early in the session that stated the desire for greater explanatory depth. Viewed overall, the findings did not suggest that new students found particular difficulty with the academic

¹¹² See Chapter 4, Section 4.5.1.

content of the subject area per se, but rather identified perceived challenges in engaging with the learning process through which the subject is learned. Perceptions gathered expressed the view that in order for the volume and complexity of information given to a student on commencement of studies to be understood, greater time was required. Consequently, the primary view was that the induction process could have been more explicit about the learning process, as this was designed to lay out the context for future activity. One respondent suggested that the entire first year be considered an induction, implying that induction and transition are effectively synonymous¹¹³. Notably, this quotation also refers to social interaction as part of the process of acclimatisation:

"You are interacting and getting people talking to each other, and trying to be creative... But the whole of first year is like a big induction..."

(Stage 4 student)

On the other hand, some students perceived that an understanding of the learning process developed through doing:

"I think induction is a hard thing to do... you just have to do the stuff to learn it"

(Stage 4 student)

However, the point was also made by one respondent that the student has responsibility to develop their own understanding, this need suggesting a process of reflection or absorption, and an expectation of learner independence. Nevertheless, viewed longitudinally, the need for clarity or reiteration of guidance quickly emerged as a recurring theme:

"There is a certain lack of depth and explanation to certain areas"

(Stage 1 student)

¹¹³ This echoing the findings of Yorke and Longden (2007) with respect to the First Year Experience.

The view expressed above was consistently voiced by a significant percentage of students, recalling the need identified by Raaheim and Wankowski (1981)¹¹⁴ for skills in academic staff that enable the composition and structuring of guidance aimed at assisting students to recognise weaknesses and deficiencies in their learning whilst continuing to maintain ownership of the learning process.

It is recognised that course information takes many forms, including that which is specific to the learning embodied within particular projects and modules, to information that describes a broader form for the course, and which enables current learning to be contextualised within the whole. Given the newness of the subject, and the commitment expressed through enrolment on a course of substantial duration, it might be reasonably expected that students would seek an overall understanding of the learning progression throughout the course at an early stage. However, data gathered indicated that having selected the overall course of study, and having an adequate understanding of the immediate task in hand, the students are generally content for the 'route map' to unfold before them¹¹⁵. Whilst this is perhaps surprising in that it is counter-intuitive, the comments below perhaps reveal something of the justification for this position. It would appear that the intensity of workload has a bearing, in this context causing the students to concentrate on immediate demands at the exclusion of other considerations.

"I think it's better to keep your head where you're at, especially with our projects"

(Stage 1 student)

"Worrying about one thing at a time"

(Stage 1 student)

¹¹⁴ For Raaheim and Wankowski, see Chapter 4, Section 4.5.1.

¹¹⁵ See Figures A21 and A22 in relation to the positivity of learning a new subject, in Appendix 1.

These statements imply a total focus on the completion of tasks as opposed to reflection (in and on action (Schön)) on the learning achieved through them. It is argued that the perspective expressed by the comments above is contrary to that which is implicit in independent learning, i.e. the development of an understanding of the learning process in the student, indeed their involvement as active participant in developing and owning the process. Without appreciation of process, students will be prone to passivity and dependence on academic staff¹¹⁶. This is exemplified in the following quotation:

"Everyone obviously has different standards and people want it done differently, but then you know, you might have a different tutor and they will like it like that. You end up producing work to please them almost at the end of the day, because you know that they are going to like it, it may not be how you wanted to do it, but you know you will get a good grade if you think you know that they like it"

(Stage 4 student)

Not only does this statement speak of dependency and lack of ambition on behalf of the student, but it also reveals tactical behaviour that recalls Schön's 'counter-learner', and highlights the status afforded to grades¹¹⁷.

8.7.5 Understanding the Role of Studio

Along with a number of the processes undertaken within it, the physical phenomenon of studio as a learning setting itself stood out as a new but positive experience, as exemplified by the following quotations:

"Working environment of studio is one I am unfamiliar with but really enjoy"

(Stage 1 student)

"Studio-based work is unlike most subjects at school"

(Stage 1 student)

¹¹⁶ This corresponds to statements made by interviewed academics in Section 9.2 of this chapter.

¹¹⁷ See Section 1.10 on Feedback in Appendix 1.

Although the questionnaires referred to the learning experience broadly, the fact that respondents have answered this by referring to studio exclusively, conveys the central position that studio acquires in the learning process from the outset. Indeed it could be said that studio defines the identity of the learning process. It is also a facet of the learning experience that, due to its facilitation of peer interaction, is cited as one of the most engaging:

"Strengths (of the learning experience) being studio and learning from your peers, and you are like one large group so you are learning to work with people and learn to pick up things from other people. I think at this stage now, where we are, we have all got very close"

(Stage 6 student)

"It is not until you actually start in the studio that you get to know people either, there is no sort of first impressions made in those induction days, it was not until we started drawing... and things like that that people started to get to know each other"

(Stage 1 student)

As can be seen from Figures 26 and 27, the studio featured as the most significant learning stimulus, followed by the subject content itself. In the case of architectural design, however, there is a strong relationship between the methods of learning and the environment in which much of that learning is typically carried out. It is noted that whilst Figures 26 and 27 indicate 'new ways of working' to be the least important of the prescribed stimuli, comments received from the students suggested that this aspect was also embodied in perceptions relating to the studio environment and independent study.

Figure 26: Learning Stimuli: Session 2004-05

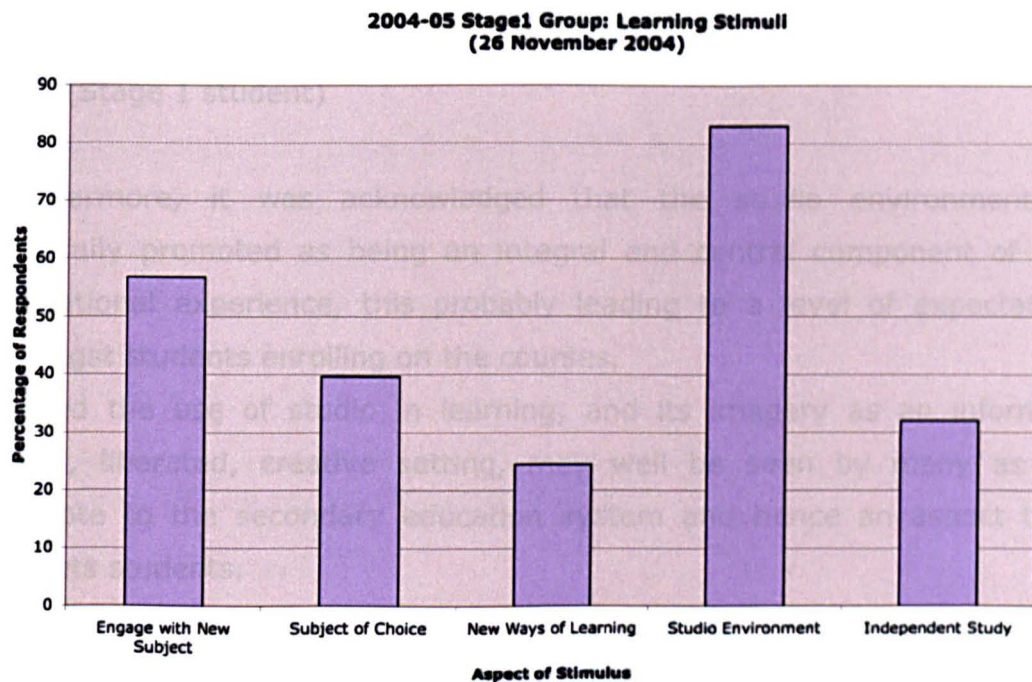
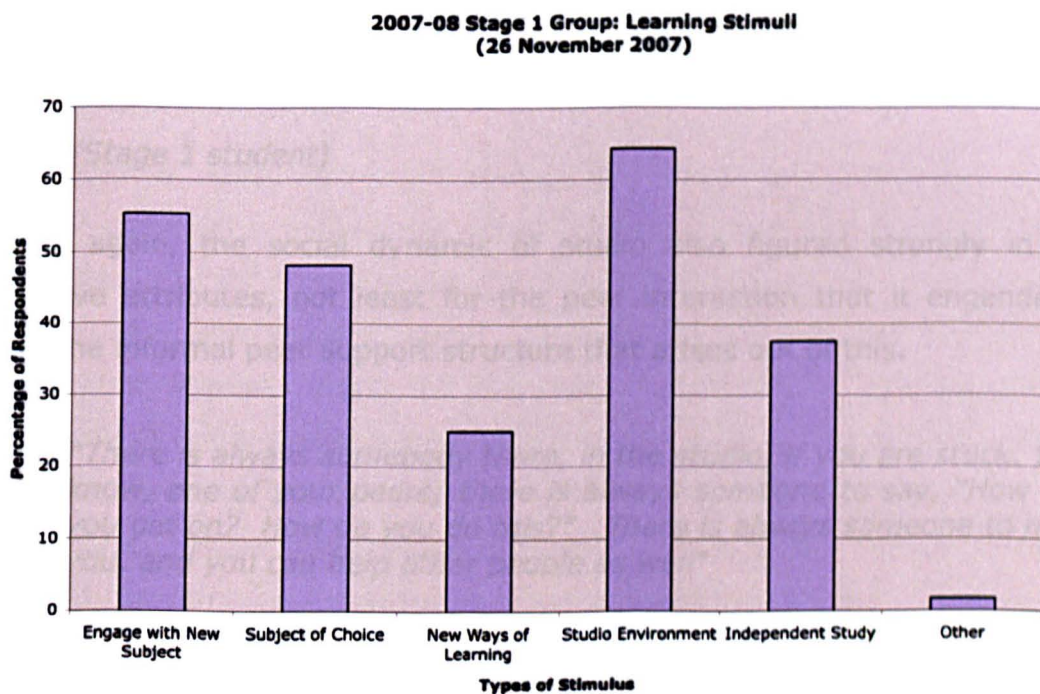


Figure 27: Learning Stimuli: Session 2007-08



However, the results indicate the importance of the studio environment to the learning experience and to early perceptions and motivation.

"I also like the fact that it's quite a big studio and you can work with other people, like bounce ideas off each other, and see the standard that everyone else has produced as well"

(Stage 1 student)

Furthermore, it was acknowledged that the studio environment is generally promoted as being an integral and central component of the educational experience, this probably leading to a level of expectation amongst students enrolling on the courses.

Indeed the use of studio in learning, and its imagery as an informal, social, liberated, creative setting, may well be seen by many as an antidote to the secondary education system and hence an aspect that attracts students.

"Everything you require in terms of research and also socially is right at hand"

(Stage 1 student)

"Like the studio where it is relaxed and informal and (where) we are left to our own devices"

(Stage 1 student)

Once again, the social dynamic of studio also figured strongly in its positive attributes, not least for the peer interaction that it engenders, and the informal peer support structure that arises out of this.

"There is always somebody there, in the studio, if you are stuck. You know, one of your peers; there is always someone to say, "How did you get on? How do you do this?" There is always someone to help you, and you can help other people as well"

(Stage 1 student)

"I really enjoyed the course because of the studio environment, you form sort of a close group of friends that you get to know, and who are going through the same sorts of things that you are. There is also intense rivalry in the studio. No one will admit (sic) but we are

all quite competitive when it comes to things like that, always looking over your shoulder to see what you are doing..."

(Stage 4 student)

The above quotation came from a senior student who had successfully completed three years of study and to whom the learning process was now familiar. The overall endorsement of studio was powerful, this being amplified by comments recorded in response to questions about perceptions of the learning environment.

"(studio) layout allows for interaction - studio is a comfortable area now - (it's a) second home nowadays"

(Stage 1 student)

"The studio is very good as we can learn from each other and are able to ask questions easily"

(Stage 1 student)

"It's like a big family"

(Stage 1 student)

The flexible, open, and social aspects of studio were recognised in the above comments, indeed the social dimension was acknowledged as a beneficial part of the learning process. Furthermore, the references to 'base point' and 'second home' speak of the central significance that studio has acquired within the first few weeks of study, although this is normally strongly reinforced by staff in an attempt to inculcate the ethos of studio working in new cohorts. Indeed, emotive words such as 'home' and 'family' convey high levels of comfort and support. Viewed another way, these comments suggest an acceptance amongst the students of the benefits of this culture. It is clear that studio has a complex dynamic brought about by the creation of a mutually supportive peer learning setting whilst simultaneously cultivating a culture of competition and creative rivalry. The ease of interaction facilitated by the studio setting is clearly an important facet of the learning experience, this being strengthened through group work that promotes interaction, dialogue and

collaboration. Despite this, there was some negativity, this referring to difficulties encountered whilst working in groups, and to the formation of cliques within the cohort:

"Conflict when you're in groups. People have different ideas and opinions so sometimes there is conflict"

(Stage 1 student)

"Groups have developed within the class and people tend to stick to those groups. Would like to get to know everyone in the class"

(Stage 1 student)

8.7.6 The 'Hidden Curriculum'

Understanding the criteria against which design work is assessed poses a major challenge for the student given the presence of subjectivity, personal taste, and the creative egos of tutors. More fundamentally, however, is the ability of the student to contend with initial realisations about the indeterminacy of the subject.

"I think a fundamental point people need to be aware of before they come on architecture is that it is an extremely, extremely subjective subject and in that case there are no objective truths at all in architecture, there are no right answers... perhaps they (new students) are not aware completely what's involved, so they'll come from a background of... "I quite liked physics, or majored in maths at school, I'd like to apply it in the real world", and they come to this subject, and suddenly in front of them is this puzzle, this problem, and they can't put a wrong answer to it and that's an extremely difficult concept to grasp, especially in 1st year"

(Stage 6 student)

Moreover, as Webster articulates below, and as documented within the literature there exists within architecture education a 'hidden curriculum' (Dutton, 1991) encompassing the values, beliefs and behaviours of the profession that the educational process assimilates students to.

"One of the hardest things to learn in architectural education is what is the value system of the culture of architecture, and the only way you can learn that is by engaging with it; going to debates,

exhibitions, read books, you know, all the things that nobody teaches you... in terms of that the studio provides the sort of place for discourse leading to having a better understanding of not only what architectural culture values, but actually that directly relates to how their work is going to be assessed. So you find the people who really struggle to understand why they fail are the people who work at home. The people who work in studio, who are surrounded by architectural culture, they know the grade they're going to get because they've learned how architecture is valued"

(Webster)

Central to engaging with the hidden curriculum is dialogue and, once again, the studio plays a key role in facilitating this. The importance of informal dialogue is evident from the data, as demonstrated in the following statement which comments on the gradual manner in which understanding of design quality is acquired:

"You get to understand that as you progress to like (sic) third year, to (sic) second year you understand why work is good or bad, but in first year you do not understand why something does not work..."

(Stage 4 student)

"For me personally it kind of clicked in 3rd year, but from the beginning, the kind of fundamental basics are pretty well taught. You tend... I think it's probably something that you just kind of learn, through the seven years that (sic) you don't really realise that you have learned"

(Stage 6 student)

With reference to Biggs' four factors that facilitate 'deep learning'¹¹⁸, the active nature of studio-based learning augers well. However, the remaining factors of motivation and ownership, interaction and discourse about ideas, and the construction of a meaningful knowledge base require careful consideration.

"deep learning comes from students doing things that are meaningful to them in a critically reflective way"

(Webster)

¹¹⁸ See Chapter 3, Section 3.5.3.

The first two of Biggs' factors relate to the diminution of power asymmetries, which will be returned to later, whilst the third once again implies the recognition and accommodation of the experiences and perspectives of individuals. However, the intensity and volume of workload that students record as being especially problematic¹¹⁹, reflecting the findings of the AIAS Task Force Report¹²⁰, are likely to promote surface learning and inhibit the assumption of ownership of the learning process.

8.7.7 Summary

Evidence revealed that for many, studio-based learning was an unfamiliar experience that presented new challenges, and exposed students to new approaches. Equally, the subject with its indeterminate and subjective nature, is also unfamiliar, requiring clarity in terms of the learning process and its objectives. Links exist between the clarity of guidance, and the motivation level of the student and, hence, to capacity to develop learner independence. Indeed, over-reliance on tutors resulting from lack of specificity can cultivate dependencies at an early stage.

It was clear that students sought greater understanding of the processes with which they were engaged. Comments revealed the early acknowledgement of the peer group as an important aspect of studio-based learning, although in conditions of uncertainty, there were indications of a tendency to adopt a 'herd mentality' in an attempt to manage risk through collective agreement of actions or interpretations. Whilst the operation of the peer group possessed positive attributes, such behaviours nevertheless presented inherent risks. Additionally, where the clarity of guidance was lacking, students were found to seek a 'path of least resistance' in their dialogue with tutors through their desire to adopt a single tutor.

A number of findings have implications for tutors. For example, whilst the introduction to studio-based learning was considered satisfactory,

¹¹⁹ See Appendix 5.

¹²⁰ For AIAS Studio Culture Task Force Report (2002), see Chapter 3, Section 3.3.1.

students quickly sought greater explanatory depth. This demand proved recurrent, suggesting the need for academic staff to place greater emphasis on establishing a fundamental understanding of the learning process. Also, whilst the propensity for task-oriented learning has been discussed already, it was found that the intensity of workload reduced the desire of students to engage with the overall learning progression that would enable them to contextualise their work at any given point in time. The ability of tutors to create a range of support systems that accommodate student diversity, was also questioned.

8.8 Perceptions of Learning Support in Design Studio

8.8.1 Introduction

Viewed over the course of the academic year, this section explores student perceptions of learning support in design studio. In particular issues of the learning experience relative to expectations is discussed, together with aspects of diversity, support for individual learning, and differences encountered in the teaching approaches of staff.

8.8.2 Constructivism and Diversity: Building on Uneven Ground

"I didn't realise what architecture was about when I first started. I think it is only now that they are beginning to realise whether it is the right thing to study or whether it is not..."

(Stage 4 student)

In the preceding sections, the diversity of the student group has been established from a number of perspectives. However, a further aspect of the diversity embodied by the cohorts lay in the variety of expectations of what the course would deliver, these tending to colour judgement of initial experience. Whilst the range of expectations extended from relative ignorance to informed-ness borne out of placement experience, for example, the challenge for educators is to respond to this range whilst engaging the students by connecting with their expectations. When considering this challenge against the backdrop of different learning

backgrounds, life experiences and exposure to the profession, it is evident that the conditions from which learning develops, vary considerably across the peer group. This diversity suggests that for learning to be an inclusive process, and for expectations to be met, support structures must be sufficiently flexible to accommodate everyone, and to engender a sense of confidence throughout the cohort.

The majority of students found their course to meet their expectations, with some who responded negatively doing so because experience surpassed expectation. Nonetheless, a significant percentage of each cohort considered their course as not fulfilling expectations, the reasons for which are multi-dimensional including lack of prior understanding of what architecture education entails, perceptions of pressure and the impact that time pressures exert on the opportunity to perform to a high standard, absence of essential skills, and cost. The statements below illustrate the spectrum of opinion encapsulated by the cohorts.

"Much more creative and guidelines are loose"

(Stage 1 student)

"I expected it to be somewhat challenging, but the course has proved to be more challenging in terms of learning outcomes. Time keeping is also hard"

(Stage 1 student)

"I thought it would have been more interesting and fun rather than monotonous and critical"

(Stage 1 student)

Viewed from the perspective of constructivism, one might expect some form of diagnostic assessment of the level of core skills existing, as well as the diverse experiences and capability embodied by the cohort, on which future learning can be built. However, the quotations¹²¹ below speak of the range of conditions embodied by each cohort, suggesting a

¹²¹ These quotations refer specifically to studio, in particular to issues such as drawing ability, etc.

lack of any such process being implemented early in the session, and a corresponding assumption that all students possess an equivalent 'base' from which to develop learning in design studio. The perceived disparity appears to have heightened views that diversity of educational background is not acknowledged and accommodated in the learning process, potentially leading to frustration.

"It is assumed everyone has the same level of knowledge"

(Stage 1 student)

"I thought there would be more allowance for those with no experience"

(Stage 1 student)

"They don't cater for those with no background experience, and little help is offered"

(Stage 1 student)

Lack of appropriate recognition of differences between students could serve to reduce motivation in certain groups of students, particularly should they perceive a gap opening up between themselves and their peers. Importantly, newly enrolled students constantly utilised comparison with peers to acquire a sense of belonging and to derive confidence. At this early stage it is perhaps inevitable that comparative gaps in skills and knowledge will exist for all, demanding procedures for identifying these and addressing perceived deficiencies at an early stage.

In general, there is evidence of an increase in satisfaction towards the end of the year, this probably resulting from a combination of acclimatisation to, and acceptance of, learning methods, and the receipt of end-of-year feedback on all course components. It may also be attributable to a number of skills and knowledge gaps being satisfactorily addressed throughout the course of the session. Despite this, it is nevertheless possible that in the absence of a managed process for monitoring

individual development, some students lost motivation and withdrew during the course of the academic year.

8.8.3 Differences in Learning Support

The work of Schön (1983, 1985, 1987) referred to in the literature review (see Chapters 3 and 4), analyses in detail the crucial role that human interaction, expression, dialogue and discourse plays within the processes involved in design learning. As has already been seen, there is inevitably a variability between different tutors, both in terms of their own innate teaching styles (although these are known to be capable of mutation over time), their individual attitudes and the power asymmetries arising from these, personal characteristics, and so on. Students must come to terms with the different roles that tutors play within the studio, illustrated perhaps most clearly by the contrast between relatively intimate one-to-one tutorials and the public format of the review where students are presented with multiple perspectives on a range of complex, interconnected issues.

Moreover, in understanding the learning process, a distinction may be drawn between the course, its component parts, and delivery and assessment mechanisms as defined formally by documentation, and the human element that translates the designed framework into a lived, animated experience, with different levels and types of human interaction and technological facilitation. With respect to the former, although at the level of the 'mechanics' of learning the notion of learning outcomes claimed to be understood by the majority, knowledge of those relating to current learning proved weaker in both cohorts. However, the students were able to identify how such understanding could be formed, citing peer conversation as a component of this¹²². At the level of interpersonal dynamics between tutor and tutee, experiences were variable and diverse as demonstrated by the following quotations:

"It is easy to ask if you don't understand or would like more info. Tutors are easy to approach"

¹²² See Appendix 1.

(Stage 1 student)

"Lack of positive feedback, in any form, no encouragement leads to lack of interest"

(Stage 1 student)

"Class is so big¹²³, individual learning needs aren't really catered for"

(Stage 1 student)

"I think you get support and you don't realise it"

(Stage 6 student)

The penultimate statement relates student numbers to individualised learning, implying that lower staff-student ratio are instrumental in this process. Conversely, it is argued that class size is likely to make little impact if the adopted pedagogy fails to recognise the individual. Alternatively, recalling Boddington's statement in Section 8.3.3 of this chapter, which identifies that (within limits) larger numbers usefully serve to depersonalise learning, the assumption that quality of support is directly proportional to class size is contestable. The final comment suggests that the adopted methodology and learning support structure is not made sufficiently explicit for students to overtly understand the purpose and nature of the support provided.

Views of learning support were gathered throughout each academic session, these relating not just to studio, but to the entire course. Student perceptions fell into two distinct categories; support provided through academic tuition, and that derived from the peer group. In the case of the former, data also tracked perceptions longitudinally, enabling correlations to be made between the sense of overall support, and critical issues such as feedback, guidance, and clarity of expectations. Whilst detail is provided in Appendix 1, Section 1.5.5, results across both cohorts showed that support was generally favourably viewed at the mid-point of

¹²³ Cohort size was 87 students in total.

Semester 1 but was considered to decline in early Semester 2, as exemplified in Figures 28 and 29.

However, the act of rating support necessitates that students have some sense of expectation against which it may be measured. Given that many students saw learner independence and personal study skills as one of the significant challenges in transition to university study, this may explain why such a percentage of the Session 2007-08 cohort (35.7% in Semester 1, and 56% in semester 2) had such a mediocre view of the support offered.

Figure 28: Support for Individual Learning: Semester 1, Session 2007-08

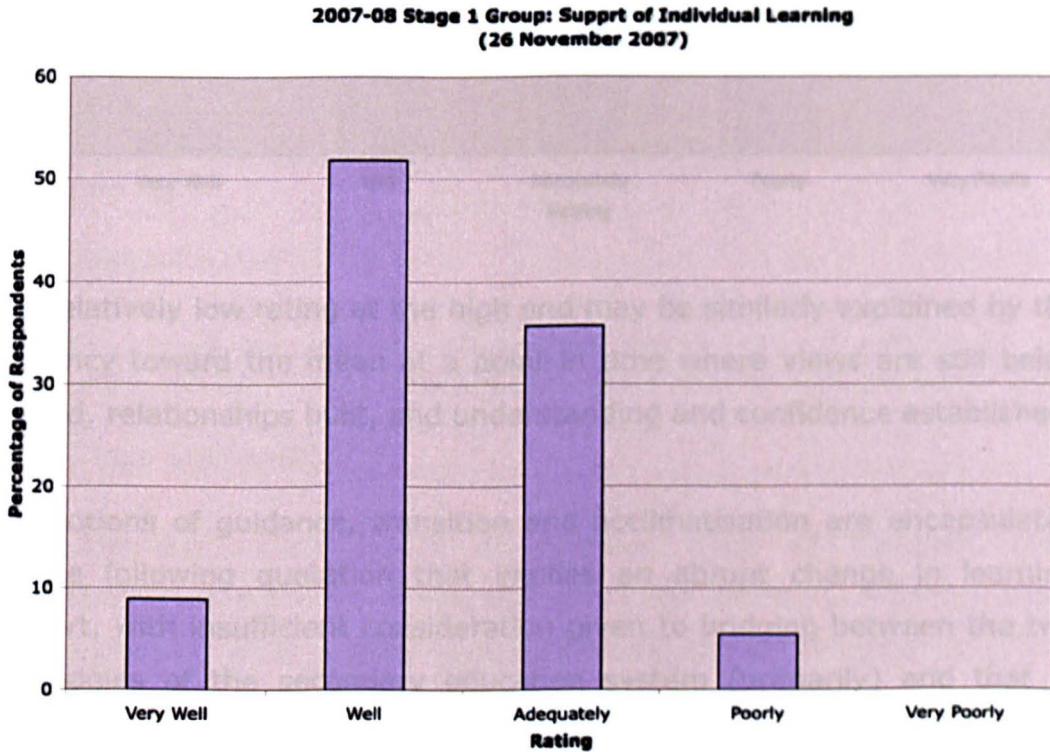
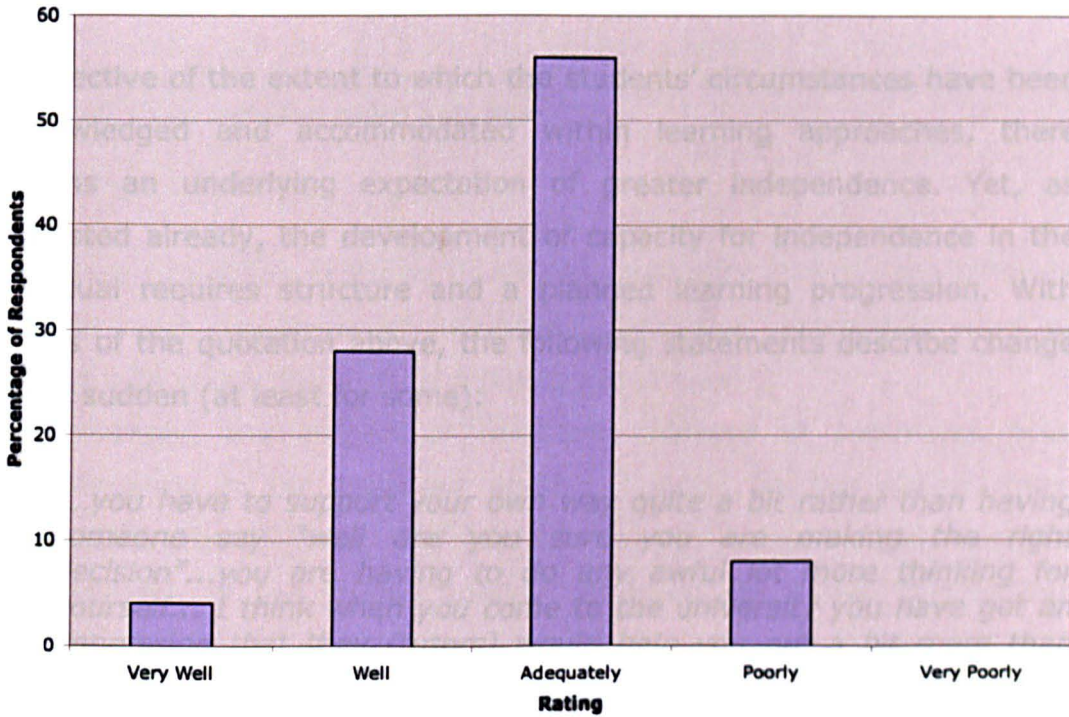


Figure 29: Support for Individual Learning: Semester 2, Session 2007-08

**2007-08 Stage 1 Group: Support of Individual Learning
(19 March 2008)**



The relatively low rating at the high end may be similarly explained by the tendency toward the mean at a point in time where views are still being formed, relationships built, and understanding and confidence established.

The notions of guidance, transition and acclimatisation are encapsulated by the following quotation that implies an abrupt change in learning support, with insufficient consideration given to bridging between the two pedagogies of the secondary education system (primarily) and that of architecture education. Once again this suggests a process that could serve to increase a sense of disorientation, insecurity and doubt, hence undermining confidence. It also implies the design of an educational process determined principally by factors other than consideration of the student perspective.

"It (support) should be more of a progression, you have to get challenged more as you go through not challenging you the first

day... just leaving you. It should be more of a progression how they support you, how they do that, encouraging more..."

(Stage 4 student)

Irrespective of the extent to which the students' circumstances have been acknowledged and accommodated within learning approaches, there remains an underlying expectation of greater independence. Yet, as suggested already, the development of capacity for independence in the individual requires structure and a planned learning progression. With echoes of the quotation above, the following statements describe change that is sudden (at least for some):

"...you have to support your own way quite a bit rather than having someone say "well are you sure you are making the right decision"...you are having to do any awful lot more thinking for yourself... I think when you come to the university you have got an impression that they (tutors) would help you out a bit more than they did..."

(Stage 4 student)

"The large amount of self-directed study. Find it difficult to get motivated and (I) find the time when it's easy to keep putting it off"

(Stage 1 student)

This comment raises issues of different ways of learning, tutor expectations of student engagement, and the ability to exercise more independent thinking, greater resourcefulness, and self-motivation. It also portrays difficulties experienced by some in negotiating the transition between secondary and tertiary educational environments during the initial semester. Contrastingly, however, the following statements convey a growing confidence and diminishing self-doubt. This may be the product of acquired skills and knowledge, but may also be positively influenced by the individual's ability to position themselves and their performance in the context of their peer group.

"I think with coming directly from school, there is no doubt it is a big change in the way to survive (sic), as in school you are getting fed on a plate. "If you don't do it why are you here?" You are expected

to investigate and present and to manage yourself. No doubt it is a good thing"

(Stage 1 student)

"I thought at the beginning I would not be able to keep up but I find that I can achieve more and more!"

(Stage 1 student)

The range of opinion captured by these statements conveys the different attitudes and responses of individuals, and the contrasting ways or abilities with which they embrace pedagogic change.

Unsurprisingly, the subject of feedback emerged in comments from students early in the academic session¹²⁴ since, as has already been established, the learning process and curriculum are new, and the indeterminacy of the subject matter unnerving for some. It therefore seems reasonable to predict that students will seek understanding of their progress, and reassurance about their performance and indeed affirmation or otherwise of their suitability for the course. The shift in perceptions towards the mid-point of the session¹²⁵, coincided with an increase in student frustration regarding feedback practices, as well as a growing feeling that clarity of guidance was insufficient. Once again, these factors surface as the salient drivers of student perception and, by association, of levels of uncertainty and confidence. Notwithstanding this, a number of positive endorsements of learning support were recorded, consistent with the profiles indicated in Figures A29 to A32 in Appendix 1. The topic of feedback will be discussed in the next section.

Referring back to Chapter 4, Section 4.3, comments were also received that questioned the perceived assumption that all students share a common knowledge base, raising the matter of the degree to which the curriculum embraces diversity, as well as the acknowledgement of backgrounds culturally, educationally and socially. Connected with this, a number of students voiced the desire to have small tutorial groups, one-to-one tuition, or an assigned tutor. This quest for greater personalisation

¹²⁴ See Appendix 1, Section 1.10.

¹²⁵ See Appendix 1, Section 1.10.

of learning might be expected given the intrinsic diversity of the cohorts and the idiosyncratic and personal nature of creative interpretation and endeavour. Alternatively, if the emphasis is placed on the product by tutors, it may be argued that the student seeking assignation of an individual tutor, did so to ensure consistency of input, i.e. the desire related to a tactic for managing risk. However, the views below, expressed by a couple of respondents, to some extent counter the assertion that there is insufficient accommodation of different levels of knowledge in the cohort at the outset, and provide evidence of both reflection and a growing ability to understand the learning process and to contextualise the behaviour of tutors within this:

"...once you realise what they are doing, once you realise what the tutors are doing for you; they are setting foundations for you"

(Stage 1 student)

"I think (name) is trying to learn how much information he has to put on a plate for us, so that he gets us to search and discover new ideas for ourselves"

(Stage 1 student)

Idiosyncrasy and personality in tutors arose, respondents identifying a correlation between the characteristics, temperament, and disposition of the individual tutor, and the level and nature of the support offered by them¹²⁶. However, the fact that different staff approach aspects of the learning process in different ways appears to register as an inconsistency that was seen as a weakness of the learning support offered, as commented on below, although difference could reside in both method or personal attitude:

"I think different lecturers, different tutors, offer more support than some lecturers and tutors offer minimum support"

(Stage 6 student)

¹²⁶ This issue bears a relationship to Teaching Styles, as discussed in Chapter 3, Section 3.4.5, and within Appendix 2.

However, over time, the length of course and intimacy of the tutor-student contact afforded by studio, tends to create a strongly supported learning environment:

"...because you are here for so long, you actually get to know the staff very well. So by the time you are leaving, like us,... you know them all very well, so if there is any kind of support that you need, you know who to go to, and for what as well"

(Stage 6 student)

"...between tutors I really found that the differences between some of them were really obvious. Some of them really encourage you. Even though you do something wrong they will say, "okay that's fine, but you can do something better", but rather than just, "no, no" and it just, (sic) it seems like it is just a piece of junk or something like that. I think that is really depressing..."

(Stage 4 student)¹²⁷

The diversity of approach referred to above shows that while some staff demonstrate a supportive disposition, others resort to negative judgements of work, potentially de-motivating the student. In doing so, the learning potential represented by the errors made is at risk of being lost, whereas staff with a more constructive attitude encourage the student to develop further learning based on the weaknesses, thereby harnessing the learning value and engendering motivation. In other words, whilst criticism is of course valid and necessary, when inappropriately framed it has the capability of inhibiting growth of the individual. This reflects the assertion of Rogers (1969) that the degree to which study is student-centred is ostensibly determined by the manner in which tutor articulates their role in the learning process¹²⁸.

The explicit articulation of process was an issue raised by the academics interviewed, and was considered of fundamental importance to achieving independent learning. Whilst in the first quotation below Till refers to the

¹²⁷ In response to the question:

"What about the quality of feedback, does that vary between tutors?"

¹²⁸ See Chapter 4, Section 4.5, which includes the 4 principal considerations for facilitating learning as identified by Rogers (1969).

importance of staff being able to position their methods within learning theory, Boddington reiterates the significant challenge residing in the fact that many academics confuse content with method, this failure to differentiate representing a major obstacle to progress:

"We are making pedagogy explicit... people like (name) are incredibly important because they are able to theorise it, which is important, I don't think things have radically moved on, but we've only got it going in the last 5 years so maybe we're allowed to consolidate"

(Till)

"It goes right back to the beginning, of 'how do you manage a problem?', and people (staff) are so worried about losing the architectural content, or design content,... people (staff) are nervous of letting go that subject-base knowledge, rather than using that subject-based knowledge as a means by which you teach method"

(Boddington)

In each section so far, the roles of the peer group and the studio environment have been revealed, in terms of both formal and informal aspects of learning. Whether academic or non-academic, the interaction between students plays a central role in learning and the development of a sense of independence. Moreover, as a complement to the support furnished by tutors, there was a view that dialogue between peers can be easier as the articulation of ideas and opinion occurs at an equivalent level.

"They (peers) can explain it to you, because they (peers) are on the same level"

(Stage 1 student)¹²⁹

"you could kind of relate to them (senior students) as well, because that's going to be you four years down the line"

(Stage 1 student)

¹²⁹

In response to the question:

"What might account for this perception of (the importance of) peer support relative to staff support?"

In other words, the power asymmetries discussed in the literature review (Dutton, 1991) are absent¹³⁰, leading to more open and uninhibited exchanges. Increasingly throughout the year, the sense that working with peers in ways such as this was not only invaluable, but played a key role in individual performance. Arguably, the students saw the role of the peer group to be as important to learning as tutor input, exploiting the tendency to compare and benchmark personal progress to one's peers:

"say there are three staff in the studio, and there are 50-60 people in the studio; so if they are walking around seeing people..., 20 minutes each, they don't see everybody, so in that sense it is more important to see, to speak to, your peers then, because they will be able to give you ideas. You see, you speak to them more than the lecturers really"

(Stage 1 student)

As Webster alludes to, the traditional view of the student as the 'empty vessel', a view directly in opposition to any notion of constructivism or inclusivity, tends to dismiss peer interaction through the dominance of the tutor view which, as Yanur (2006) observed, leads to socialisation into the status quo¹³¹.

"the informal stuff that goes on when we're (staff) not teaching them (students) is interesting..."

(Webster)

The value and importance of peer support was further reinforced through discussion about ideal forms that the studio might take. In discussing the difficulties experienced in Stage 1 the students raised the potential to utilise peer support in a more deliberate manner, adding that the adoption of this as part of the formal learning structure would require formalised processes in order to ensure that more inhibited students are accommodated. In particular the use of senior students as advisors or mentors to their junior counterparts was seen as having potential value, this again envisaged as requiring structuring. The perceived importance of

¹³⁰ See Chapter 4, Section 4.4.1.

¹³¹ See Chapter 4, Section 4.5.1.

peer support corresponds to Nicol and Pilling's (2000) observation that collaborative learning and specific activities such as self and peer assessment enhance independent learning skills¹³².

The importance of a sense of community is conveyed below and responds to the fact that studio continues between scheduled tutorial times, i.e. learning is not confined to the times that tutors are present.

"There are two things that I would quite like to see in a future studio. One is more integration with other years. I think if you had the opportunity because you cannot get your tutor every day, just speak to someone without feeling sort of nervous going into the studio... Yeah they all look at you. I think if you had the opportunity to go to speak with somebody there, I think that would help a lot"

(Stage 1 student)

It was also recognised that certain spatial configurations of studio space and patterns of inhabitation can assist or obstruct the dialogue between peers or groups, and hence facilitate or inhibit the free exchange of ideas. Indeed, it is argued that realisation of the full potential of the peer group as a learning resource, including mentor systems, requires that the dynamic of studio and the cohort is managed to some extent.

8.8.4 Summary

In addition to the many different manifestations of diversity already discussed, differences in expectation of the course were identified, these influencing initial judgements and perceptions of the experience. Inclusivity requires that such differences are embraced in order to foster the engagement and confidence necessary for independent learning. Similarly, concerns were expressed about assumptions made by staff regarding the skills and abilities of newly enrolled students, suggesting also to the importance of inclusive approaches.

Learning support was fundamentally seen to be provided by tutors and via the peer group. Perceptions of learning support varied over the academic

¹³² For Nicol and Pilling's (2000) five essential components of effective learning, see Chapter 4, Section A4.5.

session, with greatest discontent coinciding with the point where demand for guidance and feedback was highest. By the end of the year, impressions were more favourable as a result of feedback given, but perhaps also because of student acclimatisation to learning methods and practices.

As observed by Schön (1983), dialogue fulfils a vital role in studio-based learning, particularly when the subject is indeterminate. This presented new challenges for students, as did the fact that tutors assume different roles according to different stages in the learning process. For some, studio-based learning was highly stimulating whilst for others, the approaches and methods proved much more challenging. Attitudinal differences existing between tutors, considered alongside the need for greater clarity regarding the learning process, further underlined the imperative for a common understanding in the staff team about the fundamental learning intentions and aims. Findings concerned with tutor differences echoed Rogers contention that student-centred learning is determined by the manner in which tutors articulate their role in the learning process.

8.9 Understanding Individual Learning and Performance In Design Studio

8.9.1 Introduction

The way in which students acquire an understanding of their individual progression and performance with respect to the learning intentions and outcomes of design studio, is discussed in this section. Perceptions of feedback form an important part of the discussion, as a key component in the student's processes of reflection. Similarly, perceptions of the practice of the 'review' or 'crit' are discussed, as is the existence of power relationships between tutors and students in the learning process.

8.9.2 Assessment

With the benefit of reflection over the entire academic year, data concerning student perception of clarity of the assessment process was

gathered at the end of the session. The course adopts a broad range of assessment processes including formal examinations, coursework and studio-based project work, and the survey did not discriminate or identify between them. Whilst the study generally focuses on studio-based practice in particular, it is acknowledged that responses to this element related to all course components.

Figure 30 and 31 chart student perceptions of the clarity of the overall assessment process in Session 2004-05. Notably, despite collective observations of a high level of clarity, over 20% of respondents considered the process to be 'unclear' or 'very unclear'.

Figure 30: Clarity of Overall assessment Process: Session 2004-05

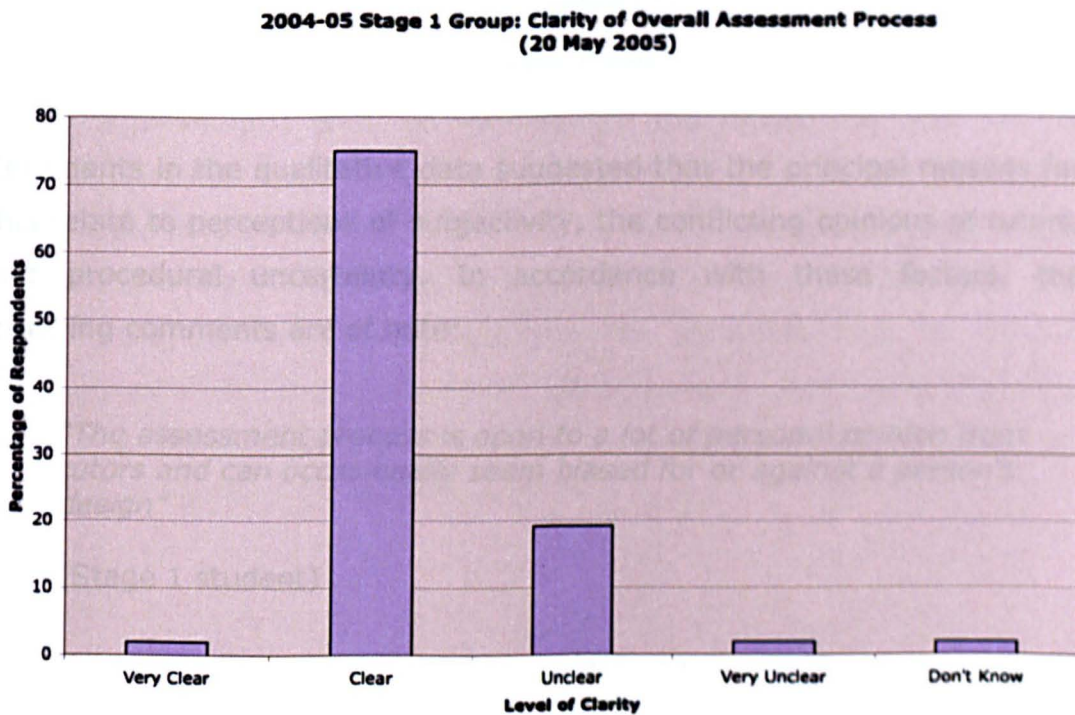
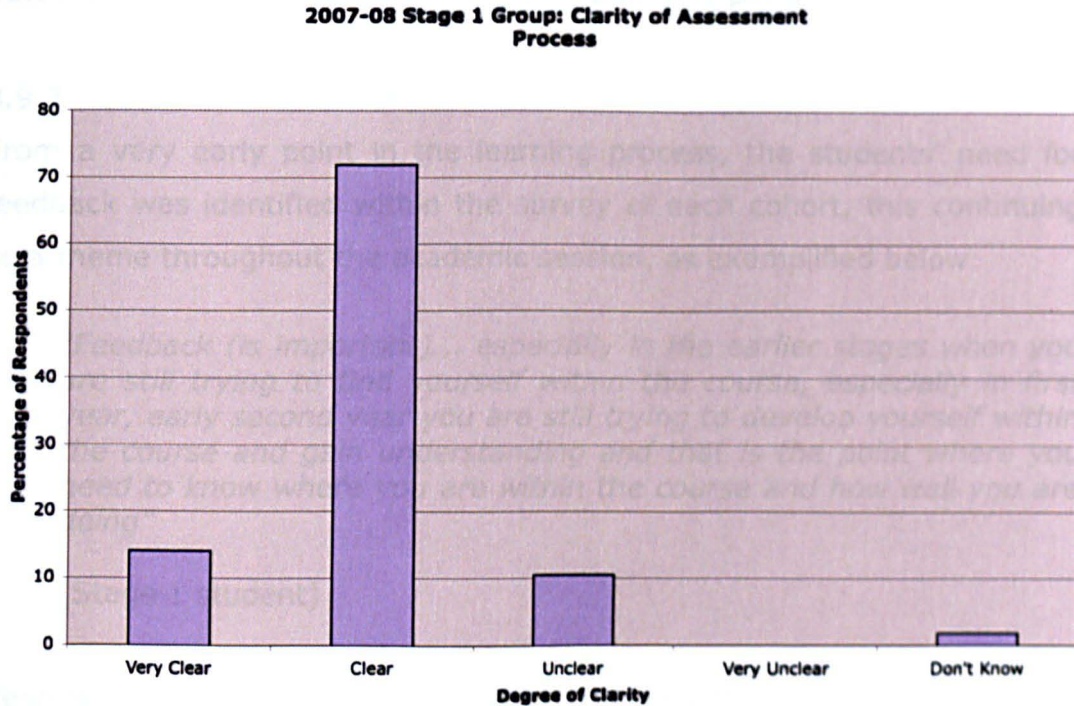


Figure 31: Clarity of Overall assessment Process: Session 2004-05



Comments in the qualitative data suggested that the principal reasons for this relate to perceptions of subjectivity, the conflicting opinions of tutors, and procedural uncertainty. In accordance with these factors, the following comments are of note:

"The assessment process is open to a lot of personal opinion from tutors and can occasionally seem biased for or against a person's design"

(Stage 1 student)

"We haven't been told how our projects are graded"

(Stage 1 student)

The first of these quotations reinforces the observation that the focus is placed on the project rather than on assessment criteria related to the respective learning outcomes. In doing so the tutor may well be misconstruing the learning intentions behind the project, diverting the student away from the principal issues, and introducing confusion over the objectives of the work. Similarly, in the second statement, the student

appears not to understand that it is the satisfaction of the learning outcomes that is assessed rather than the project per se¹³³.

8.9.3 Feedback and Reflection

From a very early point in the learning process, the students' need for feedback was identified within the survey of each cohort, this continuing as a theme throughout the academic session, as exemplified below:

"Feedback (is important)... especially in the earlier stages when you are still trying to find yourself within the course, especially in first year, early second year you are still trying to develop yourself within the course and gain understanding and that is the point where you need to know where you are within the course and how well you are doing"

(Stage 1 student)

Despite the fact that many students had sought to inform themselves about architecture prior to enrolment, the study of the subject nevertheless had a novelty and unfamiliarity about it, to say nothing of the considerable complexity inherent in an holistic, integrated discipline. It has also been seen that for many the methods of working were new, and that in parallel with study commitments, students had, in varying degrees, external considerations to address, many of these representing novelty and challenge too. Figures 32 and 33 below show the ratings awarded to feedback by each cohort¹³⁴.

¹³³ It is recognised that where a project represents the totality of a module, the project and learning outcomes may equate to the same thing. Nevertheless, a distinction should be drawn.

¹³⁴ See Appendix 1 for greater detail.

Figure 32: Rating of Feedback Provided: Session 2004-05

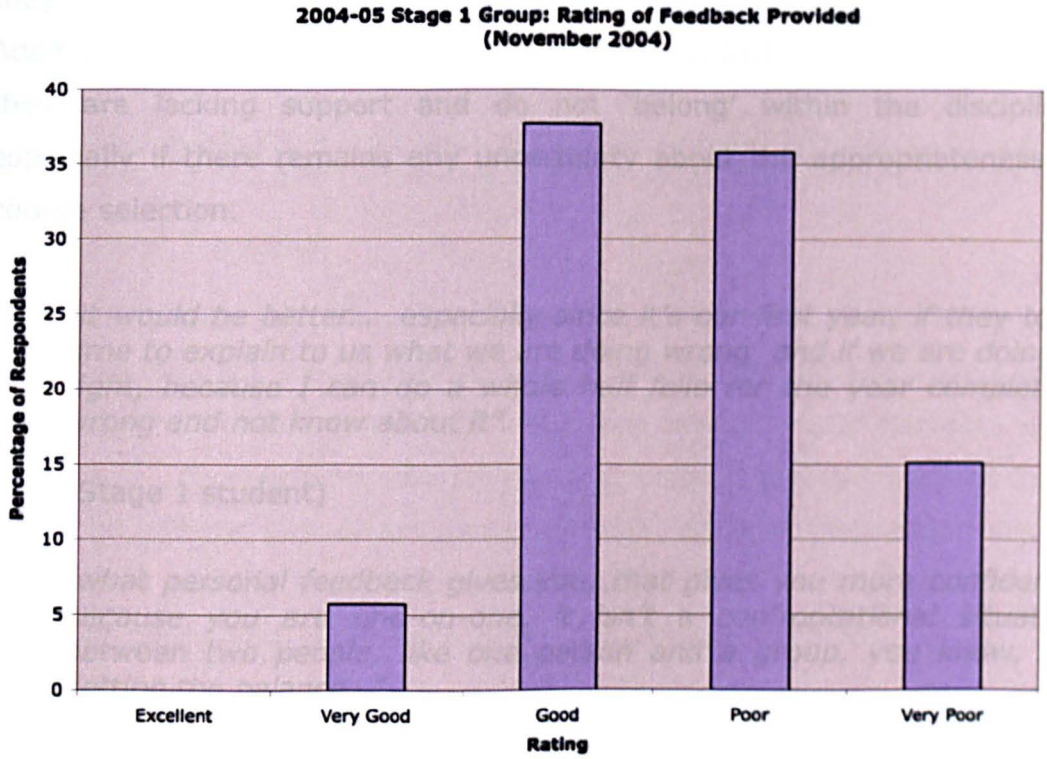
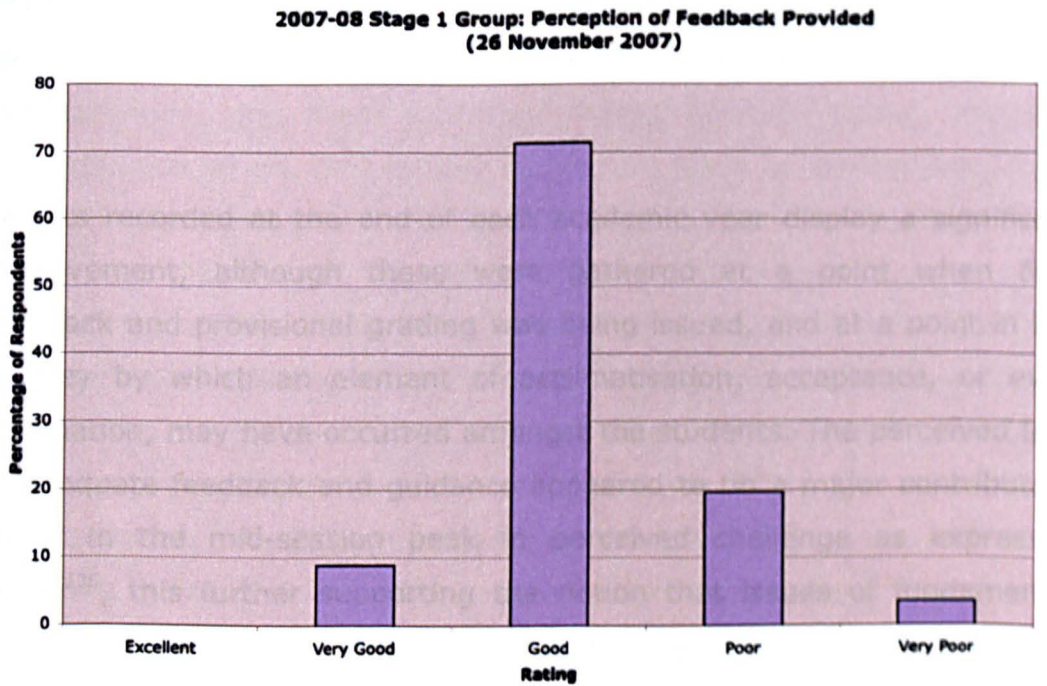


Figure 33: Rating of Feedback Provided: Session 2007-08



In session 2004-05 the Semester 1 results revealed a problem in that the approx. 50% of respondents perceived feedback to be 'poor' or 'very

poor', introducing the prospect of students becoming disengaged should they feel unable to judge their own progress or suitability for the course. Additionally, lack of adequate feedback may also foster an impression that they are lacking support and do not 'belong' within the discipline, especially if there remains any uncertainty about the appropriateness of course selection.

"it would be better... especially since it's our first year, if they took time to explain to us what we are doing wrong and if we are doing it right, because I can do a whole half folio for the year completely wrong and not know about it"

(Stage 1 student)

"what personal feedback gives you, that gives you more confidence because you are one-on-one, it isn't a confrontational situation between two people, like one person and a group, you know, it's getting the balance..."

(Stage 6 student)

Results from Session 2007-08 showed a marked improvement resulting from the implementation of a number of actions to address the timing of feedback in specific modules, although results still tend towards the mean rating.

Results recorded at the end of each academic year display a significant improvement, although these were gathered at a point when final feedback and provisional grading was being issued, and at a point in the journey by which an element of acclimatisation, acceptance, or even resignation, may have occurred amongst the students. The perceived lack of adequate feedback and guidance appeared to be a major contributory factor in the mid-session peak in perceived challenge as expressed below¹³⁵, this further supporting the notion that issues of fundamental importance, including those aspects addressed in the induction, require regular reinforcement¹³⁶:

¹³⁵ See section on the Learning Experience, Appendix 1.

¹³⁶ Appendix 1 contains a more comprehensive analysis, including comments from the minority who found the challenge to be diminishing.

"There is a sense of urgency to get the work in and there is a complete anti-climax because you do not get any mark"

(Stage 1 student)

"Give feedback more regularly to give yourself (students) targets to meet. If you don't know how you are doing this cannot be achieved"

(Stage 1 student)

The first statement above contrasts the intensity of workload and deadlines with the lack of reward symbolised by the fact that marks were not issued, although this may not mean that other forms of feedback were not used¹³⁷. Nevertheless, the comment underlines the fact that feedback forms an integral part of assessment design, and that motivation can be lost where student expectations are not satisfied. Once again, the link between motivation, confidence, and independence is noted.

Whereas impressions of feedback gathered related to the entire course, comments received enabled these to be disaggregated to some extent, identifying studio specific issues as well as those that refer to other modules. Fundamental to understanding the results was a need to ascertain what it was that the students valued in terms of feedback, acknowledging that there are many forms; written, verbal, informal, informal, and so on, and further dimensions such as timing, frequency, approach and tenor, quality of information, etc. With the detailed results contained in Appendix 1, the salient features of these analyses bear some consistency across both cohorts. In particular, the overwhelmingly dominant factor was the desire for some absolute, quantifiable measure of performance in the form of a grade or mark. In comparison, all other factors appeared subordinate to this, with subtle differences in profiles of the perceptual weightings recorded between cohorts. However, in Session 2004-05, in which dissatisfaction with feedback was greater, the need to understand personal performance relative to peers assumed greater importance. This suggests once more, that in the absence of adequate information from staff, the act of benchmarking with peers, and ability to

¹³⁷ The data revealed a value placed on marks or grades, significantly above any other form of feedback.

establish a sense of keeping up with the group, takes on a greater significance for the student.

Whilst Figures 34 and 35 curiously suggest that the use of grades with accompanying justification is relatively unimportant¹³⁸, the ability to explore feedback further through group discussions revealed a strength of feeling that both are necessary as exemplified by the following statements:

"You need them both really"

(Stage 1 student)

"Yes, it's a balance between the two, because discussion and throwing ideas about is one thing, but like I said, at the end of the day what really counts high up the ways (sic) is a number, like how you are doing physically in black and white, and if you can't say, then you can't judge your performance on a review that went well. It's a good feeling and you feel you've done well from it, but, it's nice to have ... it's what you're used to, I suppose from school"

(Stage 1 student)

From the responses received, the subject of feedback clearly elicits a diversity of opinion and emotion ranging from those who express satisfaction and who have anticipated and accepted the difference between university and secondary methods, to those who feel daunted, anxious and confused. Whilst the data gathered did not benchmark practices relating to feedback or guidance, for example, to other schools and institutions in terms of quality, timing, frequency, etc, making it hard to accurately determine how they relate to best practice within the sector, the results do nevertheless indicate the consequences in the students' eyes where they considered practice to require improvement.

¹³⁸ These results suggest that the question was mis-interpreted by many respondents, this being further supported by the quotations from group interviews.

Figure 34: Desired Elements of Feedback: Session 2004-05

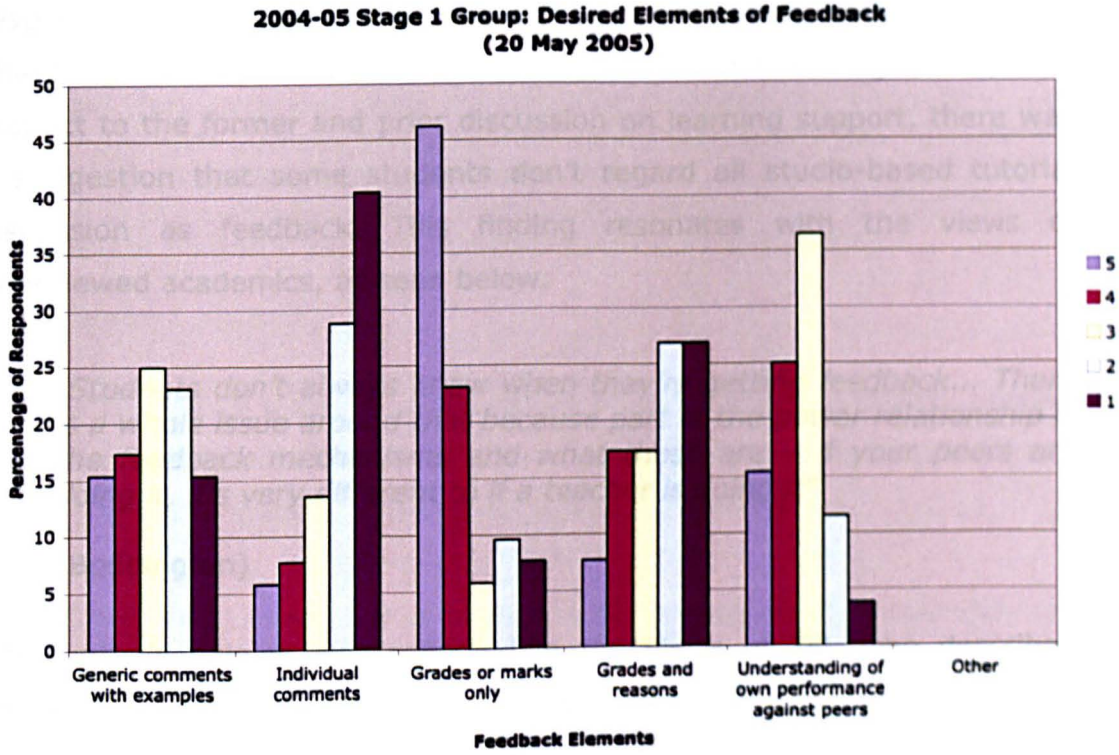
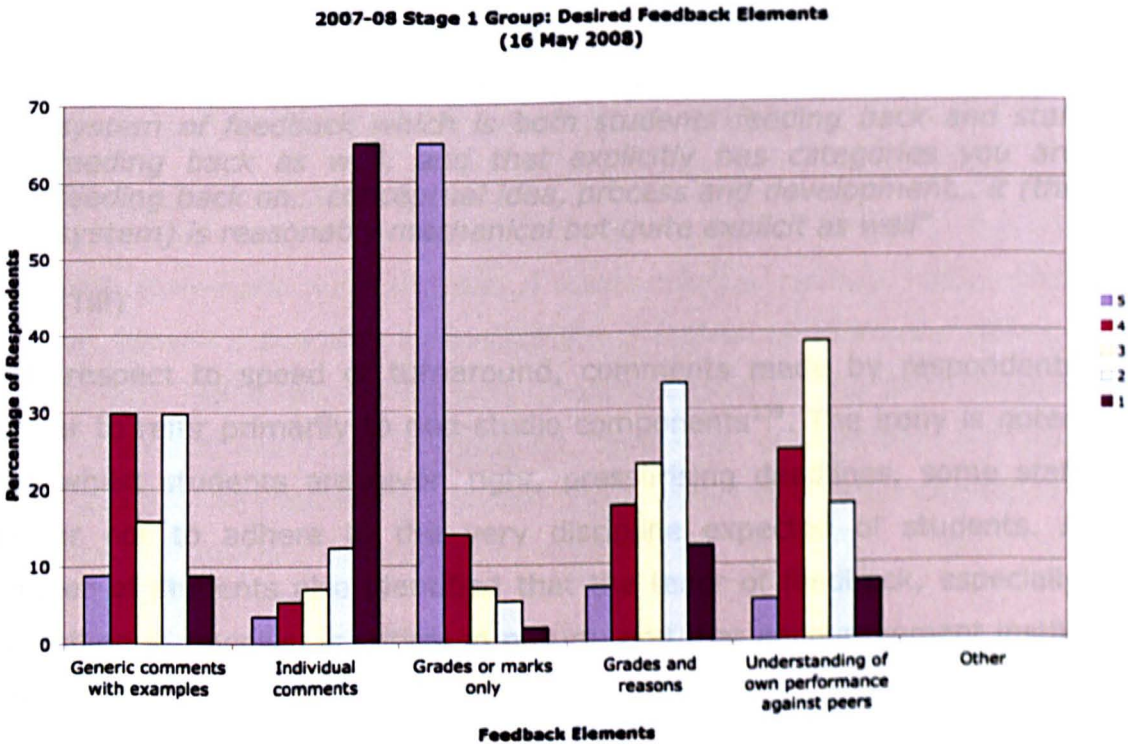


Figure 35: Desired Elements of Feedback: Session 2007-08



Areas of concern identified related to the regularity of feedback, speed of response, format, and the differences of opinion encountered in studio. These issues embraced both formative and summative stages and, with respect to the former and prior discussion on learning support, there was a suggestion that some students don't regard all studio-based tutorial discussion as feedback. This finding resonates with the views of interviewed academics, as seen below:

"Students don't always know when they're getting feedback... There is a whole issue around that because part of the power relationship is the feedback mechanisms and what those are - if your peers are doing it, it's very different to if a teacher is doing it"

(Boddington)

Boddington's opinion was reflected in the views of Till, who described processes implemented in his institution aimed at making feedback more overt by, amongst other things, placing student participation at the heart of the process:

"In first year, the feedback... they don't understand it as feedback, which is a continuing problem... in reviews there's a fairly structured system of feedback which is both students feeding back and staff feeding back as well, and that explicitly has categories you are feeding back on... conceptual idea, process and development... it (the system) is reasonably mechanical but quite explicit as well"

(Till)

With respect to speed of turnaround, comments made by respondents appear to refer primarily to non-studio components¹³⁹. The irony is noted that whilst students are given tight, pressurising deadlines, some staff appear not to adhere to the very discipline expected of students. A number of students also identified that the tenor of feedback, especially that given in reviews, is critical in nature, and that encouragement instils a sense of enthusiasm.

¹³⁹ This is evidenced by responses to questions on feedback, and in perceptions of component subjects, in Questionnaire 3 and 4.

"When I have done my best is when I have had a person that has given me the most enthusiasm and has been the most interested in what I am doing. I think (the least successful aspect of the learning experience has been) when people have not shown much interest and they have just given me negative feedback the whole time, you know what I mean, not given me constructive criticism. I think the group atmosphere is a good advantage as well,... because you are all in the same boat and if somebody learns something then they will pass it on and it will spread across, which I think is good"

(Stage 4 student)

The perception of a lack of constructive criticism in the feedback process was strongly expressed by students, and perhaps also represents a change in learning culture from that previously experienced.

"They need to say like at least one thing encouraging, then they will make people so much more enthusiastic"

(Stage 1 student)

"I do notice... how many designs all look so similar because the tutors have all suggested the same ideas for everyone... that should not be happening and you know they should really let us be ourselves on (sic) our initial ideas, and okay, they might not have been as spectacular as their designs, but people would have had more motivation because it was their own idea..."

(Stage 1 student)

This last statement again implies a focus on the product rather than process, indeed it suggests a constraining of individual endeavour through prescription. Moreover, the student confirmed that such a phenomenon, which detracts from the individual's sense of achievement, proved dispiriting and de-motivating. Rather, the building of confidence requires the encouragement of the student's own actions

Although, in the case of some students, responses to the questionnaires and group interviews revealed evidence of reflection-on-action, there appeared to be little programmed opportunity to encourage this. Indeed, the intensity of workload across the course, that was used as justification for not seeking to understand the entirety of the learning process,

appeared to militate against deep reflection. If true, such as situation is likely to hamper the development of skills in critical reflection and evaluation and ultimately prolong tutor dependency.

Along with the factors described already, Biggs (1969) identified assessment methods that prove stressful as being likely to militate against deep learning. Similarly, Goatly (1999) observed that negativity, fatigue, and reduction in confidence levels, act as barriers to reflection, the process that forms the core of studio-based learning.

"It (reflection) is fantastically important for architects – judgement skills; otherwise you assume that what you do is acceptable, and architects are not very self-reflective as a profession"

(Till)

Given that reflection forms such an elemental part of the studio learning process, Till's view, which implies that despite a lengthy education process reflection as a method is not effectively learned, is alarming. Indeed it may be seen to challenge the very rudiments of architecture education as it currently operates. Could it be, that the essential attributes of sophisticated judgement and critical reflection, honed through the learning process, are ultimately subordinated and devalued by virtue of the fact that their development is not explicitly stated to be a primary learning intention of architecture education?

All academics interviewed were involved in initiatives aimed at improving assessment and feedback practices, as there was unanimity of view that these areas are especially problematic. Work was being undertaken variously to engender deeper understanding of assessment criteria and expectation of standards;

"We have things like self-assessment workshops where the students are asked to assess an essay by somebody else, and mark it according to the assessment mark sheet, so they start to understand

and then compare that to the real mark sheet, so they start to understand what counts"

(Webster)

to develop reflective practice,

"Reflection through "very open year forums, which is sometimes managed not by the year tutors, which is important; so we might get a diploma student to run a year forum, or someone from outside, so there's not a conflict of interest going on"

(Till)

and to develop skills in staff to improve the quality of feedback issued, focusing in particular on those aspects that render it meaningful and constructive:

"we did an open online feedback... it was set up so that all the feedback could be seen. What the staff were doing was using shorthand. And when you looked at them from a students perspective and kind of took the tutor's lens off and you just look at the feedback sheets, what you got was a drawing of the project, which is fine, and then its got "build a model", and that's it... what you were actually getting was a memory device, but you weren't getting the feedback as such, the feedback was verbal, it was somewhere else if it was ever said at all, and the trouble is you never know because there's no record of it. So there was never anything that was explicit to the student. The trouble in architecture is that people will so often just draw the project, but what they're doing is recording what's there - they're not actually giving feedback about where you go next and quite often the feedback for a whole cohort is quite common"

(Boddington)

8.9.4 The Review

Many studies of the review, or 'crit', have been undertaken¹⁴⁰, this process forming a key feedback mechanism. Although this thesis gathered student data from a single school, a number of the issues raised with respect to the review bear a strong correlation to points contained in the literature, and as such may be deemed to be of generic significance. However, it is

¹⁴⁰ See Chapters 3 and 4.

recognised that many schools have instigated measures aimed at positively responding to existing literature and at making the review (in particular) a more open, student-centred process. Equally, it is acknowledged that practices at the Scott Sutherland School do not necessarily exemplify best practice with respect to feedback processes, and in some cases may appear highly conventional. Nevertheless, the results retain a relevance to broader debate in that they reveal or reiterate some of the issues arising from traditional methods¹⁴¹.

A number of comments were received illustrating a range of opinion on the process, the first two of which represent positive reflections on the review as part of a larger learning process, the latter with the benefit of hindsight:

"Every time we stick our stuff up on the wall they (tutors) criticise it and you can learn from that. So you learn for next time, so I suppose it is just like a learning process"

(Stage 1 student)

"I must admit, I struggled a lot of the time with taking the criticism and I tended to be the one who cried a lot. But now I have overcome that and I do realise that what they (tutors) are saying is beneficial. But I think you all deal with it in different ways. Some people get really defensive and angry, other people laugh about it, cry about it; some people tended to argue, some people just kind of (sic) tended to stand by and keep quiet, and take what's thrown at you"

(Stage 6 student)

"It is a bit daunting when you have everyone sitting around, watching you. It is quite scary but I think you get used to it... but you need the encouragement of everyone else around you to be involved"

(Stage 4 student)

Common student reactions can be categorised; principally subjectivity, the conflicting opinions of tutors, and procedural uncertainty. In accordance

¹⁴¹ Many of these are discussed in Chapters 3 and 4.

with these categories, the following comments demonstrate a range of opinions:

"The assessment process is open to a lot of personal opinion from tutors and can occasionally seem biased for or against a person's design"

(Stage 1 student)

"(It's) hard to please every reviewer on a subjective issue"

(Stage 1 student)

The following quotation also refers directly to student dependency on tutors through the seeking of tutor approval of work at review events:

"I think that's what really students actually really do rely on, is the studio staff, because it is in 'crits' that you do really find out whether what you have done is right or wrong and quite verbally as well"

(Stage 1 student)

Views were also collated that describe a level of student disengagement during the review, largely as a result of the format of the review. The comments also describe the potential ineffectiveness of the review as a vehicle for learning, especially where staff, through lack of understanding of the pedagogic principles involved, fail to recognise the consequences of their actions, behaviours, or attitudes. This is consistent with much of the literature, particularly the work of Anthony (1991).

"when you are actually standing up there giving your crit (review) and then listening to them (tutors), to be honest, when you come away from that you don't actually remember much..."

(Stage 1 student)

"You know your crit's going really well if you can get your tutors to argue!"

(Stage 1 student)

The issue of subjectivity was explored further through the group interviews, from which it became apparent that students considered it an innate aspect of the discipline:

"I don't know if you could remove subjectivity as it is part of human nature, but you could get a larger group, a larger audience of more well rounded people, and so that you have got opinions coming from lots of different people, so lots of different sides to what's going on"

(Stage 1 student)

When asked whether or not they considered if subjectivity coloured judgements relating to assessment, the responses were pragmatic and accepting that this was part of the context for architecture:

"The thing is, that's what's going to happen in the real world, isn't it? You know architectural critics are out there, and they are going to have personal opinions about..."

(Stage 6 student)

"I think one of the good things about architecture is the fact that it is subjective"

(Stage 6 student)

Some comments received suggested benefit in feedback that is more discursive in nature, although it was also noted that for shyer students this might impose pressures. The differences of opinion that exist between tutors is clearly the source of some confusion, not least in terms of understanding their status with respect to the marking process. However, for such a system to operate effectively a number of aspects require to be confronted such as the development of confidence in the students that their views have validity in the learning process, the diminution of power asymmetries and, related to this, the role that the staff play in such discussions.

8.9.5 Power Relationships

"You cannot dissolve power, whatever you do; you can only be honest about it. But architecture education up till now has been incredibly dishonest about it... It pretends it's a liberal profession"

(Till)

As has been seen from the literature, reinforced by the quotation above, the management of power relationships is critical to the effective development of independent learning (Erault, 1984; Dutton, 1991), especially where constructivism exists as the underpinning learning theory. It was found that efforts were being made to break down asymmetries as a means of liberating discourse, and developing amongst the student body a sense of confidence and of being valued:

"There are all sorts of asymmetries,... to break these down, its quite hard, other than you start to set up and trust the idea of peer group learning, and that there is a kind of sharing, which is not in the culture of tutors - its more in the culture of students than it is in tutors"

(Boddington)

In one case, the interaction of the peer group was seen as an agent in achieving this, exploiting the potential for discourse through diverse viewpoints and attitudes, and broadening discussion with staff through this collective resource.

"To a certain extent, the way we have set up the first year which has necessarily been about peer learning has helped that (power asymmetries), because you cannot have the same kind of authority when you have set up groups that have their own dynamic, and I think that's really helpful"

(Boddington)

Data gathered from the students made reference to compliance with tutor views, although at the start of the first year, where tutors act as the only reference point and students are seeking direction, this might be

anticipated. Once again, however, pedagogy can be developed to counter this.

"Talking on an equal level rather than being told what to do"

(Stage 1 student)

"The assessment process is open to a lot of personal opinion from tutors and can occasionally seem biased for or against a person's design"

(Stage 1 student)

The following comments illustrate reflection on learning process itself; from the anxious and uncertain comments of a first year student, to the more accepting, appreciative final year student who, with the wisdom of hindsight, shows ability to put the review process into a learning context.

"It's hard to take in, and you are worried that if you don't change it (your design) then the lecturer will rip into you and give you a bad grade. I don't know... if they don't like it, how much it does affect your grade, or whatever"

(Stage 1 student)

"I think you learn to accept, maybe you learn to listen, and you learn to take some advice and reject other advice and validate somebody else's opinion. Sometimes you've good crits and sometimes you've a bad crit, but I think the actual crit process, for the course we are doing, is very, very valuable"

(Stage 6 student)

8.9.6 Summary

The results clearly demonstrate the critical role that feedback plays in learning, with student perceptions of the degree of academic challenge closely corresponding to views on the effectiveness of feedback. The principal aspects of feedback concerned regularity, timeliness and speed of response, and specificity. The relationship of feedback to motivations levels and the generation of student confidence was also noted, these aspects being key to developing the independent learner. The importance to students of grades was evident, perhaps because they represent a

definite indication of progress and performance in a process that is unfamiliar, lacks clarity, and involves dimensions of subjectivity.

The existence of different, sometimes contradictory tutor opinion within studio emerged, recalling the importance of articulating the tutor role, and of cultivating an understanding of the learning process. However, instances where feedback was negative in nature appeared to be of greater concern, particularly in the review setting, recalling Goatly's (1989) assertion that negativity, along with stressful forms of assessment, fatigue and low confidence levels, discourage 'deep' learning. Levels of disengagement with the review process were found, and its effectiveness was questioned, echoing the research of Anthony (1991). In particular, there appeared to be a lack of clarity of the role of the review with respect to assessment, and of the assessment criteria used in relation to studio-based projects. However, the reflections of senior students on the review process proved much more accepting of the value of the review, although by this point in the course, should the process discourage engagement, for some the damage will already have been done.

The role of the peer group as a forum for discussion and comparison was also noted, effectively removing the negative potentials of power asymmetries. Consequently, the importance of peer interaction is of great significance in the development of confidence and self-belief in individuals and in the collective cohort.

8.10 Challenges of Independence

8.10.1 Introduction

This section discusses the findings relating to the challenges faced by students with respect to their development as independent learners. Of particular note are issues of time management and achieving an appropriate balance between academic study and external commitments, and of assuming individual responsibility for one's own learning.

8.10.2 Workload Pressures and Time Management

Referring back to perceptions of non-academic challenge, the salient issues that emerged were time management and the difficulty in achieving an appropriate balance between study and other commitments, these possessing an obvious connection. Additionally, for many, the assumption of responsibility for self, coupled with perceptions staff (and perhaps peer) expectations of a higher degree of independence, represented a considerable challenge. This was underscored by the fact that the majority of students were living away from home. In that regard university represented much more than a programme of academic study, encapsulating issues such as the expansion of social networks and assuming financial independence.

The fact that the workload associated with the course is perceived as being very heavy has already been touched on. Reference to the quotations below demonstrates that many students found the intensity exhausting, stressful, and relentless.

"There's a very heavy workload which means we often have to rush stuff. We are not always clear at the beginning of a project what we are supposed to do so at the end it can be too much"

(Stage 1 student)

"Large work load. Although all deadlines are not at the same time tutors always expect their module to come first"

(Stage 1 student)

Comments were received that suggest that the organisation of projects offered little time to achieve in accordance with ambitions, and limited opportunity for reflection. Although the nature of the studio curriculum will vary between schools, perhaps significantly, reference to the AIAS Studio Culture Task Force (2002) and other literature confirms that issues of workload form part of the generic culture of architecture education. It is clear, however, that for students new to the course, who are grappling with issues of independence, self-motivation, finance, and time management, workload poses one of the major challenges. Moreover,

when benchmarking workload and expectations of commitment with peers on other courses, the specific demands imposed on architecture students become evident, as do the compromises made by students to the social or extra-curricular dimensions of university life:

"I never realised that you would be up to 03.00 or 04.00 in the morning the night before a presentation cutting your fingers on scalpel blades and things like that... you cannot exactly put into the Prospectus that you require late hour working and multiple incisions made in your fingers!"

(Stage 4 student)

In an intensive course such as architecture, there is a direct relationship between time required for study and time for extra-curricular activities. This was commented on by a number of students as they sought a balance that permitted a rounded and sustainable student life that caters appropriately for study, socialisation and, increasingly, working to finance study.

"Finding time for work - Needs a lot of particular attention which is difficult to balance with new duties of living away from home"

(Stage 1 student)

"Dividing work with social and sporting activities. Sometimes I feel our tutors don't realise that we do other things besides Uni(versity) work, like sports etc"

(Stage 1 student)

"Don't have a social life"

(Stage 1 student)

"There is far less time to socialise than other courses. Because of the heavy work loads and deadlines"

(Stage 1 student)

However, although a number of respondents noted difficulty in balancing studies with other commitments, a number of comments also stated an

understanding that the time commitment is necessary in architecture education. This suggests a high level of motivation amongst students who find it circumstantially difficult to achieve a satisfactory balance. However, it is easy to imagine how such a struggle could rapidly transform into a source of frustration and de-motivation for the student. Other comments indicated that less motivated students find the ethos of self-directed study a challenge in itself, especially with tutors expecting the drive to come more from within. The educational transition that this represents is significant, and it is interesting to speculate how students would adapt within a pedagogy that did not have the vehicle of design studio as a facilitating agent.

Whilst the intensity of workload was seen to deny opportunity to socialise outside of the academic peer group, this once again appeared to be countered to some degree by the innate sociability of studio and the sharing of experience with those who, whilst diverse as individuals, possessed a common interest. The results suggest that the characteristics of studio with respect to peer dynamics, offered a degree of comfort and mutual support to students in conditions of uncertainty. However, when peer interaction was formalised and structured, such as through group work, students appeared challenged at times through the need to compromise and develop tolerances that accommodated others. The majority of students find ways of adapting to the pressures of study over the course of the year, although ability to do so will relate to individual circumstances and attributes:

"(I'm) getting to grips with the workload, and I now know how 'crits' work"

(Stage 1 student)

"(I'm) more settled, involved in more extra curricular activities. Also have a better idea of what kind of work level is expected"

(Stage 1 student)

For others, the experience proved very different, as demonstrated by the following statement recorded in Semester 2 by a student claiming to find the course 'much more challenging' than initial perceptions:

"Stress - trying to meet short deadlines with lots of work to do whilst maintaining a job"

(Stage 1 student)

It has already been seen that design studio rapidly develops a sense of community that is highly valued by the students. Indeed it is evident that its value extends beyond the confines of academic learning to social networking and kinds of informal personal support. Given the multitude of pressures impacting on contemporary students, the studio offers a facility that can act as a significant agent in easing many of the difficulties of transition through its communal properties. The central role of design studio in architecture education provides a social tool with potential to engender belonging and reduce any sense of isolation in the individual, something that many other courses probably struggle to replicate through their pedagogic approaches.

The social opportunity represented by studio was also recognised early in the student experience, with a minority finding this a pressure, presumably depending on their inherent sociability, as exemplified below. This recognition implies that students were beginning to interact in ways that could facilitate independent learning.

"The studio environment means we can interact really easily with each other, so we get to know each other a lot quicker than people on other courses"

(Stage 1 student)

"Enjoyable atmosphere created in studio which motivates me and helps me work"

(Stage 1 student)

"(studio is) very spacious which allows interaction to occur more easily"

(Stage 1 student)

(Challenge presented by) "meeting new people - have to deal with everyone"

(Stage 1 student)

The strength with which students expressed their concerns about the intensity of workload is remarkable, especially considering the speed with which this issue emerged. This corresponds with the findings of studies such as that conducted by the AIAS Studio Culture Task Force (2002)¹⁴². Workload issues appeared to be exacerbated by the lack of clear guidance relating to the learning process referred to earlier, and frustration over perceptions of lost time. This appeared to be further exacerbated by deficiencies in feedback, preventing the students from orientating themselves.

A range of views was conveyed by respondents with respect to where responsibility for time management lay¹⁴³. Whilst opinion was quite evenly balanced, the largest single group in each cohort believed the responsibility to be shared between staff and students. Thus, the issue of time management was seen as a balance between course management and co-ordination by staff, and the organisation of time and the degree of self-motivation of the student. Further analysis of the significant factors impacting on time management showed that the volume of work was perceived to be the most significant factor by a substantial margin, followed by the co-ordination of student work. This latter point is presumed to relate to comments gathered elsewhere regarding the need for greater co-ordination of assignment submission and assessment. Lack of guidance, and the difficulty of the work involved, featured as secondary concerns.

¹⁴² For AIAS Studio Culture Task Force Report (2002), see Chapters 3, Section 3.3.2.
¹⁴³ See Appendix 1, Section 1.13.

8.10.3 Assuming Responsibility for Own Learning

The onus of responsibility placed on the student for the management and 'ownership' of their learning, represented a significant challenge, especially when placed alongside the array of disparate situations external to their studies that require their attention, and which demand that an appropriate balance be struck between academic and non-academic concerns¹⁴⁴. The shift in emphasis of accountability was apparent from the outset, generating a range of sentiments, from enjoyment in having a sense of choice and control, to concern about the possibility of becoming 'lost' through the change in the level of support offered¹⁴⁵. Perhaps unsurprisingly, there appeared to be a sense of liberation amongst some students, recalling the fact that embarkation on university study signified the crossing of a significant threshold as demonstrated below:

"School was more like teaching you like children, unlike in university"

(Stage 1 student)

"I find it is more easy to work at my own rate and without as much pressure from anyone"

(Stage 1 student)

"More independent, allowed to use own ideas more, more relaxed atmosphere"

(Stage 1 student)

Findings also revealed that many students struggled with the fact that as university students, responsibility for their learning resided with them, this marking a considerable shift in emphasis for many:

"It is just a big jump going from school to university... it is just down to the individual to cope with it"

(Stage 1 student)

¹⁴⁴ See Section 1.3 in Appendix 1 on Transition to university.

¹⁴⁵ See Appendix 1, Section 1.5.2.

"Becoming more independent - I am from Ireland and came here not knowing anybody and it was a big step for me"

(Stage 1 student)

Managing the shift in responsibility for managing learning from the tutor to the student was an aspect that many students confessed to having difficulty with¹⁴⁶. Within this context it was notable that the great majority of students viewed studio as being the most positive attribute of the learning experience, whilst an approximately equivalent percentage viewed the expectation of independence, academically and personally, to be the most challenging factor. Whilst there was no suggestion of a direct correlation, it reinforces the role that the social dimension of studio performs as a forum where students can informally share experiences and views, and offer guidance. This relates to the comment made previously that learning occurs with reference to others (Kesten, 1987), particularly where there exists uncertainty and the need for reassurance and the building of confidence. Equally, it is important to acknowledge that learning, in this context, covers an extensive territory of which the subject of architecture forms only part.

However, it quickly became apparent that there were certain factors that were perceived to be contingent to the expectation of greater independence; the need for clear guidance, and the need for fundamental study skills, both of which are discussed in the following section. Equally, from the student is required self discipline, personal motivation, and commitment. Student comment also suggested the need for students to construct new kinds of relationships with university tutors compared to those experienced previously, whilst, the second statement reveals how one institution is beginning to structure the learning process to directly facilitate this:

"I come from a strict school background, where work is spoon fed to us and I was put under greater pressure by my teachers"

(Stage 1 student)

¹⁴⁶ See Appendix 1. Section 1.3 re. Transition, and comments earlier in this chapter.

"we have a big year but its broken up into smaller groups and the groups don't have one tutor all year but one tutor per project, so the tutors move around so they experience 6 tutors over a year, so they get a varying understanding of what the tutor-student relationship can be - they have a lot of projects, many of which are free and creative so they get a sense of the design process as well, learning some divergent thinking, stuff like that, although its not really explicit - you do it until you understand it - you do it and do it again"

(Webster)

The above quotation encapsulates the nature of the change for many, where prior experience had been one of a highly structured, didactic regime that was goal and outcomes driven. This contrasted dramatically with the relatively free, looser structure typically found in architecture schools, in which creative skills are developed and applied to an indeterminate subject matter. Indeed the indeterminacy of architecture itself poses some additional challenges, further highlighting the need for clear guidance and support as discussed earlier. This recalls the importance noted by Wingham (2003) that students require to develop an appreciation of the fact that knowledge is constructed rather than found and consumed¹⁴⁷.

As documented in the literature review, the design studio quickly becomes the fulcrum of an architecture course; a place that is multi-dimensional in its support of the learning experience, and of the individual. Consequently, it rapidly develops a culture with allied behaviours and rituals, many of the characteristics of which appear ubiquitous, such as those recorded in the work of Schön (1983, 1985), Boyer and Mitgang (1996), et al.

"...it's like an asylum or a seminary - architecture school has its own rules, its own ethos, its own calendar, its own pattern of work - daily pattern, monthly pattern, yearly pattern, and its different from outside"

(Webster)

¹⁴⁷ See Chapter 4, Section 4.5.1.

In the desire to cultivate independence, the change in educational approach requires careful support to avoid becoming a factor, additional to the newness of curriculum content, that generates dependency.

"There is that problem of school education being very, very different from architectural education, and a lot of students find difficulty adjusting"

(Webster)

However, at the start of this chapter, founded on observations of a disparity between conception and reality vis-à-vis teaching practice, the question was raised as to the real nature of perceived change¹⁴⁸. Whilst the premise of independence by definition assumes that individuals will perceive transition differently, views exist amongst both academics and students that the reality of studio-based learning is closer to a didactic and prescriptive methodology than the academic community has perhaps led itself to believe, particularly where vestiges of the master-apprentice relationship remain. It is evident that the curriculum content is novel, as is the studio as a learning setting, but it is suggested that some of the tutor behaviours found within fail to conform to the notion of significant difference. However, based on student responses, it is apparent that they do perceive a change in regime in terms of an expectation of greater self-motivation and self-direction, this shift in onus representing a major challenge for many¹⁴⁹ as illustrated by the following:

"At first I thought the course would be easier to manage, but as the year went on the work sometimes became out of control"

(Stage 1 student)

"(You are) left to own devices a lot more, less of (a) 'you have to' environment"

(Stage 1 student)

¹⁴⁸ See, for example, Webster's comments on learning as 'transmission' in Section 9.2 of this chapter.

¹⁴⁹ See Section 1.3 in Appendix 1.

"I think it's that I've never been exposed to such material before, so I had to adapt a whole new way of thinking"

(Stage 1 student)

With reference to Webster's quotation above, it is argued that in order to implement effective learner support, it is necessary to acquire a better understanding of what the factors are that constitute the perceived difference. More importantly, were studio-based pedagogy to evolve to truly cultivate learner independence, and it is postulated it must, the change in learning culture is likely to be more comprehensive for many.

The countering of habituated dependencies poses a considerable challenge for tutors, demanding clear strategy and developed skills to be successful, as implied below¹⁵⁰:

"Someone who has got straight 'A's has not got there through independent learning, they have got there by playing the dependency game better than anyone else... so they come here (university), and actually deconstructing that is incredibly difficult because its ingrained, particularly success"

(Till)

Although the general point regarding the dismantling of some established behaviours and ingrained methods of working is appreciated, this quotation is nevertheless strongly challenged when related to the GCE 'A' and 'AS' level specifications which explicitly refer to student choice, critical awareness, wider research, and personal study, all attributes associated with a high level, independent learner.

Coping with the greater levels of responsibility assumed by the student appears to be rapidly exacerbated by the intensity of the workload within the course. Many students appear to struggle in achieving a balance between assignments, time for reflection, and external commitments. Indeed this appeared to be a far greater concern to students than the intellectual demands of the curriculum content, surfacing repeatedly

¹⁵⁰ See also Till's quotation in Section 9.2 of this chapter.

throughout the study. The specific condition of architecture in terms of its intensity and propensity to become all consuming, a characteristic that is the product of staff values and expectations that are rapidly transmitted to students, generates strong views early in the learning experience:

"I think it was a hard adjustment realising that you had to be in for a long time, and once you had done that long day, you still had to go home and do another few hours work"

(Stage 6 student)

"it's not too difficult, but there is so much of it at the moment, that it's just getting on top of it"

(Stage 1 student)

"Found that there was constant pressure with reviews - I do realise that reviews are a critical factor of this course, but think the pressure could be less intense"

(Stage 1 student)

The diversity of personality and levels of motivation in the cohort manifested itself again in student reflections on individual ability to manage responsibility for learning, this representing a vital step on the path to learner independence:

"I enjoy working under my own steam more and also adds some extra responsibility to my life"

(Stage 1 student)

"At times I have been careless and let work build up, which I regret"

(Stage 1 student)

"I went to boarding school so I feel I had a head start as I learned to be independent before I came to university"

(Stage 1 student)

Not only does this set of statements allude to motivation levels, but also to confidence. Indeed, in the case of the last comment, the student

exudes assuredness emanating from his or her prior learning experience and background.

8.10.4 Summary

The results demonstrated that university represents much more than a programme of study, incorporating such factors as the expansion of social networks, and assuming financial independence. It quickly emerged that the most significant factor in managing transition to architecture education was workload as this impacts on both academic and non-academic concerns. Academically, students reported little time to achieve in ways that met their aspirations, as well as little time for reflection. In a course as intensive as architecture, there appears to be a direct correlation between study time and time for other commitments. Lack of clear guidance was found to exacerbate pressures on time and time management, the latter representing a key study skill. Equally, workload intensity and co-ordination across the course were noted as being factors requiring careful consideration and management by tutors. Furthermore, workload can deny external engagement, although equally it can instil a stronger sense of community within the cohort, albeit with the potential for being hermetic. Such a community spirit performs a vital role in terms of peer interaction and collaboration.

The shift of the onus of responsibility for learning onto the individual represents a further significant challenge. It was evident that individuals respond differently, from those who quickly felt 'lost', to those who were liberated by the opportunity. However, the expectation of greater learner independence was found to be contingent on the provision by staff of clearer guidance and essential study skills. Equally, on the part of the student, was need for commitment, motivation, and self-discipline.

8.11 Developing Confidence: The Independent Learner and the Peer Group

8.11.1 Introduction

This section discusses the issue of student confidence viewed over the span of the academic session, drawing principally from student perceptions. As a primary motivator, confidence represents a critical component for the development of learner independence, and the growth of the individual.

8.11.2 The Central Role of Confidence in Independent Learning

"Independent learning is that learning in which the learner, in conjunction with relevant others, can make the decisions necessary to meet the learner's own learning needs" (p.3)

Kesten (1987)

Returning to Kesten's definition above, independent learning is founded on two primary abilities; that of making sound, informed judgements, and the ability to do so with reference to others, including one's peer group, whether as students or qualified professionals. The development of an ability to learn independently occurs over time through a structured process, and is not an immediate or rapid transition that arises naturally or without careful consideration and design of appropriate pedagogies. Central to the ability to form quality judgements is the matter of confidence, without which the individual is likely to retain a dependency in their learning. It is contended therefore that the development of learner confidence is a fundamental first step in the creation of independent learners. The fostering of confidence at an individual and collective level is also key to achieving successful transition from diverse background to architecture education. For these reasons, the study tracked confidence levels in each subject group at key points throughout the first year of the course.

8.11.3 Perceptions of Confidence Levels

Consideration of the findings relating to motivation, transition, and the learning experience has shown that student perceptions of confidence are influenced by a complex array of internal and external drivers, some of which, although highly important, bear no direct relationship to the academic process. At an academic level, factors such as guidance, workload, feedback and deadlines appear to have a significant impact, as do levels of personal motivation, skills, ambition, and engagement in the student. Viewed overall, comparison of the general longitudinal trends in confidence levels revealed a correlation with those relating to perceptions of the challenge in transition, with confidence levels dipping at the points where the challenge is perceived to be greatest as indicated in Figures 36 to 39.

It was evident that confidence levels are not constant across the academic year, and that the mid-point of the session represented a point in which apprehension was prone to increase. When considered against comments made in relation to the learning experience, it can be seen that these points coincide with those where uncertainty is most prominent, and where the call for greater guidance and feedback registers loudest. As has also been discussed, the social dimension of the studio and peer group assumes a role where uncertainty arises, helping to determine a level of collective confidence through dialogue and the derivation of consensus around areas that are unclear and challenging. However, senior students expressed the view that confidence develops over time, citing a combination of rigour and application to one's studies as being significant factors within this process, as well as a personal resilience as intimated in the second statement below:

"My confidence has grown from having a pretty hard time in second year and struggling with the work, and then third year really working. Putting in the hard work has increased my confidence"

(Stage 4 student)

Fig. "(You) definitely (need) a thick skin"

(Stage 4 student)

Nevertheless, confidence levels during the initial weeks of study also relate to the expectation, level of informed-ness, and personality of the individual. In terms of transition and learning support, the extent to which the student feels supported and a sense of belonging to the community will also be of crucial importance, particularly if they have started the course with doubts about suitability or capability. This is demonstrated by a selection of quotations below, the last of which also makes reference the manner of staff-student interaction:

"(I wonder) if I am getting it right and finding a balance and pattern in my life"

(Stage 1 student)

"I am not sure if my work is good enough, if I am good enough"

(Stage 1 student)

Figure 36: Longitudinal Tracking of Confidence Levels: Session 2004-05

2004-05 Stage 1 Group: Longitudinal Tracking of Confidence Levels

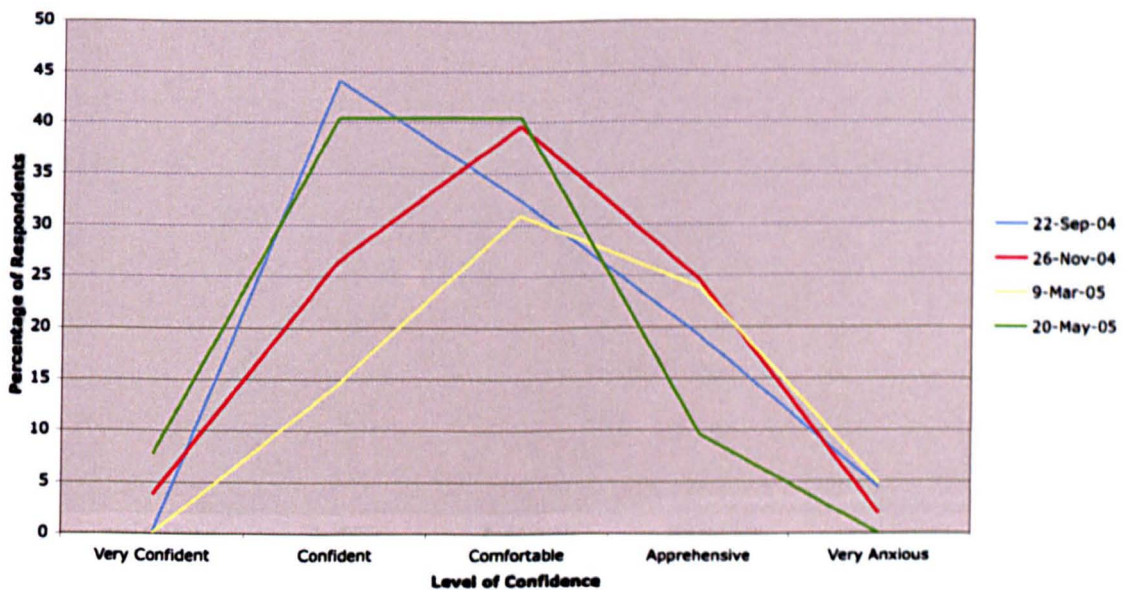


Figure 37: Longitudinal Tracking of Perceptions of Transition: Session 2004-05

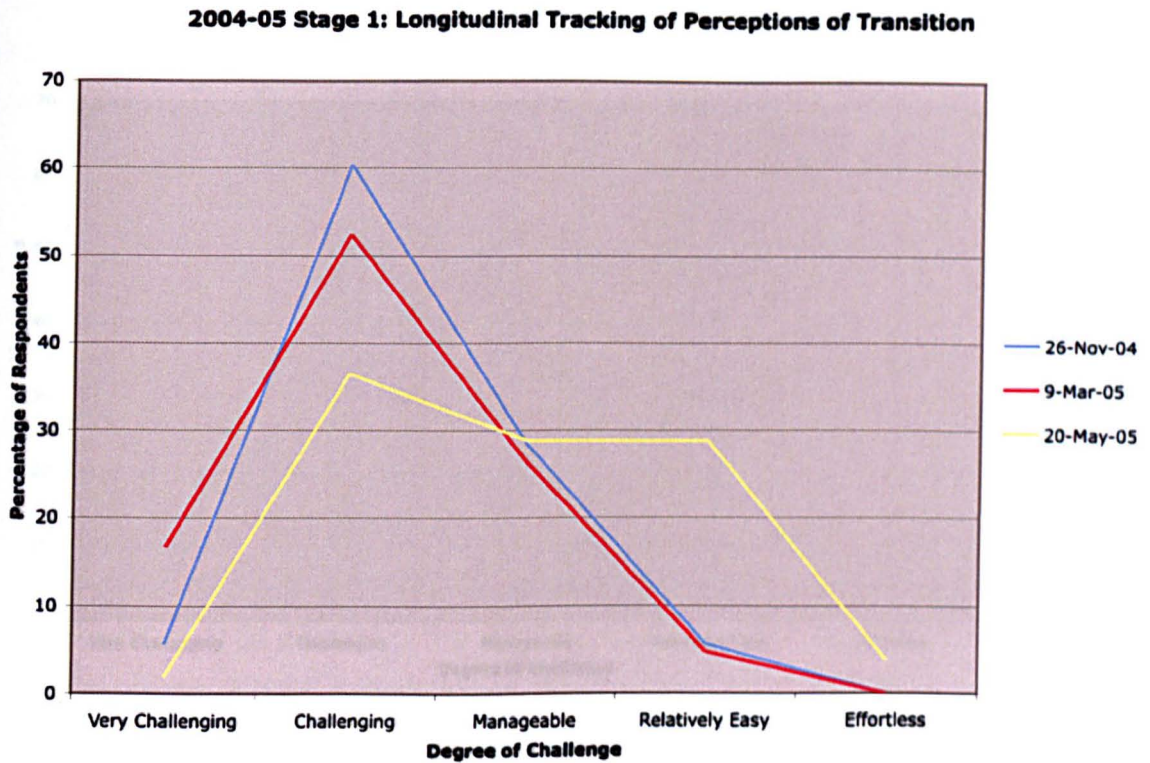


Figure 38: Longitudinal Tracking of Confidence Levels: Session 2007-08

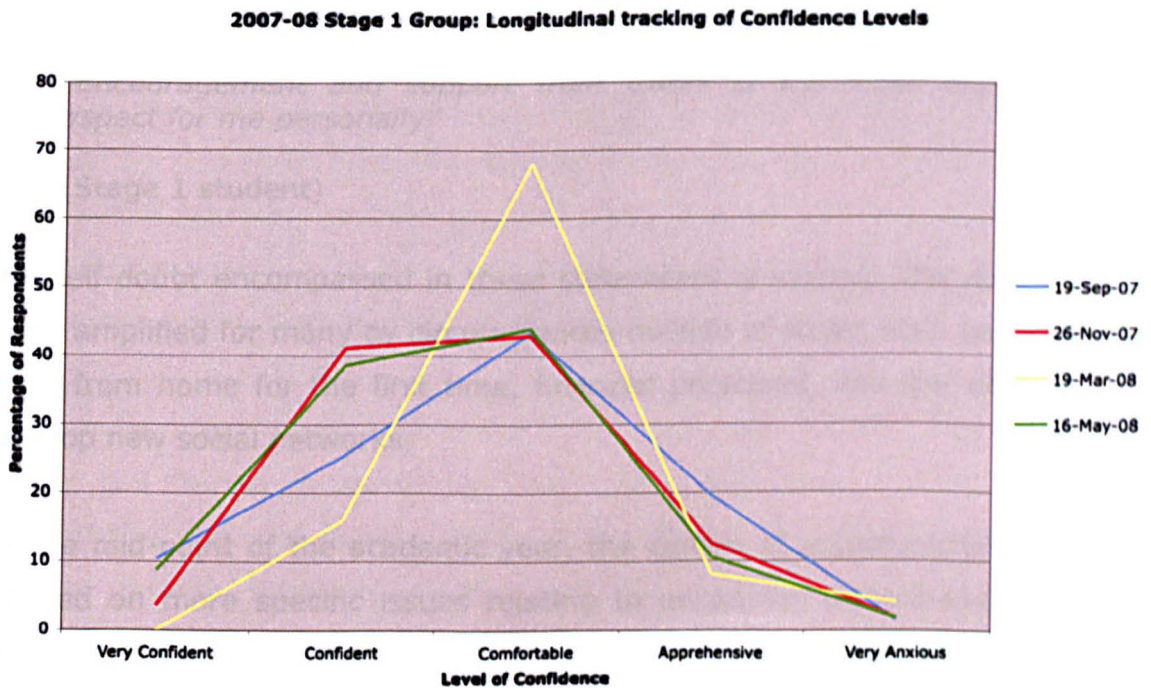
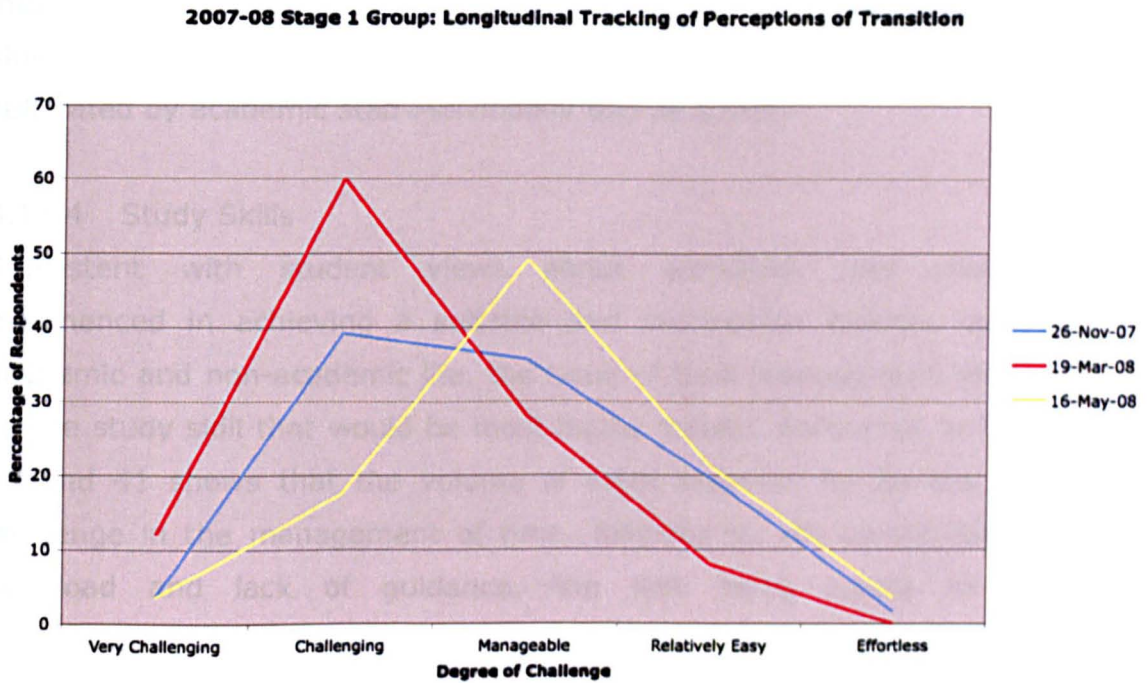


Figure 39: Longitudinal Tracking of Perceptions of Transition: Session 2007-08



"I feel it is a very pressurising course and wish we could be dealt with on a more human level"

(Stage 1 student)

"Encouragement and support from tutors is the most important aspect for me personally"

(Stage 1 student)

The self-doubt encompassed in these statements is evident, this concern being amplified for many by circumstances outside of study, such as living away from home for the first time, financial pressures, and the need to develop new social networks.

By the mid-point of the academic year, the causes of apprehension have focused on more specific issues relating to enhancing understanding of progress and performance, with those expressing doubts about the suitability of the course at the outset presumably having committed to either stay or go by this time. These issues have been discussed already

in some detail¹⁵¹. In addition to the points raised previously, there are a number of other key determinants of academic confidence and independence as a learner, such as the acquisition of necessary study skills and the culture of enthusiasm, stimulation, and encouragement cultivated by academic staff individually and as a team.

8.11.4 Study Skills

Consistent with student views about workload, and challenges experienced in achieving a suitable and sustainable balance between academic and non-academic life, the issue of time management emerged as the study skill that would be most highly valued. Reference to Figures 40 and 41 shows that the volume of work presents by far the major challenge in the management of time, followed by the co-ordination of workload and lack of guidance, the last being issues for staff consideration. It is evidently the view of students that resolution of these last two points would assure them that their efforts are being directed effectively to tasks (as opposed to finding some work redundant through ambiguity and lack of clarity). Specifically, experience of guidance changing during the course of a project, coupled with ineffectual communication, had introduced a negative impression, highlighting the need for careful design of course materials, the need to carefully consider these in the context of the demands of other course components, and crucially to view them from the student perspective as well as that of the academic. Continuing on from this last point, the majority of students did not consider the course to acknowledge the external commitments of students¹⁵², this correlating to the AIAS report.

The significance of this is that failure to do so not only has the potential to render the course exclusive, but also conceivably limits or denies the student the ability to develop other facets of their learning and persona through broader social interaction. Notably, although the studio-based experience represents a new way of working for most, it is clearly not viewed as an inhibitor to the management of time. On the contrary,

¹⁵¹ See also Appendix 1.

¹⁵² 64.3% in Session 2004-05, and 76% in Session 2007-08.

Figure 40: Significant Factors in Time Management: Session 2004-05

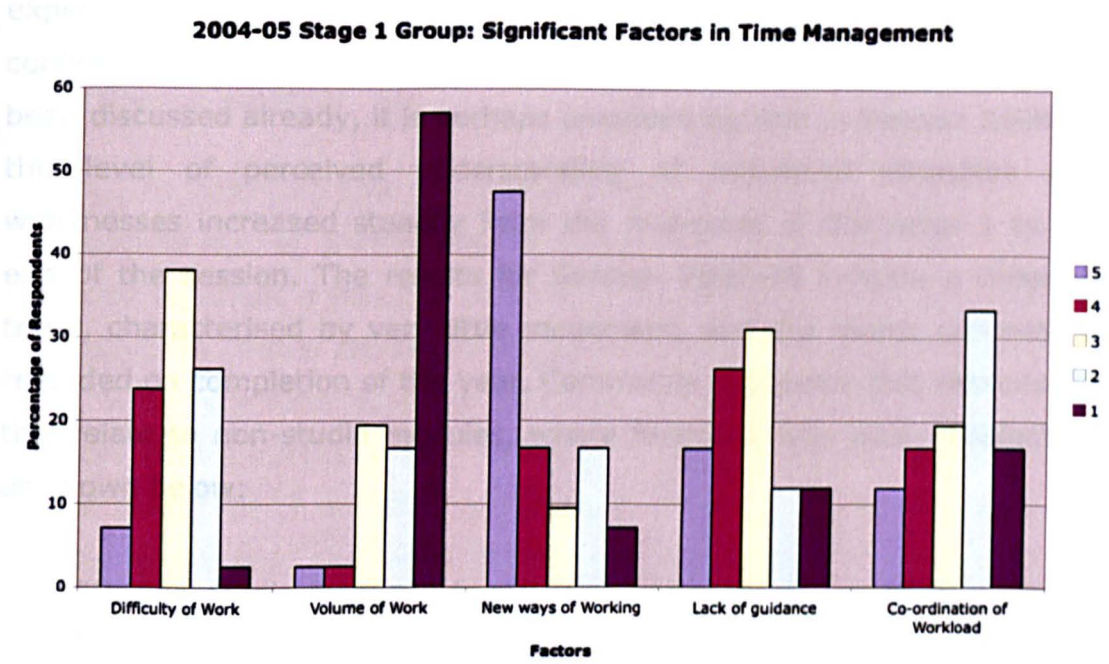
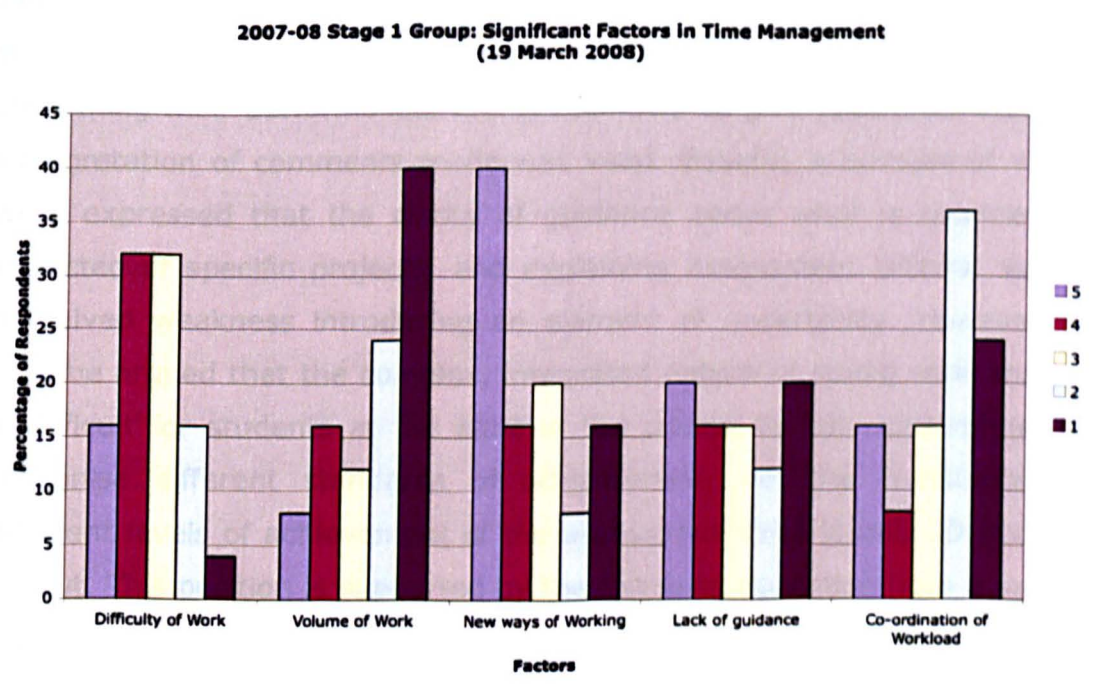


Figure 41: Significant Factors in Time Management: Session 2007-08



despite a few concerns being expressed that the informality and conviviality of studio can offer unwelcome distractions, the resounding view is that it is an enabling aspect of the learning experience¹⁵³.

¹⁵³ Once again, it is acknowledged that whilst responses to the studio environment are generally very positive for a range of reasons, the students lacked a comparator.

Self-awareness of personal progress and development relative to the expectations of academic staff also constitutes an important dimension of confidence. Related to feedback as this is, given the findings that have been discussed already, it is perhaps unsurprising that in Session 2004-05 the level of perceived understanding of individual strengths and weaknesses increased steadily from the mid-point of Semester 1 to the end of the session. The results for Session 2007-08 indicate a different trend, characterised by very little movement, and the lowest percentage recorded on completion of the year. Comments suggested that reasons for this relate to non-studio modules, where feedback was least satisfactory as shown below:

"Design studio feedback is regular and helpful but in other subjects there is little / none"

(Stage 1 student)

Despite this, and referring back to commentary on feedback, many students sought the definitive statement of a mark or grade as a means of confirming their performance, and presumably to give assurance that the interpretation of comments made was valid. Equally, a number of views were expressed that the clarity of guidance about what is required or expected of specific projects, and explaining assessment criteria, was a perceived weakness introducing an element of uncertainty. However, it may be argued that the complex, integrated nature of studio work makes it difficult for students at the start of the course to fully understand or recognise different standards of achievement, i.e. the translation of different levels of achievement of the assessment criteria into 2D and 3D output. This position is supported by the following quotation from a senior student that suggests that full comprehension of design quality is acquired over an extended period:

"For me personally it kind of clicked in 3rd year, but from the beginning, the kind of fundamental basics are pretty well taught."

Accordingly, it is hypothetically conceivable that an alternative learning environment, or approach not identified here nor experienced by the students, could have equivalent validity.

You tend, I think it's probably something that you just kind of learn, through the seven years that you don't really realise that you have learned"

(Stage 6 student)

8.11.5 The Emerging Role of the Peer Group

The coincidence of perceptions of insufficient guidance and intensive workload describes a situation of uncertainty, in which the student desires greater clarity, but is caused to maintain momentum through pressure of work, with very little time for reflection. It was in such conditions of pressure and uncertainty that the peer group was found to perform a further role; that of an informal mechanism for deriving peer consensus on how to proceed, and hence of consensually filling in the gaps in their understanding, or in the information provided. It is evident that the absence of guidance, or the existence of uncertainty, is compensated for by the action of the peer group, enabled by the communal environment of studio:

"There is always somebody there, in the studio, if you are stuck, you know, one of your peers, there is always someone to say - How did you get on? How do you do this?. There is always someone to help you and you can help other people as well"

(Stage 1 student)

Indeed, as has been seen, the importance of the peer group and the role that studio plays in propagating a peer dynamic, is evident. Students who had experienced mentorship from their seniors noted the benefit of this, although it was felt that this requires to be structured to work consistently:

"One thing that I really got a lot out of was the Honours year students... a couple of Honours year students coming round. They really helped"

(Stage 1 student)

It was additionally noted that the peer bonds that form early and which play such a central role in student learning, quickly become deep and enduring:

"As a year group,... we are very close knit now, we can all go and say what we want to each other and we can always ask someone else for help... I think we are very lucky in that we still have studios to be able to call our own"

(Stage 6 student)

Finally, the structured use of the peer group in learning, whilst not new, presents unrealised opportunity in embedding learner independence, although it is important that the student understands the distinction between independence and working in isolation. It was notable that all the academics interviewed considered group work as being of critical importance, principally as a means of reducing power asymmetries and dependencies, and hence in the building of self-assurance amongst students, as alluded to below:

"Once we started to do group tutorials as a system, that didn't dissolve our standards, it shifted us into a new method of teaching, and it was highly productive"

(Till)

Alongside informal peer interaction, the incorporation of group work forms a means whereby social bonds may be reinforced, communication skills honed, and inter-personal tolerances developed. Additionally, benefit can be accrued from the combination of individual skills, broadening perspectives and understanding, and building a collaborative ethos.

Finally, through discussion of a number of different aspects of the learning experience, it has already been shown that the studio and peer interaction within offers an informal setting where these and other matters may be discussed, and it is proposed that peer support facilitated by studio performs a significant role in the development of confidence levels in the cohort. However, as has been discussed, the management of groups and

spatial considerations within the studio is important to minimise the opportunity for cliques to form, and the risk of individuals feeling ostracised or isolated because of the power of the peer dynamic itself.

8.11.6 Learning Strategies

It has already been determined that confidence plays a major role in the construction of knowledge that utilises personal experience. Similarly, the importance of the early establishment of a culture that diminishes learner dependence on tutors, has been noted. It therefore follows that the propagation of confidence as a primary component of a process of progressive independence, requires to be addressed at the outset, building too on Von Glaserfeld's (1989) observation that sustained motivation is highly reliant on confidence, and personal perception of the ability to succeed. An inclusive pedagogy, it is thus argued, should contain explicit recognition of the different backgrounds and individual experiences of the students, giving equivalent opportunity for students with different approaches and dispositions to succeed. Equally, however, consideration should also be given to those inclined to tactically minimise dependency. This is supported by the quotation below, although at face value this statement could be considered highly contentious and in need of amplification or contextualisation:

"One of the things I think is really important in a first year is to run a series of projects which includes projects that some students are going to fail on, and some students are going to succeed on, and then to reverse it. That means that they can't predict a safe route through... it makes them fall back on themselves, and away from dependency"

(Till)

It may be argued that a negative consequence of the strategy described above could be the de-motivation of students, and increased withdrawals from study. Whilst students at the University of Sheffield are uniformly high achievers by national comparators¹⁵⁴, this would not necessarily guarantee motivation, especially if Till's later claim regarding dependency

¹⁵⁴ This statement refers to students at the University of Sheffield, who virtually all enter as very high A-level achievers (as referred to in interview with Professor Till).

is well founded. However, positive interpretation of this resides in what is meant by 'failure'. In constructivist terms, the comment can be understood were 'failure' to be defined as weakness or error. Indeed, realisation of weakness may be construed as positive, provided that it is appropriately presented and sufficiently explained in terms of the overall learning intention or objective. Students are required to understand weaknesses if learning is to be achieved, but perception of failure of a project could serve to deny this experience. This is why aspects of learning, strong and weak, must be presented within the context of the overall learning objective, rather than solely in relation to a project or learning vehicle.

"To build up confidence to be able to stand there and be proud of what you have done almost (sic), and not have the fear of, you know, that they are going to shout at me. You know it is more constructive comments, better feedback, encouragement rather than 'that's wrong'... you know you are not going to build up confidence..."

(Stage 4 student)

This statement speaks of the importance of confidence, and of a sense of achievement and success vital to its formation. Equally, recalling earlier discussion, it conveys the fault of the tutor who communicates failure but neglects to frame or communicate the message appropriately to enable weakness in work to be built on in the learning process.

8.11.7 Summary

The ability to learn independently is developed over time. Equally, the ability to make skilful, informed judgements requires confidence, the development of which represents a fundamental first step in the creation of independent learners. Indeed, as von Glaserfeld (1989) observed, the creation of sustained motivation is reliant on student confidence.

It was found that confidence levels were lowest when perceptions of uncertainty were highest. In terms of academic factors, quality of guidance, feedback, and workload proved most significant. Students also required to acquire a sense of belonging to the community of the cohort.

Indeed, the peer group was found to perform a key role through its innate social interactivity, its function as an informal forum and support network, and in its ability to foster the cementing of strong social bonds.

In summary, from the perspective of pedagogic design, the building of student confidence was found to be founded on a number of factors, including clarity of learning objectives, a sense of belonging, the acquisition of essential study skills such as time management, and an understanding of individual progress.

8.12 Implications for Academic Staff

8.12.1 Introduction

Many of the findings in this study relate to the professional skill and understanding of academic staff as educators in architecture. In the light of the results of the data analysis as referred to in the preceding sections of the chapter, this section identifies the principal implications for academic staff with respect to the development of pedagogies designed to embed independent learning.

8.12.2 Unpacking the 'Black Box'

At the outset of this chapter, the views of academics identified the limitations of teaching staff in terms of their pedagogic understanding, as an impediment to enhancement and change. It follows, therefore, that any strategy for pedagogic change must include staff development as a central strand. This is not to doubt the existence of teams of highly skilled and committed staff in schools throughout the country, and across the globe, but arises out of the fact that the evolutionary path of studio and its learning methods has paid little regard to the underpinning learning, as implied below:

"...people (staff) are not encultured to talk about how they do what they do – they always will talk about what they do, so they'll talk about the projects"

(Boddington)

"I think its true to say that the majority of staff have never been asked to think about their teaching practice and so find it very difficult to... they've never experienced different teaching practices, and so find it very difficult to even think about it, think about other methods"

(Webster)

"the pedagogy is naturalised, we feel its always been there, and its correct, yet we hardly know anything about it at all"

(Webster)

As has been seen, divergence can occur between the educational intention and the practiced reality of teaching methods. It is argued that this is most prevalent in the design studio where knowledge is both indeterminate and constructed, and where the process of 'learning-by-doing' incorporates tacit knowledge. For these reasons, it is argued that the curriculum is not only harder to define and identify for the student, but also for the tutor¹⁵⁵. Indeed, referring to the comments above, could it be that the specific history of studio-based teaching, through which the ubiquitous if not singular paradigm has evolved, has caused knowledge of learning methods to be itself regarded as tacit? The lack of challenge and propensity of even those new to teaching to instinctively replicate traditional models, would certainly appear to support this. The development of the atelier system of the Ecole des Beaux-Arts had the clear intention of training new practitioners in a spirit of apprenticeship, and to acquire skills strictly governed by a prescribed architectural etiquette. In the intervening period, however, not only has the role of the architect evolved, but so too has education entered the academy, broadening its bounds beyond the purely vocational, and embracing a post-modern world of pluralism and ambiguity. In other words the educational intent of 21st century architecture courses has changed. Yet, it is argued, innate interest in the output or 'product' that is the very nature of architecture, coupled with the continued professional focus on competency, has served to support the educational status quo. It is further argued that this tacit dimension has caused the decline of

¹⁵⁵ It is argued that this his phenomenon has typically led to a focus on projects rather than the learning embedded in them.

pedagogic discourse amongst educators, impacting on the progressive development of skills to address changing conditions and contexts.

From a number of perspectives, the study has identified weaknesses and contradictions within many of the teaching methods commonly associated with studio-based design learning. This is particularly true given the prevailing climatic conditions that architecture education exists within, and in the context of Widening Participation and the desire to cultivate independent learners.

8.12.3 Clarifying Learning Intentions

The uncertainty that arose as a result of confusing or inadequate guidance, has been discussed in some detail. Yet as survey results suggest, supported by comments from senior academics, this problem emanates commonly from a lack of clarity in staff. The challenge referred to, and being progressed by Boddington, Till, and Webster in their own institutions, namely that of developing a deeper pedagogic understanding of the learning process, thus appears to form a central plank of any strategy to develop staff skills for embedding independent learning.

8.12.4 Skills for Embedding Independence

The importance that the student peer group assumes has been discussed earlier in this chapter, and it is suggested that further potential exists in this dynamic to enhance learning, for example by diminution of power asymmetries and the enhancement of dialogue. In so doing, and with reference to Kesten's definition, it is proposed that the peer group could be viewed as a valuable resource that performs an instrumental role in independent learning. However, the realisation of potential by building upon and enhancing the peer group dynamic to support critical enquiry and dialogue, and to support learner confidence, would demand the careful management of the peer group by staff. Indeed the absence of appropriate structure and careful management is likely to introduce inter-peer dependencies, 'counter-learners' and obstructive cliques, the latter appearing in the existing informal dynamic. Whereas the 'shoulder-checking' that took place in conditions of uncertainty acted as an indirect

guide, effectively replicating dependency patterns between students and tutors, management of the peer group offers the potential to avoid this phenomenon, encouraging individual thinking and serving as a powerful motivator.

8.12.5 Facilitation of Reflection

The facilitation of reflection, involving bringing tacit learning and knowledge to the consciousness of students and, in doing so, making the design process adopted explicit, is fundamental to effective learning in architecture. With respect to this as a principle, there is little dispute of Schön's analysis. However, when the student comments are viewed through the prism of Goatly's barriers to reflection, it becomes apparent that the actions of tutors can work in opposition to the very phenomena that Schön advocated as models for learning in many fields.

Referring to Goatly's barriers to reflection, issues of workload and available time, and confidence and motivation, represent the salient governing factors. Indeed, Goatly's observations map directly onto those of the students surveyed. Of particular note, the management of workload volume, and hence pressure on the student, is a factor residing wholly within the control of tutors (even though the time management skills of the student play a role in undertaking the prescribed projects).

The issue of confidence and personal motivation was a recurring theme throughout the survey, and it was shown how levels fluctuated as uncertainty increased or diminished over time. The cultivation of confidence can therefore be said to lie at the heart of a pedagogy seeking to nurture independence and embrace the diversity of individuals. Yet, with respect to cultures of destructive criticism, instances of poor feedback, and perceptions of inadequate guidance, it is suggested that tutors typically have much to learn about the impact of their behaviours and actions if reflection is to be truly facilitated.

Evidence also suggests that greater consideration of the time taken for reflection on action is required, and it is suggested that reflective practice

could be enhanced by the integration of exercises that explicitly require evaluation of the processes adopted in design, and the strategies, directions, and decisions contained within.

The issues discussed above imply that common teaching practices may have become distanced from their primary objective, recalling the confusion between project and fundamental learning intention manifest in the results of the survey. Ultimately, of course, the capacity of students to reflect on their work is also contingent on their understanding of the underpinning learning objectives. This reinforces the need for absolute clarity amongst the tutor team, and in the way in which the learning process is communicated by staff, consistently and regularly. Reflection on design decisions made during a project is not sufficient. Rather tutors require to encourage deeper reflection, focusing the student on their individual methodology, the assimilation of diverse factors in the decision-making process, and on the formulation of sound and robust judgements. It is contended that the magnitude of change encapsulated in this shift in emphasis is very significant indeed, representing a major challenge for many. It has been seen that conflicting guidance and behaviour can generate confusion, reinforcing the importance not just of understanding at an individual level, but of the cohesive collective action of tutor teams.

8.12.6 Part-Time and Visiting Staff

The historic and unquestionably beneficial practice of involving practitioners in the learning process also introduces difficulties, particularly with respect to the preceding point. Returning to points raised at the outset of this chapter, it is argued that the apprenticeship origins of studio have instilled a tacit belief that good architects inevitably make good educators and, implicit within this, that the skill set associated with a practicing architect is somehow equivalent to a skilled pedagogue. This fallacy has fundamental implications for staff development as supported below:

"The first thing in staff development is an awareness of the difference (between architect and educator)"

(Till)

However, out of a desire to maintain flexibility, agility, and creativity in the methods used for learning, Till appended the following statement as a cautionary note:

"I have to say I'm a sceptic at the level of formalised instruction of teaching methodologies - I just think that that could kill the whole thing - but I'm not a sceptic about the idea of being aware of the difference, making that explicit... I think that's important"

(Till)

Whilst the adoption of teaching methodologies seeks to ultimately permit flexibility and responsiveness, the ability to do so only reinforces the importance of tutors having a strong grasp of the methodological spectrum. In other words, knowledge and understanding of pedagogic approaches constitutes a tool that enables staff to manage the learning environment, developing methods that suit the different contexts that the students are working in. It is also a tool that facilitates adaptability and modification in response to differing individual need.

In consideration of the conclusions to this thesis, recommendations will be made with respect to the development of strategic priorities for staff development in relation to the findings contained in this chapter.

8.12.7 Summary

Referring back to the initial sections of this chapter, the academics interviewed expressed strong views that the general level of pedagogic understanding amongst architecture teachers, imposes limitations on the development of teaching and learning strategies. It therefore follows that any proposal of pedagogic change should be accompanied by a staff development programme including, importantly, visiting and part-time staff who may be remote from pedagogic discussion within the university,

and who will be habituated through the dominant professional culture and their own learning experience.

The potency of the model for the professional education of architects developed in the Ecole des Beaux-Arts, represents both its strength and weakness. The studio setting that has emerged from these origins clearly possesses many positive attributes, although it is proposed that the dominance of model, coupled with its naturalised pedagogy, has led to a dearth of pedagogic discourse, which in turn hampers its ongoing development to address contemporary conditions.

A number of key areas were identified where staff development is critically important. These include the clear communication of learning intentions and the learning process; the facilitation of reflection incorporating consideration of workload, timing, tutor behaviours, and the nature and delivery of criticism; and strategies for embracing diversity and developing learner confidence.

The peer group was also identified as a valuable resource that performs a pivotal role in the development of independent learning, and which possesses a further unrealised potential, albeit one that would require understanding and careful management to avoid the displacement of dependencies.

8.13 Summary

This section draws together the various strands of the argument developed through the findings. To reiterate, the aim is to make an evidence-based case that the development of the truly independent learner in the discipline of architecture requires the formulation of new inclusive pedagogic strategies that explicitly accommodate the individual in the studio-based learning process, and address identified shortcomings in existing studio-based teaching practices. Importantly, the aim of this research is viewed within the context of the prevailing funding climate in the UK, which continues to exert enormous strains on the traditional studio-based teaching model, the sustainability of which is increasingly

called into question. The techniques and values associated with this model have been 'handed down' through generations of the profession, enabling one to see in contemporary practice, a direct connection to the methods of the Ecole des Beaux-Arts.

Together with the resource context mentioned above, the case for change is founded on a number of factors as follows:

- Increasing challenge of traditional studio-based teaching practices, emanating from within architecture, and based on perceived gaps in understanding about the theoretical basis for these practices, as exemplified by Boddington's assertion that the 'language of pedagogy is alien'.
- A developing understanding of disparities existing between pedagogy as conceived, and phenomena and behaviours as practised.
- A growing critique of Schön's analysis of studio-based teaching and learning, particularly with respect to power asymmetries, and their impact on the value attributed to individual perspectives, the nature of dialogue, and the development of student confidence.

It is argued that perpetuation of the status quo, and failure to objectify the realities of contemporary practice, pose a considerable risk to design studio teaching when considered within the context of increasing numbers, widening participation and inclusivity. It is further argued that embedding independent learning in design studio, incorporating accommodation of the individual, is central to its continued relevance as a vibrant and valued learning setting. Importantly, it is also contended that studio-based teaching, as typically practised, propagates dependencies that run in opposition to notions of the independent learner.

With respect to teaching and learning delivery, the long perspective of hindsight that many staff possess, is inevitably not held in common with students. As a consequence, staff notions of 'cultural loss', as recorded by

Harris (2003)¹⁵⁶, are not generally shared by the student body. Tutors have therefore to be mindful of the need to objectively appraise the learning processes currently being implemented, rather than presenting views borne out of nostalgia (Wigley, 2004)¹⁵⁷. It might be argued that the master-apprentice relationship, with its strongly didactic base, has over time fostered a habituated staff view that is tutor-centric, and perhaps inadvertently weakens consideration of the learning experience from the student perspective. Such a view is itself at odds with the ethos of constructivism, and the notion of the independent learner at liberty to develop his or her own knowledge construct in relation to the established curriculum, built upon existing knowledge and interpretation through personal experience.

Considered overall, the student perceptions discussed in this chapter have demonstrated that studio-based learning has many positive, engaging, and stimulating attributes. However, opinion also clearly identified a number of areas where the learning process requires improvement, these being generally supported by the perspectives of interviewed academics. The exhibited behaviours of conferral and consensual action demonstrated a desire for greater understanding on the part of the student and, by extension, an openness to positive change. This is in opposition to the 'containment' mentality referred to by Boddington that, ultimately, through its intransigence, threatens to undermine the student experience as an educationally effective and sustainable process.

This chapter has demonstrated the diversity in terms of learning styles and multiple intelligences that exist within any cohort, and contends that for any pedagogy to be inclusive, this diversity must be accommodated and supported by the curriculum and its delivery. In a different vein, the results showed a range of student expectations founded on observation and preconception, the acknowledgement of which is central to enhancing engagement and easing the overall process of transition to university

¹⁵⁶ See Chapter 4, Section 4.2.2.

¹⁵⁷ See Chapter 4, Section 4.2.2.

study. Considered in relation to the central tenets of constructivism¹⁵⁸, these diverse cohort properties introduced the notion of the potential of the cohort, or peer group, as a resource that embodies rich and diverse experience and opinion. Referring to Kesten's definition which states the importance of 'relevant others' as a key component of independent learning, it is argued that the peer group could perform a valuable, more central role in the learning process¹⁵⁹; one that harnesses the richness of the collective resource.

Enrolment on an architecture course presented a range of academic and non-academic challenges that were met by a variety of emotions, expectations, and motivations in the student body. For the great majority, the experience of studio as a learning setting was new, although its relative informality and innate sociability found favour with most. Perceptions of the degree of challenge, whilst unsurprisingly diverse, were shown to escalate in situations of increasing uncertainty, highlighting the need for considered and carefully structured guidance, articulation of expectations, and feedback. However, it was found that the dynamic of studio offers a vehicle for peer dialogue and support that, to some extent, alleviates the symptoms of uncertainty by assuming an informal function beyond that of its intended academic purpose. This function, characterised by peer reference as a means of deriving consensual agreement about issues requiring clarity, appears to play a key role in building collective and individual confidence. Given Von Glaserfeld's observation that sustained motivation is highly reliant on confidence, the importance of such a role in creating the independent learner cannot be underestimated.

From the student survey and interviews with academics, it was evident that confusion frequently existed over the intentions of learning, with 'product' being regarded as dominant over process. This was referred to as a 'task-driven' model. Indeed it was suggested that such confusion is

¹⁵⁸ According to constructivism, the formation of new knowledge occurs relative to existing knowledge and experience, involving reflection on individually held knowledge.

¹⁵⁹ 'Independent Learning is that learning in which the learner, in conjunction with relevant others, can make the decisions necessary to meet the learner's own learning needs' (Kesten, 1987, p.3).

typically rooted in the staff, this denying clarity in the student, and establishing the basis for conditions of uncertainty. Such uncertainty may manifest itself, for example, in confusion between designed output or 'product' and learning outcomes, and cement unwelcome dependencies between students and staff. It is therefore clear that tutors require to clarify intention, process, and guidance although, as Raaheim and Wankowski (1981) observed, staff require skills in making learning explicit. Without clarity, the peer group was found to resort to consensual action to agree interpretation of information given, or ways forward. Whilst possessing positive value, this is itself fraught with danger in that it could instil a 'herd mentality' based on misguided assumptions. Such behaviour also reveals the potential for dependencies to merely shift from the student-tutor relationship, to inter-peer bonds. This highlights the need for careful management of the peer group, and the need for the requisite skills and understanding in the tutor team to effect this.

In addition to the structure and purpose of the learning process, students encountered the 'hidden curriculum' comprising the professional values, beliefs and behaviours that are assimilated over time. These aspects represent areas for which dialogue is crucial to gaining an understanding, once again emphasising the importance of peer interaction. The novelty of the subject and learning methods for most, coupled with a lack of acknowledgement of individual difference, quickly led to evidence of 'power asymmetries'. Furthermore, as Biggs (2003) identified, inadequate guidance coupled with heavy workload can militate against the deep learning that forms a sound basis for the independent learner. The notion of power asymmetries is also contingent on the attitude and approach of the tutor, and students were shown to find significant variability between individuals. In particular, the articulation of different viewpoints and perspectives was found to create confusion, this recalling the distinction between project as learning vehicle, and the underpinning learning objective. A common response was for students to seek one-to-one tutorial guidance although, if the fundamental objectives are unclear, there is no certainty that this would give greater clarity. Equally, as

Boddington observed, class size is of little consequence if the individual is not recognised.

From early in the session, perceptions of inadequacy of feedback emerged, the importance of which was accentuated by the indeterminacy of the subject. Lack of clarity regarding both expectation and feedback was found to reinforce uncertainty and hence confidence levels. However, this too was variable, with some developing confidence quickly, whilst self-doubt increasingly crept into the minds of others. The peer group played a role in the informal discussion of progress, and in making comparative judgements about work. Comments were made which stated a preference for peer discussion because it was 'on the same level', free from the inhibitions that power asymmetries can induce. Indeed, the formal adoption of mentoring processes as a means of extending this conversational phenomenon, was suggested as an enhancement, recalling Yurekli and Yurekli's (1995) calls for re-organisation of studio to stimulate dialogue through a spirit of collaboration¹⁶⁰.

It was evident that poor feedback, in terms of timing and / or quality, impeded the central process of reflection, as documented by Schön, and is likely to have led to disengagement. Questions exist about what students perceived to be feedback, although it was unequivocal that the key information sought was a grade, in other words a quantifiable measure that confirmed performance amidst much indeterminate, imprecise, or ambiguous information. Interviewed academics regarded feedback as of pivotal importance, with Till describing efforts to make the feedback process more overt and, critically, placing student participation at the heart of it. Once again, therefore, the role of the peer group as an aid to individual and collective learning was highlighted. Using the cohort, the tutors assume a different kind of authority, and conditions are established that make open dialogue and discourse easier.

¹⁶⁰ See Chapter 4, Section 4.8.

Not only does the process of reflection require constructive, clear input, but it also requires time and personal confidence. The students found the volume of work, and the need to balance study with external commitments, to be particularly problematic, arguably circumstantially favouring some more than others. Together with observations of a culture of criticism without overt encouragement, fatigue from heavy workload represents a significant barrier to reflection (Goatly, 1999). These issues were most clearly expressed in relation to the review.

Alongside workload, the shift in responsibility for learning to the student was found to represent a major challenge, particularly with respect to time management and other fundamental study skills. There was clearly a sense of comfort derived from the fact that the experience and challenge was shared, intensely, and whilst many students commented on the inability to socialise due to workload, this was to some extent compensated for by the sociability of design studio.

Within the context of the independent learner, the perceptions of feedback, reflection, workload, and personal responsibility constitute key determinants of the confidence level of individuals. It is argued that the development of confidence, incorporating the accommodation of the individual, and the creation of a learning environment that invites and accepts diverse individual perspectives, lie at the heart of embedding independent learning in design studio. Independence is developed through managed and structured processes, and it is further argued that the peer group has considerable potential as a primary agent in studio-based learning, echoing Shuell's assertion¹⁶¹ that the actions of students are of greater importance to learning in higher education than those of the tutor. The early establishment of a culture that diminishes tutor dependency is crucial, this demanding clarity of purpose, carefully planned processes, and the reconstruction of traditional tutor roles. In doing so, based on the results of the study, it is contended that studio pedagogy requires to be revised for learner independence to be embedded, and for the potency of

¹⁶¹ See Chapter 4, Section 4.8.

studio as an effective learning setting that embraces the diversity of contemporary learners, to be heightened.

Chapter 9: Conclusions and Recommendations

9.1 Introduction

The assertion that the development of the truly independent learner in the discipline of architecture requires the formulation of new inclusive pedagogic strategies that explicitly accommodate the individual in the studio-based learning process, and address identified shortcomings in existing studio-based teaching practices, necessitated a holistic overview of studio learning incorporating, critically, the perspectives of students engaged in the process. Indeed, the implementation of a methodology that values the views of the student body is entirely consistent with the context of constructivism, which recognises the experiences and opinions of diverse individuals.

This chapter sets out the conclusions of the thesis, together with recommendations for how one might further advance knowledge and understanding in architecture education. Alongside discussion of the limitations of this research, some suggestions for possible future study are also made.

Through the designed structure, involving a detailed review of literature, the design of an appropriate, reliable and valid methodology, and discussion of results and findings, this thesis sets out an argument for the embedding of learner independence in architecture education, with particular respect to design studio.

In constructing a cohesive research aim and argument, the components of the thesis addressed the following areas:

- Chapter 1:** Established the context for contemporary architecture education in the UK.
- Chapter 2:** Summarised the development of current teaching practices from their origins in the Ecole des Beaux-Arts to the present day, and discussed their ubiquity.

- Chapter 3:** Discussed the theoretical model underpinning studio-based teaching practices.
- Chapter 4:** Argued that contrary to intention, many of the practices and behaviours typically adopted in design studio, counter the underpinning intention.
- Chapter 5:** Stated the research aim and objectives.
- Chapters 6 & 7:** Set out the methodology for achieving the research aim and fulfilling the research objectives.
- Chapter 8:** Discussed the research results and findings and, through critical analysis of their content, proffered an argument in accordance with the research aim.

9.2 Conclusions

It is clear from the results of this study that there are many enduring properties and qualities that students recognise and value in studio-based learning in architecture. Nevertheless, based on the evidence presented, the primary conclusion of this thesis is that in order to encourage and embed independent learning, and facilitate student-centred learning in design studio, new pedagogic strategies are required. It is proposed that central to this development is the need to reconstruct the tutor role to one of facilitator, incorporating the development of a new dynamic between tutor and student. Indeed, the results overall support the view expressed by Till that the first year of study is fundamentally an issue of developing an understanding of pedagogy, on the part of both tutor and student. It is further proposed that the peer group has potential to play a pivotal role in developing independent learning, requiring new skills and a significant shift in perspective by staff to regard the peer group as a valuable component of the teaching resource.

This thesis makes the case for reconstructing the tutor role, and for the facilitation of independent learning through inclusive pedagogies in which power hierarchies are diminished. It further concludes that the fundamental role of the first year of study is to impart a clear understanding and sense of ownership of the learning process, as a basis for progressive independence. This demands the development of new tutor skills, and a re-conceptualisation of the tutor role. The nurturing of critical enquiry, reflection, the ability to think and act autonomously, and the management of own learning, all require the construction of new relationships and approaches. Creating the conditions for independent learning is contingent on the engagement and motivation of the individual, including consideration of patterns of working, learning dispositions, and embracing views, experiences and opinions. Equally, the careful management of peer groups necessitates a strong understanding of peer dynamics, individual differences and, above all, the underpinning learning objectives and theory.

The study revealed that existing practices and pedagogies are shown to develop dependencies in students. These dependencies on tutors are constructed or reinforced by lack of clarity of learning intention, confusion over purpose and role of projects in relation to learning outcomes, the nature and quality of feedback, and in terms of what is assessed and valued. It also demonstrated that diversity in learning style and intelligences exists within student cohorts, and that for a pedagogy to be inclusive, this diversity must be understood and explicitly accommodated in the learning process. Inclusivity is fundamental to engendering a sense of belonging in the student, as is the acknowledgement of their personal opinions, views, and experiences. The habituation of reference to others, of formation of judgements that assimilate personal opinion with external views and information gleaned from multiple sources, is key to independent learning, this process cumulatively allowing the student to develop a sense of independence over time. It is argued that the skills required to facilitate the individual construction of knowledge, and to adopt a range of learning support strategies dependent on the individual, demands new skills and understanding on behalf of the tutor. It is also

apparent that confidence plays a significant role in student engagement, and ultimately in learning. Correspondingly, the case is made that the re-evaluation of common behaviours and practices, such as those associated with the review process and a culture of negativity and criticism, require the tutor's ability to contextualise their actions in learning theory in order to comprehend and predict the educational implications.

The study demonstrated that students do learn from one another in studio, recalling the notion of 'relevant others' in Kesten's definition of the independent learner. Indeed, very early in the studio-based learning process, the peer group manifests itself as being a key agent in countering confusion and lack of clarity, in informally developing collective coping strategies, and in acting as a powerful motivator. The peer group therefore has an important role, and considerable untapped potential in terms of a mechanism for learning. However, if not appropriately managed, the risk arises of dependencies simply moving from student to tutor, to student to peer, i.e. the 'blind leading the blind'.

It is therefore concluded that the embedding of independent learning in design studio would be enhanced through development of a peer-centred learning model that constructively exploits diversity as a resource. Such a model has considerable value in the development of independent and critically conscious students and, by extension, professionals. The development of independent learners through the design of pedagogies that take the peer group and peer interaction as a central component in the learning process, represents an effective inversion of the model typically found in studio-based design teaching. The deliberate and structured use of the peer group as a learning vehicle is central to ensuring that issues of reflection and critical enquiry, and confidence are built and developed. Indeed, the managed use of the peer group can serve to diminish power asymmetries, thereby cultivating open dialogue and critical discourse. Conversely, if not used well, the peer group develops the characteristics of Schön's 'counter-learner' through the development of dependencies amongst the students. It has been seen that through the strategic use of the community that studio engenders, both academic and non-academic issues may be supported. The creation

of student networks is critical to the development of dialogue and the sharing of knowledge and opinion, which in turn influences motivation and, crucially, confidence. But it is the breadth of experience and knowledge already embodied within a cohort that holds the key to constructivist learning, provided that it is demonstrably valued and that opportunities to share and discuss are carefully built into the learning programme. Equally, the existence of different learning dispositions offers a tool by which a rich and varied learning experience may be designed; one that engages everyone, and which the entire cohort can own.

9.3 Recommendations

The reconstruction of the tutor role, and the design of pedagogies that consider peer learning as a central plank of how students learn in the future, is recommended. The construction of a learning process that accommodates diverse learners, and which values and utilises the experience and opinion of the individual, necessitates significant attitudinal and behavioural change amongst staff, many of whom have been acculturated into a singular method of teaching that lies some distance from those that foster independent learning. Such change has far-reaching consequences for staff, and their influence on levels of dependency, confidence, and motivation. Utilising the peer group as a tool for developing the independent learner also represents a significant revision of the traditional tutor role. Therefore, in order to implement strategic change to embed independent learning, the primary implications are for academic staff. Specifically, the following pedagogic actions are recommended as priorities to be addressed:

The clarification of the learning process, and the learning intentions for the component parts is crucial to efficient and effective learning, motivation and, critically, to the reflective process. It is vital that tutor teams develop a shared understanding, and are explicit in the communication of process and objectives to students. Central to this affirmation of learning intent is the need to draw a clear distinction between the intended learning of the studio curriculum, and the projects or tasks through which that learning is achieved.

The design and implementation of methods that through curriculum design and delivery identify, accommodate, and embrace diverse learning dispositions, together with the development of the staff skills necessary for implementation. It is suggested that this includes the introduction of methods to develop the self-awareness of the individual tutor, and tutor team, with respect to enhancing understanding of the relationship and dynamic with the student and his or her learning.

The definition of learning methods that facilitate critical questioning and reflection in relation to the defined learning outcomes. Implicit in this is the management of power relationships to cultivate a climate of open dialogue and discourse, a process that could utilise the peer group to build upon and enhance the group dynamic in support of critical reflection and the development of learner confidence. It is also suggested that the introduction of essential study skills, such as time management and prioritisation of workload, as tools to facilitate the personal management of learning, plays a vital role in facilitating reflection and independence.

9.4 Contribution to the Field

"this kind of research allows you to see student experiences through their own eyes, and that's authentic - we tell students all the time what they need, but rarely do we ask them to talk back at us, tell us how they feel, what they need, how scary it is"

(Webster)

The originality of this thesis resides in the fact that it constitutes a holistic study of teaching and learning practices in design studio. This is viewed against the background of rapid change in UK Higher Education. Pivotal to the work was the undertaking of a longitudinal survey of student perceptions, presenting a vitally different perspective from, say, that of Schön. From a holistic standpoint, the study creates the theoretical and evidential basis for the future development of key pedagogic strategies

relating to design studio. This lays the foundation for the development of learning practices that foster learner independence within the context of design studio.

This thesis adopted a holistic approach that, in demonstrating the case for pedagogic change, integrated a number of diverse yet inter-related elements, and which located the student voice at its heart. The demonstration of the need for a holistic re-evaluation of practices in the development of new pedagogic strategies to embed and enhance independent learning, based on evidence that is itself student-centred, constitutes the contribution of this thesis to the field of architecture education.

Viewed against the background of a diminished per capita resource base, the study also identifies the importance of the peer group as a resource in the learning process, leading to propositions about how its fuller potential might be harnessed as an agent for embedding independent learning in design studio. In particular, the finding that the actions of the peer group, if left unmanaged, could prove detrimental to intended learning, is of note, as is the attitudinal shift and skills development necessary to move from a tutor-centric to student-centred learning model.

9.5 Evaluating the Research

The strengths of this research are considered to lie in the nature of its focus, and in its topicality as a subject for analysis and investigation. The undertaking of a longitudinal study that places its primary emphasis on the student perspective represents a valuable contribution to the literature. Furthermore, at a time when many schools of architecture are grappling with a variety of competing pressures and demands, this thesis is timely. The wider interest in higher education in issues such as independent and peer learning, reinforces the topicality and currency of this work, and its relevance to the sector more generally.

The multi-faceted nature of this thesis generated a breadth of investigation, including learning styles theory; Gardner's Multiple

Intelligences; the views of students, and those of selected academics. It is an inevitable limitation of the holistic approach adopted, that the breadth of factors to be considered denied the opportunity to study any single facet in great depth.

With reference to Jung's Theory of Psychological Type, the use of the more elaborate version of the Hanson Silver Learning Styles Inventory that enables characteristics of introversion and extroversion to be ascertained for individuals, would have added a further dimension to the research. Nevertheless, for the purposes of this study, it is evident from the qualitative data gathered by the selected inventory version, that diversity exists within the cohorts studied.

9.6 Suggestions for Further Research

This thesis establishes the theoretical framework and basis for the development of new pedagogic strategies to enhance studio-based learning and embed independent learning in architecture education. In doing so it creates the platform for the development and application of new learning models that adopt alternative existing pedagogies, and it is this that represents an obvious area of further research as a continuation of this study, including the monitoring and evaluation of an implemented strategy.

In addition to the further development of an holistic model, this study also suggested further research related to specific phenomena. For example, with respect to learning styles, it is suggested that a longitudinal study of learning styles in individuals over the duration of an architecture course would be of value in the development of understanding of the relationship between learning styles, assimilation into the educational process, and professional cultures.

Similarly, given the recommendations regarding the development of greater staff understanding of the tutor-student dynamic (see Section 9.3), and of the accommodation of the individual within the learning process, it is proposed that a specific study of the teaching styles of

architecture academics would reveal the existence of any trends that may correlate to the nature of the subject and profession.

9.7 Concluding Remarks

As has been seen, architecture education may be viewed as being characterised by tensions and contradictions. For example, at its heart reside the fundamental differences and divergences between the desires of academia and the demands of the profession or vocation. More specifically, a dichotomy exists between the ubiquitous teaching methods whose roots are in the apprenticeship model of old, and notions of contemporary educational practice. Alternatively, at the level of resource, there is a growing strain between widely adopted studio learning methods and the funding climate that supports them.

The confluence of many conditions at this point in time provides the opportunity for the positive development and enhancement of design studio pedagogy, including the positioning of the student at the centre of the learning process. Indeed it is argued that it is necessary to address the need for change in order to ensure the continued relevance of studio-based learning for the students of tomorrow, to align learning practices with current educational thinking, and to provide clarity of process, purpose and meaning to them as individuals and collectives. Whether as members of the architecture profession, or of wider society, we would all be the beneficiaries of more independent, confident, and resourceful students and practitioners, should this opportunity be seized.

BIBLIOGRAPHY

Abel, C. *Globalism and the Regional Response*. In Pearce, M. and Toy, M. (Eds.) (1995) *Educating Architect*. London: Academy Editions.

Abercrombie, M. L. J., Hunt, S. and Stringer, P. (1969) *Selection and Academic Performance of Students in a University School of Architecture*. Society for Research into Higher Education.

Abramson, M. and Jones, P. (2002) *Keeping Under-Represented Students: A Case Study in Early Engagement*. Proceedings of the 2002 FACE Conference held at the University of Glamorgan. Glamorgan, University of Glamorgan.

Ackerman, E. (1996) Perspective-Taking and Object Construction: Two Keys to Learning. In Y Kafai and M Resnick (Eds.), *Constructionism in Practice: Designing, Thinking and Learning in a Digital World*, Mahwah, NJ: Lawrence Erlbaum Associates.

Adams, E. (1984) Curriculum Development in Art and Design Education: A Personal View. *International Journal of Art and Design Education*, 3(3), 333-345.

Ahrentzen, A. and Groat, L. N. (1992) Rethinking Architectural Education: Patriarchal Conventions and Alternative Visions from the Perspectives of Women Faculty. *Journal of Architectural and Planning Research* 9/2 (summer): 95-111.

AIAS (2008) *Second AIAS Task Force on Studio Culture Report: Towards an Evolution of Studio Culture*. Washington DC: AIAS.

Alcroft, J. (2001) *Illuminative Evaluation for Design Educators Using Critical Trialling*.

Retrieved on 21.10.03 from:

www.lancs.ac.uk/palatine/s-v/presentations/alcroftpaper.htm

Alexander, J. (2007) *Inspiring Tomorrow's Students*. Keynote Speech at HEA Conference held at Harrogate.

Altbach, P.G. (2002). Knowledge and Education as International Commodities: The Collapse of the Common Good. *International Higher Education*, Summer 2002. Retrieved on 05.07.05 from:

http://www.bc.edu/bc_org/avp/soe/cihe/newsletter/News28/text001.htm

Ammann, J. C. (1998). In: Gänshirt, C. *Tools for Ideas: An Introduction to Architectural Design*. Basel, Birkhäuser.

Angus, M. (2003) The Crit. Trigger paper, CEBE Concrete Centre Studio Culture Conference held at St Catherine's College, Oxford University. Oxford, Oxford University.

Anthony, K. H. (1991) *Design Juries on Trial: The Renaissance of the Design Studio*. New York, Van Nostrand Reinhold.

Anthony, K. H. (2002) Designing for Diversity: Implications for Architectural Education in the Twenty-first Century. *Journal of Architectural Education*, **55**(4), 257-267.

Argyris, C. and Schön, D. A. (1974) *Theory in Practice: Increasing Professional Effectiveness*. San Francisco: Jossey-Bass.

Argyris, C. In: Frederickson, M. P. (1992) *Gender and Racial Bias in Design Juries*. In (1992) *Architectural Education: Where We Are*. Proceedings of the 80th Annual Meeting of the Association of Collegiate Schools of Architecture, held at University of California and University of Arizona.

Assessment Qualifications Alliance. (2009) *GCE 'A' and 'AS' Level Specifications*. Retrieved on 24.02.09 from <http://www.aqa.org.uk>

Austerlitz, A., Aravot, I. and Ben-Ze'ev, A. (2002) Emotional Phenomena and the Student-Instructor Relationships. *Design Studies*, **60**(2), 105-115.

Austerlitz, A. and Aravot, I. In: Salama, A. and Wilkinson, N. (Ed.) (2007) *Design Studio Pedagogy: Horizons for the Future*. Gateshead, The Urban International Press, pp.233-246.

Bailey, H. and Brannen, R. (2002) *Creative Dialogues: Connecting the Learning Process and the Creative Process Through Reflection*. Shared Visions LTSN Conference, University of Brighton.

BERA (2004) *Revised Ethical Guidelines for Educational Research*. Southwell: British Educational Research Association.

BERA (2003) *Good Practice in Educational Research Writing*. Southwell: British Educational Research Association.

Bereiter, C. (2000) Keeping the Brain in Mind. *Australian Journal of Education*, **44**(3) 226-238.

Berger, P. L. and Luckmann, T. (1966) *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*. Garden City, New York: Anchor Books.

Berger, P. and Luckmann, T. (1991). *The Social Construction of Reality: A Treatise in the Sociology of Knowledge*. Hammondsworth, UK: Penguin. (Original work published 1966).

Bermudez, J. C. (1992) *Expanding the Horizon of the Profession: Educating for Cultural Diversity*. In *Architecture Education: Where We Are*. Proceedings of the 80th Annual Meeting of the Association of Collegiate Schools of Architecture, held at University of Minnesota, ACSA Press.

Berry, J. (2005) Quantitative Methods in Education Research. Retrieved on 12.12.06 from <http://www.edu.plymouth.ac.uk/resined/Quantitative/quanthme.htm>

Best, J. W. (1970) In: Cohen, L., Manion, L. and Morrison, K. (2000) *Research Methods in Education*. 5th edition. London: RoutledgeFarmer.

Biggs, J. B. In: Jackson B (1995) *Assessment Practices in Art and Design: A Contribution to Student Learning?*, pp.4-5, retrieved on 19.05.04 from In Jackson, B. (1995) *Assessment Practices in Art and Design: A Contribution to Student Learning?* Retrieved on 19.05.04 from <http://www.city.londonmet.ac.uk/deliberations/ocsd-pubs/isclass-jackson.html>

Biggs, J. and Tang, C. (2006) *Teaching for Quality Learning at University*. 3rd edition. Maidenhead, McGraw Hill.

Black, F. M. and Mackenzie, J. (2008) *Peer Support in First Year*. Report for Quality Assurance Agency for Higher Education.

Blanden, M. (2004) Educational Inequality and the Expansion of UK Higher Education. *Scottish Journal of Political Economy*, 51(2), 230-249.

Boot, R. L. and Boxer, P. J. (1980) Reflective Learning. In: Beck, J. and Cox, C. (Eds.) *Advances in Management Education*. London, Wiley.

Borg, W. R. and Gall, J. P. (1979) In: Cohen, L., Manion, L. and Morrison, K. (2000) *Research Methods in Education*. 5th edition. London: RoutledgeFarmer.

Boud, D., Keogh, R. and Walker, D. (1991) *Reflection: Turning Experience into Learning*. London: Croom Helm.

Boud, D. and Walker, D. (1991). In: Hatten, R., Knapp, D. and Salonga, R. (1997) *Comparison With the Concepts of 'The Reflective Practitioner' and 'Quality Assurance'*. Retrieved on 02.11.06 from: www.cchs.usyd.edu.au/arow/reader/rdr.htm

Boyer, E. L. and Mitgang, L. D. (1996) *Building Community: A New Future for Architecture Education and Practice*. Princeton, The Carnegie Foundation for the Advancement of Teaching.

Broad, J. (2006) Interpretations of independent learning in further education. *Journal of Further and Higher Education*, 30(2) May.

Broadbent, G. (1995) Architectural Education. In: Pearce, M. and Toy, M. (Eds.) *Educating Architects*, London, Academy Editions, pp.10-23.

- Brockbank, A. and McGill, I. (1999) *Facilitating Reflective Learning in Higher Education*. The Society for Research into Higher Education and Open University Press.
- Brookfield, S. and Kemmis, S. In: Hatten, R., Knapp, D. and Salonga, R. (1997) Comparison with the Concepts of 'The Reflective Practitioner' and 'Quality Assurance'. Retrieved on 25.10.03 from: www.cchs.usyd.edu.au/arow/reader/rdr.htm
- Brown, H. D. (2000) *Which Stage are Your Students In? The stages of Acculturation*. Retrieved on 17.07.06 from: <http://missioncollege.org/depts/esl/Fac/kashima/page3.htm>
- Brown, A. L. and Campione, J. C. (1996) Psychological Theory and the Design of Innovative Learning Environments: On Procedures, Principles and Systems. In: Schauble, L. and Glaser, R. (Eds.) *Innovations in Learning: New Environments for Education*. Mahwah, NJ: Erlbaum Associates.
- Brown, C., Hedberg, J. and Harper, B. (1994) In Bradford, J., Hart, I. Will, B. *Cognitive Technology in Architecture Education*. Retrieved on 17.02.04 from: www.webtools.cityu.edu.hk/ctl995/hart.htm
- Brown, R. and Moreau, D. (2002) *Finding Your Way in the Dark*, Shared Visions LTSN Conference, University of Brighton.
- Bryman, A. (1988) *Quantity and Quality in Social Research*. London, Routledge.
- Burgess, R. G. (Ed.) (1988) *Strategies of Educational Research: Qualitative Methods*. London: The Falmer Press.
- Burns, C. In: Piotrowski, A. and Williams Robinson, J. (Eds.) (2001) *The Discipline of Architecture*. London, University of Minnesota Press, pp.260-271.
- CABE Research Outcomes: 6. (2004) *Architecture and Race: A Study of Minority Ethnic Students in the Profession*.
- Candy, P. C. (1991) *Self-Direction for Lifelong Learning*. San Francisco, CA: Jossey-Bass Higher and Adult Education Series. San Francisco, California
- Carifio, J. and Everitt, A. (2007) *Further Validation of Hanson's Learning Profile Indicator*. *WORK*, 29(2), 165-174.
- Carpenter, W. J. (Ed.) (1997) *Learning by Building*. New York: Van Nostrand Reinhold.
- Chafee, R. (1977) *The Teaching of Architecture at the Ecole des Beaux-Arts*. In: Drexler, A. (Ed.) (1977) *The Architecture of the Ecole des Beaux-Arts*. Cambridge, MA, MIT Press.

- Chau, M. Y. *Connecting Learning Styles and Multiple Intelligences Theories Through learning Strategies*. Retrieved on 06.06.08 from: <http://libres.curtin.edu.au/libres16n1/Chau.htm>
- Chettiparamb, A. (2008) Diversity in Higher Education: Experiences in the Incorporation of Prior Learning, *CEBE Transactions*, 5(1), 43-70(28).
- Chou, H. W. and Wang, T. B. In: Demirbas, O. M. and Demirkan, H. (2003) Focus on Architectural Design Process Through Learning Styles. *Design Studies*, 24(5) 477-456.
- Ciravoglu, A. (2003) *On the Formal and Informal Studies in Architectural Design*, Aysen Ciravoglu, Yildiz Technical Faculty of Architecture, Istanbul. In: Writings in Architectural Education: EAAE Transaction on architectural education, 15, 58-71, Copenhagen: EAAE, pp.176-187.
- Cohen, L., Manion, L. and Morrison, K. (2000) *Research Methods in Education*. 5th edition. London: RoutledgeFarmer.
- Cook, P. and Hawley, C. In: Chadwick, M. (Ed.) (2004) 'Back to School, Architectural Design, 74(5), 6-12.
- Cormack, S. University of the Future. In: (1999) In Thorne, M. (Ed.) (1999) *Universities in the Future*. London, DTI HMSO, pp.120-127.
- Creswell, J. W. (2003) *Research Design: Qualitative, Quantitative, and Mixed Method Approaches*. 2nd edition. London: Sage Publications.
- Creswell, J. W., Plano Clark, V. L. Gutmann, M. and Hanson, W. (2003). Advanced Mixed Methods Research Designs. In: A. Tashakkori & C. Teddlie (Eds.) *Handbook of Mixed Methods in Social and Behavioral Research*. Thousand Oaks, CA: Sage.
- Crinson, M. and Lubbock, J. (1994) *Architecture: Art or Profession?* Manchester University Press.
- Cross, N. (2006) *Designerly Ways of Knowing*. Basel, Birkhauser.
- Cuff, D. (1991) *Architecture: The Story of Practice*. Cambridge, MA, MIT Press.
- Cunningham, D. In: Connolly, T. M. and Begg, C. E. (2006) A Constructivist-Based Approach to Teaching Database Analysis and Design. *Journal of Information Systems Education*, Spring 2006.
- Curry, L. (1983) An Organisation of Learning Style Theory and Constructs. ERIC Document, 235, 185.
- D'Souza, N. (2007) Design Intelligences: A Case for Multiple Intelligences in Architectural Design. *Journal of Architectural Research*, 1(2), 15-34.

- Davidson, J. (1970) *In: Cohen, L., Manion, L. and Morrison, K. (2000) Research Methods in Education. 5th edition. London: RoutledgeFarmer.*
- de Graaf, E. and Cowdroy, R. (2003) *Theory and Practice of Educational Innovation - Introduction of Problem-Based Learning in Architecture*, retrieved on 02.10.03 from www.ijee.dit.ie/articles/999986/article.htm
- De Graft-Johnson, A., Manley, S. and Greed, C. (2003) *Why Do Women Leave Architecture?* University of the West of England, Report presented to the RIBA. Retrieved 12.10.07 from: <http://www.architecture.com>
- De Vos, A. S. (2002) *In: Schultze, S. (2003) Views on the Combination of Quantitative and Qualitative Research Approaches. Progressio, 25(2), 8-20.*
- Dearing, R. (1997) *Report of the National Committee of Inquiry into Higher Education.* London, HMSO.
- Delage, C. and Marda, N. (1995) Concept Formation in a Studio Project. *In: Pearce, M. and Toy, M. Educating Architects.* London: Academy Editions, pp.64-67.
- Demirbas, O. M. and Demirkan, H. (2003) Focus on Architectural Design Process Through Learning Styles. *Design Studies, 24(5) 477-456.*
- Denig, S. (2004) Multiple Intelligences and Learning Styles: Two Complementary Dimensions. *Teachers College Record, 1069(1), 96-111.*
- Denscombe, M. (1995) *In: Cohen, L., Manion, L. and Morrison, K. (2000) Research Methods in Education. 5th edition. London: RoutledgeFarmer.*
- Denzin, N. and Lincoln, Y. (2005). *Handbook of qualitative research (3rd edition).* Thousand Oaks, CA: Sage.
- Department for Education and Skills (DfES) (2003a) *The Future of Higher Education.* DfES, White Paper, London, Stationery Office.
- Department for Education and Skills (DfES) (2003b), *Widening Participation in Higher Education.* Norwich: The Stationery Office Ltd.
- Deshpande, J. D. (2008) *Restructuring Architectural Education: a review of the curriculum, objectives and outcomes.* Proceedings of Oxford 2008 Conference held Oxford University. Oxford, Oxford University.
- Dewey, J. (1910) *How We Think.* Republished 1997. New York: Prometheus Books.
- Dewey, J. (1998) *Experience and Education.* 60th anniversary edition. PI: Kappa Delta.

- Dinham, S. M. (1987) *Research on Instruction in the Architecture Studio: Theoretical Conceptualisations, Research Problems, and Examples*. Paper presented at the Annual Meeting of the Mid-America College Art Association, New Orleans.
- Duffy, F. (1998) *Architectural Knowledge: The Idea of a Profession*. London: E & F N Spon Press.
- Dutton, T. (Ed.) (1991) *Voices in Architectural Education: Cultural Politics and Pedagogy*. New York, Bergin and Garvey.
- EAAE & CEMBUREAU Pan-European Survey 2001: The Educational Community's Views of Challenges in Architectural Education.
- Egbert, D. D. (1980) *The Beaux-Arts Tradition in French Architecture*. Princeton, NJ: Princeton University Press.
- Eisenman, P. In: Anthony, K. H. *Design Juries on Trial: The Renaissance of the Design Studio*. New York: Van Nostrand Reinhold.
- Eraut, M. (1994) *Developing Professional Knowledge and Competence*. London, Falmer.
- Falchikov, N. (2001) *Learning Together: Peer Tutoring in Higher Education*. London: RoutledgeFalmer.
- Feigenberg, A. (1991) Learning to Teach and Teaching to Learn. In: Dutton, T. A. (Ed.) *Voices in Architectural Education: Cultural Politics and Pedagogy*. New York, Bergin and Garvey, pp.265-278.
- Felder, Richard. (1993) Reaching the Second Tier: Learning and Teaching Styles in College Science Education. *College Science Teaching*, **23**(5), 286-290.
- Felder, R. M. and Silverman, L. (1988) Learning and Teaching Styles in Engineering Education. *Engineering Education*, **78**(7), 674-681.
- Fetterman, D.M. (1987). Ethnographic Educational Evaluation. In: G.D. Spindler (Ed.), *Interpretive Ethnography of Education: At Home and Abroad*. New Jersey: Lawrence Erlbaum Associates, pp.81-106.
- Fielden, J. (2007). *Global Horizons for UK Universities*. London: Council for Industry and Higher Education.
- Fielding, N. G. and Fielding, J. L. (1986) In: Cohen, L., Manion, L. and Morrison, K. (2000) *Research Methods in Education*. 5th edition. London: RoutledgeFarmer.
- Fisher, T. (1999) Patterns of Exploitation. *Progressive Architecture*, May 1991:9.

- Fisher, T. R. (2000) *In the Scheme of Things: Alternative Thinking on the Practice of Architecture*. Minneapolis, University of Minnesota Press.
- Fitzpatrick, R. and Boulton, M. (1994) *In: Meetoo, D. and Temple, B. (2003). Issues in Multi-Method Research: Constructing Self-Care. International Journal of Qualitative Methods, 2(3). Article 1. Retrieved 10.01.08 from: http://www.ualberta.ca/~iiqm/backissues/2_3final/html/meetootemple.html*
- Foucault, M. (1976) *Power and Knowledge*. New York: Pantheon Books.
- Fox, J. and Bartholomae, S. *In: Demirbas, O. M. and Demirkan, H. (2003) Focus on Architectural Design Process Through Learning Styles. Design Studies, 24(5) 477-456.*
- Foxell, S. (Ed.) (2003) *The Professionals' Choice: The Future of the Built Environment Professions*. London, Building Futures.
- Frederickson, M. P. (1992) Gender and Racial Bias in Design Juries. *In: Architectural Education: Where We Are*. Proceedings of the 80th Annual Meeting of the Association of Collegiate Schools of Architecture, held at University of California and University of Arizona.
- Gardner, H. (1993) *Frames of Mind: The Theory of Multiple Intelligences*. 2nd edition. London, Fontana Press.
- Geddes, R. L. and Spring, B. P. (1967) *Study of Education for Environmental Design: The 'Princeton Report'*. Reprinted 1981. Washington DC: AIA.
- Ghuri, P., Grondhaug, K. and Kristainslund, I. (1995) *Research Methods in Business Studies: A Practical Guide*. Hemel Hempstead: Prentice Hall.
- Gibbs, G. (1992) *Assessing More Students*. Oxford: Oxford Brookes University.
- Gilham, B. *In: Hughes, P. (2001) Developing Independent Learning Skills. Implementing Skills Development in HE Conference: Reviewing the Territory. Proceedings of the 2nd Annual Skills Conference, Hatfield, University of Hertfordshire.*
- Giroux, H. A. (1983) *In: Dutton, T. A. (Ed.) (1991) Voices in Architectural Education: Cultural Politics and Pedagogy*. New York, Bergin and Garvey.
- Goatly, R. (1999) Developing Skills in Reflection. Dept. of Health and Social Care, Hatfield, University of Hertfordshire.
- Gredler, M. E. (1997) *Learning and Instruction: Theory into Practice*. 3rd edition. Upper Saddle River, NJ: Prentice-Hall.

- Greenbank, P. (2006) The Evolution of Government Policy on Widening Participation, *Higher Education Quarterly*, **60**(2), 141-166.
- Greene, J. C., Caracelli, V. J. and Graham, W. F. (1989) Toward a conceptual framework for mixed-method evaluation designs. *Educational Evaluation and Policy Analysis* **11**, 255-74.
- Groat, L. and Wang, D. (2002) *Architectural Research Methods*. New York: John Wiley and Sons Inc.
- Gronlund, N. E. (1985) In: Cohen, L., Manion, L. and Morrison, K. (2000) *Research Methods in Education*. 5th edition. London: RoutledgeFarmer.
- Guignon, A. (1998). *Multiple Intelligences: A Theory for Everyone*. Retrieved on 13.10.05 from http://www.education-world.com/a_curr/curr054.shtml
- Gutman, R. (1988) *Architectural Practice: A Critical View*. New York, Princeton Architectural Press.
- Habermas, J. (1971). *Knowledge and Human Interest*. Boston: Beacon.
- Habraken, N. J. To Tend a Garden – Thoughts on the Strengths and Limits of Studio Pedagogy. In: Salama, A. and Wilkinson, N. (Eds.) (2007) *Design Studio Pedagogy: Horizons for the Future*, Gateshead, The Urban International Press, pp.11-20.
- Hammersley, M. and Atkinson, P. (1983) In: Cohen, L., Manion, L. and Morrison, K. (2000) *Research Methods in Education*. 5th edition. London: RoutledgeFarmer.
- Hanson, J. R. (1996) *A Comparative Analysis of Learning Style Methods*. In: Silver, H. F. and Hanson, J. R. (1998) *Learning Styles and Strategies*. 3rd edition. NJ: Tenton, The Thoughtful Education Press.
- Harbeson, J. F. (1927) *The Study of Architectural Design*. New York, The Pencil Points Press, Inc.
- Harden, R. M. and Crosby, J. (2000) AMEE Guide No. 20: The Good Teacher is More Than a Lecturer: the Twelve Roles of the Teacher. *Medical Teacher*, **22**(4), 334-347.
- Hardin, M. C. (1992) *The Cultural Immersion of the Beginning Design Student: Transmission of Social Values*. Proceedings of the 80th Annual Meeting of the Association of Collegiate Schools of Architecture held at Arizona State University.
- Harris, P. (2003) *Ambition and Realisation in Architecture*. Retrieved on 02.10.03 from: <http://www.sh.plym.ac.uk/eds/ethos/flexiblelearning/definitions/ambition.html>

- Harvey, L. and Drew, S. with Smith, M. (2006) *The First-Year Experience* [online]. York: The Higher Education Academy. Retrieved on 12.11.07 from:
http://www.heacademy.ac.uk/assets/york/documents/ourwork/research/literature_reviews/first_year_experience_full_report.pdf
- Hathaway, R. S. (1995) In: Schultze, S. (2003) Views on the Combination of Quantitative and Qualitative Research Approaches. *Progressio*, **25**(2), 8-20.
- Hatten, R., Knapp, D. and Salonga, R. (1997) *Action Research: Comparison with the Concepts of 'The Reflective Practitioner' and 'Quality Assurance'*. Retrieved on 04.10.06 from:
<http://www.cchs.usyd.edu.au/arow/reader/rdr.htm>
- Hawley, C. (2004) In: Chadwick, M. (Ed.) (2004) Back to School. *Architectural Design*, **74**(5), 6-12.
- Hede, A. (2003) A Critical Review of Learning Styles in Higher Education. Working Paper, **6**(2), 03/2 University of the Sunshine Coast, Queensland.
- Henderson, G. and Till, J. (2007) In: Parnell, R., Sara, R. Doldge, C. and Parsons, M. *The Crit: An Architecture Student's Handbook*. 2nd edition. Oxford, Elsevier, pp.
- Heneghan, T. In: Chadwick, M. (Ed.) (2004) Back to School. *Architectural Design*, **74**(5), 6-12.
- Heylighan, T. In: Chadwick, M. (Ed.) (2004) 'Back to School, Architectural Design, **74**(5), 6-12.
- Heylighen, A., Bouwen, J. E. and Neuckermans, H. (1999) Walking on a Thin Line: Between Passive Knowledge and Active Knowing of Components and Concepts in Architectural Design. *Design Studies*, **20**(2) 211-235.
- Higgs, J. (2001) In: Schultze, S. (2003) Views on the Combination of Quantitative and Qualitative Research Approaches. *Progressio*, **25**(2), 8-20.
- Hirst, P.H. (1973) Liberal Education and the Nature of Knowledge'. In: Knowledge and the Curriculum, Routledge & Kegan Paul, London, pp.16-29.
- Hitchcock, G. and Hughes, D. (1989) In: Cohen, L., Manion, L. and Morrison, K. (2000) *Research Methods in Education*. 5th edition. London: RoutledgeFarmer.
- Holec, H. (1979) *Autonomy and Foreign Language Learning*. Oxford: Pergamon

- Hughes, P. (2001) *Developing Independent Learning Skills*. Implementing Skills Development in HE Conference: Reviewing the Territory. Proceedings of the 2nd Annual Skills Conference, Hatfield, University of Hertfordshire.
- Ilozor, B. D. (2006) Balancing Jury Critique in Design Reviews. *CEBE Transactions*, **3**(2), 52-79(28).
- Jackson, B. and Marsden, D. *Education and the Working Class: Some General Themes Raised by a Study of 88 Working-Class Children in a Northern Industrial City, 1946-1960*.
- Jackson, P. (1991). In: Anthony, K. H. *Design Juries on Trial: The Renaissance of the Design Studio*. New York: Van Nostrand Reinhold.
- James, R. (2001) *Students' Changing Expectations of Higher Education and the Consequences of Mismatches with the Reality*. OECD-IHME Conference held at Queensland University of Technology. Brisbane, Queensland University of Technology.
- James, W. B. and Blank, W. E. (1993) Review and Critique of Available Learning-Style Instruments for Adults. *New Directions for Adult Education*, Jossey-Bass, **59**(Fall):47-57.
- James, W. B. and Maher, P. A. (2004) *Using and using Learning Styles*. In: M. W. Galbraith (Ed.) (2004) *Adult learning methods: A guide for effective instruction*. 3rd edition. Malabar, FL: Krieger.
- James, W. B. and Blank, W. E. (1993) Review and Critique of Available Learning-Style Instruments for Adults. *New Directions for Adult Education*, **59**(Fall), 47-57.
- Jensen, E. (1996) *Completing the Puzzle: The Brain-Compatible Approach to Learning*. Del Mar: California, The Brain Store, Inc.
- Kasworm, C. E. (1997) *Adult Meaning Making in the Undergraduate Classroom*, Paper presented at the American Education Research Association, Chicago, Illinois.
- Keefe, J. W. (1979) Learning Style: An Overview. In: Keefe, J. W. (Ed.) *Student Learning Styles: Diagnosing and Prescribing Programs*. Reston, VA. National Association of Secondary School Principals. pp.19-26.
- Kellogg, C. (2004) *An Overview Report: The Studio Culture Summit*. Report of AIAS Summit held at University of Minnesota.
- Kesten, C. (1987). *Independent Learning*. Regina, Sask.: Saskatchewan Education.
- Knowles, M. (1975) *Self-directed learning: a guide for learners and teachers*. Chicago: Follett Publishing Co.

- Knox, H. and Wyper, J. (2008) *Personalisation of the First Year*. Report for Quality Assurance Agency for Higher Education.
- Koch, A., Schwensen, K. Dutton, T. A. and Smith, D. (2002) *AIAS Studio Culture Task Force Report*. Washington DC: AIAS.
- Koestler, A. (1964) *The Act of Creation*. London, Penguin Non-Classics.
- Kogan, M. and Hanney, S. (2000) *Reforming Higher Education*. London: Jessica Kingsley Publishers.
- Kolb, D. A. (1984) *Experiential Learning: Experience as the Source of Learning Development*. Englewood Cliffs, NJ: Prentice-Hall.
- Kolb, DA., Boyatzis, RE. & Mainemelis, C. (2001) Experiential learning theory: previous research and new directions. In: RJ. Sternberg & L. Zhang (Eds.) *Perspectives on Thinking, Learning and Cognitive Styles*. Mahwah, N.J., LEA.
- Kostof, S. (Ed.) (1977) *The Architect: Chapters in the History of the Profession*. London: University of California Press Limited.
- Krause, L. B. (2003) *An Investigation of Learning Styles in General Chemistry Students in How We Learn and Why We Don't*. 4th edition. Custom Publishing.
- Krause, K-L., Hartley, R. James, R., and McInnes, C. (2005) *The First Year Experience in Australian Universities: Findings from a Decade of National Studies*, Centre for the Study of Higher Education, University of Melbourne. Melbourne, University of Melbourne.
- Kreuger, R. A. (1988) In: Cohen, L., Manion, L. and Morrison, K. (2000) *Research Methods in Education*. 5th edition. London: RoutledgeFarmer.
- Kvale, S. (1996) *Interviews*. London: Sage Publications.
- Lackney, J. (1999) *A History of the Studio-Based Learning Model*. retrieved on 21.09.04 from: www.edi.msstate.edu/studio.htm
- Lambert, D. and Lines, D. (2000) *Understanding Assessment*. London: Routledge.
- Lamberth et al., 1978; Lawrence, 1982; Myers & McCaulley, 1985 In: Wicklein, R. C. and Rojewski, J. W. (1995) The Relationship Between Psychological Type and Professional Orientation Among Technology Education Teachers. *Journal of Technology Education* 7(1), 57-74.
- Lawrence, A. and Sharag-Eldin, A. (2000) *Reconstructing Models of Studio Pedagogy in Response to Models of Emerging Professional Practice*. Proceedings of the ACSA 88th Annual meeting, Los Angeles.
- Lawson, B. (1997) *How Designers Think: The Design Process Demystified*. 3rd edition. London: Architectural Press.

- Lawson, B., Bassanino, M., Phiri, M. and Worthington, J. Intentions, Practices and Aspirations: Understanding Learning in Design. *Design Studies*, 24(4), 327-339.
- LeCompte, M. and Preissle, J. (1993) In: Cohen, L., Manion, L. and Morrison, K. (2000) *Research Methods in Education*. 5th edition. London: RoutledgeFarmer.
- Ledewitz, S. (1985) Models of Design in Studio Teaching. *Journal of Architectural Education*, 38(2), 2-8.
- Levitt, A. (2003) A Designer's Guide to the Resources of the Psyche, in *Writings in Architectural Education*, European Association for Architectural Education Transaction on Architectural Education, No. 26, 132-147.
- Lincoln, Y. S. and Guba, E. G. (1985). *Naturalistic Inquiry*. Beverly Hills, CA: Sage.
- Longden, B. (2006) An Institutional Response to Changing Student Expectations and Their Impact on Retention Rates. *Journal of Higher Education Policy and Management*, 28(2), 173-187.
- MacDonald, K. M. (1995) *The Sociology of the Professions*. Thousand Oaks: Sage.
- McGonigal, E. (2005) *The Largest First Year in the UK - Size Matters*, Trigger paper at CEBE Concrete Centre Studio Culture Conference held at the Royal College of Art. London, Royal College of Art.
- McLaren, P. L. (1999) *Schooling as a Ritualised Performance*. New York: Roman and Littlefield.
- McLaren, P. L. In: Webster, H. (2004) Facilitating Critically Reflective Learning: Excavating the Role of the Design Tutor in Architectural Education. *Art, Design and Communication in Higher Education*, 2(3), 101-111.
- McLuhan, M. (1964) *Understanding Media: The Extensions of Man*. New York: Mentor.
- McKeachie, W. J. (1992) In: Nicol, D. and Pilling, S. (2000) *Changing Architectural Education: Towards a New Professionalism*. London, E & F N Spon Press.
- McNamara, C. (1999) *General Guidelines for Conducting Interviews*. Minnesota. Retrieved on 09.01.09 from: <http://208.42.83.77/evaluatn/interview/htm>
- McPartland, I. (2003) Overview: What Do We Mean by Reflective Learning? Retrieved on 18.09.03 from: http://liveweb.livjm.ac.uk/lid/ltweb/ldu_14/annex1_02.htm

Marda, N. In Oxman, R. (1999) Educating the Designerly Thinker. *Design Studies*, 20(2), 105-122.

Mark, M. M. & Shotland, R. L. (1987) *Alternative Models for the use of Multiple Methods*. In: Mark, M. M. & Shotland, R.L. (Eds.), *Multiple Methods in Program Evaluation: New Directions for Program Evaluation* 35. San Francisco: Jossey-Bass, pp.95-100.

Martin, L. (1958) Conference on Architectural Education. *Architects' Journal* 127, 22 May, 772-777.

Marton, F. and Säljö, R. (1995) In: Jackson, B. *Assessment Practices in Art and Design: A Contribution to Student Learning?* Retrieved on 19.05.04 from: <http://www.city.londonmet.ac.uk/deliberations/ocsd-pubs/islass-jackson.html>

Marx, M. and Hillix, W. In Lawrence, A. and Sharag-Eldin, A. (2000) *Reconstructing Models of Studio Pedagogy in Response to Models of Emerging Professional Practice*. Proceedings of the ACSA 88th Annual meeting, Los Angeles.

Meetoo, D. and Temple, B. (2003) *Issues in Multi-Method Research: Constructing Self-Care*. *International Journal of Qualitative Methods*, 2(3). Article 1. Retrieved 10.01.08 from: http://www.ualberta.ca/~iiqm/backissues/2_3final/html/meetootemple.html

Mezirow, J. and Associates. (1990) *Fostering Critical Reflections in Adulthood: A Guide to Transformative and Emancipatory Learning*. San Francisco, CA: Jossey-Bass.

Miles, M. B. and Huberman, A. M. (1994) *Qualitative Data Analysis*. London: Sage Publications.

Millward, L. (1995) Focus Groups. In: Breakwell, G., Hammond, S. and Fife-Schaw, C. (Eds.) *Research Methods in Psychology*. London: Sage Publications.

Miller, T. W., Bender, B. E. and Schuh, J. H. & Associates (Eds.) (2005) *Promoting Reasonable Expectations: Aligning Student and Institutional Views of the College Experience*, San Francisco: Jossey-Bass.

Milliner, L. (2003a) *Architectural Education; Studio Culture*. Keynote paper, CEBE Concrete Centre Studio Culture Conference held at St Catherine's College, Oxford University. Oxford, Oxford University.

Milliner, L. (2003b) *Architecture and Higher Education: Long Term Opportunities and Interface with the Profession*, RIBA Council Discussion paper, London, RIBA.

RIBA Education Statistics 2007-08 (2008). Mirza and Nacey Research Ltd.

Molholt, P. and Peterson, T. (1993) Art and Architecture Thesaurus in Communicating About Visual Art. *International Journal of Knowledge Organisation* 20(1). In: Wingham, I. (2002) 'Border Crossing' (1) - In *Between Theory and Practice*. Retrieved on 18.09.03 from: www.shef.ac.uk/uni/academic/AC/archst/research/educat/aee/papers/p3a/p3a.html

Monge, G. 1794 In: Pfammater, U. (2000) *The Making of the Modern Architect and Engineer*. Basel, Birkhauser.

Moon, J. (1999) *Reflection in Learning and Professional Development*. London: Kogan Page.

Morrison, K. R. B. (1993) In: Cohen, L., Manion, L. and Morrison, K. (2000) *Research Methods in Education*. 5th edition. London: RoutledgeFarmer.

Morrow, R. (2000) Architectural Assumptions and Environmental Discrimination: The Case for More Inclusive Design in Schools of Architecture. In: Nicol, D. and Pilling, S. (Eds.) *Changing Architectural Education: Towards a New Professionalism*. London, E & F Spon Press, pp.43-48.

Morrow, R. et al (2003) *Building Clouds Drifting Walls: The University of Sheffield School of Architecture Year One Design Studio: A Critical Appraisal*. Bank of Ideas.

Morrow, R. (2007) Creative Transformations: The Extent and Potential of a Pedagogical Event. In: Salama, A. and Wilkinson, N. (Eds.) *Design Studio Pedagogy: Horizons for the Future*. Gateshead, The Urban International Press, pp.269-284.

Mouton, J. and Marais, H. C. (1990) In: Schultze, S. (2003) Views on the Combination of Quantitative and Qualitative Research Approaches. *Progressio*, 25(2), 8-20.

Munby, B. M. (2008) *Innovations in the studio: experiments distilling peer discussion and learning using diagrams*. In: Roaf S & Bairstow A (Eds.) *The Oxford Conference: A re-evaluation of education in architecture*, Southampton: WIT Press, pp.105-108.

Nicol, D. and Pilling, S. (Eds.), (2000) *Changing Architectural Education: Towards a New Professionalism*. London, E & F Spon Press.

Ochsner, J. K. (2000) Behind the Mask: A Psychoanalytical Perspective on Interaction in the Design Studio. *Journal of Architectural Education*, 53(4), 194-206.

Oppenheim, A. N. (1992) In: Cohen, L., Manion, L. and Morrison, K. (2000) *Research Methods in Education*. 5th edition. London: RoutledgeFarmer.

- Ostroff, T. (2006) *Demographic Data Analysis Affirms Anecdote and Perception*. Retrieved 08.09.07 from:
<http://www.aia.org/aiarchitect/thisweek06/0210/0210divstudyfinal.cfm>
- Oxman, R. (1999) Educating the Designerly Thinker. *Design Studies*, **20**(2), 105-122.
- Oxman, R. (2004) Think-Maps: Teaching Design Thinking in Design Education. *Design Studies*, **25**(1), 63-91.
- Ozgur Dinand, M., Ozgur Zaim, E. and Ozgur, B. (2003) *Ever-Changing Sketches of Learning*. Retrieved on 22.12.03 from:
www.shef.ac.uk/uni/academic/A-C/archst/research/educat/aee/papers/p5a/p5a.htm
- Palermo, G. In: Boyer, E. L. and Mitgang, L. D. (1996) *Building Community: A New Future for Architecture Education and Practice*. Princeton, The Carnegie Foundation for the Advancement of Teaching.
- Pallasma, J. In: Ciravoglu, A. (2003) *On the Formal and Informal Studies in Architectural Design*, Aysen Ciravoglu, Yildiz Technical Faculty of Architecture, Istanbul. In: *Writings in Architectural Education: EAAE Transaction on architectural education*, 15, 58-71, Copenhagen: EAAE, pp176-187.
- Parnell, R. (2001) *Its Good to Talk: Managing Disjunction Through Peer Discussion*, Architectural Education Exchange (AEE) Conference held at Cardiff University, Cardiff.
- Parnell, R. (2002) *Knowledge and Arrogance: Educating for Collaborative Practice*. Sheffield, UK, EAAE 2001-2002, 58-71.
- Parnell, R., Sara, R. with Doidge, C. and Parsons, M. (2007) *The Crit: An Architecture Student's Handbook*. 2nd edition. Oxford: Elsevier.
- Patton, M. Q. (1980) *Qualitative Evaluation Methods*. Beverley Hills: Sage Publications.
- Pearce, M. and Toy, M. (1995) *Educating Architects*. London: Academy Editions.
- Perkins, D., Jay, E. and Tishman, S (1993) Beyond Abilities: A Dispositional Theory of Thinking. *Merrill-Palmer Quarterly*, **39**(1), 1-21.
- Pfammater, U. (2000) *The Making of the Modern Architect and Engineer*. Basel, Birkhauser.
- Piaget, J. 1972, *The Psychology of Intelligence*, New Jersey: Totowa.
- Polanyi, M. (1966) *The Tacit Dimension*. New York, Anchor Books.

Polhemus, L., Swan, K., Danchak, M. and Assis, A. (2005) A Method for Describing Learner Interaction with Content, *Journal of the Research Center for Educational Technology*, 1(2).

Pollard, A. (2002) *Readings for Reflective Teaching*. Continuum International Publishing Group Ltd.

Portland Public Schools (1998) The Acculturation of Language Minority Learners: Implications for Teachers. *Language and Culture Bulletin*, 1(2).

Pressman, A. (1993) *Architecture 101: A Guide to the Design Studio*. New York, John Wiley and Sons, Inc.

Raaheim, K. and Wankowski, J. (1981) *Helping Students to Learn at University*. Bergen, Norway: Sigma Forlag.

Ramsden, P. (1992) In: Balfour, J. A. D. (2007) Some Light at the End of the Feedback Tunnel? *CEBE Transactions*, 4(2), 54-66(13).

Rapoport, A. (1984) There is an urgent need to reduce or eliminate the dominance of studio. *Architectural Record*, 178(12), 100-103.

Rautupor, J. and Vaisenen, P. (2001) *Non-Traditional Students at University: a Follow-Up Study of Young and Adult Students' Orientations, Satisfaction and Learning Outcomes*, European Conference on Educational Research (ECER), held at Universite Charles de Gaulle, Lille. Lille, Université Charles de Gaulle.

Report of the Steering Group on Architectural Education / RIBA London: RIBA,
1992 Chairman: Richard Burton.

Report of the Committee on the Oxford Architectural Education Conference. *RIBA Journal*, 67 November 1959, 4-18.

Riding, R., Rayner, S. (1998), *Cognitive Styles and Learning Strategies: Understanding Style Differences in Learning and Behaviour*, David Fulton, London.

Riding, R. and Cheema, I. (1991) Cognitive Style: an Overview and Integration. *Educational Psychology*, 11(3-4), 193-215.

Roberts, A. (2001) *Cognitive Style and Architectural Education*. In: Graff, M. (Ed.) Proceedings of the 6th Annual Conference of the European Learning Styles Information Network (ELSIN), held at the University of Glamorgan.

Roberts, A. (2003) *The Studio As A Stretched Field*. Trigger paper, CEBE Concrete Centre Studio Culture Conference held at St Catherine's College, Oxford University.
Oxford, Oxford University.

- Roberts, A. (2004) Problem Based Learning and the Design Studio. *CEBE Transactions*, 1(2),1-3(3).
- Roberts, A., Pearce, M., Lieberman, O. and Matsika, W. (2006) *The Development of Values in the Studio: A Hidden Curriculum?* Proceedings of the 2006 CSAAR Conference held at the National School of Architecture, Rabat, Morocco.
- Roberts, A. (2007) *Predictors of Future Performance in Architectural Design Education. Educational Psychology*, 27(4), 447-463.
- Roberts, A. (2007) Giving Effective Feedback to Students in Architecture and landscape Architecture. *CEBE Briefing Guide Series*, No.10. Retrieved on 14.12.07 from <http://www.cebe.heacademy.ac.uk/publications/briefguides/list.php>
- Robinson, S. (2007) Peer Assisted Learning within Architecture: the Methods and Benefits. *CEBE Transactions*, 4(2), 43-53(11).
- Robotham, D. (1999) The Application of Learning Style Theory in Higher Education Teaching. Retrieved on 24.06.04 from: www.chelt.ac.uk/gdn/discuss/kolb2.htm
- Rogers, C. (1969) In: Boot, R. L. and Boxer, P. J. (1980) Reflective Learning. In: Beck, J. and Cox, C. (Eds.) *Advances in Management Education*. London, Wiley.
- Rolfe, H. (2002) Students' Demands and Expectations in an Age of Reduced Financial Support : the perspectives of lecturers in four English universities. *Journal of Higher Education Policy and Management*, 24(2), 171-182.
- Rooney, M. J. (2005) *The Last Stand for Architecture*. Trigger paper at CEBE Concrete Centre Studio Culture Conference held at the Royal College of Art. London, Royal College of Art.
- Salama, A. (1995) *New Trends in Architectural Education: Designing the Design Studio*. Raleigh, North Carolina: Tailored Text.
- Salama, A. and Wilkinson, N. (Eds.) (2007) *Design Studio Pedagogy: Horizons for the Future*, Gateshead, The Urban International Press.
- Sara, R. (2002) The Pink Book. In: Harder, E. (Ed.) *Writings in Architectural Education: EAAE Transaction on Architectural Education*, 15, 58-71, Copenhagen: EAAE.
- Savin-Baden, M. (2001) In: Parnell, R. *Its Good to Talk: Managing Disjunction Through Peer Discussion*, Architectural Education Exchange (AEE) Conference held at Cardiff University, Cardiff.
- Schön, D. A. (1983) *The Reflective Practitioner: How Professionals Think in Action*. Aldershot: Ashgate Publishing Limited.

- Schön, D. A. (1985) *The Design Studio: An Exploration of its Traditions and Potential*. London, RIBA Publications Ltd.
- Schön, D. A. (1987) *Educating the Reflective Practitioner: Toward and New Design for Teaching and Learning in the Professions*. San Francisco: Jossey-Bass.
- Schultze, S. (2003) Views on the Combination of Quantitative and Qualitative Research Approaches. *Progressio*, **25**(2), 8-20.
- Shaffer, D. W. and Resnick, M. (1999) Thick Authenticity: New media and Authentic Learning. *Journal of Interactive Learning Research*, **10**(2), 195-215.
- Shaffer, D. W. (2003) *Portrait of the Oxford Design Studio: An Ethnography of Design Pedagogy*, WCER Working Paper No. 2003-11. Retrieved on 11.02.04 from: <http://www.wcer.wisc.edu/>
- Shaul, R. (1991) In: Dutton, T. A. (Ed.) (1991) *Voices in Architectural Education: Cultural Politics and Pedagogy*. New York, Bergin and Garvey.
- Shaw, J., Brain, K., Bridger, K., Foreman, J. and Reid, I. (2007) *Embedding Widening Participation and Promoting Student Diversity*, HEA, retrieved on 29.05.05 from: http://www.heacademy.ac.uk/assets/York/documents/resources/publications/embedding_wp_business_case_approach_july07.pdf
- Shearer, C. (1994) *The Validation of the Hillside Assessment of Perceived Intelligence: A Measure of Howard Gardner's Theory of Multiple Intelligences*. American Educational Research Association, Washington DC.
- Sherry, A. and Groat, L. Rethinking Architectural Education: Patriarchal Conventions and Alternative Visions from the Perspectives of Women Faculty. *Journal of Architectural and Planning Research* **9**/2 (summer), 95-111.
- Silver, H. F. and Hanson, J. R. (1998) *Learning Styles and Strategies*. 3rd edition. Trenton, NJ, The Thoughtful Education Press.
- Silver, H. F., Strong, R. W. and Perini, M. J. (1997) Integrating Learning Styles and Multiple Intelligences. *Educational Leadership*, **55**(1), 22-27.
- Silver, H. F., Strong, R. W. and Hanson, R. J. (2000) *Learning Preference Inventory User's Manual*. Trenton, Silver Strong & Associates.
- Silver, H. F., Strong, R. W. and Perini, M. J. (2000) *So Each May Learn: Integrating Learning Styles and Multiple Intelligences*. Alexandria, Virginia: ASCD.
- Silverman, D. (1993) In: Cohen, L., Manion, L. and Morrison, K. (2000) *Research Methods in Education*. 5th edition. London: RoutledgeFarmer.

- Silverman, L. K. and Freed, J.N. (1996). Strategies for the Visual-Spatial Learner. *The Dyslexic Reader*, 4(Winter). Retrieved on February 2005 from <http://www.dyslexia.com/library/silver1.htm/what>
- Silverman, L. K. (2002) *Upside Down Brilliance: The Visual Spatial Learner*. New York, DeLeon Publishing Inc.
- Skolnik, M. L. (1998) Higher Education in the 21st Century. In: Thorne, M. (Ed.) *Universities in the Future*. London, DTI HMSO, pp.43-68.
- Smith, A. and Webster, F. Changing Ideas of the University. (1999) In: Thorne, M. (Ed.) *Universities in the Future*. London, DTI HMSO, pp.43-68.
- Sodersten, K. (2003) *Does Reflection Really Make Students Better Designers?* Paper at Design & Research AASA, Melbourne.
- Spencer, J. and Childs, P. (2001) *Making the transition to higher education : law students' first thoughts*. Retrieved on 19.09.03 from: www.ukcle.ac.uk/lili/2001/spencer.html
- Spradley, J. P. (1979). *The Ethnographic Interview*. New York: Holt, Rinehart, and Winston.
- Stansfield Smith, C. (1999) *Review of Architectural Education: Architecture Education for the 21st Century*. London: RIBA
- Stead, N. (2003) *Producing Critical Thinkers, Designing Critical Objects: Re-Examining the Role of Critique in Architectural Education*, Paper presented at the Design & Research AASA conference, Melbourne.
- Steele, B. In: Chadwick, M. (Ed.) (2004) Back to School. *Architectural Design*, 74(5), 6-12.
- Stevens, A. (1994) *Jung: A Very Short Introduction*. Oxford: Oxford University Press.
- Stevens, G. (1998), *The Favored Circle: The Social Foundations of Architectural Distinction*. Cambridge, MA, MIT Press.
- Stewart, D. W. and Shamdasani, P. N. (1990) *Focus Group: Theory and Practice*. New Park, CA: Sage Publications.
- Sudman, S. and Bradman, N. M. (1982) *Asking Questions: A Practical Guide to Questionnaire Design*. San Francisco, CA: Jossey-Bass Inc.
- Teymur, N. (1992) *Architectural Education: Issues in Educational Practice and Policy*. London, ?uestion Press.
- Thomas, L., May, H. Harrop, H. Houston, M. Knox, H. and Lee, M. F. Osborne, M. Pudner, H. and Trotman, C. (2005) *From the Margins to the Mainstream: Embedding Widening Participation in Higher Education*. UUK/SCOP.

- Thomsen, J. P. (2006) *Young Peoples Choice of Higher Education - Sociocultural or Individual Strategies?* Paper presented at NYRIS Conference, Stockholm.
- Thorndike, E. L. In: Lawrence, A. and Sharag-Eldin, A. (2000) *Reconstructing Models of Studio Pedagogy in Response to Models of Emerging Professional Practice*. Proceedings of the ACSA 88th Annual meeting, Los Angeles.
- Till, J. (2004) *Contingent Realities*. Keynote paper at CEBE Concrete Centre Studio Culture Conference held at Edinburgh College of Art. Edinburgh, Edinburgh College of Art.
- Till, J. (2005) *Lost Judgement*. EAAE Writings on Architectural Education (EAAE, Copenhagen), Vol 2, 2005, pp164-183.
- Tinto, V. (1993) *Leaving College: Rethinking the Causes of Student Attrition*, 2nd edition. Chicago: University of Chicago Press.
- Travar, L. A. and Radford, A. D. (2003) *Studio Culture: Experiments in Design Learning*. paper, CEBE Concrete Centre Studio Culture Conference held at St Catherine's College, Oxford University. Oxford, Oxford University.
- Tucker, R. (2008) Learning Style Drift: Correlation between Built Environment Students' Learning Styles and the Learning Styles of their Teachers. *Journal for Education in the Built Environment*, 3(1), 68-79.
- Usher, R. (1997). *Adult Education and the Post-modern Challenge*. London: Routledge.
- Usher, R., Bryant, I. And Johnston, R. (2001) Self and Experience in Adult Education. In: Harrison, R., Reeve, F., Hanson, A. and Clarke, J. (Eds.) *Supporting Lifelong Learning: Perspectives on Learning and Teaching*. London: The Open University.
- Vesely, D. In: Chadwick, M. (Ed.) (2004) Back to School. *Architectural Design*, 74(5). London: Academy Editions, 63-66.
- von Glaserfeld, E. (1989) Constructivism in Education. In: Husen, T. and Postlewaite, N. (Eds.) *International Encyclopaedia in Education [Suppl.]*, (pp.162-163). Oxford, England: Pergamon Press.
- Vowles, H. (2000) *The 'Crit' as a Ritualised Legitimation Procedure in Architectural Education*. In: Nicol, D. and Pilling, S. (Eds.), *Changing Architectural Education: Towards a New Professionalism*. London, E & F Spon Press.
- Vygotsky, L. (1986) *Thought and Language*. Revised edition. Cambridge, MA, MIT Press.

- Waks, L. J. (2001) Donald Schön's Philosophy of Design and Design Education. *International Journal of Technology and Design Education*, **11**, 37-51.
- Weaver, N. (1997) *Atelier Principle in Teaching*. Paper delivered at Project Based Learning Conference, held at University of Roskilde, Denmark.
- Webster, H. (2000) Establishing and Managing a Student Learning Contract: A Diploma in Architecture Case Study. In: Nicol, D. and Pilling, S. (Eds.) *Changing Architectural Education: Towards a New Professionalism*. London, E & F Spon Press, pp.201-210.
- Webster, H. AEE (2001) *The Design Diary: Promoting Reflective Practice in the Design Studio*. Paper at Architectural Education Exchange (AEE) Conference held at Cardiff University, Cardiff.
- Webster, H. (2004) Facilitating Critically Reflective Learning: Excavating the Role of the Design Tutor in Architectural Education. *Art, Design and Communication in Higher Education*, **2**(3), 101-111.
- Webster, H. (2007) The Analytics of Power: Re-Presenting the Design Jury. *Journal of Architectural Education*, **60**(3), 21-27.
- Webster, R. (2002) *Metacognition and the Autonomous Learner: Student Reflections on Cognitive Profiles and Learning Environment Development*, ICED Conference held at Edith Cowan University. Perth, Edith Cowan University.
- Weisberg, R. W. In: Morrow, R., Parnell, R. and Torrington, J. (2004) Reality versus Creativity. *CEBE Transactions*, **1**(2), 91-99(9).
- Wenger, E. (1998) *Communities of Practice: Learning, Meaning, and Identity*. Cambridge University Press.
- White, R. (2000) The Student-Led 'Crit' as a Learning Device. In: Nicol, D. and Pilling, S. (Eds.), (2000) *Changing Architectural Education: Towards a New Professionalism*. London, E & F Spon Press.
- Winfre, Yaffe, in Rautuporp, Vaisenen, 2001, *Non-Traditional Students at University : a Follow-Up Study of Young and Adult Students' Orientations, Satisfaction and Learning Outcomes*, European Conference on Educational Research, held at Strathclyde University, Glasgow.
- Wicklein, R. C. and Rojewski, J. W. (1995) The Relationship Between Psychological Type and Professional Orientation Among Technology Education Teachers. *Journal of Technology Education* **7**(1), 57-74.
- Wigley, M. In: Chadwick, M. (Ed.) (2004) Back to School. *Architectural Design*, **74**(5), 13-23.
- Wilkin, M. (2000) Reviewing the Review: An Account of a Research Investigation of the 'Crit'. In Nicol, D. and Pilling, S. (Eds.) *Changing*

Architectural Education: Towards a New Professionalism. London, E & F Spon Press, pp.100-107..

Williams Robinson, J. (2001) *The Form and Structure of Architectural Knowledge: From Practice to Discipline*. In: Williams Robinson, J and Piotrowski, A. *The Discipline of Architecture*. Minneapolis: University of Minnesota Press, pp61-80.

Wilson, N. and McLean, S. (1994) In: Cohen, L., Manion, L. and Morrison, K. (2000) *Research Methods in Education*. 5th edition. London: RoutledgeFarmer.

Wingham, I. (2002) 'Border Crossing'(1) - *In Between Theory and Practice*. Retrieved on 18.09.03 from:
www.shef.ac.uk/uni/academic/AC/archst/research/educat/aee/papers/p3a/p3a.html

Winnicot, D. W. (1971) *Playing and Reality*. London, Tavistock / Routledge.

Worthington, J. *The Changing Context of Professional Practice*. In: Nicol, D. and Pilling, S. (Eds.) (2000) *Changing Architectural Education: Towards a New Professionalism*. London, E & F N Spon Press, pp.27-40.

Worthington, J. In: Foxell, S. (Ed.) (2003) *The Professionals' Choice: The Future of the Built Environment Professions*. London, Building Futures, pp.8-9.

Yanar, A. (2007) *Knowledge, Skills, and Indoctrination in Studio Pedagogy*. In: Salama, A. and Wilkinson, N. (Ed.) (2007) *Design Studio Pedagogy: Horizons for the Future*. Gateshead, The Urban International Press.

Yatmo, Y. A. and Atmodiwirjo, P. (2003) *Learning Through Everyday Experience*. Paper presented at Design & Research AASA conference, held at University of Indonesia.

Yinger, R. J. and Villar, L. M. (1986) *Studies of Teachers' Thought I Action*. In: Dinham, S. M. (1987) *Research on Instruction in the Architecture Studio: Theoretical Conceptualisations, Research Problems, and Examples*. Paper presented at the Annual Meeting of the Mid-America College Art Association, New Orleans.

Yorke, M. (2000) *Smoothing the Transition into Higher Education: What Can be Learned From Student Non-Completion?* *Journal of Institutional Research*, 9(1).

Yorke, M. and Longden, B. (2007) *The First Year Experience in Higher Education in the UK: Report on Phase 1 of a project funded by the Higher Education Academy*. London, HEA.

Youngman, M. B. (1984) *In: Cohen, L., Manion, L. and Morrison, K. (2000) Research Methods in Education. 5th edition. London: RoutledgeFarmer.*

Yung, H. C. *In: Chadwick, M. (Ed.) (2004) Back to School. Architectural Design, 74(5). London: Academy Editions, pp.87-90.*

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APPENDIX 1:

DATA ANALYSIS: FINDINGS FROM QUESTIONNAIRES AND GROUP INTERVIEWS

1.1 Introduction

This appendix presents the analysis of the data gathered by means of the series of questionnaires and group interviews detailed in the methodology in Chapters 6 and 7.

1.1.1 Method

The combination of questionnaires and group interviews used in gathering the data for this study generated a considerable volume of material, both qualitative and quantitative. In considering the analytical process, the desire to capture the richness inherent in this data emerged as a key priority and ambition both in terms of the analytical process, as well as the presentation of the findings.

Due to the inter-relationship between the questionnaires and the group interviews¹⁶², and with a view to presenting an engaging discussion format, findings are presented thematically, the themes corresponding to the principal areas identified in the summary of the literature review¹⁶³. Details of the coding structure are shown at the end of this Appendix.

1.1.2 Coding / Excel

In order to process the data, full transcripts of the group interviews were prepared, and the text coded in accordance with coding categories derived from consideration of the literature review and research aim. This coding structure was also used to categorise the qualitative data within the questionnaire responses, and the learning diary entries.

The collation of qualitative material combined with the need to show trends arising from the longitudinal studies through the questionnaires,

¹⁶² See Chapters 6 and 7: Methodology for Achieving Objectives

¹⁶³ See Chapter 5: Summary of Literature Review and Research Aim

meant that there was little advantage in using advanced analytical tools such as 'SPSS' or 'NVivo'. These were considered in designing the methods of analysis, but were ultimately disregarded in favour of the simple processing capabilities of Microsoft 'Excel'. Templates were devised for each questionnaire, designed to tabulate all quantitative data, whilst simultaneously capturing remarks and comments made. The qualitative material was then coded as per the group interviews, and particular entries highlighted for possible inclusion in the analysis. Tabulated quantitative data was used to produce a range of graphs and figures illustrating relevant trends and profiles.

The volume of material produced necessitated the determination of criteria to govern what is used and what is discarded. The first criterion related to the need for data to be of generic relevance, avoiding material that might adversely affect interpretation and generalisation due to their specificity. Where appropriate, connections are drawn between observations arising from the data and points raised by the literature review, or referred to in the interviews with other schools of architecture. Secondly, the selection of material to represent a balanced view in terms of the range of comments made as well as the relative weighting of perceptions and viewpoints as determined by the frequency of their occurrence. Thirdly, whilst strictly observing the first two criteria, qualitative material was selected for inclusion in the text due to the succinctness, clarity, or vibrancy of the quotation, and its potential to contribute powerfully to the discussion.

Whilst the characteristics of the subject groups may be considered typical of architecture cohorts nationally¹⁶⁴, in order for the results to have broader validity the course must also be typical of architectural provision both in terms of its curriculum and modes of delivery and assessment.

¹⁶⁴ The subject groups were judged to be typical of architecture students nationally, based on consideration of the following:

- Entrance qualifications for the Scott Sutherland School broadly correspond to those in other schools.
- The data gathered from the subject groups bear a strong correlation to the issues raised in the literature.
- The External Examination process in the UK serves as a benchmarking processes across the sector.

The compliance of the courses with the prescribed criteria for UK Architecture Education, the QAA Subject Benchmark, and the External Examiner process which invites comparability with standards, methods, and resource levels nationally, form the core of the justification for this.

1.1.3 Course Under Consideration

As the programme has three undergraduate accredited courses in architecture, each of the questionnaires identified the course on which each respondent was enrolled. However, at the analysis stage, given that the first two years of the curriculum are shared in their entirety, the tutor support is shared, as is the learning environment, the decision was made to view the respondents as a whole rather than three separate cohorts separated solely by the title of their award. It is acknowledged that the award title has the potential to influence aspects of motivation to study, although all three courses are promoted as accredited architecture courses each designed to serve a need within the architectural profession. Thus, the understanding of prospective students is of a suite of closely related courses all geared primarily towards the architecture profession.

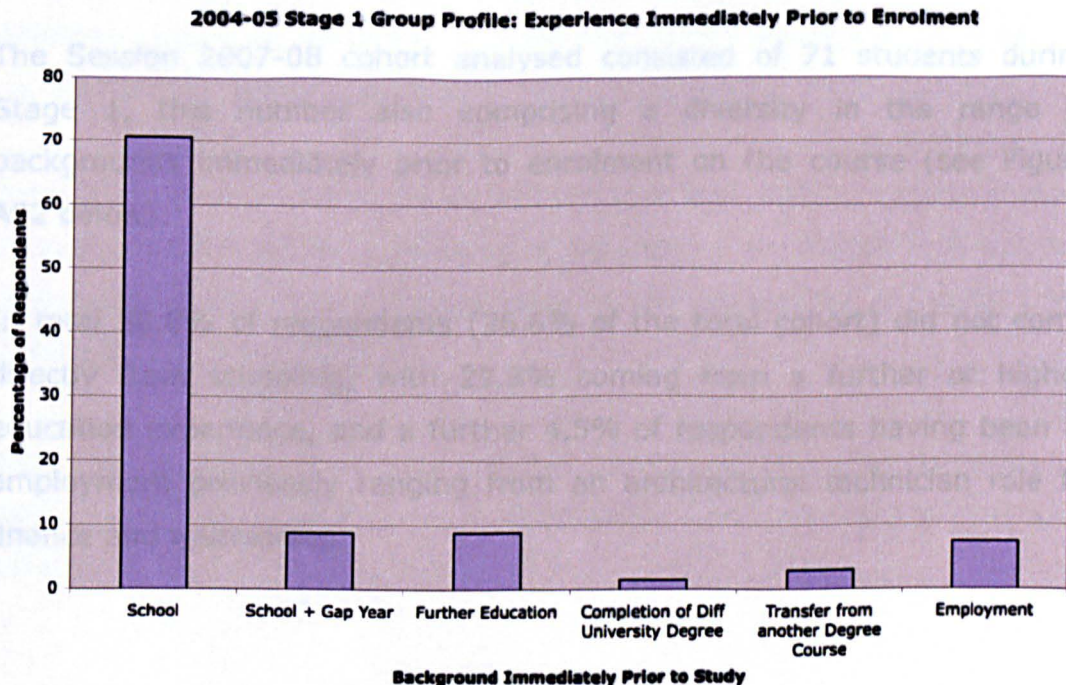
From knowledge of organisation within the school from which the subject groups came, the author was aware of very particular circumstances that had occurred within the architecture courses during Session 2007-08, and which were likely to register in the material gathered during this time. Observations relating to these circumstances have been omitted as they are not representative of the normative conditions being discussed within the study.

1.2 The Nature of the Subject Groups

1.2.1 Introduction

Whilst this study seeks to make observations of generic relevance and application, the selected subject groups nevertheless possess particular collective characteristics, as with any similar research project. This study involved the longitudinal tracking of two subject groups in academic sessions 2004-05 and 2007-08. The methods used to gather data are detailed in Chapter 6 and 7, and the findings arising from the data gathered will be discussed in detail in this chapter. However, prior to this discussion, it is necessary to present the characteristics of the two subject groups in order to understand their specific composition and constitution. The Questionnaire 01, issued on the day of induction into the course, i.e. the very first day of attendance at the university, gathered information on the cohort including prior educational experience, exposure to the subject or profession, and motivations and aspirations.

Figure A01: Experience Immediately Prior to Enrolment: Session 2004-05¹⁶⁵



¹⁶⁵ All graphs in Appendix A1 relate to data gathered from Stage 1 students.

1.2.2 Group Composition

The Session 2004-05 cohort consisted of 87 students during Stage 1 (i.e. the period of the survey), this number comprising an experiential diversity in terms of activity undertaken immediately prior to enrolment on the course as demonstrated in Figure A01 above. In total 29.4% of respondents (23% of the total cohort) did not come directly from schooling, with 13.3% coming from a further or higher education experience, and a further 7.3% of respondents having been in employment previously ranging from graphic design to gardening and nursing.

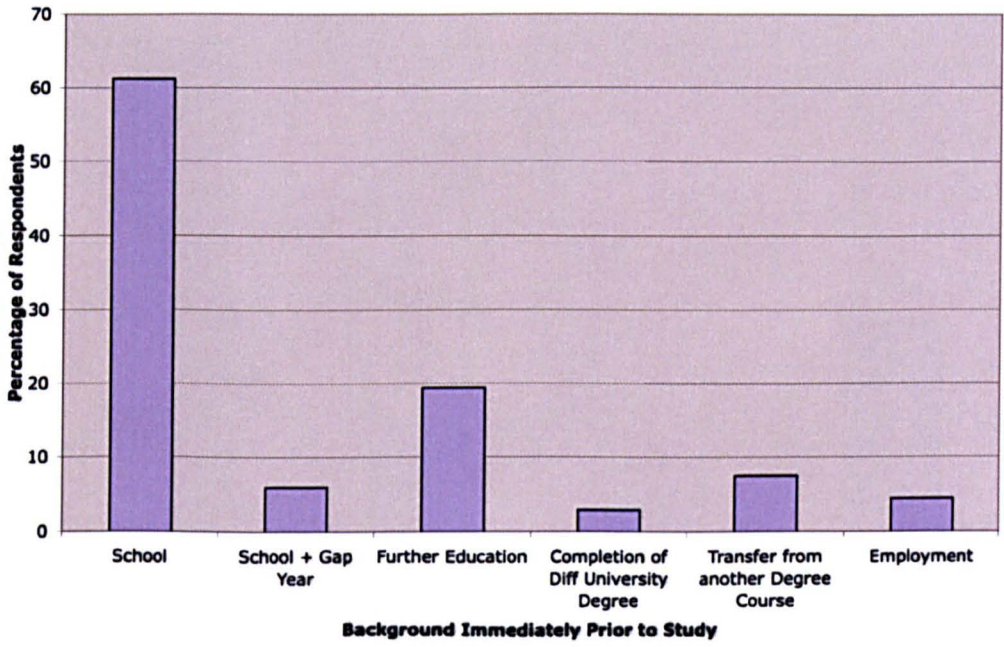
Of the total cohort, 56% were male and 44% female. Additionally, 7.5% of respondents were international students for whom English did not represent the mother tongue, and whose cultural background differed from that of the indigenous student population. As the study charts the profile of diversity of perceptions of the educational process, learning styles, and personal context across the cohort as a central strand of the study, individuality was determined through these aspects rather than by analysis of results relating to gender difference or ethnicity per se.

The Session 2007-08 cohort analysed consisted of 71 students during Stage 1, this number also comprising a diversity in the range of backgrounds immediately prior to enrolment on the course (see Figure A02 below).

In total 38.8% of respondents (36.6% of the total cohort) did not come directly from schooling, with 29.9% coming from a further or higher education experience, and a further 4.5% of respondents having been in employment previously ranging from an architectural technician role to finance and waitressing.

Figure A02: Experience Immediately Prior to Enrolment: Session 2007-08

2007-08 Stage 1 Profile: Experience Immediately Prior to Enrolment

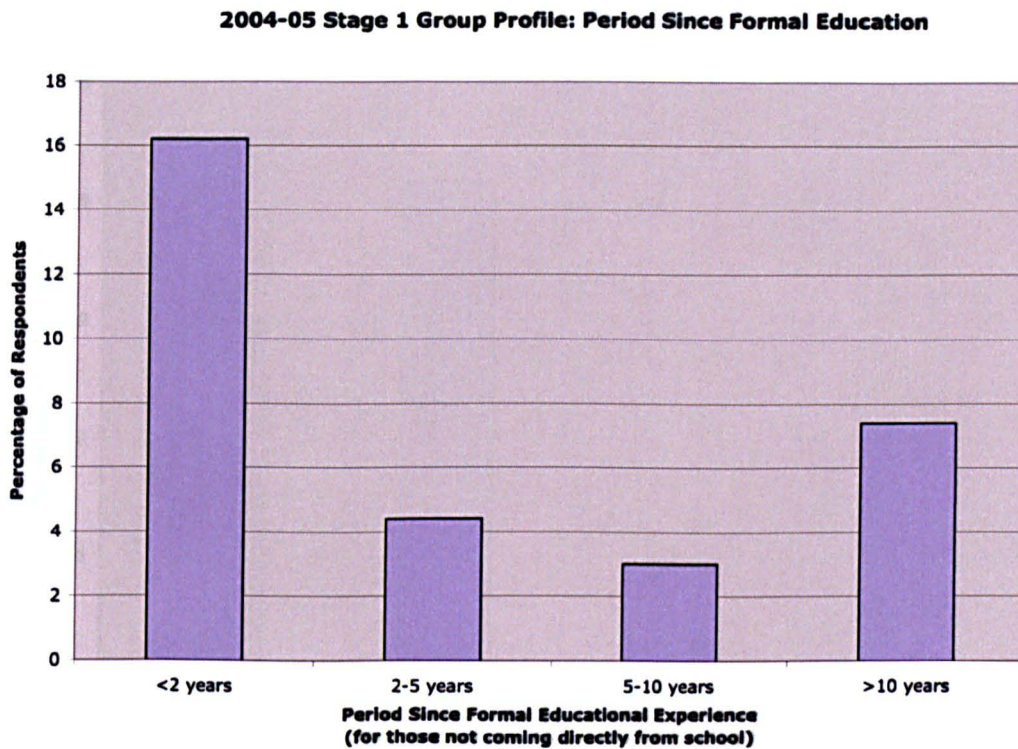


The large percentage with prior FE or HE experience indicates a substantial group within the overall cohort who will have already been exposed to issues of transition to greater learner independence, possibly different modes of learning, and greater social autonomy in terms of managing their personal affairs.

From the statistics above, it can be seen that both subject groups contain an experiential diversity, this being of significance in relation to the notion of Constructivism in which knowledge is conditioned by and built upon that derived experientially.

7.4% of respondents had not been in formal education for 10 years or more, whilst the same figure ranged between 2 and 10 years in their time outside formal studies (see Figure A03).

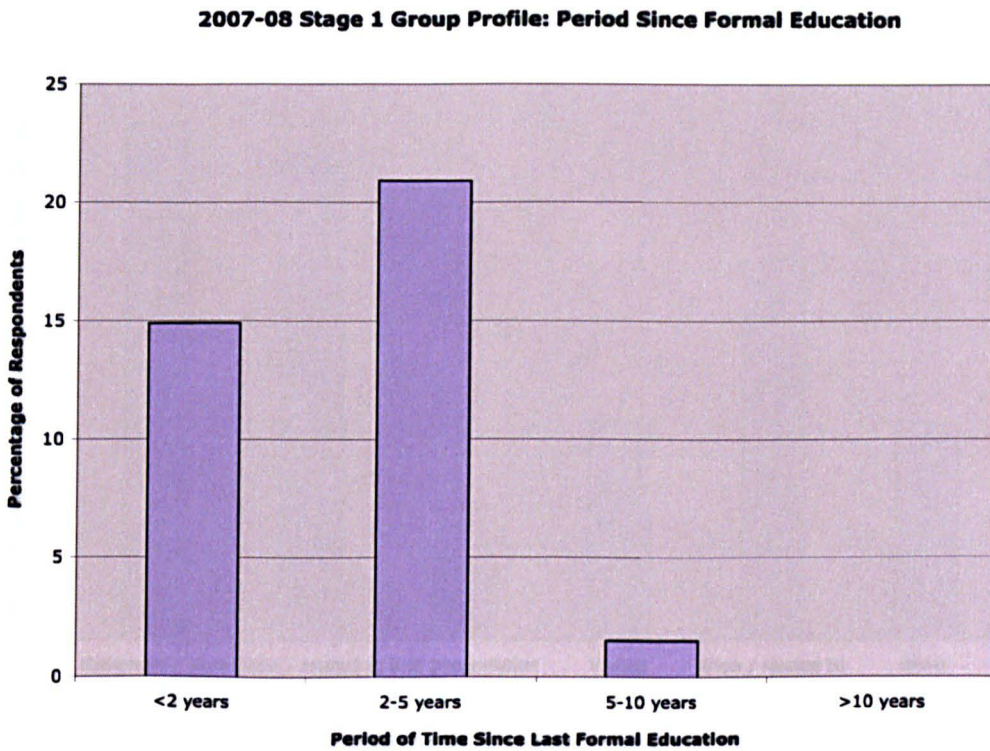
Figure A03: Period Since Formal Education: Session 2004-05



Of the respondents to Questionnaire 1, 63.2% had experienced some kind of involvement with or exposure to the subject of architecture prior to enrolling on the course, the variety and nature of this exposure being depicted in Figure A04. It is noted that a number of students responded in more than one category. Different types of contact are likely to have had different levels of significance in terms of informing the individual's choice of course.

14.9% of respondents had experienced a gap of less than two years between school and enrolment at university, with a further 22.4% having had a gap of between 2 and 10 years, the majority of these being between 2 and 5 years. As with the previous cohort, this profile demonstrates an experiential richness and breadth of perspective from which individuals can draw as they progress their studies, and which has the potential to benefit the wider peer group.

Figure A04: Period Since Formal Education: Session 2007-08



Considered in relation to Figure 11, it can be seen that the majority of students not enrolling directly from school comprise the group who have had prior college or university experience.

The age profiles of the cohorts implicit in the above figures are likely to have a bearing on the social and peer dynamic within the studio setting.

1.2.3 Prior Exposure to the Subject of Architecture

In order to gain insight into the degree to which students had informed themselves about the subject or profession, data relating to individual engagement with architecture prior to application was gathered. Of the students recording contact with architecture (see Figure A05), 72.1% considered this to have been significant in influencing their choice of course, this equating to 45.5% of the total number of respondents. It can be seen therefore, that just under half of the overall cohort applied for the course from some position of informed-ness.

Figure A05: Prior Exposure to Architecture: Session 2004-05

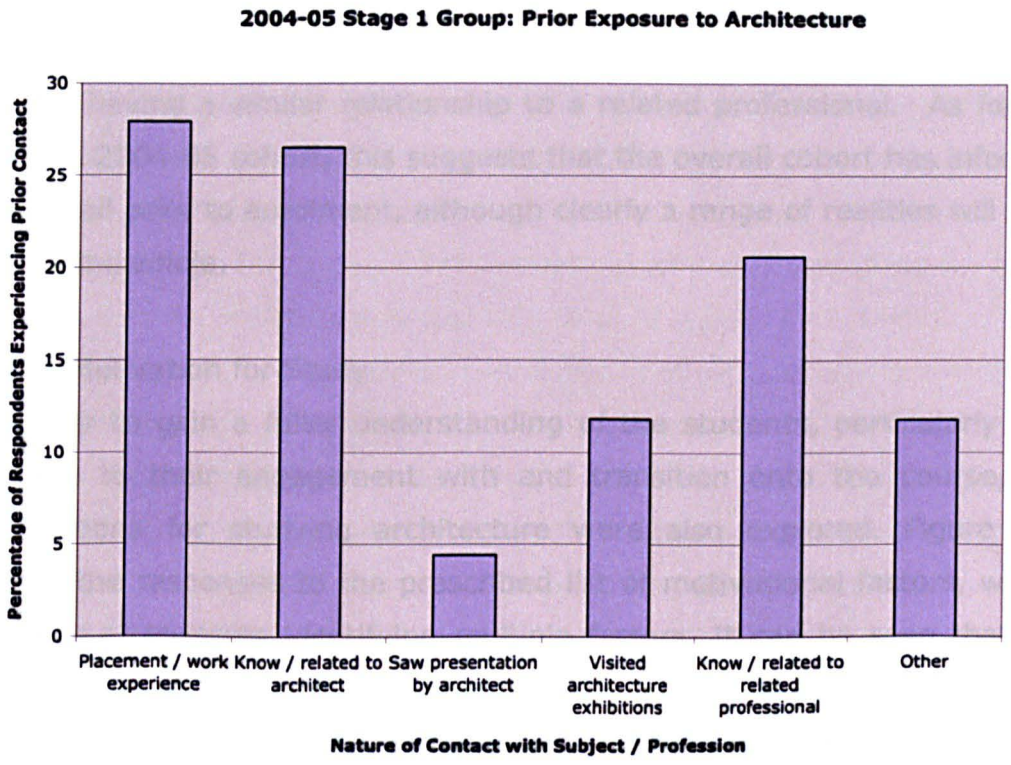
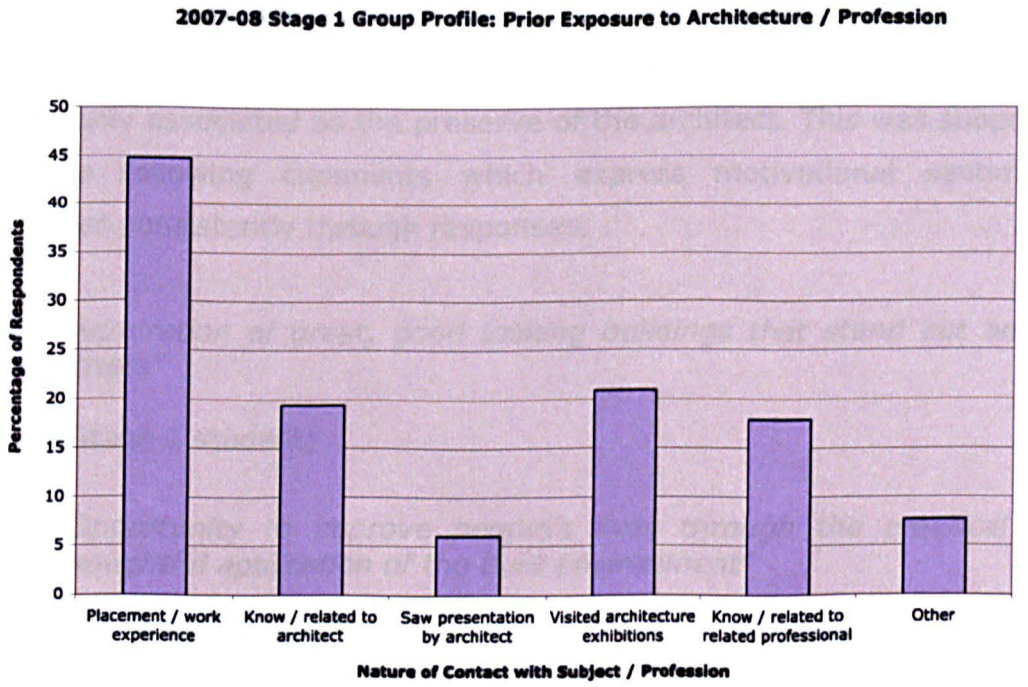


Figure A06: Prior Exposure to Architecture: Session 2007-08



Once again, the 2007-08 group indicated a high level of prior exposure to the subject and / or the profession (see Figure A06), with some 44.8% of respondents have undertaken some form of work placement in the field.

Additionally, although it is important to note that the students were able to record multiple responses for this question, nearly a fifth of respondents (19.4%) know or are related to an architect, with a further 17.9% having a similar relationship to a related professional. As for the session 2004-05 cohort, this suggests that the overall cohort has informed itself well prior to enrolment, although clearly a range of realities will exist within the whole.

1.2.4 Motivation for Study

In order to gain a fuller understanding of the students, particularly with respect to their engagement with and transition onto the course, the motivations for studying architecture were also explored. Figure A07 shows the responses to the prescribed list of motivational factors, with a number of students identifying multiple factors. It can be seen that the opportunity to be creative and to develop skills that allow ideas to be realised registered most strongly at 83.8% and 70.6% respectively. This clearly demonstrates that the skills developed ostensibly through studio learning, i.e. architectural design and its communication, constitute the most significant attraction to students at the outset. This is perhaps unsurprising as building and spatial design is the function and skill that is commonly associated as the preserve of the architect. This was supported by the following comments which express motivational sentiments reflected consistently through responses:

"Admiration of great, good looking buildings that stand out among others"

(Stage 1 student)

"Opportunity to improve people's lives through the practical and thoughtful application of the built environment"

(Q1. 2007-08, q4)¹⁶⁶

¹⁶⁶ Quotations have been referenced to indicate their source, e.g. (Q2. 2004-05, q4.1), where Q indicates the questionnaire number; followed by the cohort year; and the question number. Alternatively the date of the group interview is noted.

(Approx. 88% of respondents expressed similar sentiments in the questionnaire returns).

The second grouping amongst the results related to perceptions of the profession, and its 'imagery' in the domain of their peer group. For instance, 38.5% were attracted by perceived salary prospects, with 30.2% recording the appeal of the professional image and lifestyle, and a further 26.5% being motivated by the prestige and status of the profession within wider society. Given the level of prior contact with the profession through placement or personal association, the reading relating to salary levels is remarkable as typical salaries in the profession are low relative to other professional groups. However, responses might relate to the perceived potential to earn high salaries, which undoubtedly exists within the profession although not being the norm¹⁶⁷.

Respondents rated very low the influence of pressure from parents and careers advisors, although this figure may have been distorted by a reluctance to admit this at the very point where they are embarking on their studies, and where they meet their peers for the first time.

With reference to Figure A08, the overall trends relating to motivations for studying architecture bear strong comparison to the previous cohort, with the opportunity to be creative and to gain the skills necessary to have architectural ideas realised dominating the responses.

¹⁶⁷ Building Design survey of salary levels, 26 September 2008.

Figure A07: Motivations for Studying Architecture: Session 2004-05

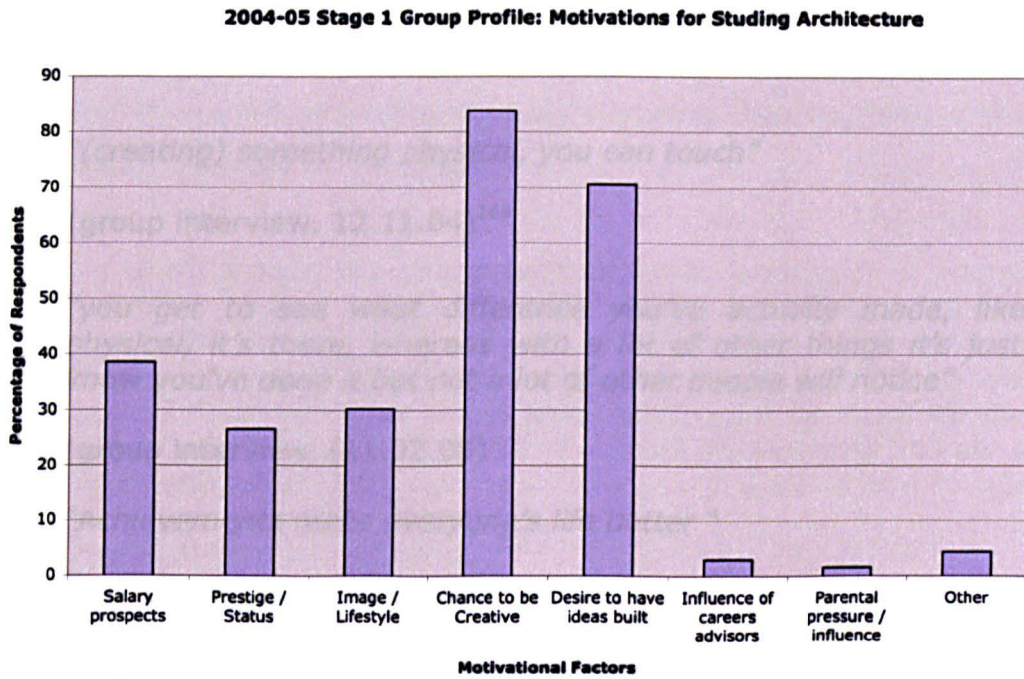
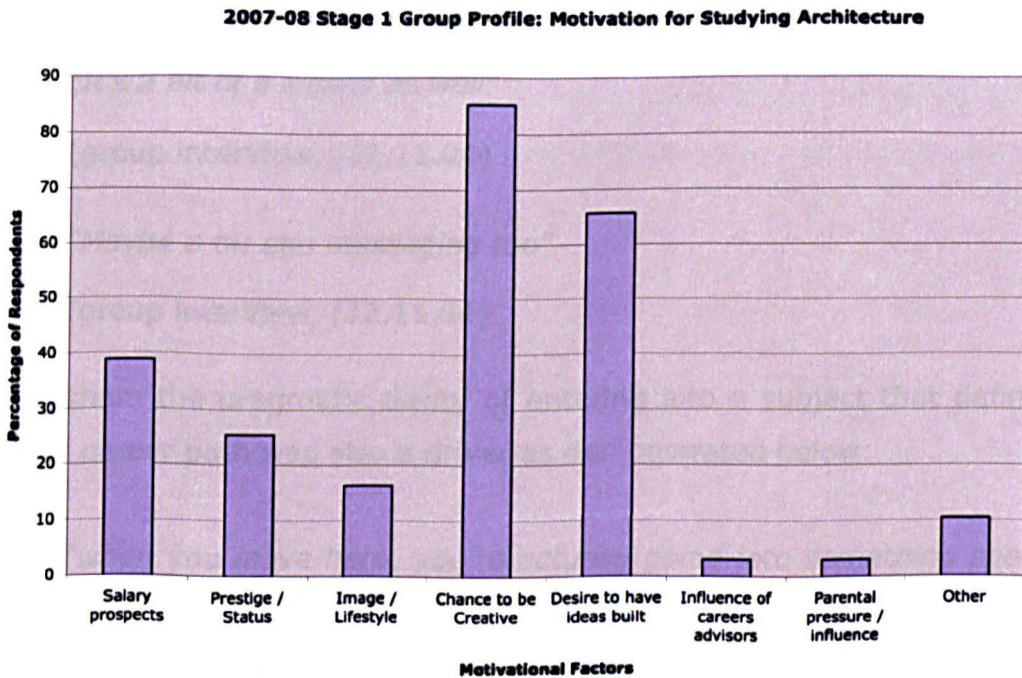


Figure A08: Motivations for Studying Architecture: Session 2007-08



Discussions in a group interview with Stage 1 students (12 November 2004) explored the dominant areas of the above graph further, revealing that creating structures that have a physical impact as tangible, enduring entities represented a strong driver for the desire to have ideas built.

Asked again in February 2008 with the second cohort, the question brought a range of responses. Once again the ability to make a mark on the world emerged, as did more altruistic sentiments:

"(creating) something physical, you can touch"

(group interview, 12.11.04)¹⁶⁸

"you get to see what difference you've actually made, like it's physical, it's there, whereas with a lot of other things it's just you know you've done it but not a lot of other people will notice"

(group interview, (11.02.08)

"Achievements make everyone's life better "

(group interview, (11.02.08)

Additionally, issues relating to the creative ego were also identified, as demonstrated by the following statements in response to why the desire to have ideas built was so important:

"It's a bit of a legacy as well"

(group interview, (12.11.04)

"Maybe a bit ego massaging too"

(group interview, (12.11.04)

For others the pragmatic clarity of entering into a subject that defines a direct career path was also a driver as demonstrated below:

"when you leave here, you're actually going into something specific, you know what you're going to be doing"

(group interview, (11.02.08)¹⁶⁹

¹⁶⁸ In response to the question:

"When asked what your main motivation was for enrolling on your course in 72% of your cohort identified "desire to have ideas built". Why do you think is this so important?"

¹⁶⁹ In response to the question:

"Why did you enrol on the course - what motivated you? And 65% of the cohort, 65% of the people completing questionnaires said, that it was to do with the desire to have

However, whereas views have been expressed elsewhere about the opportunities to move into a professional career in a direct, linear fashion, uncertainty about career paths was expressed by some participants, as revealed in the following remark. This comment also suggests a singular definition of the role of 'architect':

"I don't necessarily see myself being an architect. I sometimes wonder really if it is having the confidence of being as creative because I think to be really good at architecture, to do really well in architecture and to earn the amount of money I think I want to earn I think you have to be really, really good at architecture... the other part of that is I wonder if I could make better money doing something else..."

(group interview, 15.02.08)¹⁷⁰

Group interview responses (11 and 15 February 2008) supported the general profiles of Figures A07 and A08, in that motivations for studying architecture appear quite diverse. Moreover, for some they appear to be founded on partial information, or on notions and imagery derived from media etc. Aspects of lifestyle, salary prospects, and image and social status formed the second strongest motivational force, as represented by the following comment, although it also conveys a sharp realisation of a different reality early in the course:

"there is a perceived image of being an architect and when you get into practice it will be like that film... but when you are young and naive you probably think it will be a high paying job just designing buildings..... there is a bit of naivety in it as well, you think it is a wonderful career and you get here and you soon find out it is different..."

(group interview, 15.02.08)¹⁷¹

Results also suggest that the influence of parents and careers advisors is very low, although the remarks made in relation to cohort 2004-05 to the

your ideas built. I wonder if you've got any thoughts on that, if you could say some things about why that is so important... the desire to have ideas built..."

¹⁷⁰ In response to the question:

"Is there a sense then that you did not take the course because you wanted to become an architect?"

¹⁷¹ In response to questions on motivation and expectations with respect to studying architecture

effect that students may be reluctant to acknowledge these factors, have validity across all surveyed students.

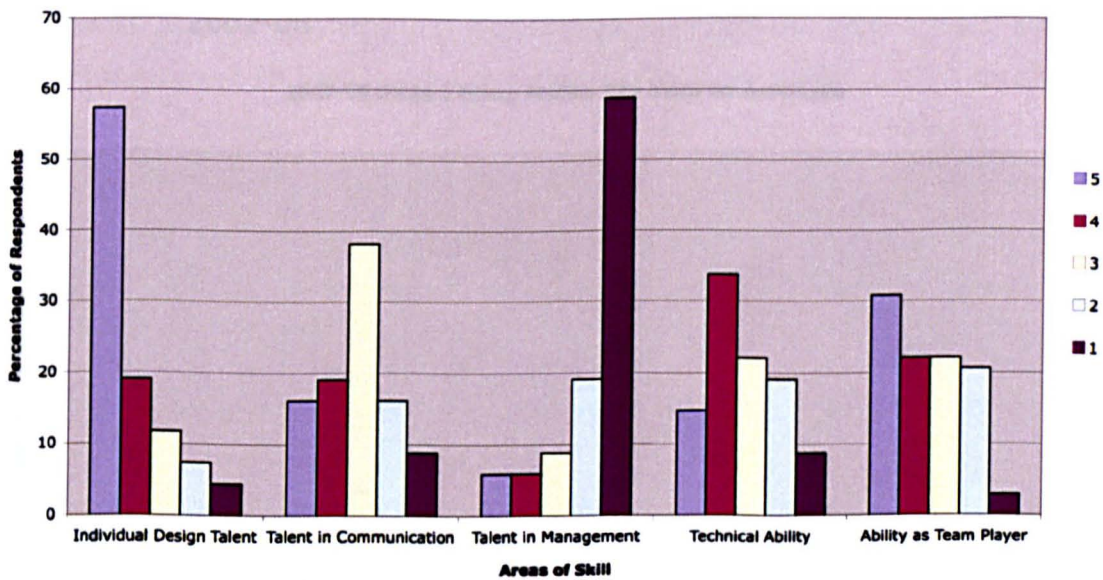
1.2.5 Perceptions of Key Skills of Architects

Finally, in terms of perceptions and preconceptions, Questionnaire 01 asked students to identify from a prescribed list what they regarded to be the key skills of architect, and to rate these on a scale of 1 (lowest importance) to 5 (highest importance). Figure A09 charts the results, indicating the profile for each skill, and depicting their relative importance.

Consistent with responses regarding motivational factors, design talent is ranked highest with 76.1% giving it the two highest ratings, although contrastingly 4.4% of respondents considered it to be of the lowest importance.

Figure A09: Initial Perceptions of Key Skills for Architects: Session 2004-05

2004-05 Stage 1 Group Profile: Initial Perceptions of Key Skills for Architects



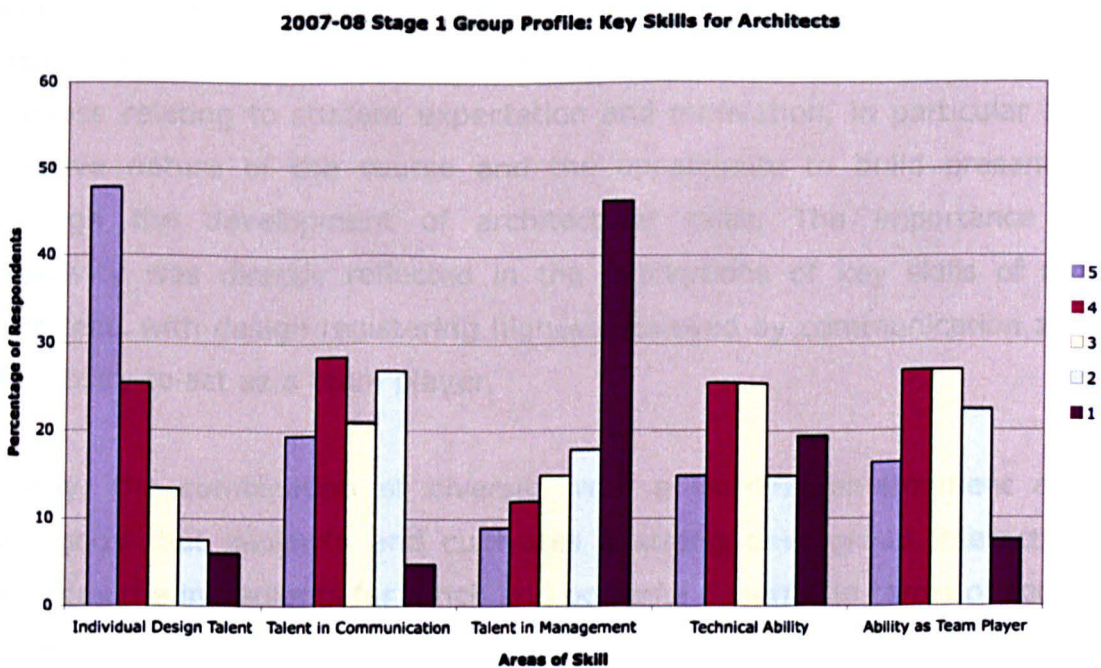
Perceptions of the importance of management skills were almost the mirror opposite to those for design with 5.9% considering it be of greatest importance, and 77.9% placing it in the lowest two categories, some

58.8% in the very lowest. Other than design ability, the ability to act as a team player was viewed as the second most important skill overall.

In terms of the skills ranked as being of greatest and least importance, once again design and management abilities feature respectively in Session 2007-08 (see Figure A10). However, in the areas of communication, technical ability, and ability to act as a team player, there is little differentiation between the responses.

In both cohorts, the correspondence between 'the chance to be creative' as the strongest motivational driver (83.8% and 85.5% of respondents), and the importance of individual design talent (47.8% highest grading / 73.2% two highest gradings in 2004-05, and 57.4% highest grading / 76.5% two highest gradings in 2007-08) is consistent and clear. However, the combination of the highest ratings concerning individual design talent, with the results related to 'ability as a team player' suggest that some students may not regard creativity as the product of the individual.

Figure A10: Initial Perceptions of Key Skills for Architects: Session 2007-08



The overall similarity of profile and weighting between 'technical talent', 'talent in communication', and 'ability as a team player' denotes a perception that these are important aspects serving the design process. Responses relating to talent in management, which suggest it as being by far the least important attribute, are particularly notable given the issues raised later in this chapter with respect to time management (see Item 1.14).

1.2.6 Summary

The findings relating to the subject groups reveal a great diversity across each cohort. Whilst the gender split was 56 / 44% male / female¹⁷², and there is evidence of ethnic diversity, that which is most meaningful to this study relates to the breadth of learning experience embodied in the collective, variety of age and maturity, motivation and expectation, and degree and nature of prior exposure to architecture. When this profile is overlaid with the profile of diversity of learning styles discussed in Appendix 2, the full complexity of student diversity is revealed.

The overall group also contains a range of aspirations and expectations, with some students focused on a particular and defined career path, whilst others appeared to retain an open mind about possibilities that study in architecture course may offer. However, there was a strong unity of purpose relating to student expectation and motivation, in particular the creative nature of the course and the opportunity to build presented through the development of architectural skills. The importance of creativity was directly reflected in the perceptions of key skills of the architect, with design registering highest, followed by communication and the ability to act as a team player.

Finally, the combination of diversity with a learning environment and pedagogy that supports and cultivates a strong peer group interaction provides the ingredients for a rich and powerful dynamic in terms of social learning.

¹⁷² These figures are derived from the total of the two cohorts together.

1.3 Transition to University

1.3.1 Introduction

Any educational process takes place within a context that includes academia whilst also extending beyond it, embracing specific and personal circumstances relating to the individual. Indeed the realms of study and extra-curricular life often become deeply entwined, particularly in the case of subjects that are acknowledged as being intensive. In recognition of this, both the questionnaires and the group interviews explored feelings, observations, and perceptions relating to the transition to university study.

1.3.2 Perceptions of Transition

The following Figures (A11 and A12) present an overview of the collective perceptions of the degree of challenge in the process of transition to university education, these being shown for each subject group.

Figure A11: Longitudinal Tracking of Perceptions of Transition: Session 2004-05

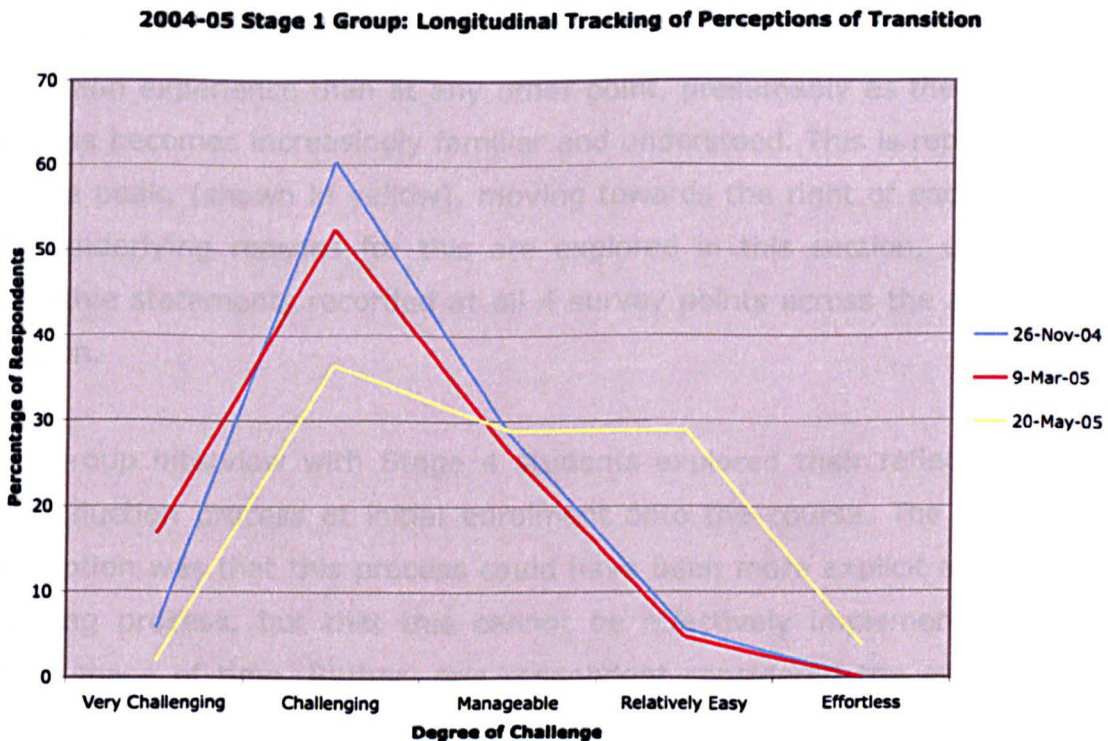
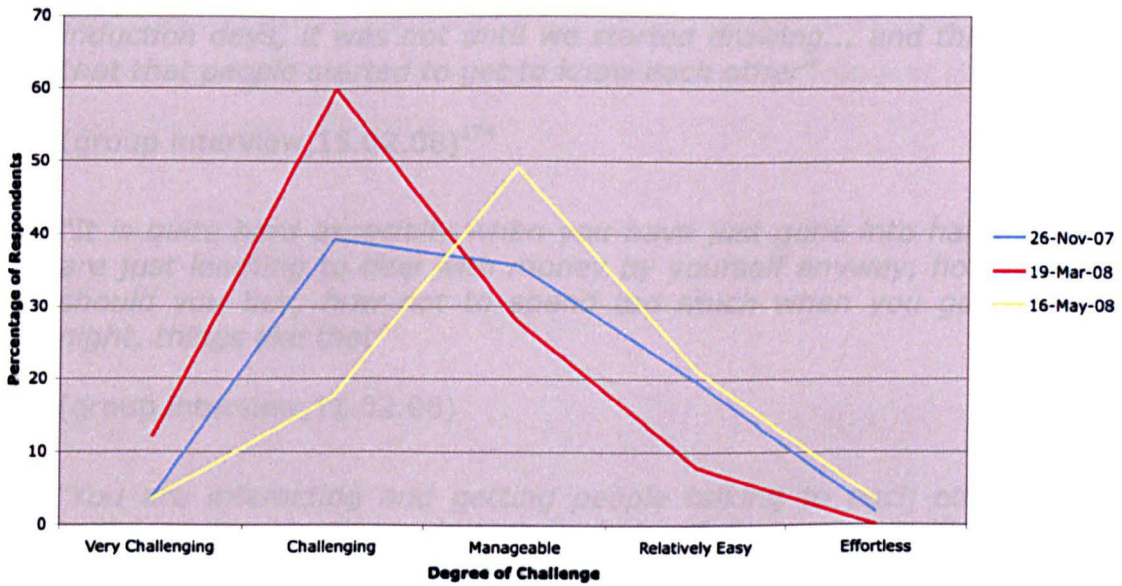


Figure A12: Longitudinal Tracking of Perceptions of Transition: Session 2007-08

2007-08 Stage 1 Group: Longitudinal Tracking of Perceptions of Transition



In both cases, common patterns are identified. Firstly, at the mid-point of the session (Q3, shown in red) the number of students who regard transition to be 'very challenging' peaks. Secondly, it is also evident that, by the end of the session, students feel more comfortable with the transition experience than at any other point, presumably as the learning process becomes increasingly familiar and understood. This is represented by the peak, (shown in yellow), moving towards the right of each graph. The underlying reasons for this are explored in this section, using the narrative statements recorded at all 4 survey points across the academic session.

The group interview with Stage 4 students explored their reflections on the induction process at initial enrolment onto the course. The principal perception was that this process could have been more explicit about the learning process, but that this cannot be effectively implemented in a short space of time. Rather, one respondent considered the entire first

year to be an induction¹⁷³, whilst others thought that understanding develops through doing:

"It is not until you actually start in the studio that you get to know people either, there is no sort of first impressions made in those induction days, it was not until we started drawing... and things like that that people started to get to know each other"

(group interview,15.02.08)¹⁷⁴

"It is quite hard especially when you have just gone into halls. You are just learning to deal with money by yourself anyway, how much should you buy, how not to spend too much when you go out at night, things like that"

(group interview,11.02.08)

"You are interacting and getting people talking to each other and trying to be creative... but the whole of first year is like a big induction..."

(group interview,15.02.08)

"I think induction is a hard thing to do... You just have to do the stuff to learn it"

(group interview,15.02.08)

1.3.3 Key Challenges in Transition

From the survey conducted in Session 2004-05, Figure A13 shows the ratings attributed to a series of prescribed factors, thus presenting what the respondents regarded as the greatest challenge in the transition to university during the initial period of study. These represent both academic and non-academic considerations, although the two with the highest readings both relate to issues of life balance, time management, responsibility and independence, and as such describe the interface between personal life and engagement with academic study.

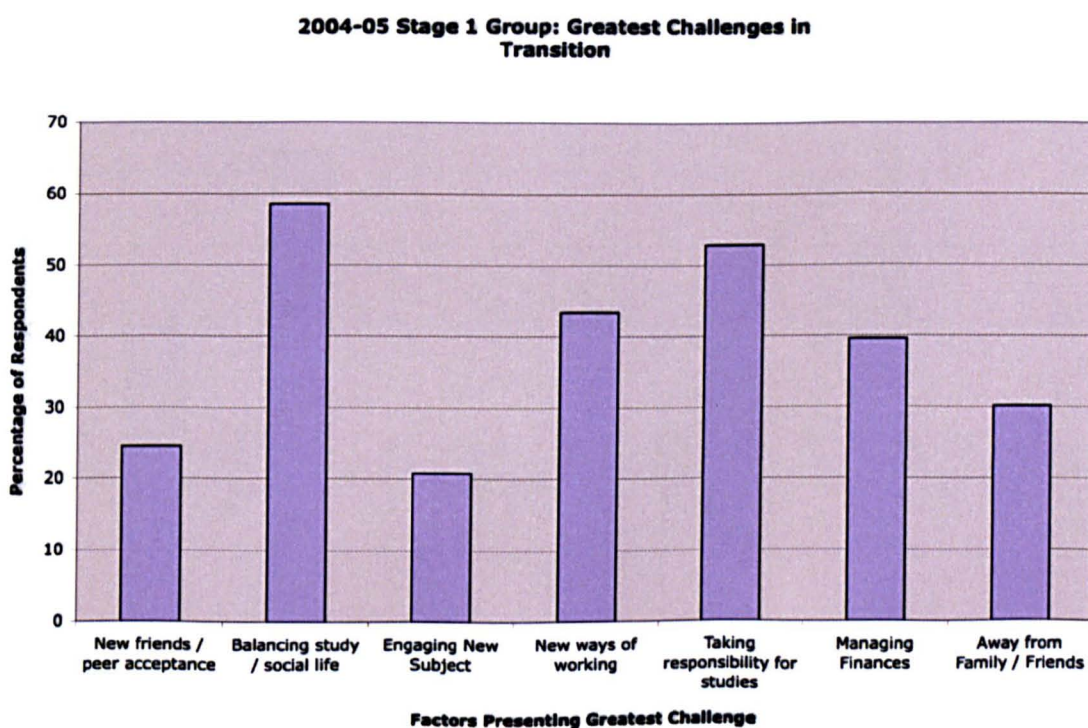
¹⁷³ This view echoes those represented by the comments of Jeremy Till in Appendix 4.

¹⁷⁴ In response to the questions:

"what were your initial expectations of the course? Comments on how these expectations have changed over time? Some of your initial expectations were they naive?"

Of the respondents that comprise the rating results indicated above, 67.9% lived away from home, whilst the remaining 32.1% lived at home. Viewed against the percentage of students entering university directly from secondary education, the high percentage of students living away from home will include a substantial number doing so for the first time. It is thus perhaps predictable that issues of work-life balance and individual responsibility come to the fore.

Figure A13: Greatest Challenges in Transition: Session 2004-05



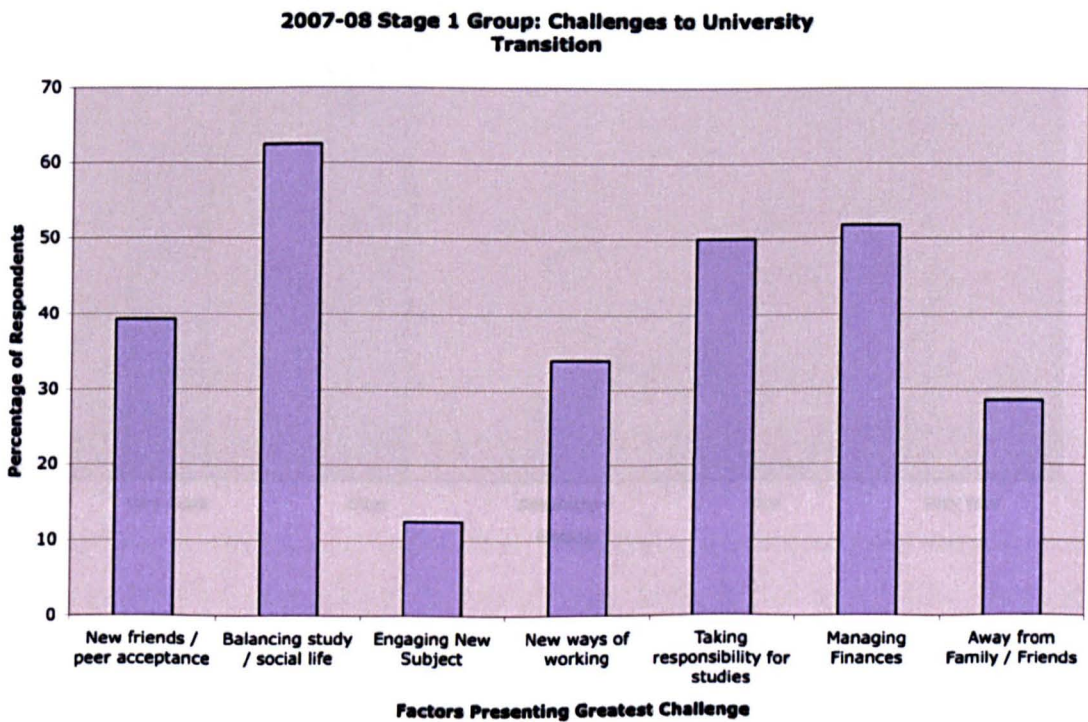
Repetition of the exercise in Session 2007-08 revealed a comparable set of results as shown in Figure A14.

Comparison of results across both cohorts reveals that the consistently dominant challenge relates to achieving a balance between study and social / other commitments. Similarly, the assuming of responsibility for one's own studies appears as the second most challenging factor in both cases. Of lesser weighting, but nevertheless important to a large percentage of students, is the need to engage with new ways of working. With 66.1% of respondents to Questionnaire 02 living away from home in Session 2007-08, a very similar percentage to the previous cohort, the

challenges associated with working methods also registered significantly in the early stages.

In both cases, engaging with architecture as a new subject received the lowest ratings. Generally, therefore, it can be seen that the salient issues do not relate to the subject per se, but to the engagement with the educational process through which the subject is learned.

Figure A14: Greatest Challenges in Transition: Session 2007-08



1.3.4 Initial Perceptions of University Study

In order to gain further insight into the perceptions encapsulated by Figures 13 and 14, Questionnaire 02 broke the student experience down into three component parts; academic, environmental, and social, and collected data relating to each. It is acknowledged that there is an overlap between these areas, but this categorisation was adopted to focus the respondents attention of component parts of the overall experience.

Figures A15 and A16 chart perceptions of the academic experience at the mid-point of Semester 1.

Both figures display a very close correspondence with one another, with the great majority of students reporting positively. The positive supporting statements received can be grouped into three categories; those relating to atmosphere, mode of learning, and generic observations.

Figure A15: Perceptions of Academic Experience to Date: Session 2004-05

**2004-05 Stage 1 Group: Perceptions of Academic Experience to Date
(26 November 2004)**

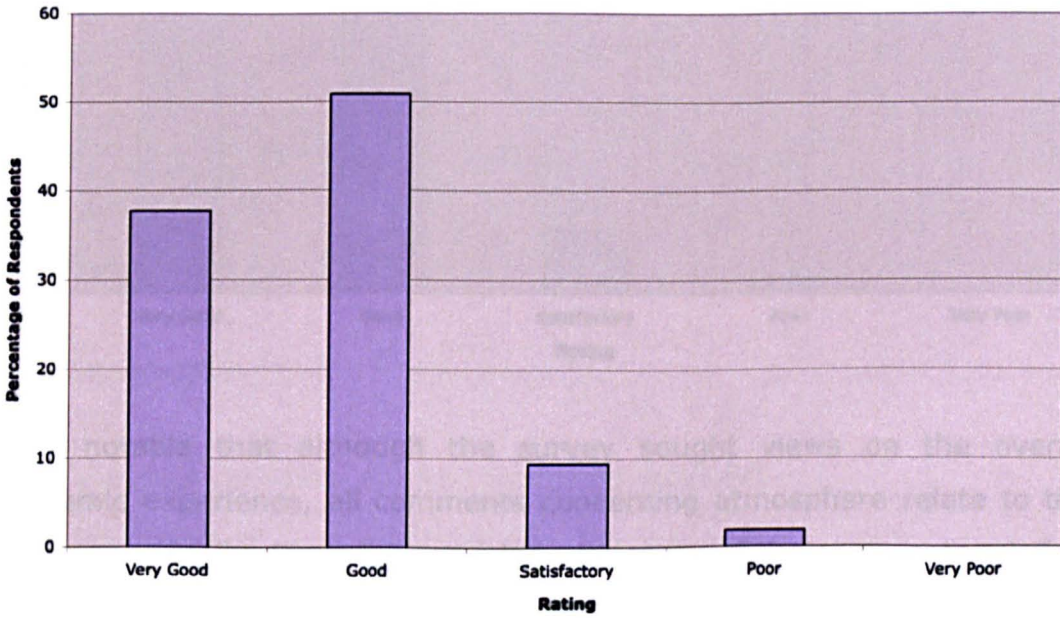
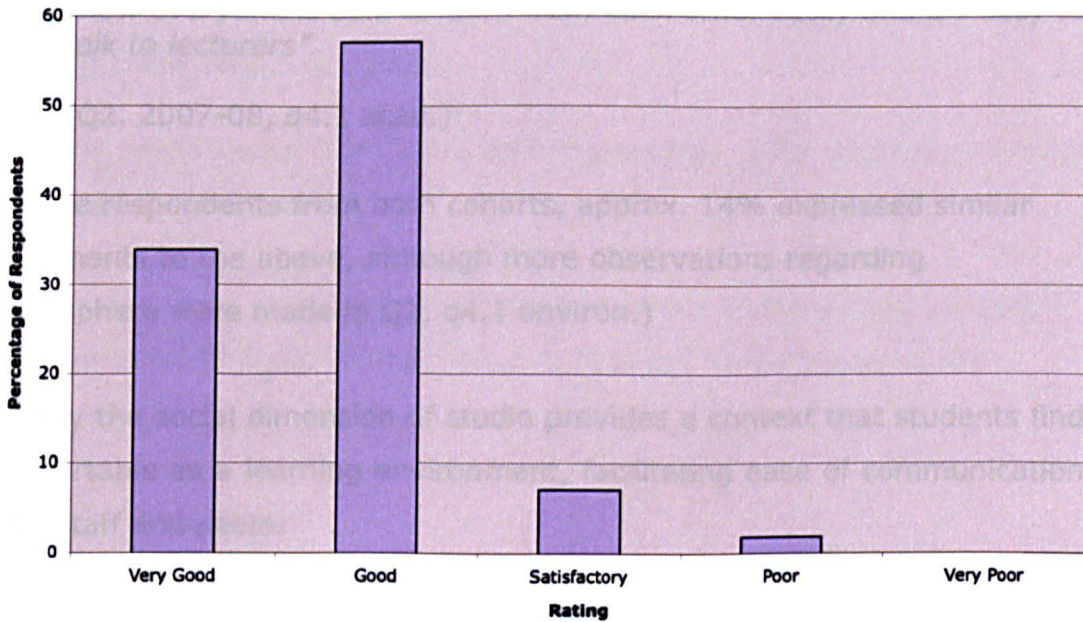


Figure A16: Perceptions of Academic Experience to Date: Session 2007-08

**2007-08 Stage 1 Group: Initial Perception of Academic Experience
(26 November 2007)**



It is notable that although the survey sought views on the overall academic experience, all comments concerning atmosphere relate to the studio specifically. From this, coupled with many of the comments relating to mode of learning, it is clear that the studio setting rapidly becomes a key experiential component for students, both in terms of the learning process, socialisation, and as a place that is conducive to creativity and motivation, and dissolves some traditional boundaries between tutor and student found in more didactic modes of study. In other words, identity for the learning experience is quickly derived from the studio environment. The following quotations are drawn from the positive comments recorded by students:

- Atmosphere:

"Enjoyable atmosphere created in studio which motivates me and helps me work"

(Q2. 2004-05, q4.1 acad.)¹⁷⁵

¹⁷⁵ In response to the question:
"What is your overall experience of University life so far, in terms of...?" What do you enjoy most about the academic category?

"Studio work is sociable"

(Q2. 2004-05, q4.1 acad.)

"How everyone is able to learn from each other easily and it's easy to talk to lecturers"

(Q2. 2007-08, q4.1 acad.)

(Of the respondents from both cohorts, approx. 14% expressed similar sentiments to the above, although more observations regarding atmosphere were made in Q2, q4.1 environ.)

Clearly the social dimension of studio provides a context that students find comfortable as a learning environment, facilitating ease of communication with staff and peers.

- Learning mode:

"Creative activities, not just limited to lectures"

(Q2. 2004-05, q4.1 acad.)¹⁷⁶

"Working in groups to solve problems and be creative"

(Q2. 2007-08, q4.1 acad.)

"The fact that it's both practical as well as theory that we are learning"

(Q2. 2004-05, q4.1 acad.)

"The ability to apply knowledge from lectures into designs"

(Q2. 2004-05, q4.1 acad.)

"Challenging, engaging, hands on"

(Q2. 2004-05, q4.1 acad.)

¹⁷⁶

In response to the question:

"What is your overall experience of University life so far, in terms of...?" What do you enjoy most about the academic category?

"Being able to have freedom with learning and research work"

(Q2. 2004-05, q4.1 acad.)

"Learning new things and learning through a new method"

(Q2. 2007-08, q4.1 acad.)

(Of the respondents from both cohorts, approx. 34% expressed similar sentiments to the above)

These comments directly reflect the expectations of a creative, applied, and vocationally oriented experience articulated at the outset of the study.

- Overall experience:

"Exciting projects; new experiences"

(Q2. 2004-05, q4.1 acad.)¹⁷⁷

"Provides lots of new challenges"

(Q2. 2004-05, q4.1 acad.)

"That I'm really interested in the work I'm doing"

(Q2. 2007-08, q4.1 acad.)

(Of the respondents from both cohorts, approx. 33% expressed similar sentiments to the above)

It is also evident that a number of students relish the opportunity to study a subject of their own choosing, this perhaps representing the first major act of independence in their education, and certainly one of significant magnitude with respect their personal lives and futures. Additionally, comments suggest that the project-based nature of architecture study, involving hands-on activity, is itself appealing to students, this corresponding to the findings concerning motivation and expectation.

Despite the very strong endorsement of the academic experience both statistically and through the accompanying commentary, a number of negative aspects were also recorded, these tending to relate either to the mode of study and methods employed, or to issues of workload, time management, and motivation.

- Learning mode / support:

"Lack of feedback. Can't see how I'm doing"

(Q2. 2004-05, q4.2)¹⁷⁸

"Tasks and workshops. They don't cater for those with no background experience and little help is offered"

(Q2. 2004-05, q4.2)

"Understanding and lack of communication with staff. Language barriers with some staff and lack of communication as to what has to be done"

(Q2. 2004-05, q4.2)

"Lectures. They're not fun and are incapable of keeping my attention throughout"

(Q2. 2007-08, q4.2)

"Lectures. Usually tired and struggle to concentrate for the full time"

(Q2. 2007-08, q4.2)

"Being assigned tasks. Sometimes a bit vague in what they're looking for"

(Q2. 2007-08, q4.2)

(Of the respondents from both cohorts, approx. 20% expressed similar sentiments to the above)

¹⁷⁸ In response to the question:

"What is your overall experience of University life so far, in terms of...?" What do you enjoy least about the academic category?

The above comments embody a number of issues such as the need for staff, and the course design, to recognise and accommodate diverse prior learning experiences; the need for lectures to be engaging if they are to successfully impart knowledge; and the fact that despite previous comments suggesting a relative ease of communication between staff and students, this may not accommodate everyone. Furthermore, lack of clarity of objective and guidance had begun to emerge as a source of frustration. Finally, whilst feedback is discussed in another section, it has already become a sufficiently significant issue for one respondent to explicitly raise its shortcomings in his or her overview of the academic experience to date.

- Workload, motivation, etc

"The long hours. Very tiring, however getting used to it and I understand it is essential to put in the hours"

(Q2, 2004-05, q4.2)¹⁷⁹

"Deadlines. I'm a perfectionist so deadlines are stressful"

(Q2, 2007-08, q4.2)

"Deadlines! Lot of work to do but I suppose it is needed and does challenge us"

(Q2, 2007-08, q4.2)

"Sometimes too much to do, if you're sick and miss a few days it's very difficult to catch up"

"The large amount of self-directed study. Find it difficult to get motivated and find the time when it's easy to keep putting it off"

(Q2, 2004-05, q4.2)

¹⁷⁹ In response to the question:

"What is your overall experience of University life so far, in terms of...?" What do you enjoy least about the academic category?

"A lot of pressure. I find there is a lot to do to keep life going when living away from home"

(Q2, 2004-05, q4.2)

"It's difficult sometimes to motivate yourself because of a lack of direction and push from the tutors"

(Q2, 2004-05, q4.2)

(Of the respondents from both cohorts, approx. 31% expressed similar sentiments to the above)

"Large work load. Although all deadlines are not at the same time tutors always expect their module to come first"

(Stage 1 student)

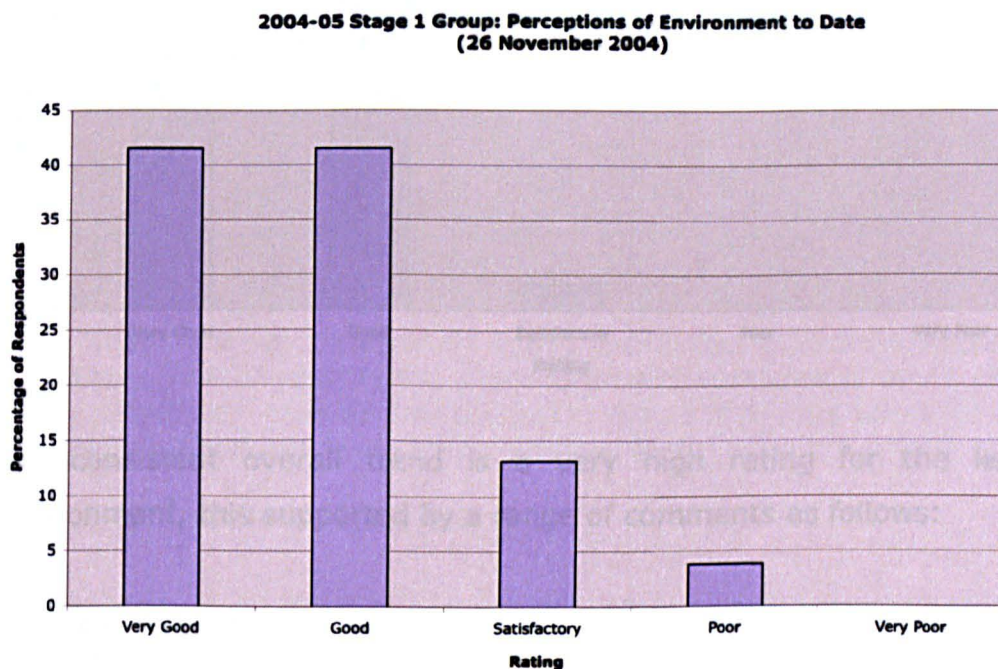
"There's a very heavy workload which means we often have to rush stuff. We are not always clear at the beginning of a project what we are supposed to do so at the end it can be too much"

(Q2, 2004-05, q4.2)

From the comments above, and the frequency of responses in a similar vein, there is compelling evidence that the intensity of workload emerges as a widely perceived difficulty at an early stage. Although a number of respondents noted difficulty in balancing studies with other commitments, this correlating to Figures A13 and A14, a number of comments also state an understanding that the time commitment is necessary in architecture education. This suggests a high level of motivation amongst students who find it circumstantially difficult to achieve a satisfactory balance. However, it is easy to imagine how such a struggle could rapidly transform into a source of frustration and de-motivation for the student. Other comments indicate that less motivated students find the ethos of self-directed study a challenge in itself, especially with tutors expecting the drive to come more from within relative to the prior experiences of the majority. Finally some comments are suggestive of a frustration emanating from the students' perceived inability to complete work to their personal satisfaction. Additionally there was a sense amongst the students of a

belief that were one to fall behind, it would be extremely demanding recovering lost ground such is the intensity of workload. The constant pressure that students evidently feel under, exerted by deadlines and volume of work, begs questions about the ability that they have to effectively reflect-on action.

Figure A17: Perceptions of Environment to Date: Session 2004-05



Figures A17 and A18 chart perceptions of the environmental experience at the mid-point of Semester 1. As with the academic dimension, the two charts representing the different study groups reveal overall similarities, although there is some deviation in the numerical values attributed to each category.

Figure A18: Perceptions of Environment to Date: Session 2007-08

**2007-08 Stage 1 Group: Initial Perception of Environment
(26 November 2007)**



The consistent overall trend is a very high rating for the learning environment, this supported by a range of comments as follows:

"(studio is) very spacious which allows interaction to occur more easily"

(Q2, 07-08, q4.1 environ)¹⁸⁰

"Everything you require in terms of research and also socially is right at hand"

(Q2, 07-08, q4.1 environ)

"Like the studio where it is relaxed and informal and (where) we are left to our own devices"

(Q2, 07-08, q4.1 environ)

"Studio is very good, enjoyable atmosphere, nice to have a 'base point'"

(Q2, 07-08, q4.1 environ.)

¹⁸⁰ In response to the question:
"What is your overall experience of University life so far, in terms of...?" What do you enjoy most about the environment category?

"(studio) layout allows for interaction - studio is a comfortable area now (second home nowadays)"

(Q2, 04-05 q4.1 environ.)

(Of the respondents from both cohorts, approx. 42% expressed similar sentiments to the above)

"The studio is very good as we can learn from each other and are able to ask questions easily"

(Q2, 04-05 q4.1 environ.)

"It's like a big family"

(group interview, 12.11.04)

"There is always somebody there, in the studio, if you are stuck, you know, one of your peers, there is always someone to say - How did you get on? How do you do this?. There is always someone to help you and you can help other people as well."

(group interview, 12.11.04)

The flexible, open, and social aspects of studio are recognised in the above comments, indeed the social properties are acknowledged as a beneficial part of the learning process. Furthermore, the references to 'base point' and 'second home' speak of the central significance that studio has acquired within the first few weeks of study, although this is normally strongly reinforced by staff in an attempt to inculcate the ethos of studio working in new cohorts. Viewed another way, these comments suggest an early acceptance amongst the students of benefits of this culture. Nevertheless, a number of negative comments were received, a sample of which is shown below:

"Sometimes hard to work. People get too noisy and music gets too loud"

(Q2, 2007-08, q4.2)

"having everyone around you because of it being open plan. You can get distracted easily by everyone but this also happens at house"

(Q2, 2004-05, q4.2)

"Sometimes that it's all so close together never having a change of scenery can be very dull on the mind"

(Q2, 2004-05, q4.2)

(Of the respondents from both cohorts, approx. 7% expressed similar sentiments to the above)

Whilst the open, flexible format is seen by many as a positive characteristic, the above statements reveal that it also raises difficulties for some students, or at particular points in the learning process. It is acknowledged that studio spaces at the Scott Sutherland School are uniform in nature being single open-plan volumes (in common with many schools), but that this does not represent the only model for such an environment.

Figures A19 and A20 chart perceptions of the social experience at the mid-point of Semester 1. Viewed comparatively, the two graphs display a common trend generally, although Session 2004-05 differs through the existence of 'poor' or 'very poor' ratings for the social dimension (these representing 7.6% of students in the cohort). It is already evident that the boundaries are blurred between the categories of the survey in that comments on the academic dimension refer to both environment and socialisation. Comments received on positive aspects included the following:

"The chance to meet people with common interests"

(Q2, 2004-05, q4.1)¹⁸¹

¹⁸¹ In response to the question:
"What is your overall experience of University life so far, in terms of...?" What do you enjoy most about the social category?

Figure A19: Perceptions of Social Dimension to Date: Session 2004-05

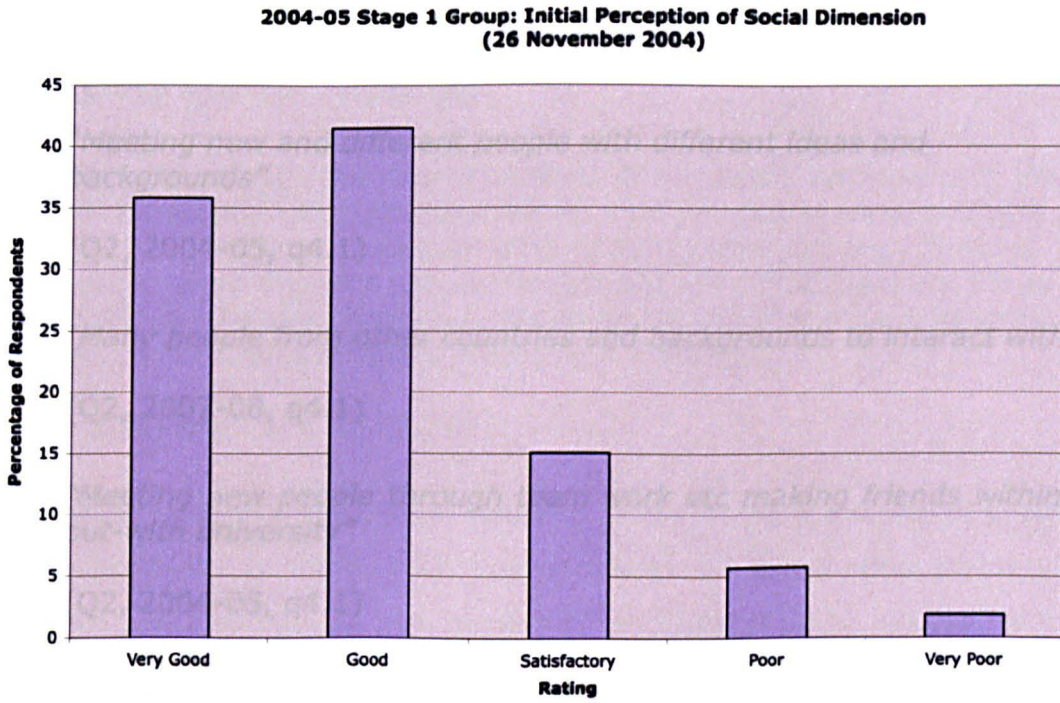
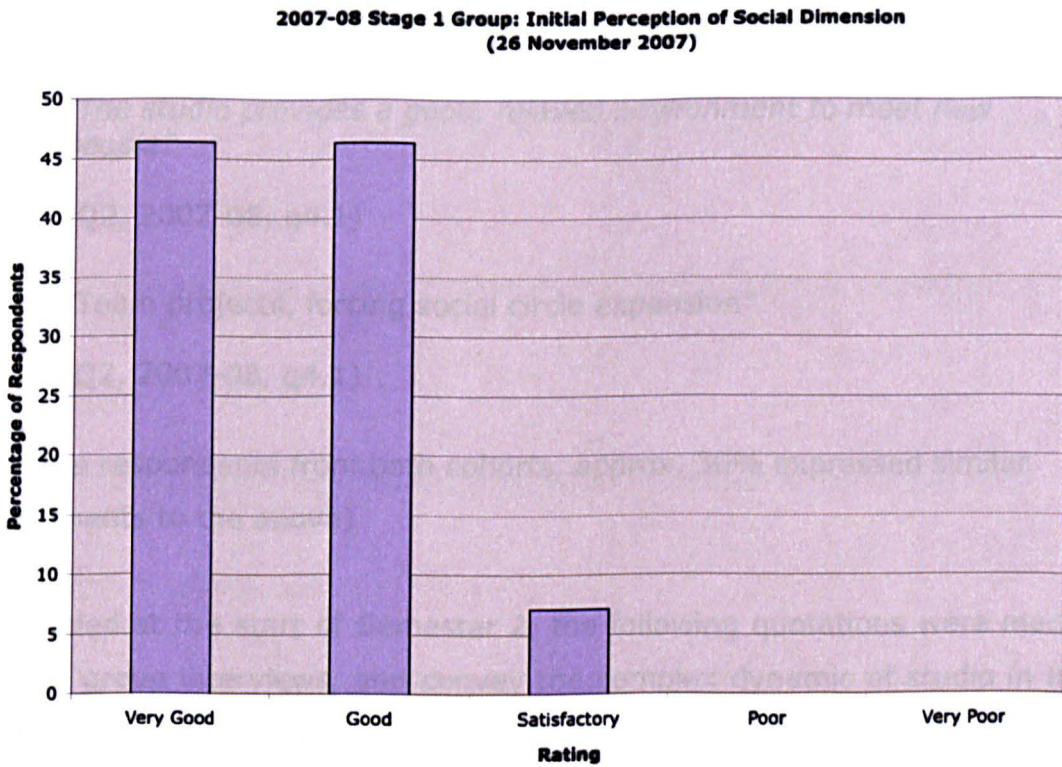


Figure A20: Perceptions of Social Dimension to Date: Session 2007-08



"The idea of meeting so many new people who are very different from one another"

(Q2, 2004-05, q4.1)

"Meeting new and different people with different ideas and backgrounds"

(Q2, 2004-05, q4.1)

"Many people from other countries and backgrounds to interact with"

(Q2, 2007-08, q4.1)

"Meeting new people through team work etc making friends within / out-with university"

(Q2, 2004-05, q4.1)

"The studio environment means we can interact really easily with each other, so we get to know each other a lot quicker than people on other courses"

(Q2, 2007-08, q4.1 soc.)

"The studio provides a good, relaxed environment to meet new people"

(Q2, 2007-08, q4.1)

"Team projects, forcing social circle expansion"

(Q2, 2007-08, q4.1)

(Of the respondents from both cohorts, approx. 30% expressed similar sentiments to the above)

Recorded at the start of Semester 2, the following quotations were made in the group interviews, and convey the complex dynamic of studio in its generation of a mutually supportive peer learning setting whilst simultaneously cultivating a culture of competition and creative rivalry.

"Something that I had not expected was much, much better than I ever thought it would be is your classmates, how you interact with them in the studio and I guess the social thing as well..."

(group interview, 15.02.08)

"I really enjoyed the course because of the studio environment, you form sort of a close group of friends that you get to know and who are going through the same sorts of things that you are. There is also intense rivalry in the studio. No one will admit it but we are all quite competitive when it comes to things like that always looking over your shoulder to see what you are doing..."

(group interview, 15.02.08)

Consistent with the motivation afforded by studying a subject of choice, the opportunity to meet with people united by a common interest is appealing to students. It also presents the opportunity to interact with a range of individuals that, it is suggested, is perhaps more diverse to some than previously experienced. The ease of interaction facilitated by the studio setting is clearly an important facet of the learning experience, this being strengthened through group work that promotes interaction, dialogue and collaboration. However, a number of negative comments relating to group work were also recorded, a selection of which is shown below:

"Group works help get to know people but everybody could be friendlier"

(Q2, 2004-05, q4.2)¹⁸²

"Other people's attitudes. Different to what I am used to and find acceptable"

(Q2, 2007-08, q4.2)

"Having to make many compromises because everyone is so different sometimes it's hard to adapt to everyone's needs"

(Q2, 2004-05, q4.2)

¹⁸² In response to the question:

"What is your overall experience of University life so far, in terms of...?" What do you enjoy least about the environment category?

"Conflict when you're in groups. People have different ideas and opinions so sometimes there is conflict"

(Q2, 2004-05, q4.2)

(Of the respondents from both cohorts, approx. 5% expressed similar sentiments to the above)

At a more general level, a range of perspectives were shared that correspond with the challenges indicated in Figures A13 and A14, as follows:

"Lack of time for friends and family. Architecture is very demanding, however, more direction on tasks would help time management"

(Q2, 2004-05, q4.2)

"Groups have developed within the class and people tend to stick to those groups. Would like to get to know everyone in the class"

(Q2, 2004-05, q4.2)

"Some people have formed groups of friends which can be hard to access"

(Q2, 2007-08, q4.2)

"There is far less time to socialise than other courses. Because of the heavy work loads and deadlines"

(Q2, 2004-05, q4.2)

"It's hard to get a balance of social and academic"

(Q2, 2004-05, q4.2)

"Don't have a social life"

(Q2, 2004-05, q4.2)

(Of the respondents from both cohorts, approx. 9% expressed similar sentiments to the above)

Once again, the comments above embody a range of issues, some specific to architecture education, whilst others relate more generically to human nature. Echoing comments discussed in the academic dimension, the nature of workload and difficulties in balancing studies with socialisation negatively influenced some respondents. This is underscored by the ability of some students to benchmark themselves against those studying other subjects¹⁸³. On a more general level, some students had evidently been confronted by conflicting opinions and characters, introducing them to notions of compromise and negotiation. Whilst this represents valuable learning with respect to communication and professionalism, little time had elapsed at the point of this survey that would allow for reflection and for these experiences to be contextualised. The emergence of groups or cliques which inhibit full interaction within the cohort, is identified for the first time as a potential inhibitor of free and dynamic social interaction.

1.3.5 Perceptions of University Study in Semester 2

Perceptions of the overall academic experience were surveyed again early in the second semester

Of the respondents to Questionnaire 3 in Session 2004-05, 42.9% had changed their view of the degree of challenge presented by the university experience. Of these 2.4% of all respondents considered it to have become much more challenging, 26.2% more challenging, whilst 9.5% perceived no change since Questionnaire 02. 7.4% found it slightly easier and 2.4% found it much easier.

These figures relate very closely to the results from Session 2007-08 in which 48.0% had changed their view of the degree of challenge presented by the university experience. Of these 4.0% of all respondents considered it to have become much more challenging, 24.0% more challenging, whilst 8.0% perceived no change since Q2. 8.0% found it slightly easier and 4.0% much easier.

¹⁸³ Observations relating to the balance between study and socialisation broadly correspond to the findings of the *AIAS Studio Culture Task Force Report*. 2002, Washington DC: AIAS.

There are many factors influencing this increase in perceived challenge, and individual judgements will be dependent on the starting point for each student, as well as factors including levels of confidence and engagement. The following quotations giving an indication of the key issues identified as challenges:

"More challenging as work is getting more difficult"

(Q3, 2004-05, q4.3)¹⁸⁴

"More work, uncertainty, more pressure,... confusion"

(Q3, 2004-05, q4.3)

"At times I have been careless and let work build up, which I regret"

(Q3, 2004-05, q4.3)

"Higher expectations (of staff) - workload and deadlines"

(Q3, 2004-05, q4.3)

"Stress - trying to meet short deadlines with lots of work to do whilst maintaining a job " (much more challenging)¹⁸⁵

(Q3, 2007-08, q4.3)

"I expected it to be somewhat challenging, but the course has proved to be more challenging in terms of learning outcomes. Time keeping is also hard" (more challenging)

(Q3, 2007-08, q4.3)

"there's a lot more things than just Uni(versity), you have got to sort of start living on your own, you have got to start being able to deal with your own money... it's not just all University stuff, there is a lot of outside stuff that you have got to think about as well"

(group interview, 02.05.05)

¹⁸⁴ In response to the question sequence:

"Having Completed Semester 1, what is your impression of the transition to university study? Is it... Has your view on this changed over time? If 'Yes'. Has the experience become easier or more challenging since you arrived at university? What is the reason for this?"

¹⁸⁵ Notes in parenthesis refer to the degree of change in the perceived challenge presented by university study, in response to the question: "Has the experience become easier or more challenging since you arrived at university?"

"Once you get used to the change it is fine"

(Q3, 2004-05, q4.3)

The above remarks embody a diverse range of issues including the degree of academic difficulty, workload and time management, confusion and clarity of guidance, the personal responsibility of the student, staff expectations, and the life-study balance. It is clear, however, that some students expected a degree of challenge, although the magnitude of these may have caught a number unawares. Nevertheless, when asked how transition might be better supported one student expressed the view that it should not be, as developing skills to cope with university life constituted part of the learning :

"I'm not sure it could be, it is just down to the individual to cope with it"

(Q4, 2004-05, q5.2)

Of those who perceived the challenge to be declining, the following comments were recorded. These remarks serve to accentuate the range of ability and circumstance embodied by the cohort, that generates a variety of responses and reactions to the prevailing conditions.

"More settled, involved in more extra curricular activities. Also have a better idea of what kind of work level is expected"

(Q3, 2007-08, q4.3)

"Getting used to change"

(Q3, 2007-08, q4.3)

"Getting to grips with the workload, and I now know how 'crits' work"

(Q3, 2004-05, q4.3)

1.3.6 Learning a New Subject

Questionnaire 2 revealed that learning a new subject was considered by many to be the most positive aspect. Aside from the fact that this result

probably relates to the issue of personal choice and selection, Questionnaire 3 sought to establish what aspects the students find appealing, the results of which are shown in Figures A21 and A22.

Figure A21: Positivity of Learning New Subject: Session 2004-05

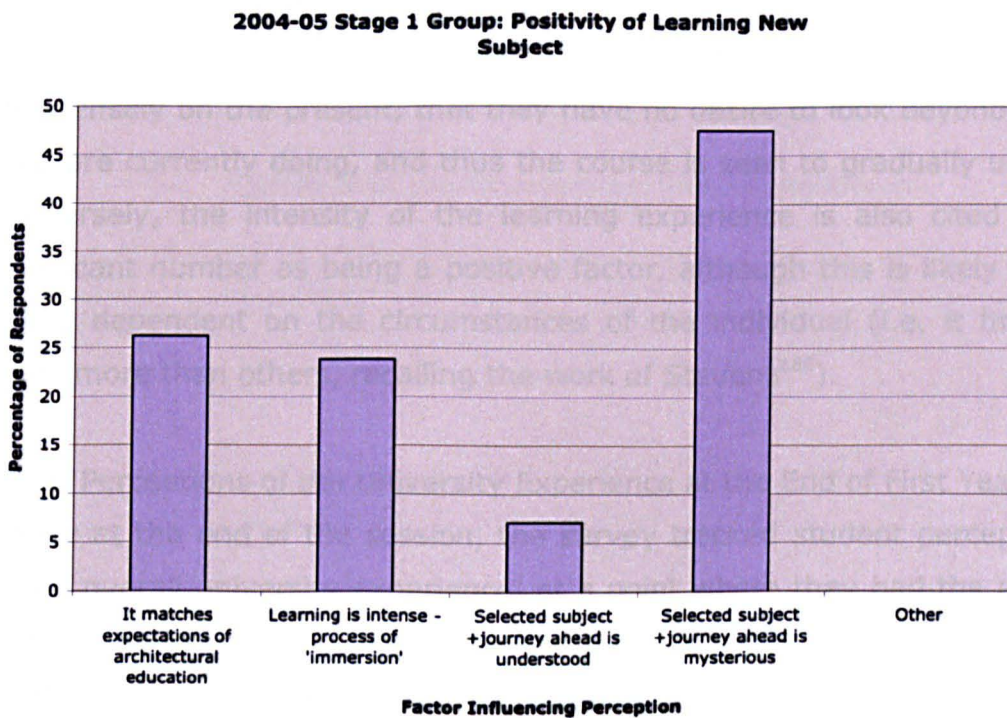
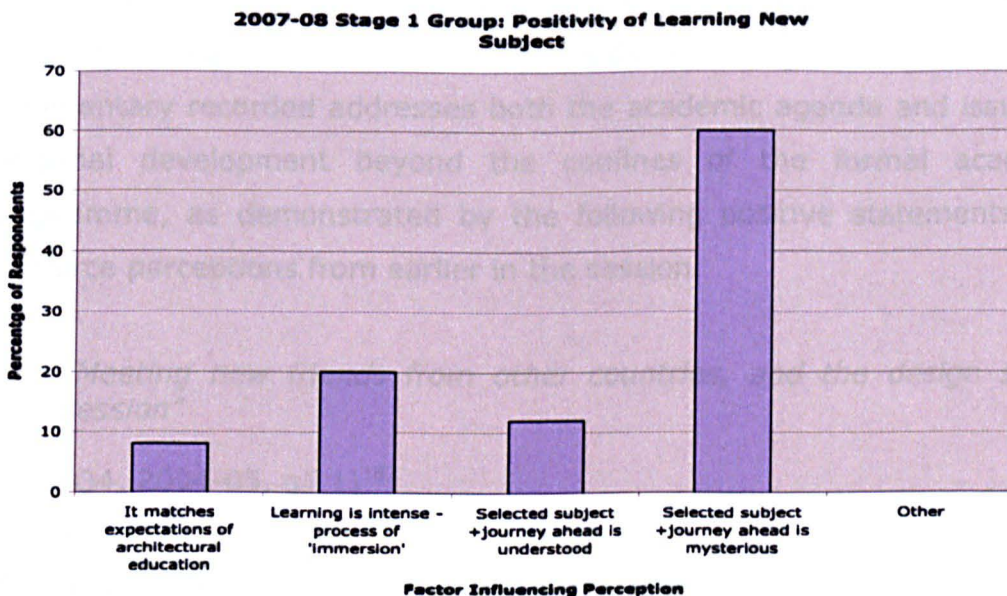


Figure A22: Positivity of Learning New Subject: Session 2007-08



The graphs above suggest that whilst architecture has been selected out of choice, there is an appeal in the fact that the academic 'journey' ahead is not fully laid out before the students, and that an element of 'mystery' or discovery is important. Given discussion elsewhere regarding the need for explicit guidance on the learning process, satisfying this would pose a considerable challenge to academics. However, comments in other sections suggest that the intensity of workload focuses student attention so intensely on the present, that they have no desire to look beyond what they are currently doing, and thus the course is seen to gradually unfold. Conversely, the intensity of the learning experience is also cited by a significant number as being a positive factor, although this is likely to be highly dependent on the circumstances of the individual (i.e. it favours some more than others, recalling the work of Stevens¹⁸⁶).

1.3.7 Perceptions of the University Experience at the End of First Year

Finally at the end of the session, the survey tracked student perceptions of the overall university experience, at a point where they had the ability or opportunity to reflect over the process. Figures A23 and A24 below chart the collective responses.

The results show a high level of satisfaction although, as reported previously, many of the students completed this response immediately following receipt of final summary feedback and grades. The diverse commentary recorded addresses both the academic agenda and issues of personal development beyond the confines of the formal academic programme, as demonstrated by the following positive statements that reinforce perceptions from earlier in the session:

"Meeting new friends from other countries, and the design studio session"

(Q4, 2004-05, q5.1)¹⁸⁷

¹⁸⁶ See reference to Stevens in Chapters 3: A Theoretical Model for Holistic Learning and 4: Lost in Translation: Flaws in Implementing the Studio Model.

¹⁸⁷ In response to the sequence of questions:

"At the end of your first year of study, how would you summarise your overall experience of University life? Has it been... What aspect has been best? Why?"

"Meeting new friends and (through) the course... I have felt that it has furthered my self confidence"

(Q4, 2004-05, q5.1)

"Becoming more independent"

(Q4, 2004-05, q5)

Figure A23: Summary of University Experience: Session 2004-05

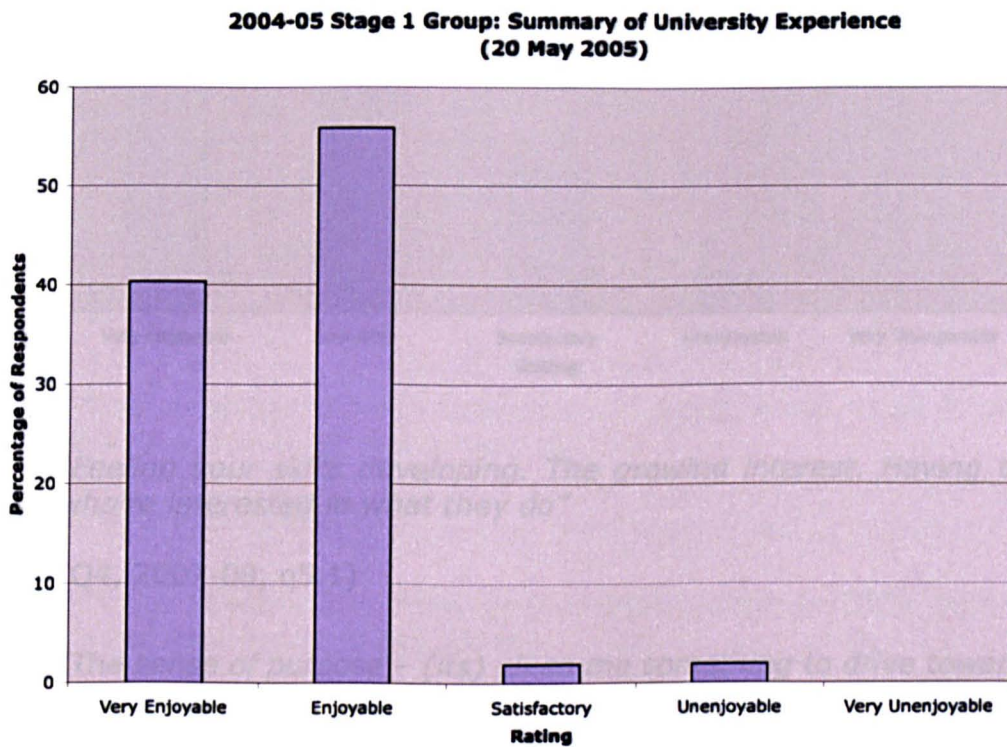
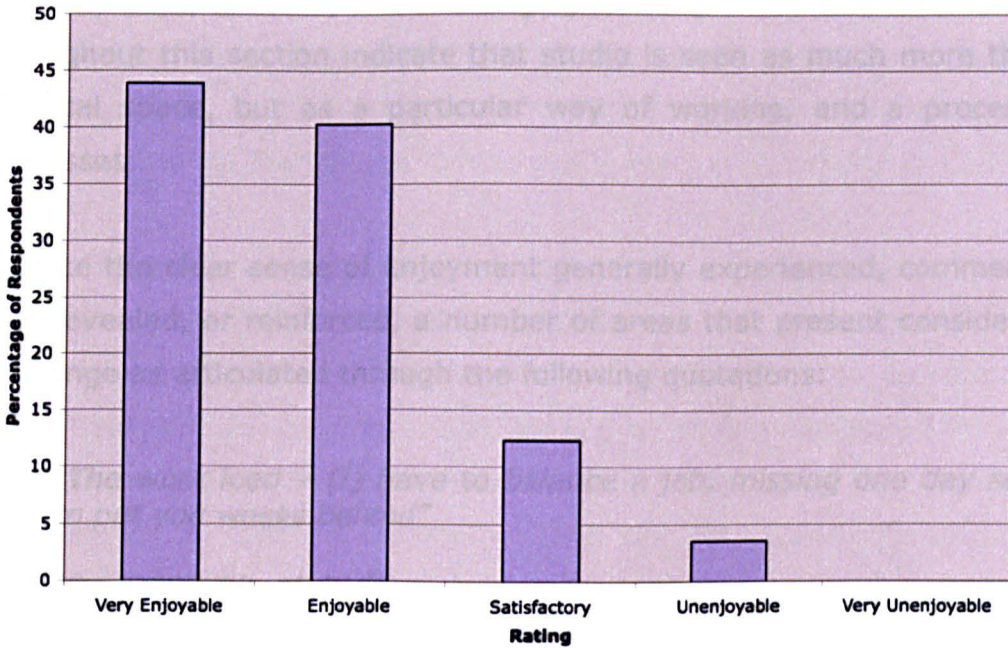


Figure A24: Summary of University Experience: Session 2007-08

**2007-08 Stage 1 Group: Summary of University Experience
(16 May 2008)**



"Feeling your skills developing. The growing interest. Having tutors who're interested in what they do"

(Q4, 2007-08, q5.1)

"The sense of purpose – (its) given me something to drive towards"

(Q4, 2007-08, q5.1)

"Challenge of living on your own trying to support yourself"

(Q4, 2007-08, q5.1)

"The course has been enjoyable, always changing and exciting - design studio"

(Q4, 2007-08, q5.1)

"Design studio - I enjoyed the design aspect most and found the interaction with the tutors helpful"

(Q4, 2007-08, q5.1)

Once again, the personal growth resulting from independence, broader socialisation, and the focus provided by vocational study registers in these remarks. Similarly, the phenomenon of design studio also comes to the fore as a vital, sociable, and challenging learning environment. Comments throughout this section indicate that studio is seen as much more than a physical space, but as a particular way of working, and a process or processes.

Despite the clear sense of enjoyment generally experienced, commentary also revealed, or reinforced, a number of areas that present considerable challenge as articulated through the following quotations:

"The work load – (I) have to balance a job, missing one day seems to put you weeks behind"

(Q4, 2007-08, q5.2)¹⁸⁸

"Time organisation and deadlines - I panic a lot when important deadlines and dates are coming up"

(Q4, 2007-08, q5.2)

(Of the respondents from both cohorts, approx. 38% expressed similar sentiments to the above)

"Meeting new people - have to deal with everyone"

(Q4, 2007-08, q5.2)

(Of the respondents from both cohorts, approx. 3% expressed similar sentiments to the above)

"Living away from home - I missed my family a lot and found it hard to adjust to a completely new life"

(Q4, 2007-08, q5.2)

¹⁸⁸ In response to the sequence of questions:
"What has been the most challenging aspect? Why? How could this be better supported?"

(Of the respondents from both cohorts, approx. 6% expressed similar sentiments to the above)

As before, these comments refer to aspects that are academic such as workload and the ability of students to manage time, and extra-curricular issues such as the need to earn income, or a sense of loneliness and detachment from friends and family, that impact on an ability to study.

It is recognised that perceptions of university study at a particular point in time may not be identical to perceptions of the transition to higher education, particularly as the former is likely to generate opinions that project forward from current experience (i.e. having completed a year of the course), whilst the latter represents a reflection of the experience encountered in getting to the end of the first year. Consequently, Questionnaire 04 sought to capture student reflections on the process of transition, these being depicted in Figures A25 and A26.

The results from both cohorts each demonstrate a spread of opinion and experience, although in the case of the 2004-05 group perceptions are rather more evenly distributed.

Figure A25: Perceptions of Transition to University Study: Session 2004-05

2004-05 Stage 1 Group: Perceptions of Transition to University Study (20 May 2005)

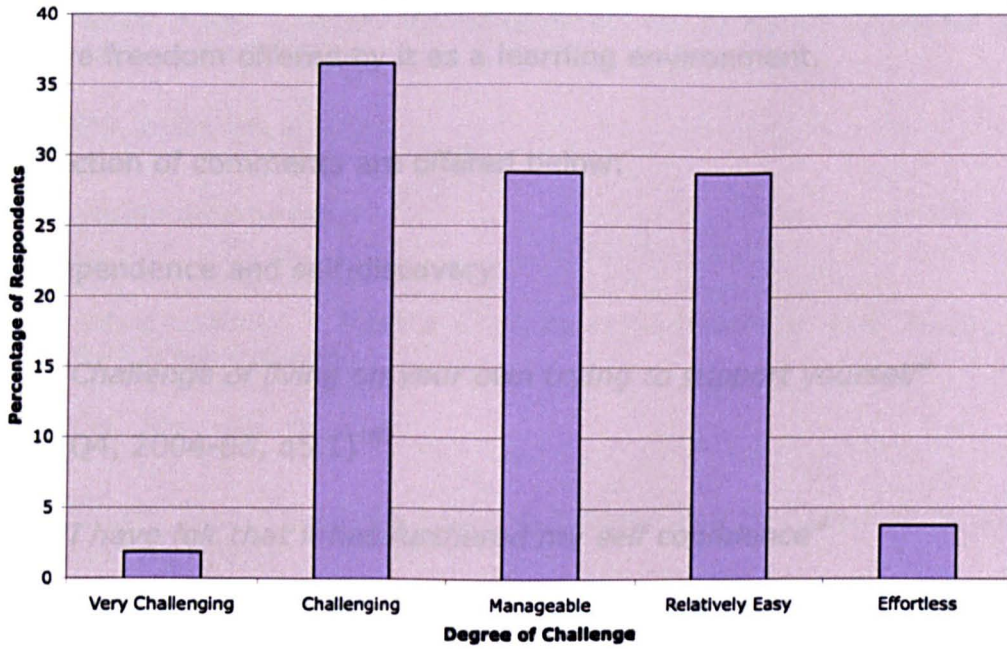
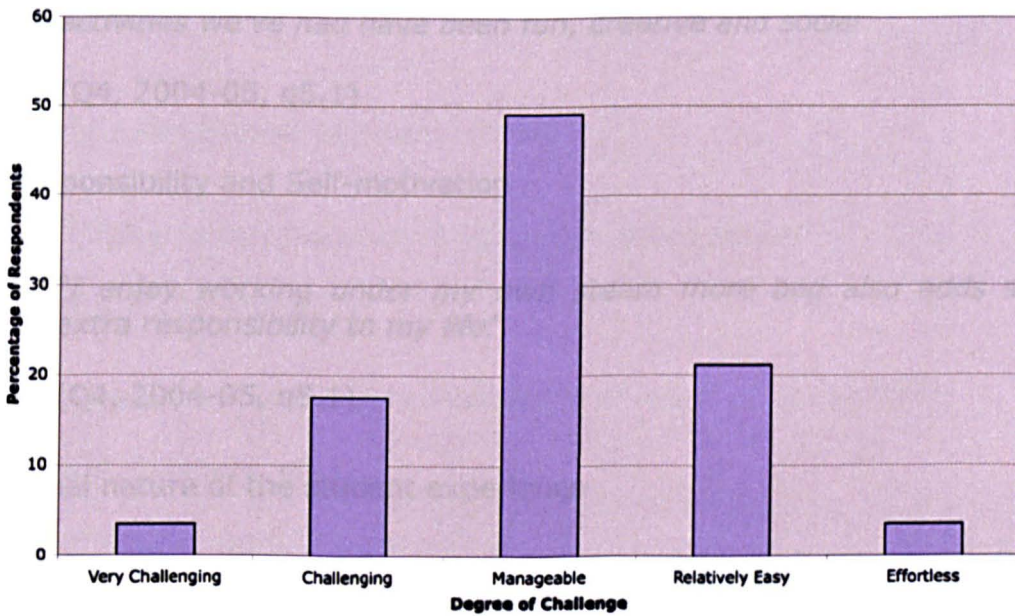


Figure A26: Perceptions of Transition to University Study: Session 2007-08

2007-08 Stage 1 Group: Perceptions of Transition to University Study (16 May 2008)



Positive comments received along with ratings cover a breadth of issues and sentiments which mirrored those recorded earlier in the session, including those of independence and the development of self confidence; the ability to take responsibility and charge of one's own studies; meeting like minded yet diverse people; the social dimension of studio, and the relative freedom offered by it as a learning environment.

A selection of comments are offered below:

- Independence and self-discovery

"Challenge of living on your own trying to support yourself"

(Q4, 2004-05, q5.1)¹⁸⁹

"I have felt that it has furthered my self confidence"

(Q4, 2004-05, q5.1)

"Becoming more independent - I am from Ireland and came here not knowing anybody and it was a big step for me"

(Q4, 2004-05, q5.1)

"I'm about to spend a long time with them (peers)!! And the activities we've had have been fun, creative and social"

(Q4, 2004-05, q5.1)

- Responsibility and Self-motivation

"I enjoy working under my own steam more and also adds some extra responsibility to my life"

(Q4, 2004-05, q5.1)

- Social nature of the student experience

¹⁸⁹ In response to the sequence of questions:

"At the end of your first year of study, how would you summarise your overall experience of University life? Has it been... What aspect has been best? Why?"

"Meeting new friends from other countries, and the design studio session"

(Q4, 2004-05, q5.1)

"Meeting new people and engaging on a course dedicated to my career plans - more interesting than school as it's focussed on the subjects I want to do"

(Q4, 2004-05, q5.1)

- The studio environment

"Design studio - There's a great environment in the studio, good work atmosphere"

(Q4, 2004-05, q5.1)

"Studio time - Because it is very relaxed and you are free to work at your own pace"

(Q4, 2004-05, q5.1)

Similarly, negative perceptions also reiterated comments that arose earlier in the session, such as workload and achieving an appropriate study / life balance and the onus on the individual to manage time and commitments, although some regarded this as the responsibility of the student.

- Study-Life balance/ pressure of work

"Trying to balance everything at school and home"

(Q4, 2004-05, q5.2)¹⁹⁰

"Deadlines - Late nights, mountains of work" ("It can't")¹⁹¹

(Q4, 2004-05, q5.2)

¹⁹⁰ In response to the sequence of questions:

"What has been the most challenging aspect? Why? How could this be better supported?"

¹⁹¹ Quotations shown in parenthesis are the responses to the question: "How could this be better supported?"

"Meeting deadlines - It's more independent and work is not controlled by parents etc" ("Tutorials in small groups fortnightly")

(Q4, 2004-05, q5.2)

"Finding time for work - Needs a lot of particular attention which is difficult to balance with new duties of living away from home" ("Think it is individual responsibility")

(Q4, 2004-05, q5.2)

"Dividing work with social and sporting activities - Sometimes I feel our tutors don't realise that we do other things besides Uni(versity) work, like sports etc" ("Lecturers more understanding")

(Q4, 2004-05, q5.2)

(Of the respondents from both cohorts, approx. 30% expressed similar sentiments to the above).

- Living away from home

"Living in a different country and making friends - Its harder when I don't know anyone"

(Q4, 2004-05, q5.2)

"Living away from family and friends - They are my best friends and I miss them greatly" ("That's difficult since friends and family are irreplaceable, a difficult one")

(Q4, 2004-05, q5.2)

(Of the respondents from both cohorts, approx. 3.6% expressed similar sentiments to the above).

- Independence / Personal responsibility

"It is just a big jump going from school to university... it is just down to the individual to cope with it"

(Q4, 2004-05, q5.2)

- Learning methods

"Found that there was constant pressure with reviews - I do realise that reviews are a critical factor of this course, but think the pressure could be less intense"

(Q4, 2004-05, q5.2)

"The workload expected - It's just too much to handle, conflicting deadlines etc" ("Better communication")

(Q4, 2004-05, q5.2)

"Pleasing the tutors - they are very specific"

(Q4, 2004-05, q5.2)

This final remark suggests that there are some who focus on gaining the approval of tutors, and who may therefore take on the characteristic of Schön's 'counter learner' (1983) through their attempts to predict tutor reaction or adopt an approach of compliance.

Reference to Figures A11 and A12 at the start of the section shows that perceptions of the level of challenge presented by transition changes amongst each subject group as the session progresses. Consequently, the final questionnaire of the sequence sought to gain some insight into the nature of these changes, and the reasons behind them. Of the respondents, 46.2% had changed their view of the degree of challenge presented by the university experience. Of these, 19.2% of all respondents considered it to have become more challenging, whilst 7.7% perceived no change since Q3. 19.2% found it slightly easier and 5.8% found it much easier.

Of those finding the experience progressively easier (in varying degrees), the primary reason cited relates to a process of acclimatisation to workload and predictability of working methods. The comments below indicate that this process gradually instils a sense of confidence and consequently belief in an ability to continue and succeed.

"Become accustomed to the work load, managing my time, able to handle distractions better. More confident"

(Q4, 2004-05, q6.2)

"I've gotten more used to the required intensity of work and the methods that work for me"

(Q4, 2004-05, q6.2)

"At the start you didn't know what to expect where as (sic) time went by it became more predictable"

(Q4, 2004-05, q6.2)

Other students had observed little difference in their feelings relating to transition. As can be seen from the statement below, the prior experience and conditioning of the individual inevitably acts as a key determinant with respect to the feeling about transition

"I went to boarding school so I feel I had a head start as I learned to be independent before I came to university"

(Q4, 2004-05, q6.2)

Finally, a number of students saw the transition become increasingly challenging. Once again the principal causes cited related to workload and ability to manage time. The expense of studying architecture also appears to be a cause of concern, particularly as the level of understanding of typical costs incurred appears to have been poor. However, as can be seen from the final quotation, for some it is the nature and perceived difficulty of the academic subject itself that presents the greatest demands, this being inevitable given that some students are likely to be less informed at the point of enrolment, and perhaps less equipped, depending on how they related their personal abilities to perceptions of the subject.

"At first I thought the course would be easier to manage, but as the year went on the work sometimes became out of control"

"The work load is very challenging, need to be organised"

"Creativity costs"

(group interview, 12.11.04)

"The design studio tasks have become very much harder and the nature of the tasks more demanding"

The issue of cost emerged during the group interviews, in which a view was strongly articulated that the costs associated with architecture study were both surprising and considerable in terms of drawing and modelling materials, printing, etc.

1.3.8 Summary

Over the span of an academic session, a range of diverse perceptions of the experience of transition to university were recorded. This breadth is attributed to the range of individuals comprising the subject groups, and the complex array of issues, academic and non-academic, that influence the level of challenge presented by embarking on university study. Much of these are circumstantial, including whether or not the student is living away from home (many probably do for the first time), their financial means, motivation level, and innate propensity towards socialisation. Others relate more directly to the academic process, including the nature of the learning environment, engagement with the subject and its component parts, the cost of study, intensity of workload, changes in learning methods, and so on.

Nevertheless some key patterns were identified. Firstly, perceptions of the difficulty of the challenge peaked around the mid-point of the session, reducing towards the end when there are higher levels of understanding of and familiarity with the learning process and, in some cases, knowledge of performance.

Initial perceptions reflected the combination of excitement, anticipation, and uncertainty on enrolment. It was considered that the learning process could have been made more explicit at induction, although it was also recognised that understanding requires time being experiential in nature.

The salient issues that emerged were difficulty in achieving an appropriate balance between study and other commitments, and the need to carefully manage time, these being not disconnected. Equally, for many, the assuming of responsibility for self, and the (staff and perhaps peer?) expectation of a higher degree of independence represented a considerable challenge. This is particularly so given that the majority of students were living away from home. In that regard university represents much more than a programme of academic study, being about expansion of social networks, financial independence, etc. Although the academic subject itself is regarded as the most positive aspect of the transition to university, concerns had less to do with the subject than with the broader educational process. In particular, new learning ways of working were the cause of some apprehension as they represent change and hence uncertainty.

The studio environment quickly emerged as a key experiential component, combining and integrating learning, socialisation, and stimulus, as well as partially dissolving the conventional tutor / tutee relationship. Indeed the notion of studio constituting a base that the student inhabits is clearly welcomed and quickly accepted, with one respondent drawing the analogy of studio as 'home'. Conversely, aspects such as workload and feedback also manifest themselves early, these issues influencing motivation levels in a number of students. Workload could be both motivating or motivating depending on circumstances and the personality of the individual. However, whilst the intensity of workload was seen to deny opportunity to socialise outside of the academic peer group, this appeared to be countered to some degree by the innate sociability of studio and the sharing of experience with those who whilst diverse possessed a common interest. The results suggest that the characteristics of studio with respect to peer dynamics offer a degree of comfort and mutual support to students in conditions of uncertainty. However, when peer interaction is formalised, such as through group work, students appear challenged at times through the need to compromise and develop tolerances that accommodate others.

The transition to university study was seen to become more challenging in the second semester, this being attributed to a combination of greater uncertainty, the perception of higher staff expectations, and the academic content also becoming more difficult. Viewed overall, the most positive reflections related to perceptions of personal growth and to the studio environment. However, the degree to which views are shared with respect to these aspects, masks an underlying diversity that encompasses a spectrum ranging from the independent, exploratory student to those exhibiting the first signs of Schön's 'counter-learner'¹⁹².

1.4 Experience Relative to Student Expectations

1.4.1 Introduction

Whilst the previous section discusses student perceptions of transition to university education as a whole, the findings below focus on their experiences of the course itself relative to their personal expectations. It is reasonable to assume that there will be some overlap between these sections, but the intention behind the focused discussion is to reveal greater insight into responses to the academic programme. Student responses were gathered through Questionnaires 02 and 04, this enabling the establishment of collective profiles at both points in the session, and to gain a sense of any shifts in collective attitudes.

1.4.2 Initial Experience in Relation to Expectations

At the mid-point of Semester 1 (Questionnaire 02), 77.4% of respondents in the 2004-05 survey thought that their initial experience matched their expectations, whilst 22.6% perceived the opposite. Whilst data were insufficient to suggest a direct correlation, these figures recall the high percentage of students who had experienced some degree of 'contact' with architecture prior to enrolment. Repeated in 2007-08, the Semester 1 survey revealed similar results, with 69.6% of respondents considering their initial experience to have matched their expectations, whilst 28.6% said that it did not. At a superficial level, the percentages of students for

¹⁹² For reference to Schön's 'counter-learner' (1987), see Chapter 4: Lost in Translation: Flaws in Implementing the Studio Model

whom expectations were not met appears significant in that they represent a substantial percentage in both instances although, as indicated by some remarks made below, expectations were clearly surpassed:

"It really was different, I did not know what to expect. But it has been better than expected"

(Q2, 2004-05, q6)¹⁹³

"Much more creative and guidelines are loose"

(Q2, 2007-08, q6)

Notably amongst these positive statements, whilst there are references to the 'hardness' of the course, or perceptions of tiredness and fatigue, a number of comments, such as those below, do not associate these observed characteristics with negative perceptions, indeed the inverse is true:

"It's far better than I expected and far harder"

(Q2, 2004-05, q6)

"Was extremely weary but am thoroughly enjoying it"

(Q2, 2004-05, q6)

For other students there was an evident level of uncertainty about whether or not the course would suit them:

"I didn't realise what architecture was about when I first started. I think it is only now that they are beginning to realise whether it is the right thing to study or whether it is not..."

(group interview, 11.02.08)

¹⁹³ In response to sequence of questions:

"Does your initial experience of your course match your expectations? If 'No', please state why"

For any student poorly informed about the study of architecture, or making choices based on inaccurate information or naïve assumption, it is inevitable that they are only able to make true judgements after having gained some experience of the course.

Consistent with perceptions of transition discussed previously, respondents expressing a more critical view also referred to the intensity of workload, as well as lack of guidance, lack of knowledge of what to expect, and perceptions of the course being expensive, as exemplified by the following comments:

"There's no gradual procedure from the start, you just kind of 'go' from the start, there's a lack of comfort at times, and you have to pick things up as you go along"

(Q2, 2004-05, q6)

"I never realised that you would be up to 3.00 or 4.00 in the morning the night before a presentation cutting your fingers on scalpel blades and things like that... you cannot exactly put into the Prospectus that you require late hour working and multiple incisions made in your fingers!"

(group interview 15.02.08)

"A lot of expenses which were not explained at the beginning (not only little time to socialise but little money too!)"

"I didn't know what to expect but I am not enjoying as much as I thought"

(Q2, 2004-05, q6)

"I thought there would be more allowance for those with no experience"

(Q2, 2004-05, q6)

"I thought drawing of buildings and plans would be taught"

(Q2, 2007-08, q6)

The above quotation suggests a lack of any diagnostic process early in the year to ascertain the abilities of enrolled students, and a corresponding assumption that all students possess the same 'base' from which to develop learning. Lack of appropriate recognition of differences between students could serve to reduce motivation in certain groups of students, particularly should they perceive a gap opening up between their peers and themselves. An alternative source of frustration is intimated by the statement below that voices a concern that there is never sufficient time to demonstrate what one is capable of:

"I feel that we have too much work on at once and can't find time to perfect anything"

(Q2, 2004-05, q6)

However, with reference to the above comment, it may be equally argued that the pressures associated with coincidental projects represents a preparation for professional life, and the ability to manage such a situation a key skill.

It is noted that the lack of understanding of what to expect, and responses to workload, feature in both the positive and negative categories, this highlighting the diverse and individualised responses of students within the same cohort, as well as arguably the different personality traits and learning styles of individuals.

1.4.3 Reflection at the End of First Year

Surveyed again on the final day of Session 2004-05, an increased 86.5% of respondents felt the course met their expectations, whilst 11.5% were unsure. The increase in those expressing satisfaction perhaps refers to opportunity for reflection on the full session facilitated by the end of year 'portfolio review' that immediately preceded the questionnaire. The increase may also be explained in part by a process of acclimatisation and transition throughout the year, with students having become familiar with and adapted to the educational processes involved.

The results for Session 2007-08 showed a strong consistency with those from the preceding group, with 84.2% of respondents feeling that the course met their expectations, whilst 10.5% were unsure. A number of individual comments shed light on a variety of aspects of the learning process and, as such, are worthy of note. Each reveals a different factor that is instrumental in the creation of perceptions across the student body:

In the first pair, there is recognition of the responsibility of the student in the learning process, and of the partnership that exists between students and tutors:

"I don't feel that I have contributed enough to state yes or no!"

(Q2, 2007-08, q8)

"...you have to support your own way quite a bit rather than having someone say well are you sure you are making the right decision...you are having to do any awful lot more thinking for yourself... I think when you come to the university you have got an impression that they would help you out a bit more than they did..."

(group interview, 15.02.08)

The second of the comments above raises the issue on different ways of learning, tutor expectations of student engagement, and the ability to exercise more independent thinking, greater resourcefulness, and self-motivation. Made at the start of Semester 2, this comment suggests difficulties experienced in negotiating the transition between secondary and tertiary educational environments during the initial semester.

The following statement conveys a growing confidence and diminishing self-doubt. This may be the product of acquired skills and knowledge, but may also be positively influenced by the individual's ability to position his or her performance in the context of their peer group.

"I thought at the beginning I would not be able to keep up but I find that I can achieve more and more!"

(Q2, 2007-08, q6.1)

On a different note, the following provides evidence of both reflection and a growing ability to understand the learning process and to contextualise the behaviour of tutors within this:

"...once you realise what they are doing, once you realise what the tutors are doing for you, they are setting foundations for you"

(group interview, 12.11.04)

It would appear that the nature of the course is surprising to some students, which although manifesting itself mainly in the positive comments in this instance, has the potential to introduce a negative dimension too.

"It takes a while to settle into a routine"

(Q2, 2007-08, q6.1)

"Did not think most of course would be in studio, expected more lectures"

(Q2, 2007-08, q6.1)

"Just completely different set up than I imagined"

(Q2, 2007-08, q6.1)

As noted elsewhere, the majority of students found learning methods different to those encountered previously, and in some cases felt that information available prior to enrolment failed to fully describe the learning experience. Whilst it is always likely that a few students may not find the experience or subject to their liking once enrolled, data suggested that this can be diminished through the production of information that details the learning process.

More generally, recorded comments varied again; whilst the overall tenor was more positive,

"Exceeded expectations, easier to cope with than imagined"

(Q2, 2004-05, q8)

"I'm actually loving it more than I thought I would. I thought first year would just be going over the basics"

(Q2, 2007-08, q6)

"Less lectures, more freedom, more fun, more hands on"

(Q2, 2007-08, q6)

there were some expressions of lingering doubt or uncertainty:

"Not sure - I didn't know what to expect when starting"

(Q2, 2007-08, q6)

By contrast, perceptions of a learning experience that failed to engage were also recorded, such as:

"I thought it would have been more interesting and fun rather than monotonous and critical"

(Q4, 2007-08, q8)

Although the results imply that a percentage of students appears to become accustomed to the educational process and system being implemented¹⁹⁴, it is probable that expectations changed in varying degrees amongst individuals over the period between Questionnaires 02 and 04. It is also possible, that following receipt of end of session feedback immediately prior to Questionnaire 04, this also served to modify individual expectations.

¹⁹⁴ See Sections 1.10 and 1.13 of this Appendix, relating to feedback and confidence levels respectively.

1.4.4 Summary

It is evident that a great diversity exists with respect to student expectation and perception of experience. Despite this, there was a consistency across the two surveyed cohorts in that a significant percentage of respondents shared an initial perception of the course not fulfilling expectations within the first few weeks of study. The reasons for this are multifarious, including lack of prior understanding of what architecture education entails, perceptions of pressure and the impact that time pressures exert on the opportunity to perform to a high standard, and cost. However, it is important to note that some recorded the experience as not fulfilling expectations not because it was in some way deficient, but rather because it exceeded them. Perceptions of greater creativity than anticipated were cited.

Of those of a more negative persuasion (approx 25% of cohorts believed that the course did not meet expectations at mid-point of Semester 1), issues of workload and clarity and adequacy of guidance were cited as reasons. It was also evident that some students felt that they would have benefited from more explicit explanatory information about the course and the learning experience ahead of enrolment, this reducing the likelihood of surprises and enabling better judgement in course selection.

Finally, consistent with the large percentage who had acquired some exposure to the subject and its professional environment through work experience, others did consider their expectations met at an early stage. However, there is evidence of an increase in satisfaction towards the end of the year, this probably resulting from a combination of acclimatisation to and acceptance of learning methods, and the receipt of end-of-year feedback on all course components.

Taking ideas of Constructivism as the underpinning theory, one might expect staff to establish through diagnostic assessment the level of core skills existing, as well as the diverse experiences and capability embodied by the cohort, on which future learning can be built. However, the lack of diagnosis appears to have heightened views that diversity of educational

background is not acknowledged and accommodated in the learning process, this leading to instances of frustration.

The results from this section, in terms of both perceptions of experience and the underlying reasons, reveal the diversity of the cohorts and individual responses within, and the fact that these perceptions are influenced by a number of factors that are within the control of the academic team.

1.5 The Learning Experience

1.5.1 Introduction

This section gathers together and analyses data relating to the students' impressions of the learning experience from enrolment to completion of the first year. Questions asked about the learning experience in its fullest sense, incorporating learning methods, the learning setting, the nature of the work within the course itself, and the nature and perceived sufficiency of learning support provided. However, responses referred in particular to the studio experience, to an extent that demonstrated that it is quickly perceived as the fulcrum of architecture education.

1.5.2 Learning by New Methods

In Session 2004-05, 77.6% of respondents perceived the learning experience on the course, and the learning methods employed, as being different from that which they had previously encountered. This was echoed in the results of the 2007-08 survey in which 85.7% recorded a similar perception. The following statements offered comprise a range of responses given that articulate the nature of the perceived difference:

- Environment

"Working environment of studio is one I am unfamiliar with but really enjoy"

(Q2, 2004-05, q7.1)¹⁹⁵

"Studio-based work is unlike most subjects at school"

(Q2, 2004-05, q7.1)

Once again, studio stands out as a new but positive experience¹⁹⁶.

¹⁹⁵ In response to the questions:

"Is there a difference between the learning experience and previous learning methods you have encountered? If Yes', what is the difference?"

¹⁹⁶ See also Section 1.3 of this Appendix.

- Independence

"A lot more independent study is required"

(Q2, 2004-05, q7.1)

"You have to take responsibility for your own studies"

(Q2, 2004-05, q7.1)

"You're encouraged to work on your own more without being spoon fed"

(Q2, 2007-08, q7.1)

"School was more like teaching you like children unlike in university"

(Q2, 2007-08, q7.1)

"I find it is more easy to work at my own rate and without as much pressure from anyone"

(Q2, 2004-05, q7.1)

"More independent, allowed to use own ideas more, more relaxed atmosphere"

(Q2, 2007-08, q7.1)

"Left to own devices a lot more, less of 'you have to' environment"

(Q2, 2007-08, q7.1)

"I have much more control and choice"

(Q2, 2007-08, q7.1)

"I think with coming directly from school, there is no doubt it is a big change in the way to survive, as in school you are getting fed on a plate, if you don't do it why are you here? You are expected to investigate and present and to manage yourself. No doubt it is a good thing"

(group interview, 12.11.04)

"I have attended 15 previous schools in many countries all with different ways of teaching and different marking / grading systems. I am coping fine and I prefer this grading system"

(Q2, 2007-08, q7.1)

These comments display a strong consistency with respect to independence and the shift in onus and responsibility onto the student. Whilst this represents greater freedom, which is clearly welcomed by some students, it simultaneously makes demands on the student that are new for many. That said, as can be seen from the final statement, a minority of students come with highly developed skills in adaptability, and exposure to a broad range of educational methods and approaches.

- Nature of work

"here creativity is valuable"

(Q2, 2007-08, q7.1)

This comment aligns with the findings on student motivations for study, and conveys a satisfaction that the author's personal creativity has an outlet, and an opportunity for development.

- Learning support

"Here is such a jump from school and college, it's so much easier to get lost and feel you don't know what you are doing"

(Q2, 2004-05, q7.1)

"I come from a strict school background, where work is spoon fed to us and I was put under greater pressure by my teachers"

(Q2, 2004-05, q7.1)

"The tutors don't push you to complete work, it's your own choice"

(Q2, 2004-05, q7.1)

"Work is done a lot quicker, deadlines are more alarming"

(Q2, 2004-05, q7.1)

"It's almost totally up to yourself to learn and find the information"

(Q2, 2004-05, q7.1)

"Everything I need has already been provided"

(Q2, 2004-05, q7.1)

As well as serving to reinforce the pedagogical step change represented by university education, the statements noted above also raise the question as to the appropriateness of the learning support provided. Here too, a range of opinion exists, from those concerned about becoming 'lost' to those that feel they have everything they need, this latter view appearing to be in the minority.

Whilst the studio environment registers strongly as a new experience for the majority, it is generally received positively and is cited as a facet of the learning experience that is one of the most engaging. Results indicate that for many students, the most manifest change in the learning experience is represented by the shift in responsibility from the tutor to the student, placing much greater emphasis on self discipline, personal motivation, and individual study skills. Comments also suggest the need for students to construct new kinds of relationships with university tutors compared to those experienced previously (such as the 'you have to' culture referenced earlier).

1.5.3 Introduction to the Learning Process

Within this context it is notable that in Session 2004-05, 84.9% of respondents considered the introduction to teaching and learning processes fundamental to the course and that they received on arrival to have been adequate. This was echoed in Session 2007-08 when the figure was 98.2%. Of those that opposed this view, the following justifications were offered :

"It would have been enlightening to be shown what is expected of us - best examples of previous years"

(Q2, 2004-05, q9)¹⁹⁷

"There is a certain lack of depth and explanation to certain areas"
(Q2, 2004-05, q9)

"But it is something you need to understand yourself"

(Q2, 2004-05, q9)

Of the 15.1% who consider the information unsatisfactory in Session 2004-05, comments not only indicated the need for greater explanatory depth (5 no.), but the suggestion was also made that the student has responsibility to develop his or her own understanding (1 no. response). This is suggestive of a process of reflection or absorption, and an expectation of learner independence. Additionally calls were made for more focus on developing core skills (2 no. respondents).

However, the question of the adequacy of introductory information presumes that, at an early point in their studies, the students have developed the judgement to appraise or identify the information that they require. The iterative nature of design education also suggests that induction into process and method equally requires reiteration and reinforcement over an extended time frame.

Course information takes many forms, from that which is specific to the learning embodied within particular projects, to information that describes a broader form for the course, and which enables current learning to be contextualised within the whole. Given the newness of the subject, and the commitment expressed through enrolment on a course of substantial duration, it might be reasonably expected that students would seek an overall understanding of the learning process at an early stage. However, data gathered indicated that having selected the overall course of study,

¹⁹⁷ In response to the questions:

"On arrival, do you think you are given an adequate introduction to the teaching and learning processes fundamental to your course? If 'No', please state why"

the students are generally content for the 'route map' to unfold before them¹⁹⁸. Whilst this contentment with partial information is perhaps surprising in that it is counter-intuitive, the comments below perhaps reveal something of a justification. Once again, it would appear that the intensity of workload has a bearing, in this context causing the students to concentrate on immediate demands at the exclusion of other considerations

"It is good to know where you are going in the project you are on, but as to what's coming after the project you are on, it's not particularly relevant"

(group interview, 02.05.05)

"I think it's better to keep your head where you're at, especially with our projects"

(group interview, 02.05.05)

"Worrying about one thing at a time"

(group interview, 02.05.05)

The following comment by a final year student acknowledges that introductory information can be biased toward the institutional perspective, rather than giving applicants exactly what they seek. It also confirms that the information sought by prospective students is not limited to the course structure, curriculum and learning process, but extends beyond this to pragmatic issues such as finance:

"They (academic staff) emphasise the good things, but they don't let you know that you maybe should start savings (for materials. etc.)... when they (course applicants) come for their Open Days here, it is a very tutor based perspective (that they receive), and (sic) what is expected of you project-wise, but what is expected of you time-keeping wise and financially here, you know, and how hard it is actually to keep a job going during the course, and things like that that other students find very easy"

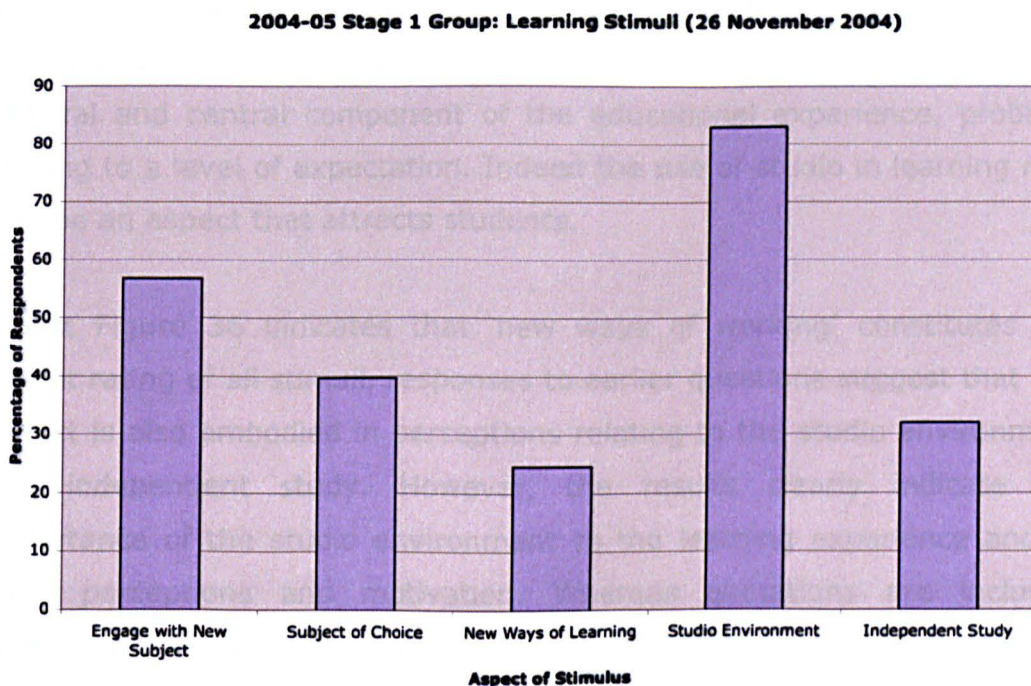
(Stage 6 Student)

¹⁹⁸ See Figures A21 and A22 re. Positivity of Learning a New Subject.

1.5.4 Learning Stimuli

Figure A27 plots the aspects of the course that the Session 2004-05 students initially found most stimulating from their experience in the first few weeks of study.

Figure A27: Learning Stimuli: Session 2004-05



Although the learning environment of the studio is the most significant factor, followed by the subject itself, there is a relationship between the methods of learning and the environment itself as recognised by some of the quotations that follow:

"Good studio area where everyone has their own space but able to work with others"

(Q2, 2007-08, q4.1)

"Everything you require in terms of research and also socially is right at hand"

(Q2, 2007-08, q4.1)

"Good balance of lectures and self-directed studio work"

(Q2, 2007-08, q4.1)

The findings relating to the studio environment as a stimulus to learning, also relates to expectations that many students arrive with, based on prior awareness of studio-based learning with the creative dimension of architecture that constitutes such a key motivation to study¹⁹⁹. It is generally the case that the studio environment is promoted as being an integral and central component of the educational experience, probably leading to a level of expectation. Indeed the use of studio in learning may well be an aspect that attracts students.

Whilst Figure 36 indicates that 'new ways of working' constitutes the lowest rating of all stimuli, responses to earlier questions suggest that this aspect is also embodied in perceptions relating to the studio environment and independent study. However, the results clearly indicate the importance of the studio environment to the learning experience and to early perceptions and motivation. Whereas quotations are included elsewhere that support this²⁰⁰, the following additional comments were taken from the group interviews:

"I also like the fact that it's quite a big studio and you can work with other people, like bounce ideas off each other, and see the standard that everyone else has produced as well"

(Group interview, 12.11.04)

"You don't feel like (sic) you're working, it's like a common room, which is like where all the students go so that's nice"

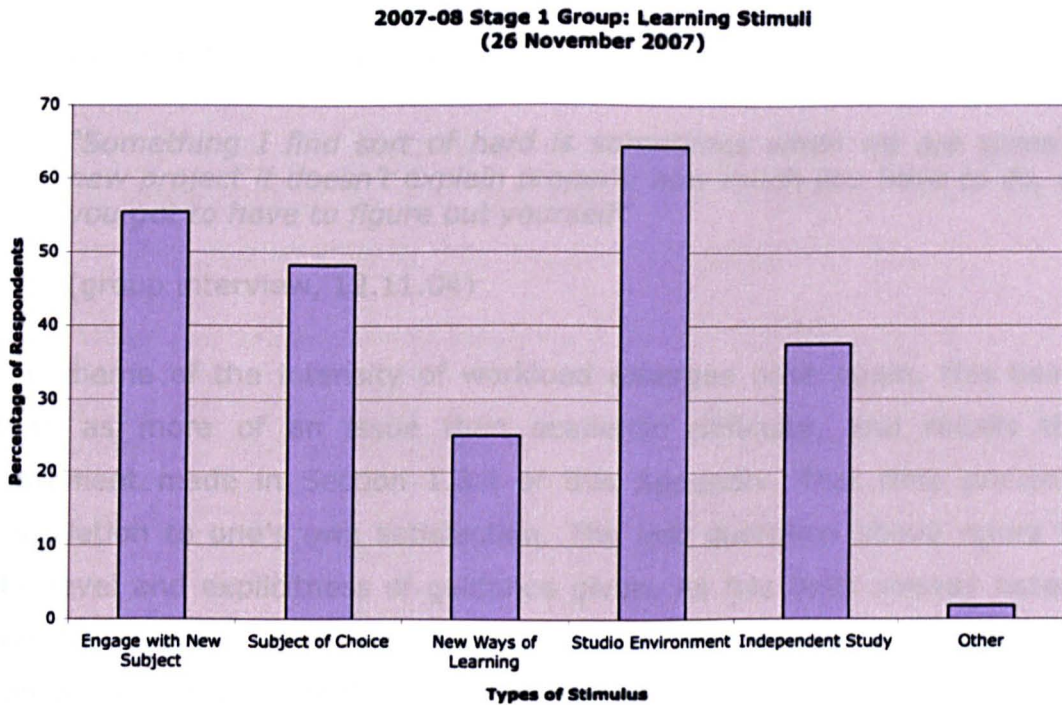
(Group interview, 11.02.08)

The survey was repeated in Session 2007-08 revealing a broadly similar trend as shown in Figure A28, with the relative weightings of stimuli closely correlating to the initial survey.

¹⁹⁹ See Section 1.2 of Appendix 1, relating to motivations for study in architecture.

²⁰⁰ See Sections 1.3 and 1.5 of this Appendix.

Figure A28: Learning Stimuli: Session 2007-08



Perceived difficulties of course

The group interviews held early in each session explored initial perceptions of difficulty within the course. The responses relate more to issues of process rather than to the academic or intellectual demand of the subject matter itself²⁰¹.

"there is an intensity of the work, that's what is proving to be a challenge "

(group interview, 12.11.04)

"it's not too difficult, but there is so much of it at the moment, that it's just getting on top of it"

(group interview, 12.11.04)

"I think the difficult thing at the moment is that because we have just finished some group work... I'm not useless with people; but people that just don't put their input into the groups, when you are

²⁰¹ For more detail of perceptions of component subjects, see Section 1.8 of this Appendix.

put into situation like that it is just difficult to get along and get your work done, it's pretty annoying really"

(group interview, 12.11.04)

"Something I find sort of hard is sometimes when we are given a new project it doesn't explain properly how much you have to do, so you got to have to figure out yourself"

(group interview, 12.11.04)

The theme of the intensity of workload emerges once again, this being seen as more of an issue than academic difficulty, and recalls the statement made in Section 1.3.4 of this Appendix. That time prevents completion to one's own satisfaction. The last quotation above refers to the level and explicitness of guidance given. As has been already noted, the absence of clarity is often responded to by determination of a consensual view across the cohort of what is required.

When asked to reflect on their entire experience, the thoughts of completing Stage 6 students directly echo the initial impressions from the Stage 1 cohorts, as exemplified in the following statement:

"I think it was a hard adjustment realising that you had to be in for a long time, and once you had done that long day, you still had to go home and do another few hours work"

(group interview, 06.06.05)

Representing an alternative view, the comment below identifies the change in learning methods, and the intrinsic nature of the subject, as being primary areas of adjustment and acclimatisation. It is noted that studio is explicitly referred to here as 'the more important' component of the course, a perception that appears to quickly develop:

"When you are so used to exam-based learning... and you come here and suddenly that is turned upside down. And, although you've still got exam-based learning on that side (lecture-based

components), but on the more important side, the studio, design-based side, is completely subjective"

(group interview, 06.06.05)

However, despite the percentage of respondents who perceived the learning experience to be new, the following is a reflection from a final year, in which the veracity of this perception was questioned:

"What I've always found interesting is that inevitably there is going to be differences in personality from tutor to tutor, but in terms of structure, I think what it lacks is that although (sic) we are at University and are expected to be more independent, but because our course is so focussed on studio based teaching, which is one on one, it is more closely linked to, say, Secondary School education, than... I would imagine other Degrees to be"

(group interview, 06.06.05)

Asked to consider what might be offered as support to overcome these difficulties, the potential benefit of using peer support was raised, although it was felt that this would require to be formalised in some capacity to ensure that more inhibited students are accommodated.

"think it should be a peer thing, because obviously we have all been through it, we should be able to speak to the younger years to be able to say, it's OK, it gets better, or don't worry about if, ..."

(group interview, 0.6.06.05)

"When I was in 1st year or 2nd year, no way would I have been going to an Honours or Masters year student and saying, "Hi, I'm having a really tough time, can you help me?" You know, without at least some kind of system being set up, there's no way that you would do that"

(group interview, 06.06.05)

It is acknowledged that some spatial configurations of studio space and inhabitation within, may benefit such an initiative over others through facilitating interaction and communication (although this did not form part of this study).

1.5.5 Learning Support

Perceptions of the learning support offered were gathered throughout each academic session. From the data collected, the analysis has been structured to address two primary forms of learning support identified; that of tutors and the institution, and that provided by the peer group.

Figure A29 below charts perceptions of support for individual learning needs some 6 weeks after enrolment of the Session 2004-05 cohort.

The perceptions of learning support are generally good at the mid-point of Semester 1, although nearly 40% rate it as merely 'adequate' (See Figure A29). In order to establish a rating, one must have some sense of expectation. Given that many students see learner independence and personal study skills as a significant challenge in transition to university study, this may explain why such a percentage of views recorded have tended toward the median. The relatively low rating at the high end may be similarly explained by the tendency toward the median at a time when views are still being formed, relationships built, and understanding and confidence established. Repetition of the exercise in Session 2007-08 revealed a very similar range of responses, as illustrated in Figure A30.

Figure A29: Support of Individual Learning Needs: Session 2004-05

**2004-05 Stage 1 Group: Support of Individual Learning Needs
(26 November 2004)**

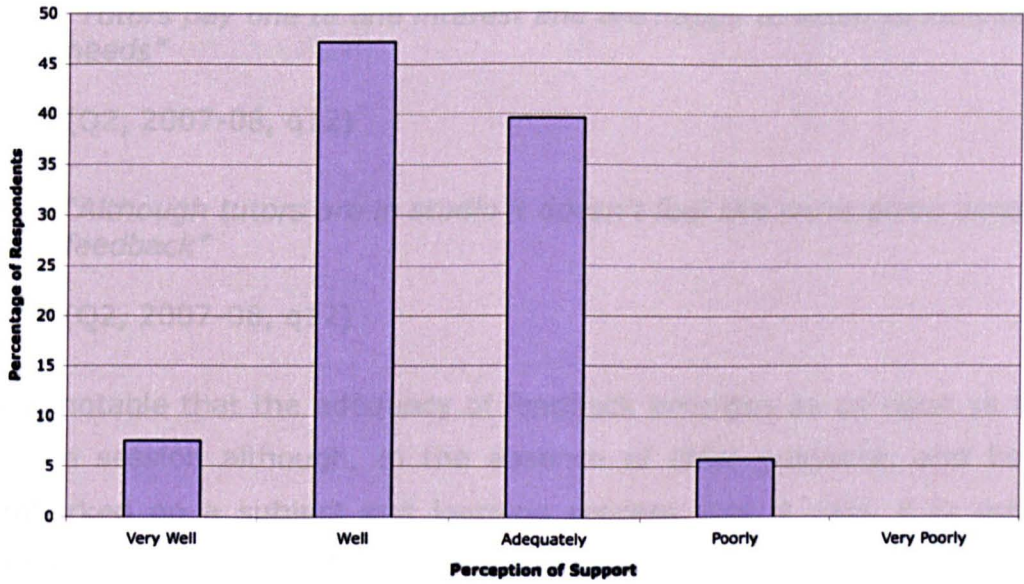
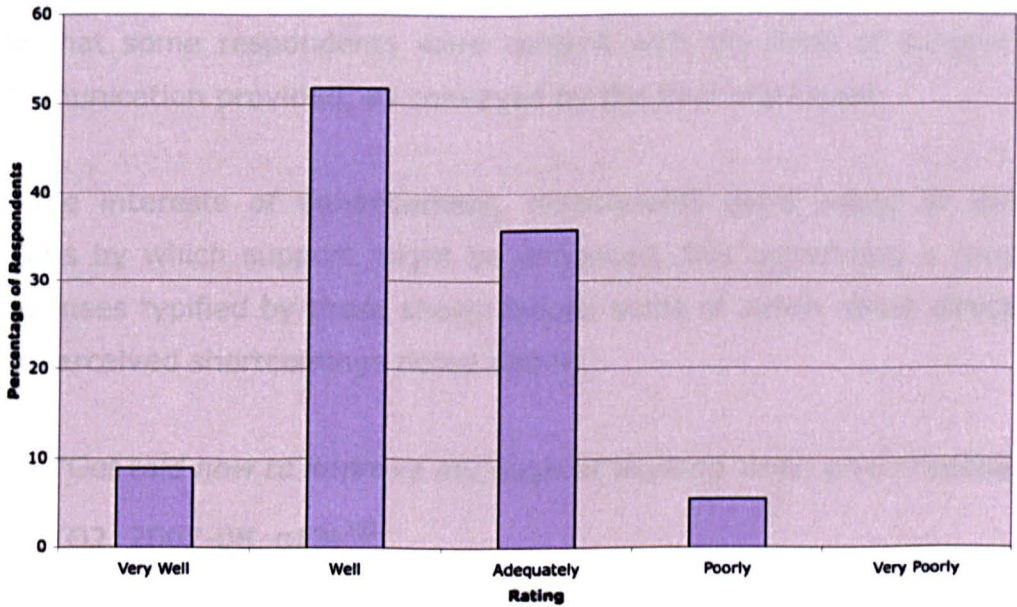


Figure A30: Support of Individual Learning Needs: Session 2007-08

**2007-08 Stage 1 Group: Support of Individual Learning
(26 November 2007)**



Despite the high level of satisfaction conveyed by this graph, a number of qualifying statements were recorded, including those shown below:

"It is assumed everyone has the same level of knowledge"

(Q2, 2007-08, q12)²⁰²

"Tutors pay one to one interest and are happy to listen to individual needs"

(Q2, 2007-08, q12)

"Although tutors are in studio it doesn't feel like we're given enough feedback"

(Q2, 2007-08, q12)

It is notable that the adequacy of feedback emerges as an issue so early in the session although, in the absence of clear guidance, and having embarked on a subject and learning process that is new, it is entirely predictable that students will want to understand how they are performing and progressing. Once again, the assumption that all students possess a common base of knowledge also registers, this calling into question the degree to which the diversity embodied within the Widening Participation initiative is reflected in the early curriculum. However, it is acknowledged too that some respondents were content with the level of support and communication provided, as conveyed by the final statement.

In the interests of enhancement, respondents were asked to identify means by which support might be enhanced, this generating a range of responses typified by those shown below, some of which relate directly to the perceived shortcomings noted above:

"Get told how to improve my ways of working when given feedback"

(Q2, 2007-08, q13)²⁰³

"More feedback to see how I am really coping with the work"

(Q2, 2007-08, q13)

²⁰² In response to the questions:

"How well do you feel your individual learning needs are being supported? If you wish you may add a qualifying statement to your rating"

²⁰³ In response to the question:

"What additional support, if any, would enhance your learning?"

"Having a better understanding of what is needed for each task, what is being looked for"

(Q2, 2007-08, q13)

"More personal focus"

(Q2, 2004-05, q13)

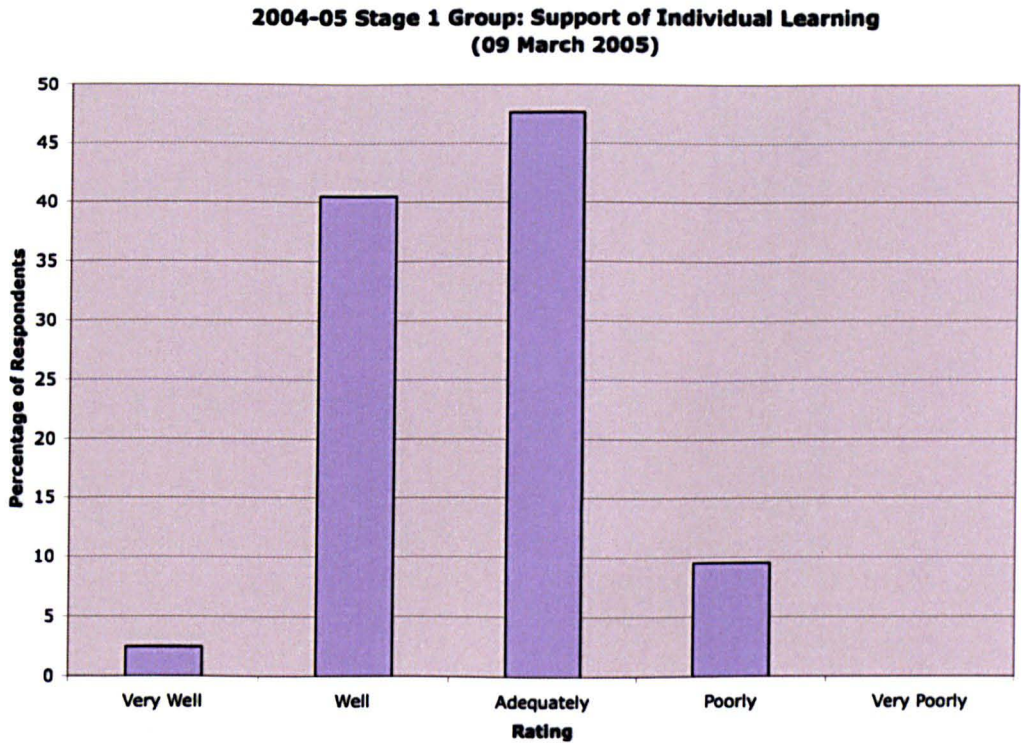
"Tutorials with smaller groups"

(Q2, 2004-05, q13)

The issue of one-to-one tutorage was raised by a number of students (stage number / percentage), this presumably relating to the desire for feedback as well as the fact that creative outputs tend to be individual in nature.

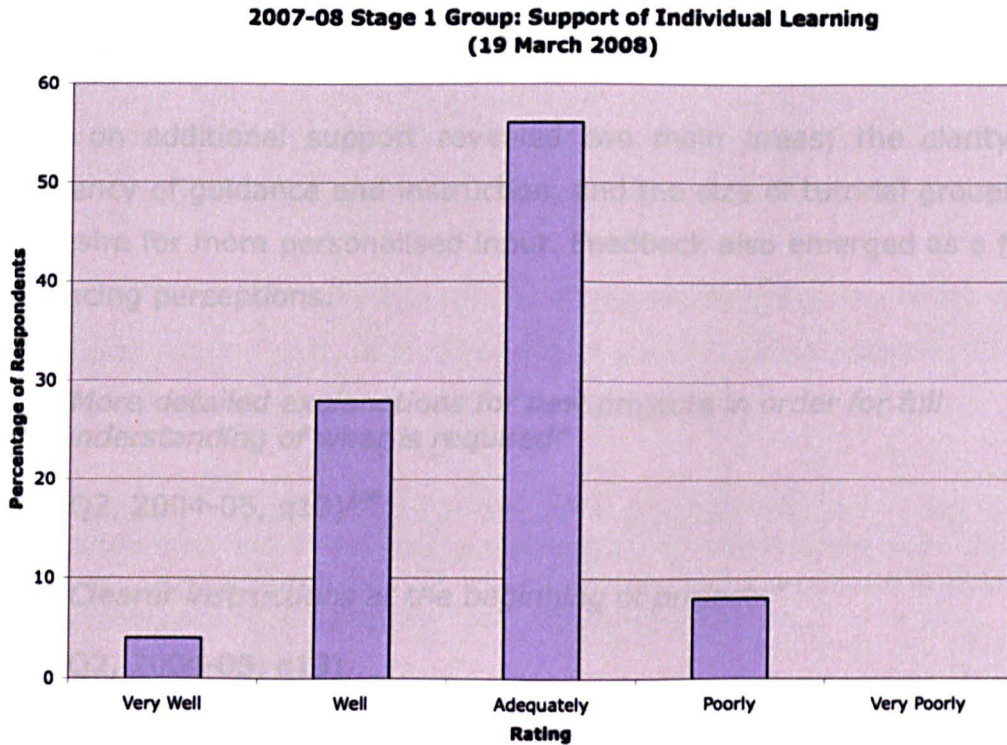
Student perceptions recorded some 3 months later in Session 2004-05 indicate a slight movement of the collective ratings toward the median, with a marginal increase in the percentage of respondents considering individual support to be weak (see Figure A31). Taking place early in Semester 2, the second survey occurred at a point before feedback from Semester 1 summative assessments should have been issued. Whilst the timeous issue of feedback is discussed elsewhere, and was evidently a source of some frustration amongst the cohort, comments recorded imply that learning support is seen to include other forms of input and staff contact.

Figure A31: Support of Individual Learning: Session 2004-05



Once again, the clarity of instruction and explanation were identified by a number of respondents as a means of improving initial perceptions. Additionally, whilst some students identified smaller discussion groups as a means of enhancing individual learning support, others sought a more personalised tutor system, academically and pastorally, although in both cases the tendency was towards greater personalisation of learning albeit to varying degrees. Figure A32 below charts the responses to the same question in Session 2007-08.

Figure A32: Support of Individual Learning: Session 2007-08



A number of positive endorsements of the learning support provided were also received:

"It is easy to ask if you don't understand or would like more info. Tutors are easy to approach"

(Q3. 2007-08, q9.1)²⁰⁴

"Tutors always help if you ask"

(Q2. 2004-05, q12)²⁰⁵

"Tutors are friendly and helpful. All you need to do is ask, which is reassuring"

(Q2. 2004-05, q12)

²⁰⁴ In response to the questions:
"Having had feedback on your Semester 1 achievement, how well do you feel your individual learning needs are being supported? If you wish you may add a qualifying statement to your rating"

²⁰⁵ In response to the questions:
"How well do you feel your individual learning needs are being supported? If you wish you may add a qualifying statement to your rating"

"Very little interaction with tutors or personal tutors on other courses"

(Q2, 2004-05, q12)

Views on additional support revealed two main areas; the clarity and sufficiency of guidance and instruction, and the size of tutorial groups and the desire for more personalised input. Feedback also emerged as a factor influencing perceptions.

"More detailed explanations for new projects in order for full understanding of what is required"

(Q2, 2004-05, q13)²⁰⁶

"Clearer instructions at the beginning of projects"

(Q2, 2004-05, q13)

"Clearer explanations of the projects at the start"

(Q2, 2004-05, q13)

"Explain the basics more"

(Q2, 2004-05, q13)

"Lack of positive feedback, in any form, no encouragement leads to lack of interest"

(Q3, 2004-05, q9)

"Class is so big individual learning needs aren't really catered for"

(Q3, 2004-05, q9)

"Nothing much has been done at an individual level"

(Q3, 2007-08, q9.1)

"Personal tutors / mentors"

(Q2, 2004-05, q13)

²⁰⁶ In response to the question:
"What additional support, if any, would enhance your learning?"

"Find it difficult to complete studio tasks within the studio (too messy, noisy, cramped) prefer working at home"

(Q3, 2007-08, q9)

It is important to reiterate that the responses received relate to the entire course, whilst the study focuses principally on studio-based practices.

The group interview with Stage 4 students held during the same period shed some further light, with reference to support being designed more in accordance with the development of the student:

"It (support) should be more of a progression, you have to get challenged more as you go through not challenging you the first day... just leaving you. It should be more of a progression how they support you, how they do that, encouraging more..."

(group interview, 11.02.08)

Additional comments were received by this group who, with the benefit of reflection, identified a correlation between the characteristics and persuasion of the individual tutor, and the level and nature of support offered by them:

"I think it was partly due to the person who was in charge that is definitely why third year was not so good,... I think it is down to the individual members of staff. How seriously they take their job and the students as well"

(group interview, 15.02.08)

"Our tutor in second year would approve your style of architecture, not enforce his own ideas, he would take your idea and try to work with it, whereas in third year they would try to impress their style of architecture on you, do things their way. This constricts your creativity"

(group interview, 15.02.08)

These sentiments were again reiterated in the group interview with Stage 6 students, the second quote below suggesting that as students learn

these characteristics, they are more able to select the staff likely to give the support that you are seeking:

"I think different lecturers, different tutors, offer more support than some lecturers and tutors offer minimum support"

(group interview, 06.06.05)

"...because you are here for so long, you actually get to know the staff very well. So by the time you are leaving, like us, I mean you know them all

very well, so if there is any kind of support that you need you know who to go to and for what as well"

(group interview, 06.06.05)

The latter quotation highlights the struggle between the ethos of Constructivism and that of the traditional model of apprenticeship where style and technique are prescribed, as referred to in both the literature review and in the chapter on developments in leading UK schools²⁰⁷. These statements also suggest the lack of a common understanding about the fundamental pedagogical approach being adopted and subscribed to by the teaching team.

Questionnaire responses also indicated that staff can act over-zealously, presumably in an attempt to ensure students are supported and to establish a learning culture. The following quotation from one respondent is of interest as it speaks of the fine judgements required of staff in acting responsibly and in the interest of the student, and the expectation of the student that they make choices for themselves and are not monitored as they perhaps were in secondary school (referring back to comments on the nature of the differences in the ways of learning).

"If I miss a day I do not have my lecturer phoning my private mobile asking where I am"

²⁰⁷ For discussion of the data gathered from interviews with selected senior academic from UK schools, see Appendix 4.

(Q2, 2004-05, q13)

Finally, in the interests of presenting a balanced representation of the data, it is important to note that some respondents did not feel that there was anything required in particular as additional support, as exemplified by the following comment:

"Can't think of anything"

(Q2, 2004-05, q13)

The group interview with final year students sought their reflections on support throughout the course, eliciting the following responses:

"I think we got a lot of support"

(group interview, 06.06.05)

"I think you get support and you don't realise it"

(group interview, 06.06.05)

"(we need an) extra 24 hours in a day"

(group interview, 06.06.05)

The second of these supportive comments, that refers to support being received without realising it, suggests that feedback and guidance are not always recognised for what they are, and demonstrates the role of reflection on the overall learning process. Once again, reference is made to pressure of time being the key constraint, raising the question of where an appropriate balance lies between workload and time to provide adequate time for the reflection process.

1.5.6 Summary

This section analysed data gathered relating to impressions of the learning experience, from enrolment to completion of First Year. Findings revealed that for the great majority the studio environment provides an enjoyable

environment and a stimulus to learning. Its open, social and informal atmosphere contrasts with the secondary environment that the majority have entered study from.

Differences to previously encountered modes of learning also extend to issues of support and personal responsibility, these posing significant challenges throughout the year. Perceptions of learning support were found to vary depending on the individual, ranging from those who felt liberated by the freedom offered, to those who quickly felt 'lost' through lack of guidance, comprehension, or ability to adapt to the new support structure and its consequential shift in onus onto the student. For many, this shift represented a key challenge in terms of assuming responsibility, providing motivation, and managing workload and time. Critically also, it required the construction of new kinds of relationships between tutors and students. Some students also considered staff to make assumptions about the skills that they enrolled with, introducing a sense of disadvantage, and hence that some areas were insufficiently supported.

With the changes in learning setting and approach described above, coupled with an enthusiasm in the student to understand their individual progress, issues of clarity of guidance and quality and speed of feedback quickly emerged. So too did the intensity of workload, this exacerbating the time management challenge, and arguably limiting the time for reflection. Consequently, in various forms, enhancements suggested by respondents pointed towards greater personalisation. Another dimension of this may be the fact that support was found to vary between individual staff, both in terms of approach and attitude, and guidance and regarding expectations. Whilst diversity is inevitable, comments relating to guidance and expectation suggest the need to ensure clarity of purpose amongst the staff team. They also infer the need to ensure a common understanding of relevant pedagogic approaches, with particular respect to identifying, supporting and engaging those prone to becoming 'lost'. The theme of peer support and mentorship emerged, although there was a sense that this would require formalisation in order to work effectively.

1.6 The Learning Process

1.6.1 Introduction

This section presents the analysis of data relating to the learning process. Critical to this is the understanding of objectives and learning outcomes. Findings relating to the learning process associated with design are presented, and to the support function facilitated by design studio as a learning setting.

1.6.2 Understanding Learning Outcomes

The acquisition of understanding of the learning process is central to the orientation of the student academically, and to the smooth transition to university study. At the mid-point of the first semester of study in 2004-05, whilst 62.3% of respondents said that they understood the concept of learning outcomes, the residual percentage did not. Furthermore, only 39.6% claimed to know the learning outcomes for the modules that they were studying at the time, with 50.9% admitting that they didn't. Those that did had acquired their understanding through a variety of sources including the Module Descriptors, from staff, from the university's 'Virtual Campus', and through conversation with peers. However, at the end of the academic session, 86.5% of respondents said they understand the concept of Learning Outcomes, this representing a marked increase over the latter half of the session.

In Session 2007-08, 85.7% of respondents said they understand the concept of Learning Outcomes, this representing a significant increase from three years earlier. This may be explained by an improvement in staff familiarity with the concept of outcomes, and the corresponding confidence in the staff team in communicating these explicitly to students. Although lower, the 66.1% who claimed to understand the learning outcomes of modules currently being studied also represents a substantial increase. Of those understanding, this had been acquired in the following ways:

"Reading and asking and listening"

(Q2, 2007-08, q17)²⁰⁸

"It is on the 'Virtual Campus' so we are able to revisit it any time"

(Q2, 2007-08, q17)

"Through the briefs for each project"

(Q2, 2004-05, q17)

"Lecturers and module descriptor forms"

(Q2, 2007-08, q17)

It is noted that knowledge of learning outcomes is critical for understanding of assessment, and for the reflective process.

1.6.3 Learning the Design Process

Over the two Sessions involved in this study, student views of the process of learning to design were gathered. The role of studio as a learning setting that is social and relatively informal has already been discussed, this being the place where design learning formally takes place.

As identified in the section dealing with expectations relating to and motivations for studying architecture, the subject itself represents new territory for most students, both in terms of academic content and the process of learning and skills development. Given these conditions, it is reasonable to assume that there will be a measure of uncertainty amongst new students, and indeed this is borne out by the data. It therefore follows that the degree to which information about the learning process is made explicit, is central to students being able to orientate themselves and understand the component parts of the course and their relationship to one another.

²⁰⁸ In response to the question:

"Do you know what the Learning Outcomes are for the modules you are currently studying? If 'Yes', how have you acquired your understanding?"

At a more detailed level, the process of architectural design and representation taking place within the studio is a similarly novel experience for most, with the challenge of understanding process amplified by issues of complexity, judgement derived from professional values, and subjectivity. Thus, the survey sought to gain an insight into the clarity of the learning process with respect to design.

The group interview conducted with the Session 2004-05 cohort early on in the session captured some initial perspectives that are represented by the quotations below:

"it would be better, if like, especially since it's our first year (sic), if they took time to explain to us what we are doing wrong and if we are doing it right, because I can do a whole half folio for the year completely wrong and not know about it"

(group interview, 12.11.04)

This statement speaks of the respondent's view of the feedback and guidance that all students are receiving, suggesting that it is either too infrequent, or lacking in constructive advice on how to move forward, or both. This viewpoint appears to be shared by others, and forms a context for the following pair of comments which demonstrate that in a state of uncertainty, and perhaps anxiety, the cohort acts consensually in informally defining a way forward. The second suggests an attitude of safety in numbers, or the development of a 'herd mentality' in the absence of clarity or confidence.

"You are not really sure what you are supposed to be doing until a few other people have started and they say this is what we think is happening, so everybody does that"

(group interview, 12.11.04)²⁰⁹

"The way I think of it is, if that's the way everyone else is doing it,

²⁰⁹ In response to the questions:

"How do you find design process? I have down here Clear or Unclear"

they (tutors) can't really tell me specifically that I'm wrong or anything"

(group interview, 12.11.04)

Analysis up to this point has already revealed pressure of workload as a salient feature of the overall learning experience. Whilst the following statements both refer to the need for more regular or timely feedback, the latter expresses the desire specifically for marks or grades. The issue of feedback, and what constitutes feedback, will be returned to later.

"I think more continuous assessment would be better for us, especially in the first year, so that we can realise what standards (sic) and if we are doing it right kind of thing"

(group interview, 12.11.04)

"There is a sense of urgency to get the work in and there is a complete anti-climax because you do not get any marks"

(group interview, 12.11.04)

Views expressed in group interview with the second subject group suggest an intentional element of secrecy, and that there is a form of experiential learning in studio that is based on trial and error. Reflecting on Schön's characterisation of 'learning by doing', there is without doubt an element of truth in this observation.

"I think design studio (tutors) really like to keep things as surprises anyway"

(group interview, 11.02.08)

"It's kind of just like trial and error because you just kind of learn it yourself..."

(group interview, 11.02.08)

Understanding the criteria against which design work is assessed poses a major challenge for the student given the presence of subjectivity, personal taste, and the creative egos of tutors. More fundamentally,

however, is the ability of the student to contend with initial realisations about the indeterminacy of the subject.

"I think a fundamental point people need to be aware of before they come on architecture is that it is an extremely, extremely subjective subject and in that case there is no objective truths at all in architecture, there is no right answers. ...perhaps they are not aware completely what's involved, so they'll come from a background of, you know, 'I quite liked physics, or majored in maths at school, I'd like to apply it in the real world', and they come to this subject, and suddenly in front of them is this puzzle, this problem, and they can't put a wrong answer to it and that's an extremely difficult concept to grasp, especially in 1st year"

(group interview, 06.06.05)

In tandem with more didactic, theoretical components, Stage 1 studio involves introducing students to fundamental principles and concepts relating to architectural design. This is generally achieved through a number of projects through which research skills are also developed, with the intention that these form core knowledge against which individual work can then be appraised. In seeking insight into student opinion on the teaching of principles, the following comment was recorded. This view to some extent counters the comments discussed earlier in which some respondents assert that there is insufficient accommodation of different levels of knowledge in the cohort at the outset.

"I think (name) is trying to learn how much information he has to put on a plate for us, so that he gets us to search and discover new ideas for ourselves"

(group interview, 12.11.04)

However, as has already been touched on, different staff approach aspects of the learning process in different ways, the inconsistency of different approaches to the learning process by staff is seen as a weakness of learning support offered. Indeed, as implied by the following statement from a final year student, differences can be seen to be problematic, causing this respondent to call for some form of course covering fundamental tutor / organisational responsibilities and functions. In other words, whilst variability will exist in the approach and manner of

student support offered, depending on the individual, an aspect that may indeed be considered desirable by some, there requires to be a underlying uniformity with respect to expectations and organisation.

"I think, I mean (sic), perhaps at teaching level what would be more apt is that if there was something (a course) available, for somebody who is given the title of Stage Tutor or Stage Leader. There should be some real (sic) course that they have to go on, that says this is their role. " You can have your personality, you can have your input as you want it. This is your role and this is how you do this. If you all do it similarly then we are going to get on fine""

(group interview, 06.06.05)

1.6.4 Peer Support

The importance of the peer group within the learning process was established above (see transition to university). Group interviews sought to explore peer support issues in greater detail, revealing a number of interesting points. Firstly, as illustrate below, whilst there is recognition of the support received from staff, there is a view that dialogue with peers is easier as they can articulate points in a directly comparable way:

"They (peers) can explain it to you, because they (peers) are on the same level"

(group interview, 02.05.05)²¹⁰

The role of more senior students acting as mentors was also valued from the student perspective for similar reasons, because they had prior experience of the course.

"I know I've had great help from the lecturers as well. One thing that I really got a lot out of was the Honours year students... a couple of Honours year students coming round. They really helped"

(group interview, 02.05.05)

²¹⁰ In response to the question:

"What might account for this perception of (the importance of) peer support relative to staff support?"

"you could kind of relate to them (senior students) as well, because that's going to be you four years down the line"

(group interview, 02.05.05)

Questionnaire 03 results indicated that working with peers played a valuable role in individual performance, and that in a sense it was possibly seen as being more important than the staff support role. This was explained further in group interviews, as follows:

"...say there is three staff in the studio, and there is like 50-60 people in the studio, so if they are walking around seeing people, like different people, 20 minutes each, they don't see everybody, so in that sense it is more important to see, to speak to your peers then, because they will be able to give you ideas. You see, you speak to them more than the lecturers really"

(group interview, 02.05.05)

The value and importance of peer support was further reinforced through discussion about ideal forms that the studio might take. The importance of a sense of community is conveyed below and responds to the fact that studio continues between scheduled tutorial times, i.e. learning is not confined to the times that tutors are present.

"There are two things that I would quite like to see in a future studio. One is more integration with other years. I think if you had the opportunity because you cannot get your tutor every day, just speak to someone without feeling sort of nervous going into the studio. ...Yeah they all look at you. I think if you had the opportunity to go to speak with somebody there I think that would help a lot"

(group interview, 15.02.08)²¹¹

In summation, while reflecting on their experience over six years, the final year group interview identified the peer dynamic as a particular strength of the learning experience, suggesting that this interaction, through the bonds constructed, is likely to continue in some form beyond university and into professional lives. The existence of these bonds are also directly attributed to the existence of the studio culture.

²¹¹ In response to the question:

"Can I ask what would Studio ideally been like for you?"

"Strengths being studio and learning from your peers and you are like one large group so you are learning to work with people and learn to pick up things from other people. I think at this stage now, where we are, we have all got very close"

(group interview, 06.06.05)²¹²

"As a year group,... we are very close knit now, we can all go and say what we want to each other and we can always ask someone else for help... I think we are very lucky in that we still have studios to be able to call our own"

(group interview, 06.06.05)

However, as has been seen, aspects of the learning process did attract criticism, as echoed by the statements below. The first comment questions the workload in relation to learning, whilst the second challenges the process of refinement in the development of learning as an effective component of learning.

"I wonder if you could actually learn the same without having to produce quite so much"

(group interview, 06.06.05)

"All I'm asking is that the situation whereby you are forcing students to edit, re-edit and edit again, is that actually making them the best they could possibly be? I'm not 100% .."

(group interview, 06.06.05)

In considering this question alongside statements about workload and pressures of time, whilst iteration is recognised as providing essential learning in design, the question arises as to the most effective relationship between intensity and volume of output (Schön's 'doing') and reflection on learning through that work.

Finally, the exiting students in Session 2004-05, when asked to reflect on the value of their experience, responded with mixed views, for example:

²¹² In response to the question:

"Where do you consider the strengths and weaknesses to be in the overall learning experience?"

"a comparison you could draw just from this conversation is... people (who) have a go at the Armed Forces, and say 'look the way you train your soldiers; you bully them and it's absolutely atrocious', and they go, 'well, sorry, but sorry, but we have to bully them because they're going to be soldiers'. And I think like, to a certain degree, that's going on here and it's kind of saying 'look this is really hard and I couldn't cope, oh, my God, this is the end of the world and this is the worst thing I've ever done' and they would go 'well, hands up, but it's a tough subject and to get the quality of people we need we are going to have to put people through this'. And whether that's right or wrong, you know, that's the situation as it stands, I think"

(group interview, 06.06.05)²¹³

This powerful, perhaps extreme, opinion conveys the prevailing spirit or culture of architecture education from a methodological standpoint. The brutality of the process, as documented by inter alia Anthony (1991), Till (2005), is evoked through use of a disturbing analogy that also suggests a loss of perspective on the part of both student and tutor. Other responses, whilst less emotive in their imagery, challenged the nature of the educational experience, especially the fact that it is so consuming of time at the expense of other facets of one's life. Of course, this begs questions not only of the pedagogy, but also of the commitment and ambition of the participant voicing this view. Indeed, with reference to the final two sentences, there may also be issues relating to wider societal values.

"But there is a quality of life issue, I mean if you have to put your life through something whereby elements of your life haven't had the same qualities that you would want. You know, you would rather have more free time to do things that you enjoy. And it's all very well saying now we've finished that it's OK, because it was worth it in the end, but is it worth it? Is it worth spending six years of your life at least three of those years where your life isn't exactly how you wanted it to be? And people will say that you have to do things that you don't like doing, but do you? You know, or could people think about things more creatively, and you know, that you have more better solutions. I don't accept the argument that, you know, life's tough, you know, live with it. I don't think it has to be tough all the time, you know"

(group interview, 06.06.05)

²¹³ In response to the question:

"Would you choose to undertake the course again? If so, why? If not, why not?"

"as a mature student I have done other things, friends all doing different things, I work to 10 o'clock to get things finished, but I think even for younger students, they are probably missing out on really good years of their life, where they could be doing things and enjoying themselves more..."

(group interview, 06.06.05)

1.6.5 Summary

The great majority of students perceived learning methods to be different to that experienced before which, for the majority, was that of secondary schooling. The difference appears to lie in two primary areas; that relating to greater independence and the assumption of personal responsibility, and the environment, experience, and methods encapsulated in the studio setting. The studio environment also formed the strongest stimulus within the learning experience.

For some, the onus placed on self-motivation, initiative and resourcefulness represents a challenge, whilst for others it is considered liberating. Perceptions indicate that independence is made manifest by differences in the form of learning support offered, principally the shift in responsibility from tutor to the student and a less directive approach adopted by academic staff. During the early stages of the course when students are orientating themselves and seeking to build confidence in their ability to engage in the study of architecture, such a change in emphasis can pose a significant challenge and indeed whilst some cope sufficiently, others quickly feel lost.

The specific condition of architecture in terms of its intensity and propensity to become all consuming, a characteristic that is the product of staff values and expectations that are rapidly transmitted to students, generates strong views early in the learning experience. The issue of workload quickly emerges, as many students appear to struggle in achieving a balance between assignments, time for reflection, and external commitments. Notably, the intensity of workload appears to induce a focus on immediate tasks, diminishing the desire for information on, and a clear understanding of, the broader view of the entire course structure and learning experience.

The clarity of guidance material and project briefing information was perceived to be unsatisfactory by many. Whilst this may be atypical, it at least serves to speak of the importance of clear, lucid guidance. It is evident that the absence of this is compensated for by the consensual action of the peer group, enabled by the communal environment of studio. Indeed the importance of the peer group and the role that studio plays in propagating a peer dynamic, is evident. Students who had experienced mentorship from their seniors noted the benefit of this, although it was felt that this requires to be structured to work consistently. Whilst students viewed staff as approachable, they did not consider the opportunity to seek clarification at a later point as a substitute for clear guidance at the outset. In fact responses suggested a hesitancy in seeking staff advice outwith scheduled times for fear of appearing to 'waste the time' of staff whilst aware that there were expectations on the students to demonstrate greater independence. Comments from final year students suggest that for some this sentiment remains throughout the course. Equally, however, the peer bonds that form early and which play such a central role in student learning, quickly become deep and enduring.

Feedback also emerged early in the session as being a key issue. In particular many students perceived the quality of information offering constructive guidance on improvement, to be deficient²¹⁴. In the area of design there appeared to be an early recognition that trial and error through learning by doing forms an integral part of learning, although this characteristic of design studio necessitates guidance on the learning process as well as clear feedback.

The challenges related more to transition as a holistic experience, with many positive comments about the nature and perceived quality of the academic support offered. Nevertheless, the difficulties of the course were generally perceived to relate to process rather than academic content, in particular that relating to independence and notions of personal

²¹⁴ This correlates to the views of Boddington as expressed in Appendix 4.

responsibility (see section on Transition). However, the quality of academic support was perceived to weaken as the session progressed, this perhaps being a reaction to negative opinion on feedback received, which may also serve to explain the progressively increasing call for one-to-one tuition.

The concept of Learning Outcomes was generally well understood, although fewer students claimed knowledge of those for modules that they were studying at the time of the survey. Nevertheless, the guidance sought was generally of a kind that made explicit links between a given task and the more generically expressed learning outcome for the module. Students observed the quality of guidance to be dependent on the individual, in particular the attitude and approach displayed by the staff member, although it was recognised that there is value in a degree of latitude and variation. However some felt that a staff course was required in order to ensure a baseline standard and level of consistency amongst staff, this relating principally to course organisation and administration. It is noted, however, that understanding of learning outcomes is a separate issue from that of understanding broader course structure and expectations, and possessing clarity of the overall learning process.

1.7 Understanding Tutor Expectations

1.7.1 Introduction

This section charts the development of student understanding of tutor expectations over the course of the academic year. This is achieved through analysis of the 4 questionnaires, and the comments received from the group discussions. The understanding of expectations is of particular importance to matters of confidence, and ultimately therefore to independent learning.

1.7.2 Longitudinal Trends

The overall level of student understanding of tutor expectations was tracked throughout the academic session with a view to gaining an insight into the students' comprehension of the learning process. Figures A33 and A34 below chart the collective profiles of the cohort at three points (through Questionnaires 02, 03, and 04). For Session 2004-05, as might be anticipated, the level of understanding early in the first Semester (shown in dark blue) peaks towards the median category representing understanding 'adequately'. With reference to the other plots (pink and yellow) it can be seen that the level of understanding increases throughout the session, with the most significant 'movement' in the latter quartile of the year. The results at either extreme of the graph remain constant, with no increase in those understanding 'very well'. The peak of the yellow graph may be explained, however, by the timing of the final survey. Indeed, it is probable that students having newly received final feedback, including provisional grades, will be most disposed to thinking that they understand tutor expectations.

In contrast, the results for Session 2007-08 possess different characteristics. Not only do the plots for the beginning and end of the session remain closely in parallel, indicating virtually no shift in understanding across the year, but the mid-point of the session sees a notable increase in those with an 'adequate' understanding, which is subsequently lost later on. Moreover, those understanding tutor expectations 'very well' oscillate throughout the year, but never recover

the initial perception from Semester 1. This probably relates to perceived deficiencies in feedback received,

Figure A33: Longitudinal Tracking of Understanding of Tutor Expectations:
2004-05

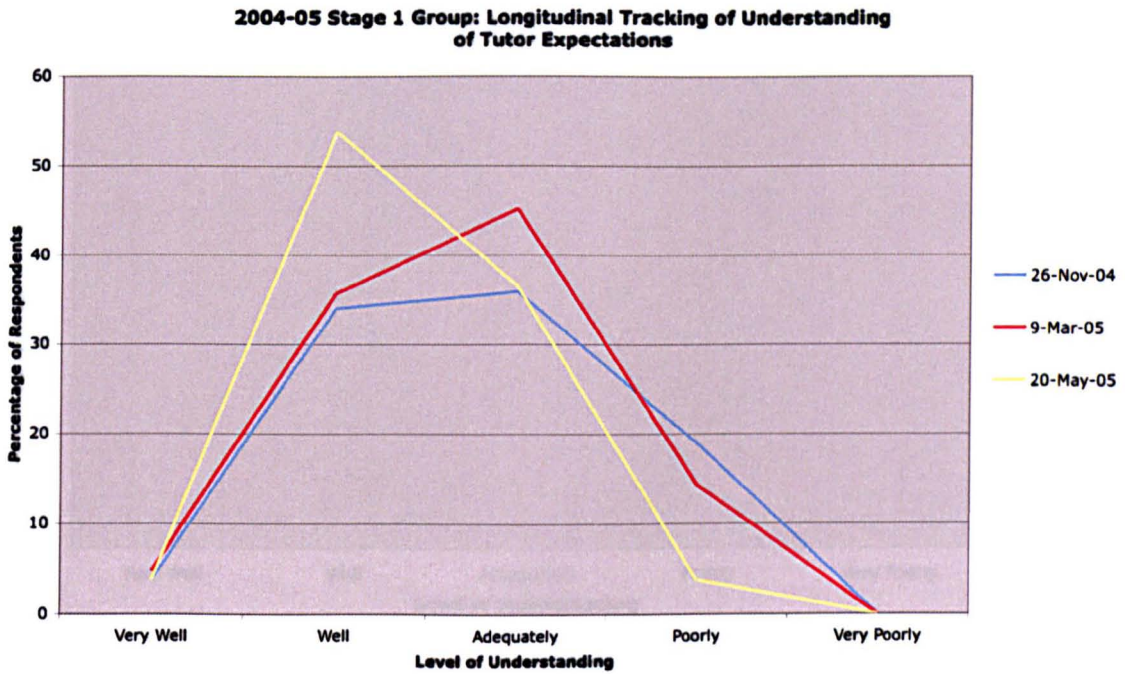
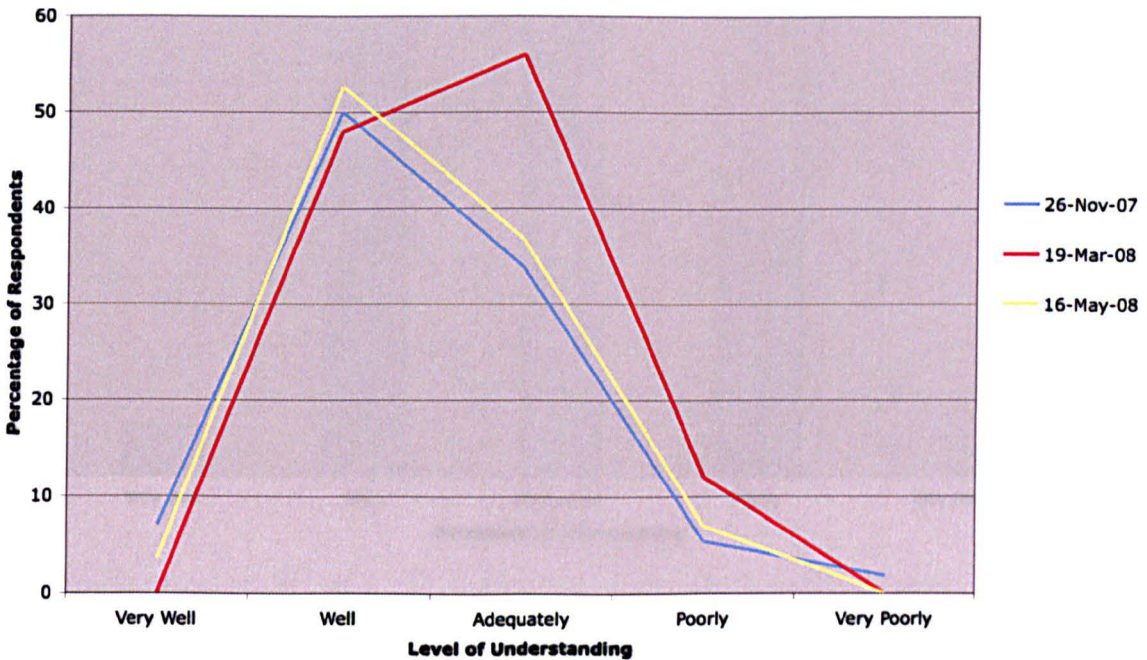


Figure A34: Longitudinal Tracking of Understanding of Tutor Expectations:
2007-08

2007-08 Stage 1 Group: Longitudinal tracking Understanding of Tutor Expectations



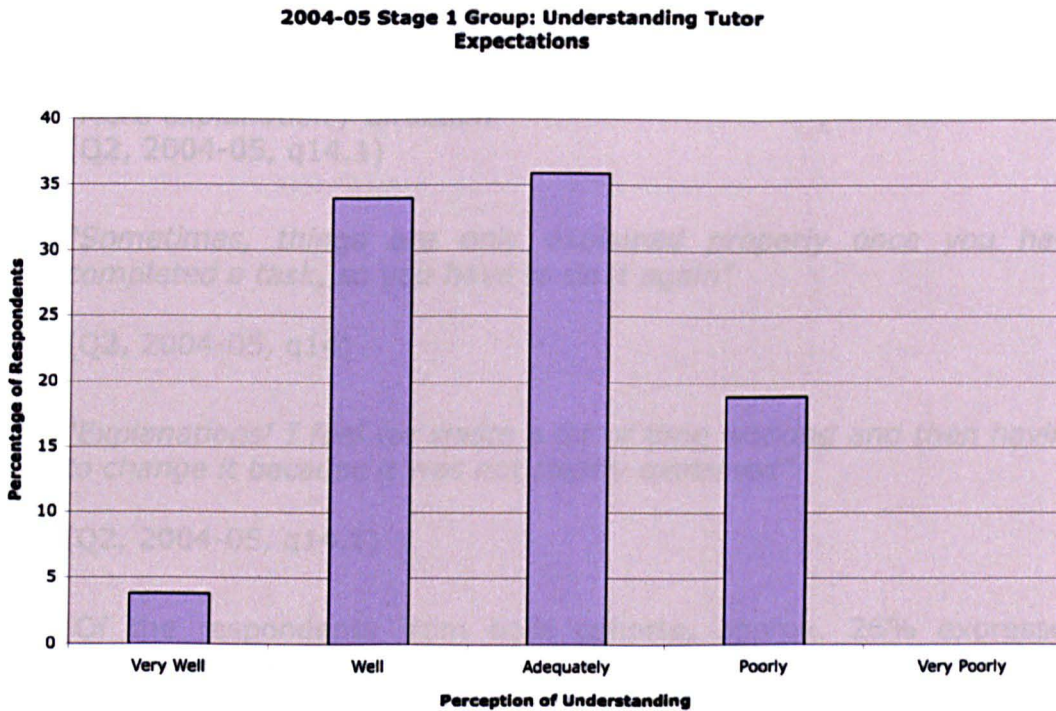
coupled with a perceived increase in the degree of academic challenge as the session progresses²¹⁵. Examination of the responses from each stage of the survey is necessary to understand the reasons for the profiles identified above. This section will analyse these in turn.

1.7.3 Initial Understanding of Tutor Expectations

Figure A35 charts initial perceptions of student understanding of tutor expectations some 6 weeks after the commencement of Session 2004-05.

²¹⁵ For perception of academic challenge and feedback see Sections 1.4 and 1.10 of this Appendix respectively.

Figure A35: Understanding Tutor Expectations: Session 2004-05



It can be seen that at the mid-point of Semester 1 the majority of students believed they had an adequate understanding, or better. However, just under 20% felt they had a poor grasp, suggesting a need for clearer guidance. The following suggestions were made for means of enhancing understanding:

"Sample portfolios; more feedback"

(Q2, 2004-05, q14.1)²¹⁶

"More personal focus and feedback; sometimes it is not clear what is expected of us"

(Q2, 2004-05, q14.1)

(Of the respondents from both cohorts, approx. 7.5% expressed similar sentiments regarding exemplar work, and approx. 17% regarding feedback)

²¹⁶ In response to the question:
"How well do you think you understand what is expected of you by your course tutors?
What would further enhance your understanding?"

"More specific outlines and goals"

(Q2, 2004-05, q14.1)

"More explanation / direction"

(Q2, 2004-05, q14.1)

"Sometimes, things are only explained properly once you have completed a task, so you have to do it again"

(Q2, 2004-05, q14)

"Explanations! I feel we waste a lot of time working and then having to change it because it was not clearly explained"

(Q2, 2004-05, q14.1)

(Of the respondents from both cohorts, approx. 26% expressed similar sentiments regarding guidance)

"Talking on an equal level rather than being told what to do"

(Q2, 2004-05, q14.1)

The comments above encapsulate a range of issues including the quality and frequency of briefing and guidance, outcomes, and feedback. The final comment about the nature of dialogue is revealing and recalls the notion of power asymmetries discussed in the literature review²¹⁷. It also reinforces data referred to elsewhere that positively views the facility offered by studio to freely communicate with peers, relate work, and exchange ideas amongst one's peer group. Similarly, in response to questions about the perceived sufficiency of tuition, the following statements from final year students draw a parallel with the student-parent relationship, although it is acknowledged that senior students are likely to be more knowledgeable and confident:

"You don't want to hassle them (staff, by asking for additional help), they have other stuff to get to with"

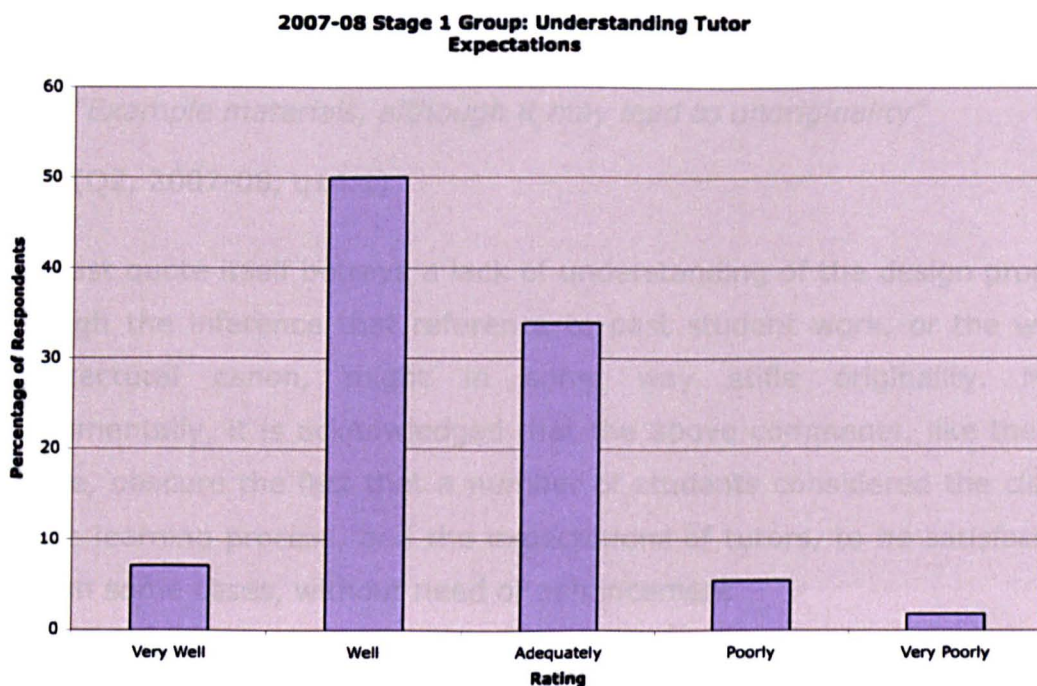
(Stage 6 student)

²¹⁷ For discussion of 'power asymmetries', see Chapter 4: Lost in Translation: Flaws in Implementing the Studio Model

(It's) "like, your parents, asking them for help"

(Stage 6 student)

Figure A36: Understanding Tutor Expectations: Session 2007-08



The graph for Session 2007-08 (Figure A36) shows the majority of students with an understanding that is 'adequate' or better, although the breadth of responses is greater than for the previous cohort. The suggestions recorded with a view to enhancing understanding once again focus on guidance and feedback practices, as well as greater use of exemplars to illustrate expectations:

"More precise explanations, faster feedbacks"

(Q2, 2007-08, q14.1)

"Instructions aren't always clear"

(Q2, 2007-08, q14.1)

"More direct statements of where every module / lecture is heading"

(Q2, 2007-08, q14.1)

"More detailed briefs informing you exactly what is expected"

(Q2, 2007-08, q14.1)

"A few more precise details during the handing out of tasks"

(Q2, 2007-08, q14.1)

"Example materials, although it may lead to unoriginality"

(Q2, 2007-08, q14.1)

The last quote itself betrays a lack of understanding of the design process through the inference that reference to past student work, or the wider architectural canon, might in some way stifle originality. More fundamentally, it is acknowledged that the above comments, like the set before, obscure the fact that a number of students considered the clarity of the learning process, and the expectations of tutors, to be satisfactory and, in some cases, without need of enhancement.

1.7.4 Perceptions of Understanding of Tutor Expectations in Semester 2

Figure A37: Understanding Tutor Expectations: Session 2004-05

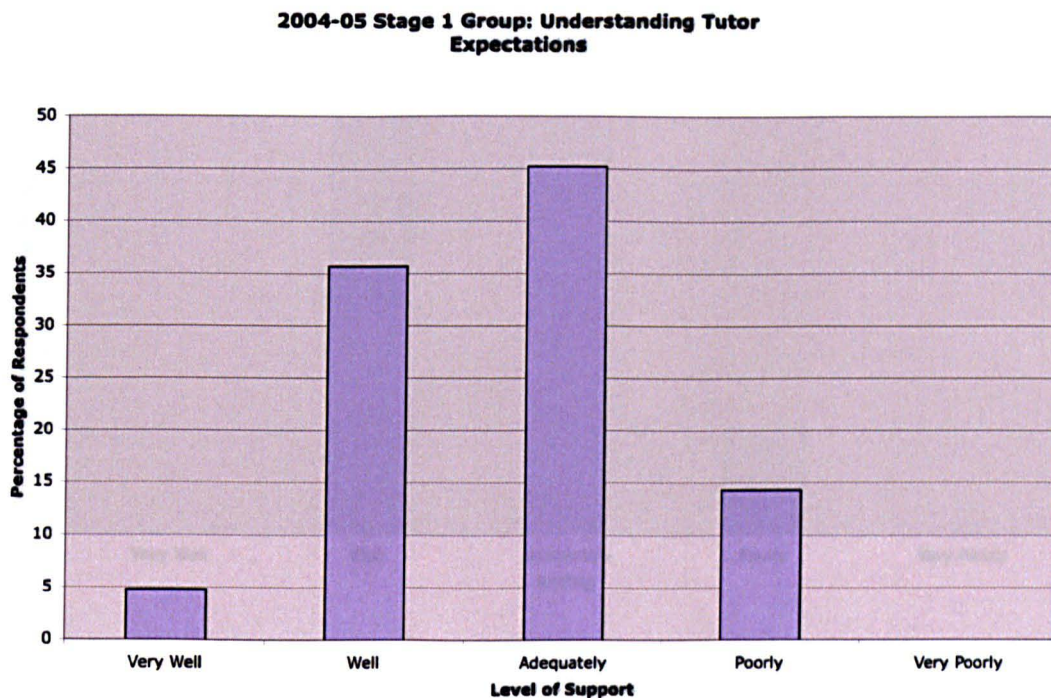
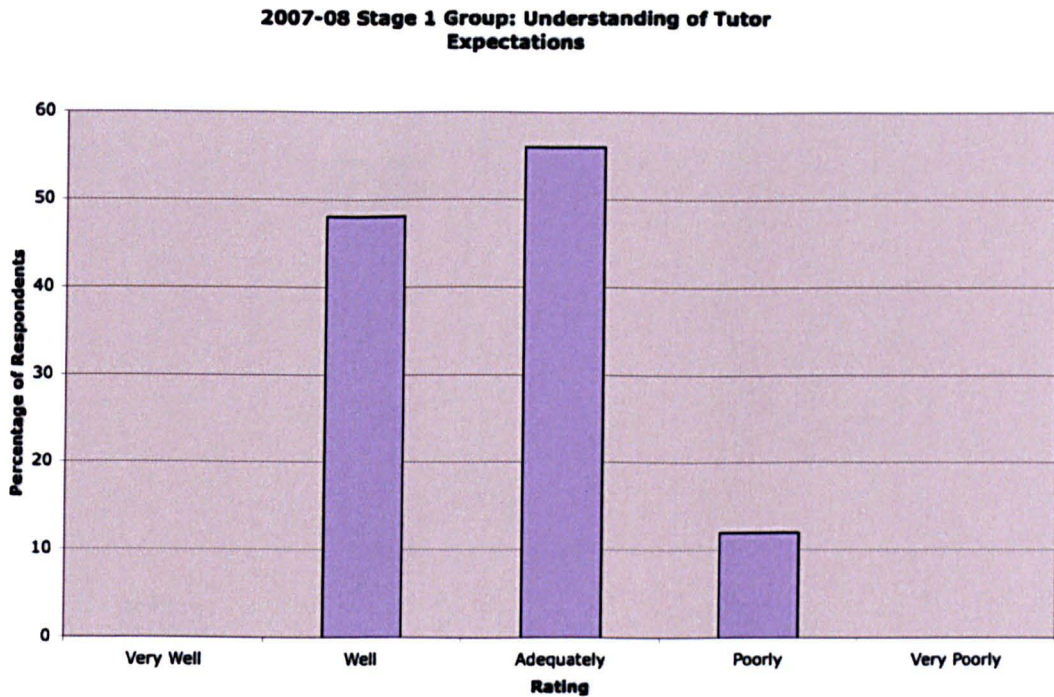


Figure 46 charts levels of understanding early in the second semester. 35.7% of respondents perceived their understanding to have increased since the initial survey, whilst 45.2% stayed the same, with the remaining 9.5% perceiving their understanding to have declined. Within this movement, the percentage claiming a poor understanding had reduced, this number having been translated into the 'adequately' category.

Similarly, Figure A38 shows the distribution of views for the mid-point of Session 2007-08.

In Session 2007-08, 36% of respondents understood tutor expectations more, 60% the same and 4% less. The two figures above show the increase in understanding from the time of Questionnaire 02, although there remains in excess of 10% that claim a 'poor' understanding in both subject groups.

Figure A38: Understanding Tutor Expectations: Session 2007-08



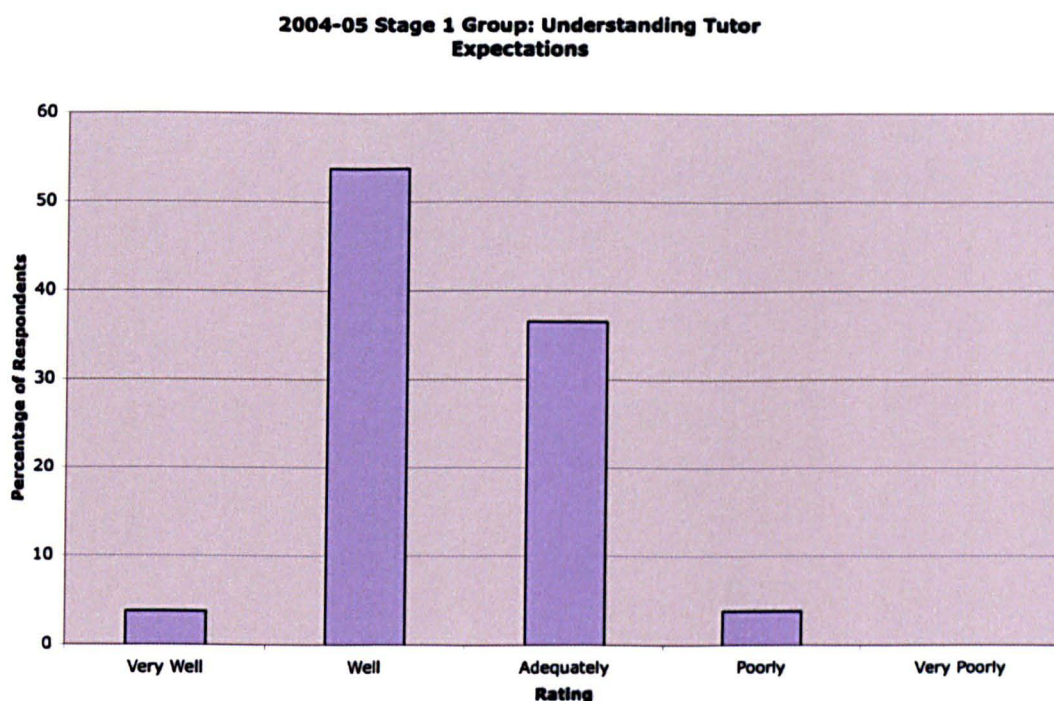
Moreover, whereas a percentage claimed to understand 'very well' at the start of the session, this number had reduced to zero. This correlates to perceptions of feedback, as well as to the longitudinal tracking of confidence levels throughout the session (see Sections 1.10 and 1.13 of this Appendix).

1.7.5 Perceptions of Understanding of Tutor Expectations at the End of First Year

The final Questionnaire results are shown in Figures A39 and A40, where, even at the end of the session, a substantial percentage remain with only an 'adequate' understanding of what the expectations of staff are. This serves to accentuate the role of the studio as a place where an understanding may be consensually determined in the absence of absolute clarity from academic staff.

Compared to the graph from Questionnaire 3 (Figure A37), the largest shift has been in the growth of those understanding tutor expectations 'well'. Consequently, a progressive movement to the left-hand side of the graph occurs over the course of the year.

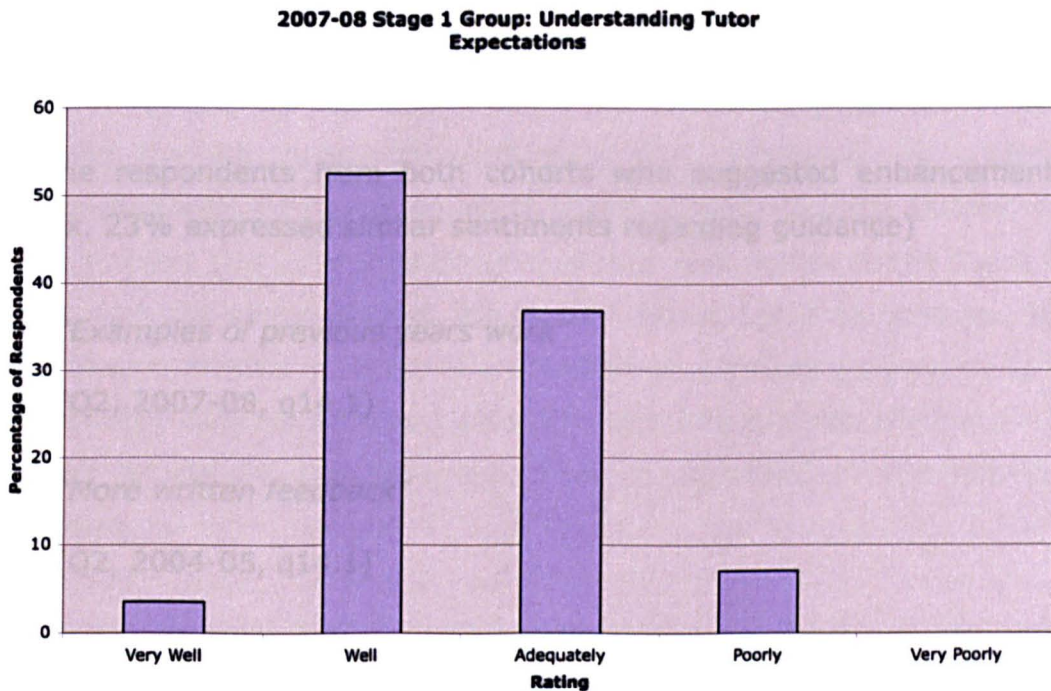
Figure A39: Understanding Tutor Expectations: Session 2004-05



As stated elsewhere, this is likely to be attributable to a number of factors, including an acclimatisation to the ways of working and, in many cases, a growing sense of comfort with these, eased by the peer dynamic. Additionally, the end of session review is in itself a reflective process that assists the student in his or her ability to put their experiences of tutor guidance, dialogue, and interaction into an overall context.

Figure A40 shows the equivalent graph for Session 2007-08, this displaying a remarkably similar profile to that of the earlier cohort. However, the change since the previous survey (see Figure A38) relates to a minor perceptual shift that indicates a slight increase in understanding. The Questionnaire 04 results may have been positively influenced by the end-of-session academic review, in which personal dialogue between individual students and the tutorial team furnished greater understanding through hindsight.

Figure A40: Understanding Tutor Expectations: Session 2007-08



At the conclusion of the first year of study, the following suggestions for enhancing understanding were recorded, these reiterating many of the comments made in response to the earlier Questionnaires, some of which are included also:

"More clear and thought out instructions"

(Q4, 2004-05, q14.1)²¹⁸

"Clearer instructions at the beginning of projects"

(Q4, 2004-05, q14.1)

"More communication"

(Q4, 2004-05, q14.1)

²¹⁸ In response to the question:
"How well do you think you understand what is expected of you by your course tutors?
What would further enhance your understanding?"

"More detailed course work briefs - I found that including the feedback form with the requirements for each grade was really helpful"

(Q4, 2007-08, q14.1)

(Of the respondents from both cohorts who suggested enhancements, approx. 23% expressed similar sentiments regarding guidance)

"Examples of previous years work"

(Q2, 2007-08, q14.1)

"More written feedback"

(Q2, 2004-05, q14.1)

"More consultations, clearer feedback"

(Q2, 2007-08, q14.1)

"More feedback on projects so that I know where and how to improve"

(Q2, 2007-08, q14.1)

(Of the respondents from both cohorts who suggested enhancements, approx. 27% expressed similar sentiments regarding guidance)

"More one to one work"

(Q2, 2004-05, q14.1)

"More coherent advice from tutors, as it can be very contradictory in studio"

(Q2, 2004-05, q14.1)

"One tutor throughout a project instead of five with completely different views"

(Q2, 2004-05, q14.1)

(Of the respondents from both cohorts who suggested enhancements, approx. 15% expressed similar sentiments regarding tutorial methods)

These comments all relate to a desire for increased guidance, whether achieved through clearer instructions at the introduction of projects, written feedback, or higher levels of personal tutor contact. Indeed, the desire to have one tutor throughout a project also relates to the quest for clarity and the elimination of inputs that might serve to confuse. This leads one to consider whether or not seemingly conflicting views would be seen as confusing were there a structure and schedule that allowed for an element of debate and reflection. This is expressed in the following comment:

"...maybe they (tutorials) should be in a group form and the tutors together at the same time, really talking to you, instead of going over to each person individually. Then you'd avoid (the problem) that two people said two different things"

(group interview, 11.02.08)²¹⁹

In an environment that is pressured for time, it may be anticipated that the student elects for the 'path of least resistance', in the shape of a single tutor. The group interviews sought to achieve a deeper understanding of student perceptions, these discussions yielding a number of comments:

"at the beginning of our project we are given a brief, and listings on the brief, but then, gradually as we go through it we are told different things that maybe aren't in the brief, that haven't been told to us"

(group interview, 02.05.05)²²⁰

"Three different tutors in the studio at the same time and two of them might come round to you and one of them might tell you one thing and the other would tell you another thing, so you would

²¹⁹ In response to the question:

"What... about the briefs, are they clear?"

²²⁰ In response to the question:

"have you understood the objectives of each task, exercise or project that you have done throughout the year?"

actually you are left more confused than when you started out. You know that can be very misleading, but I suppose that's just a thing you have to decide for yourself"

(group interview, 02.05.05)

"Just pick which one (tutor), just pick the voice you want and move on"

(group interview, 02.05.05)

It is evident from the above that students confuse guidance relating to their specific design output or product, with the learning objectives of the process that uses the project as its learning vehicle. It is natural that the students seek tutor approval of their emerging design work, especially at a point when the staff represent the only architectural authority that many can draw on. It is therefore unsurprising that respondents tended to interpret the question as referring to tutor expectations of their individual 'product', as opposed to the learning evidenced through the process undertaken in its production, or to the overall learning outcomes of the module. Conversely, however, these comments also bring the data collected relating to learning outcomes, into question. More fundamentally, it raises questions about the information that students received that enabled them to place their project work within the context of the learning outcomes for the module. Crucially, unless students fully understand the intended learning, the level of critical reflection desired by staff is unlikely to be achieved.

The Group interviews revealed that tutor expectations relating to projects are not considered to be clear, as exemplified in the following response to the question as to whether or not they understood what is expected of them:

"Not really, at all. Cause, like what they give you is so sketchy, like the brief that they give you is very just a very, very brief outline, and like I said, it is good for being creative, but sometimes you are just

not sure – are you supposed to have this done out, what exactly are you supposed to have on the sheets that you are displaying at the end of the day?"

(group interview, 12.11.04)

"There is a certain amount of shoulder checking. You can always check to see what everyone else is up to, then you kind of go forward from there"

(group interview, 12.11.04)

The above quotation again refers to the process of peer support and consensual action that emerges in the absence of certainty. Despite this, the following quotation acknowledges that the process of critique (or review) that is an inherent part of the studio-based learning process, has a value as an event through which an understanding of expectations is gradually acquired:

"every time we stick our stuff up on the wall they criticise it and you can learn from that, so you learn for next time, so I suppose it is just like a learning process."

(group interview, 12.11.04)

Finally, the group interviews also explored the types of information that students would wish to see in project briefs, in order for intentions and expectations to be clearer. Whilst few specific suggestions came forth, the following statement emerged which reveals tactical behaviour amongst some students, recalling Schön's 'counter-learners, and highlighting an attitude of dependency that manifests itself in this instance through the status afforded to grades.

"Everyone obviously has different standards and people want it done differently, but then you know you might have a different tutor and they will like it like that. You end up producing work to please them almost at the end of the day, because you know that they are going to like it, it may not be how you wanted to do it, but you know you will get a good grade if you think you know that they like it"

(group interview, 11.02.08)

At the conclusion of each academic session, clarity of briefing remained an issue for the students.

1.7.6 Summary

Whilst the results from the two subject groups display different profiles across the academic session, the issues arising are fundamentally shared. It is clear that the general level of tutor expectations is dependent on a number of factors, such as the quality of guidance given and the manner in which this is done, the use of exemplars to illustrate expectations of standards etc, and the quality and timeliness of feedback. In the area of design studio, where work contains an element of subjectivity and where standards and perceptions of quality are consensually determined within the profession, it is perhaps to be expected that, as with the design process itself, there is an element of learning by doing, and hence it might be deemed unsurprising for recorded levels of understanding of expectations to fluctuate as the student initially grapples with the subject. Equally, the phenomenon of understanding increasing throughout the session may be anticipated through the processes of acclimatisation and familiarisation.

The existence of a number of different tutors, and hence viewpoints, within the tutor team gave rise to an element of confusion, with a number of students seeking greater clarity through its elimination. However, one might expect consistency of message regarding the learning that a project is intended to achieve, but different perspectives on the way that a project is undertaken. This phenomenon raises the question of whether or not the student discerns the difference between these issues, and indeed whether or not the learning objective is sufficiently articulated, or indeed understood, by staff. Furthermore, the question arises of whether or not sufficient opportunity exists for dialogue and reflection on these different functions and inputs.

Lastly, in the absence of clarity, it is clear that students rely on the peer support network that studio facilitates. With the majority of students in both groups understanding tutor expectations 'adequately', it is clear from

comments that perceived gaps are filled through consensual action within the peer group. Whilst this interaction and dialogue has many beneficial aspects, the reliance of it to achieve a full and confident understanding of what is, or might be expected, potentially limits the level of exploration and sense of freedom for the student that emanates from a clear understanding of parameters and risk, and from confidence.

1.8 Perceptions of Component Subjects

1.8.1 Introduction

This section analyses perceptions of the component subjects within the architecture course, and tracks these over the academic year. Comments gathered from the group interviews serve to add detail to the picture provided by the longitudinal tracking, enabling the identification of broad patterns and trends.

1.8.2 Patterns in Perception of Component Subjects in Session 2004-05

Student perceptions of the component subjects of the course were tracked through Questionnaires 2, 3 and 4 for each cohort, thus capturing broad views over the academic session. Perceptions were recorded using scaled questions that adopted a Likert scale to distinguish five points on a spectrum from 'very easy' to 'very hard'. Additionally, respondents had the opportunity to record qualitative commentaries to substantiate their views.

Figures A41 to A46 show the profiles of perceptions for each subject over the course of Session 2004-05. When considered together, an overarching pattern can be clearly seen in which perceptions of difficulty increase substantially towards the mid-point of the session, this corresponding with comments made elsewhere regarding feelings of uncertainty due to lack of clarity of guidance and, apparently more significantly, lack of feedback. This latter point was particularly notable at the time of Questionnaire 3. However, as has been discussed before, perceptions of difficulty do not necessarily simply refer to academic content, but are also influenced by issues of workload as well as the wider aspects relating to transition to university. This is reiterated in the following quotations:

"Design is more intense than hard"

(Q2, 2004-05, q11.1)

"It is not necessarily the work which is hard however the amount to learn and remember"

(Q2, 2004-05, q11.1)

Due to the integrative nature of architecture education, the relationship of the studio-based design component with the other course elements is also likely to have a bearing on perceptions. This is because there is an inter-relationship between components regardless of the existence of a modular course structure. Indeed, arguably such structures tend to be mechanisms to facilitate academic management rather than frameworks that directly serve scholastic integrity.

Figures A41 to A46 are striking for their general symmetry, although in the cases of Structures, Environmental Design, and History, peculiarities can be seen as the overall cohort view shifts to increasingly difficulty or easy at the end of the session. It is noted, for example, that in the case of History, final feedback and grades resulting from examination performance would not have been available by the date of Questionnaire 04. It is also noteworthy that in all cases except Structures, the majority of respondents assumed at the outset (Questionnaire 02) the median rating of 'moderate difficulty'. Finally, as conveyed by the following comment, it is noted that the issue of challenge has positive as well as potentially negative connotations:

"(I) find subjects challenging but in a positive way"

(Q4, 2004-05, q9.1)

Figure A41: Perceptions of the Difficulty of Design: Session 2004-05

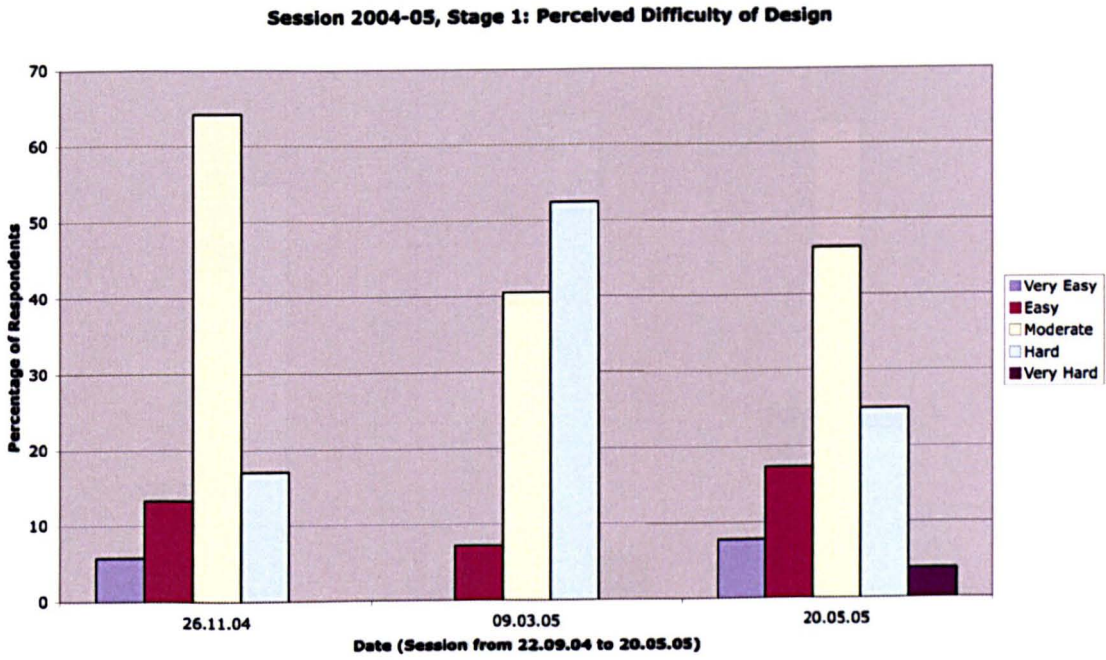


Figure A42: Perceptions of the Difficulty of Construction: Session 2004-05

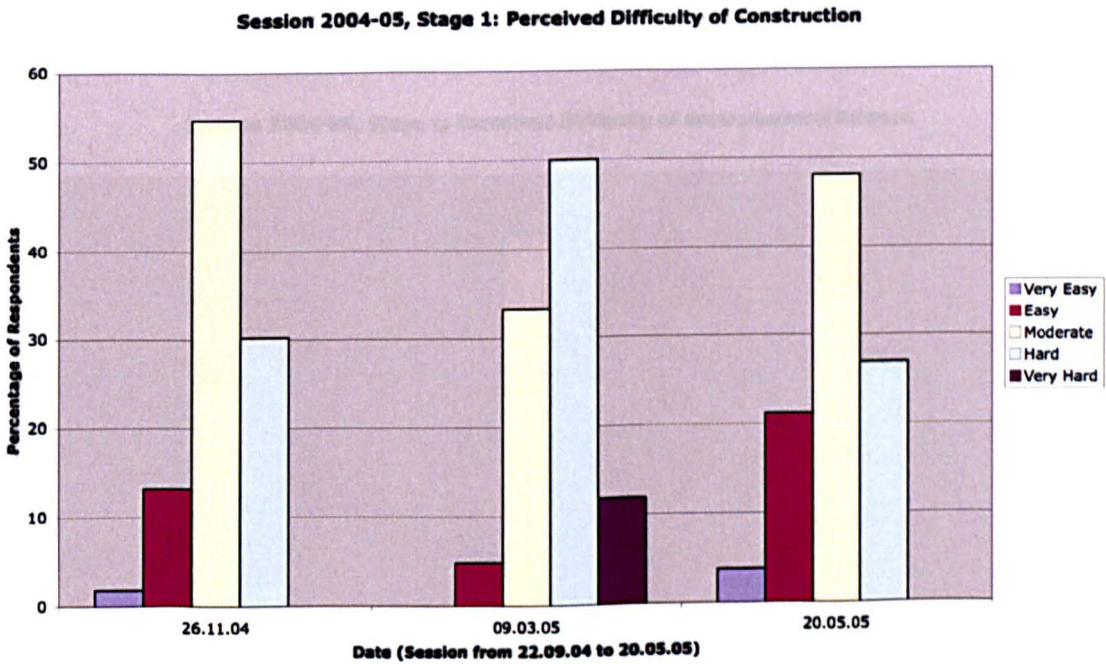


Figure A43: Perceptions of the Difficulty of Structures: Session 2004-05

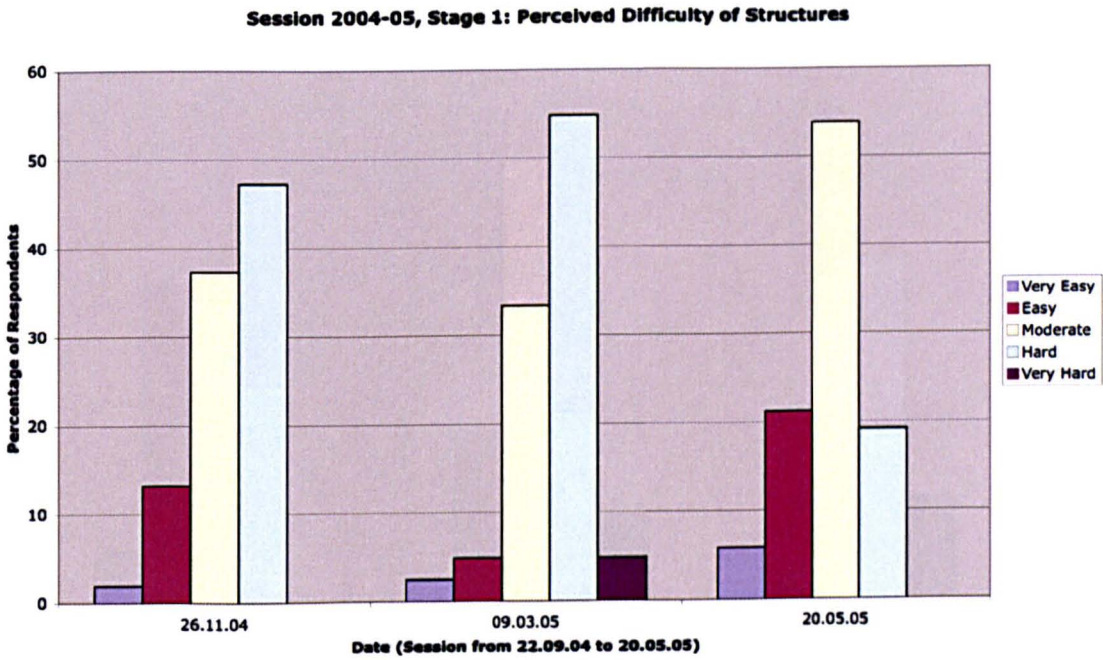


Figure A44: Perceptions of the Difficulty of Environmental Design: Session 2004-05

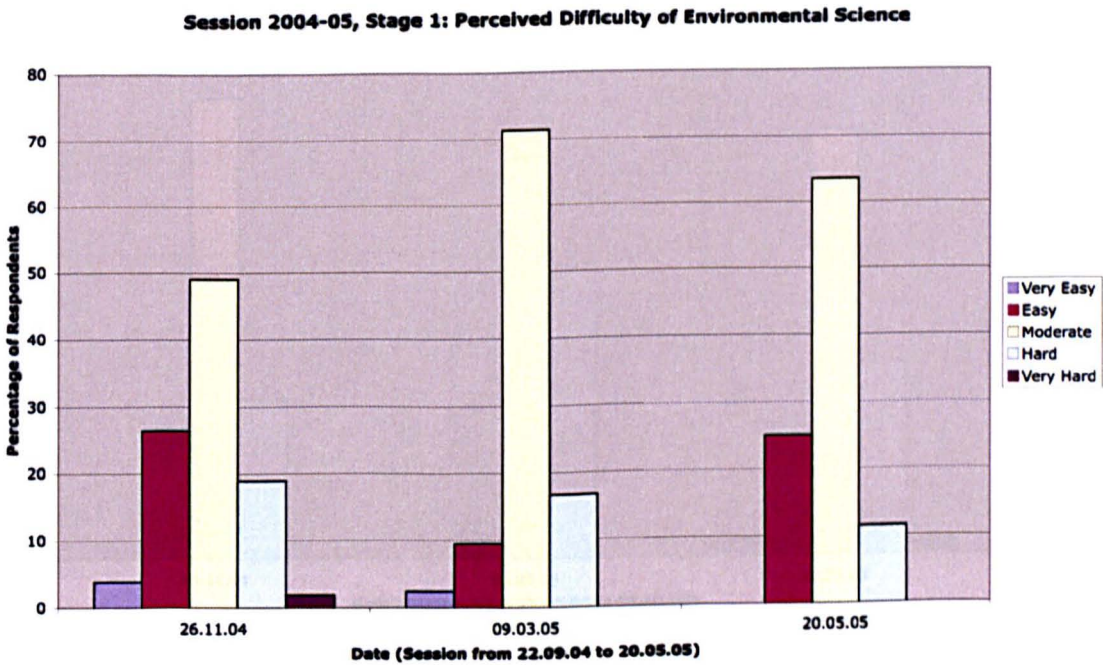


Figure A45: Perceptions of the Difficulty of History: Session 2004-05

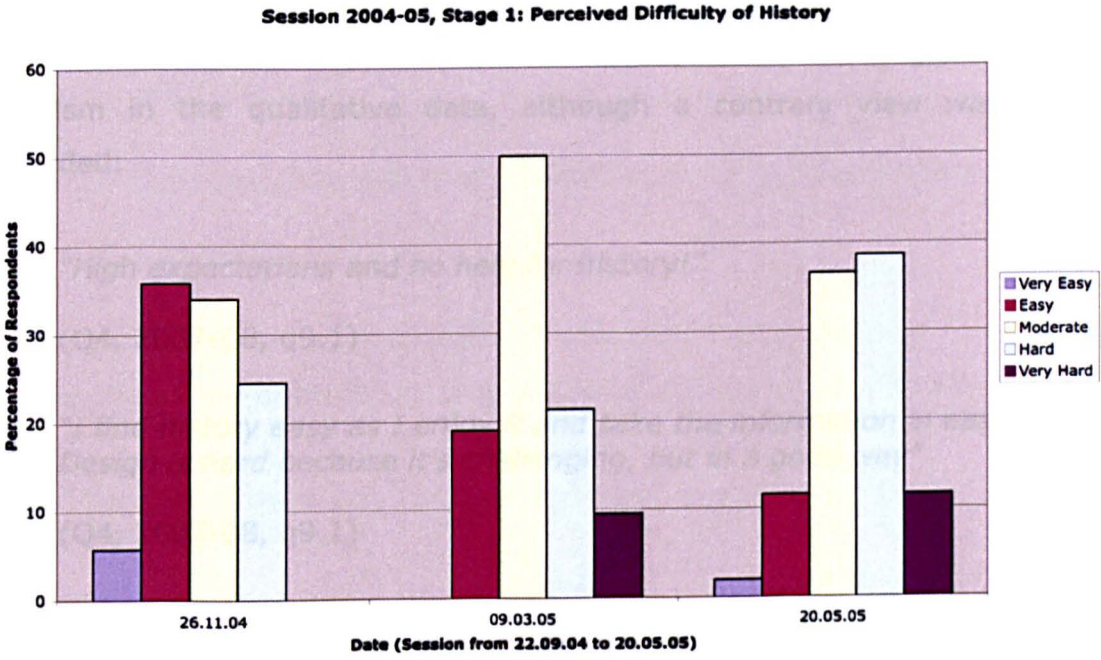
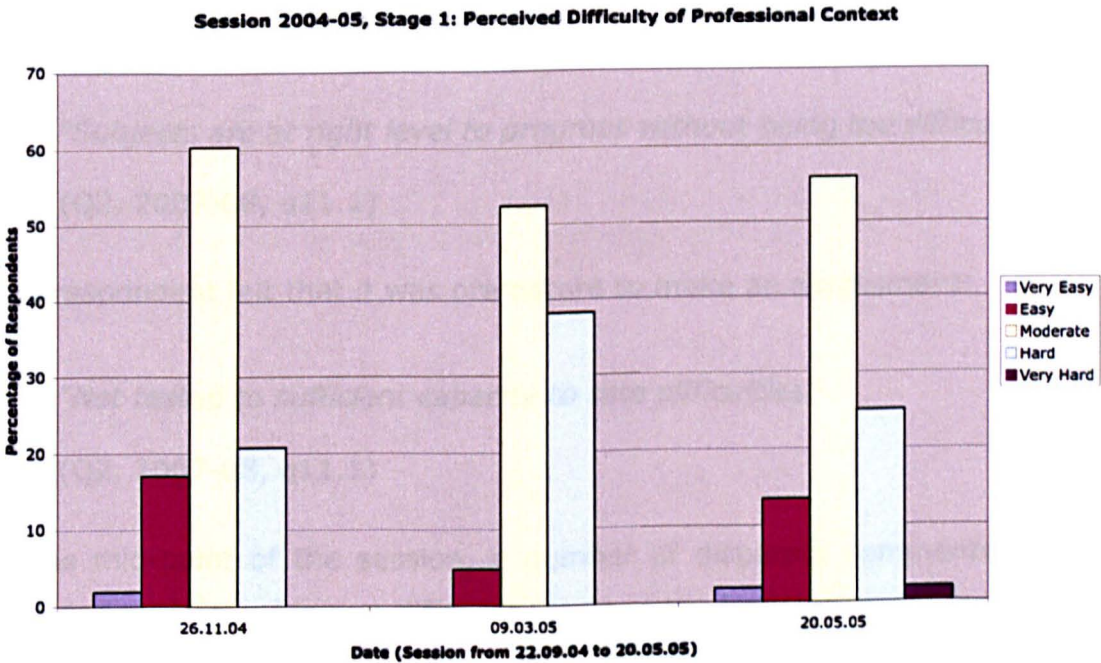


Figure A46: Perceptions of the Difficulty of Professional Context: Session 2004-05



1.8.3 Patterns in Perception of Component Subjects in Session 2007-08
 Figures A47 to A52 show the profiles for perceptions during Session 2004-05. In broad terms these display a remarkably similar form to those from

the preceding cohort. Although the magnitude of numerical readings differs, the symmetrical characteristic described earlier can be clearly seen here too. The chief exception is that of 'History' which was singled out for criticism in the qualitative data, although a contrary view was also recorded:

"High expectations and no help for history!"

(Q4, 2007-08, q9.1)

"I find history easy as I enjoy it and take the information in easily. Design is hard because it's challenging, but in a good way"

(Q4, 2007-08, q9.1)

Several weeks into Semester 1, a number of students recorded a comfort with the degree of difficulty, recognising that the curriculum to date had been designed to be introductory in nature:

"Not that far into some parts so introductory work fairly simple"

(Q2, 2007-08, q11.1)²²¹

"Subjects are at right level to progress without being too difficult"

(Q2, 2007-08, q11.1)

One respondent felt that it was premature to make an assessment:

"Not tested to sufficient capacity to rate difficulties"

(Q2, 2007-08, q11.1)

At the mid-point of the session, a number of disparate comments were recorded, each touching on different facets of the learning experience. The first two speak of the importance of engagement with the subject as a motivational driver and impetus:

²²¹ In response to question:

"Having completed 8 weeks, how do you rate the different subjects in your course? If you wish you may add a qualifying statement to your rating"

"Only find design easy as it's the most fun, (where one is) allowed to be free, add own ideas and perspective, (and) it's easiest to 'get into'"

(Q3, 2007-08, q6.1)²²²

"...I find subjects easier to understand when I find them interesting"

(Q4, 2007-08, q9.1)

The following implies an association of university education with challenge, and an expectation of an academically demanding regime:

"They are all hard but it is to be expected and if they weren't I would be worried"

(Q3, 2007-08, q6.1)

Finally, reiterating comments recorded throughout the findings, workload was identified as a primary constituent in the perceived difficulty of the course, as was the newness of the learning process:

"Work load is harder to cope with than difficulty of subjects"

(Q3, 2007-08, q6.1)

"Again I think it's that I've never been exposed to such material before, so I had to adapt a whole new way of thinking"

(Q4, 2007-08, q9.1)

²²² In response to question:

"Having completed Semester 1, how do you rate the different subjects in your course? If you wish to add a qualifying statement to your rating above"

Figure A47: Perceptions of the Difficulty of Design: Session 2007-08

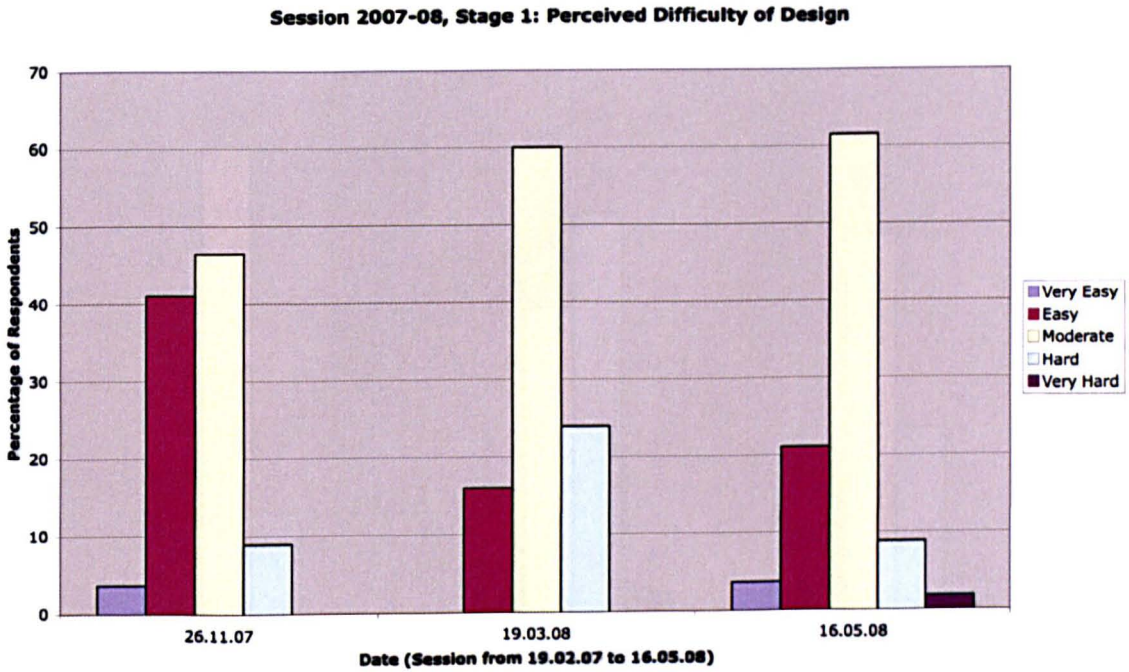


Figure A48: Perceptions of the Difficulty of Construction: Session 2007-08

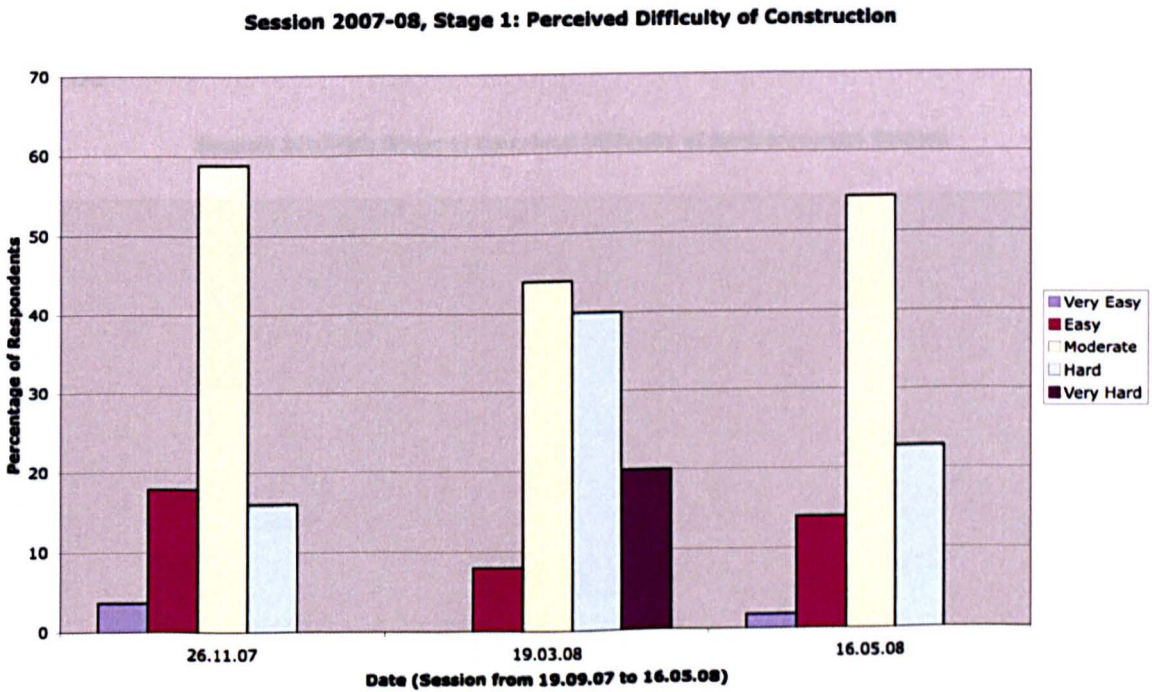


Figure A49: Perceptions of the Difficulty of Structures: Session 2007-08

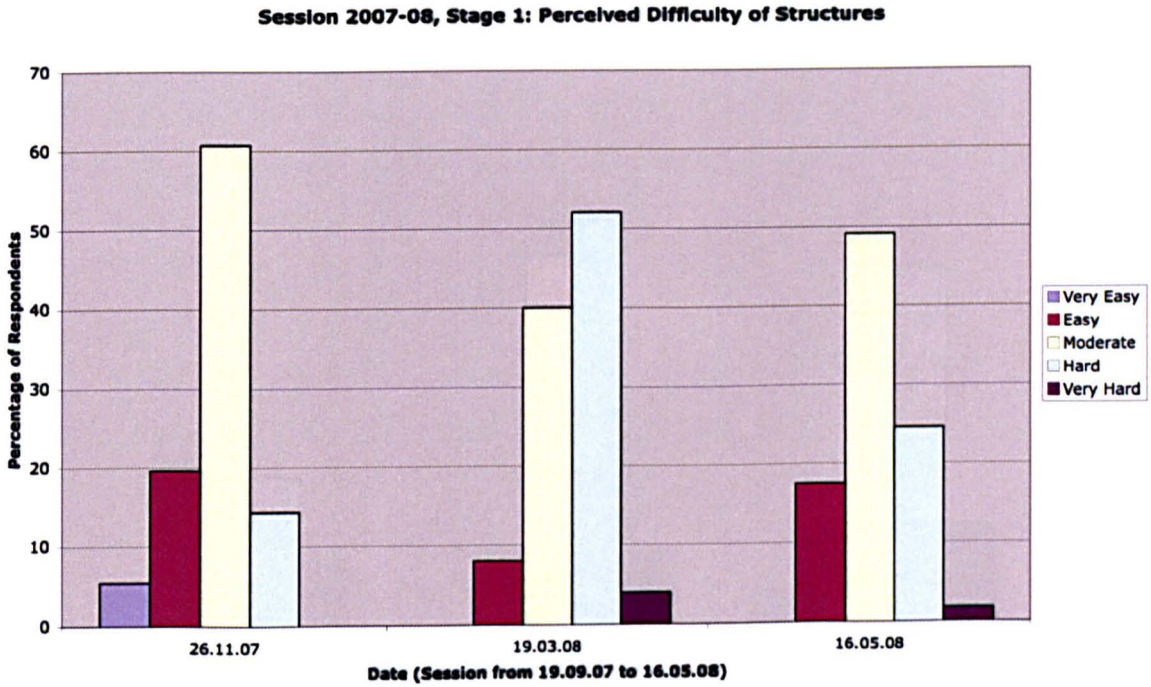


Figure A50: Perceptions of the Difficulty of Environmental Design: Session 2007-08

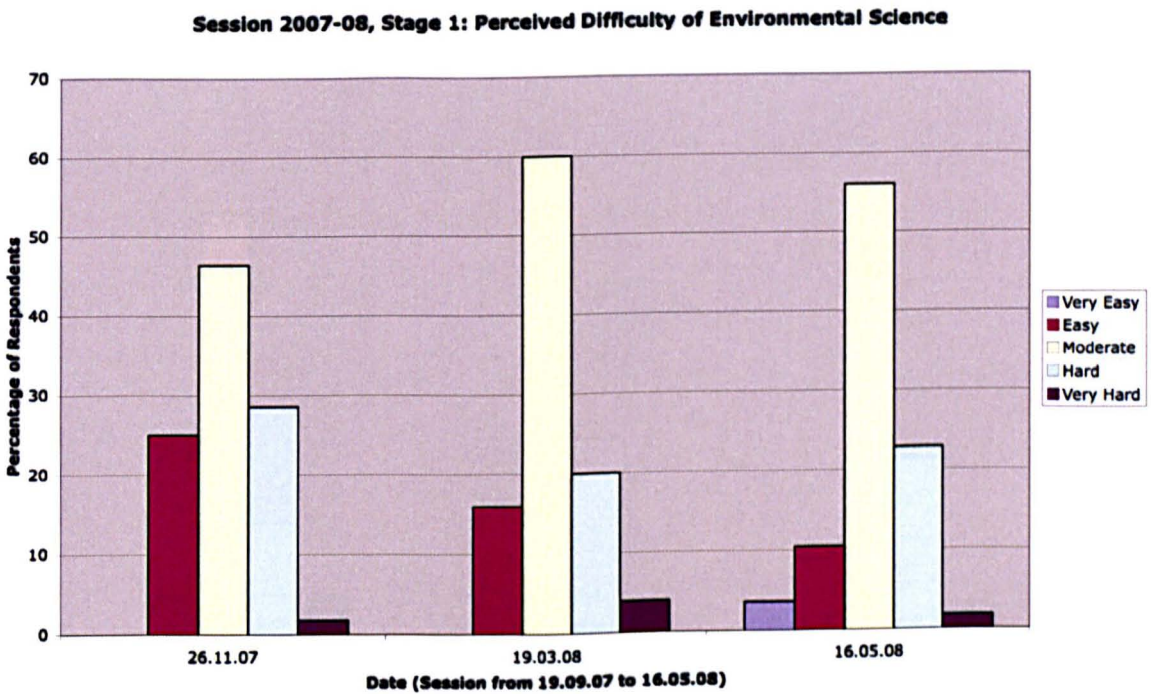


Figure A51: Perceptions of the Difficulty of History: Session 2007-08

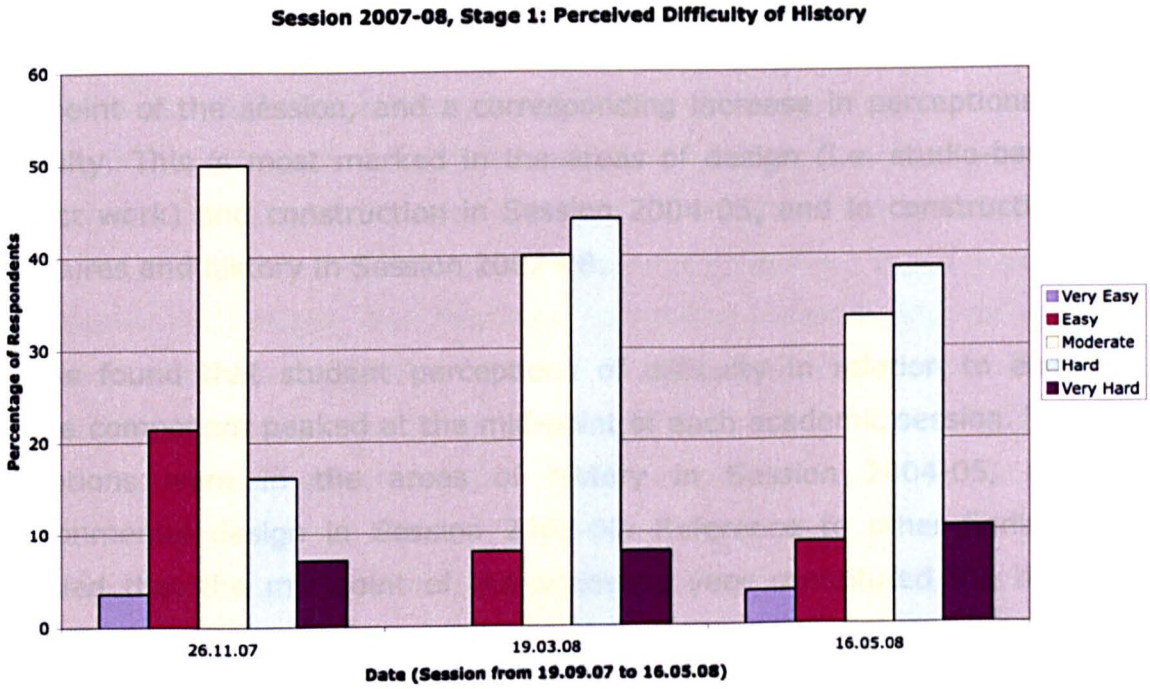
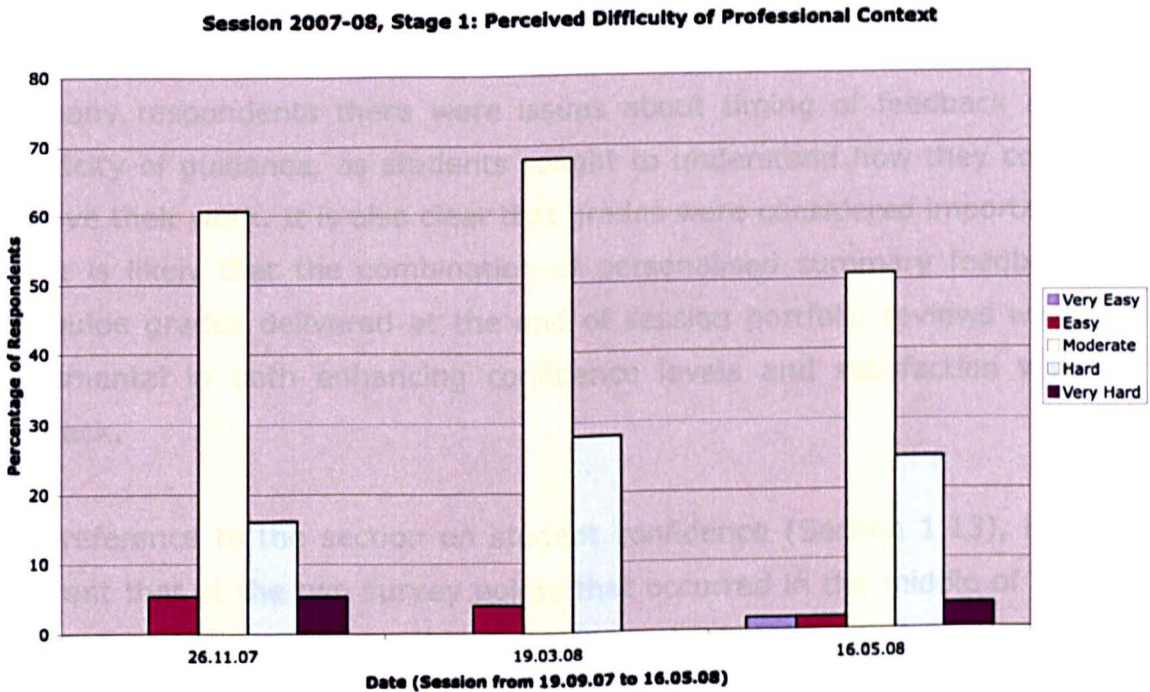


Figure A52: Perceptions of the Difficulty of Professional Context: Session 2007-08



1.8.4 Summary

The pattern discernible in each of the figures in this section, is striking. These are characterised by decreases in perceptions of easiness at the mid-point of the session, and a corresponding increase in perceptions of difficulty. This is most marked in the areas of design (i.e. studio-based project work) and construction in Session 2004-05, and in construction, structures and history in Session 2007-08.

It was found that student perceptions of difficulty in relation to each course component peaked at the mid-point of each academic session. The exceptions were in the areas of history in Session 2004-05, and environmental design in Session 2007-08. Reference to other findings revealed that the mid-point of the academic year constituted the time when there was greatest uncertainty, attributable to a perception of lack of guidance and constructive feedback. Given that Questionnaire 04 was completed at the point when students received feedback on their performance throughout the entire session, results at the end of the year showed a return to levels generally similar to those at the start.

It can be seen in referring to the section on feedback (Section 1.10), that for many respondents there were issues about timing of feedback and specificity of guidance, as students sought to understand how they could improve their work. It is also clear that grades were considered important, and it is likely that the combination of personalised summary feedback and guide grades delivered at the end of session portfolio reviews were instrumental in both enhancing confidence levels and satisfaction with feedback.

With reference to the section on student confidence (Section 1.13), it is apparent that at the two survey points that occurred in the middle of the session, general confidence levels in the cohort were at their lowest, accepting that these represented an aggregate of all course components. However, in the case of history, for which qualitative data in Session 2007-08 revealed ongoing dissatisfaction with feedback received, impressions of difficulty escalate throughout the second semester.

Correlation of subject perception with areas such as feedback, confidence levels, and understanding of strengths and weaknesses, in which non-studio-based subjects were identified as being more difficult to gauge, reveals a complex inter-relationship between these issues. Importantly too, a number of responses commented on the intensity of workload as being the challenge rather than the inherent difficulty of the work, whilst others noted a positive expectation of academic challenge. These findings thus serve to highlight the fact that curriculum content and delivery represent but one dimension of the student experience, and that perceptions of study are contingent on a range of other factors. Indeed, the correspondence between subject perception and confidence levels and ability to understand individual strengths and weaknesses, suggests that the responses regarding perceptions of course components may be as much a reflection of self, than of the subject matter per se.

1.9 Assessment Practices

1.9.1 Introduction

In order to gain a comprehensive understanding of the student view of the learning experience, data were gathered relating to the assessment process and its clarity. These are discussed in this session.

1.9.2 Clarity of the Assessment Process

With the benefit of reflection over the entire academic year, Questionnaire 04 surveyed student perception of clarity of the assessment process. The course adopts a broad range of assessment processes including formal examinations, coursework and studio-based project work, and the survey did not discriminate or identify between them. Whilst the study generally focuses on studio-based practice in particular, it is acknowledged that responses to this element relate to all course components.

Figure A53 charts student perceptions of the clarity of the overall assessment process in Session 2004-05. Notably, despite collective observations of a high level of clarity, over 20% of respondents considered the process to be 'unclear' or 'very unclear'.

Comments in the qualitative data suggested that the principal reasons for this relate to perceptions of subjectivity, the conflicting opinions of tutors, and procedural uncertainty. In accordance with these factors, the following comments demonstrate a range of opinions:

"The assessment process is open to a lot of personal opinion from tutors and can occasionally seem biased for or against a person's design"

(Q4, 2004-05, q16.1)²²³

"Hard to please every reviewer on subjective issues"

(Q4, 2004-05, q16.1)

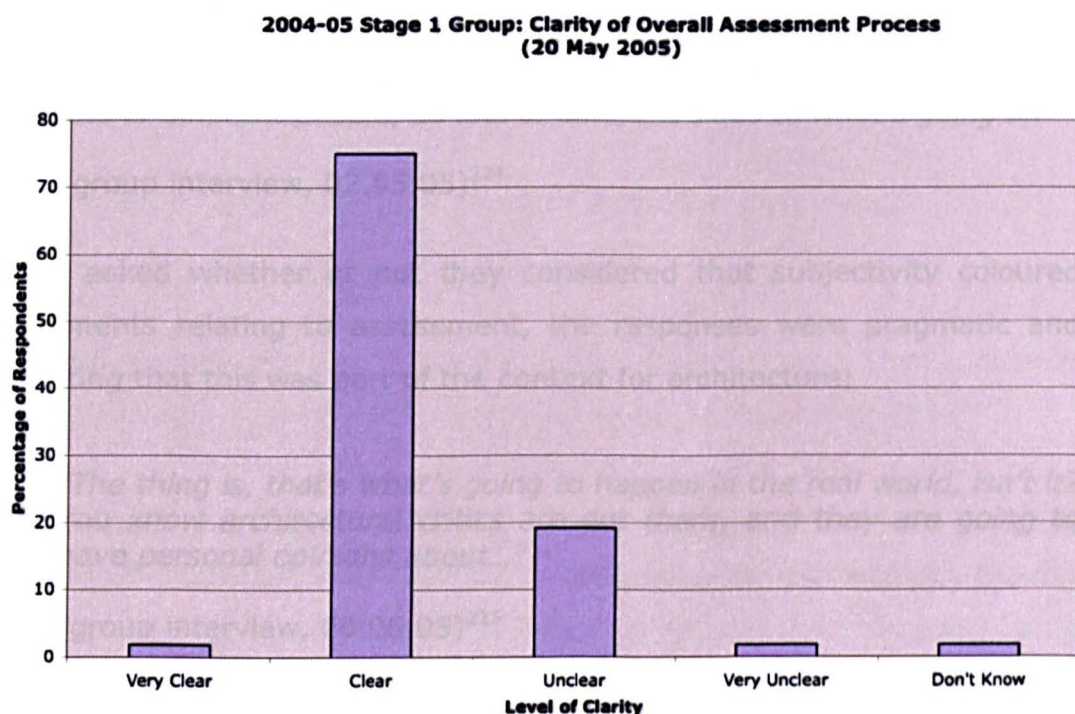
²²³ In response to the questions:

"Is the assessment process for studio work..... If you have answered 'Unclear' or 'Very Unclear', please state why What would make it clearer?"

"All three tutors expect certain things and have conflicting opinions"

(Q4, 2004-05, q16.1)

Figure A53: Clarity of Assessment Process: Session 2004-05



"(tutor) replies (are) often questions not remarks or comments"

(Q4, 2004-05, q16.1)

"We haven't been told how our projects are graded"

(Q4, 2004-05, q16.1)

"Unsure as to whether reviews are graded"

(Q4, 2004-05, q16.1)

(Of the respondents the 2004-05 cohort who found the assessment process 'unclear' or 'very unclear', approx. 30% did so because of perceived subjectivity; a further 30% because of lack of grades; 30% due to inadequate guidance; and 10% due to the nature of feedback given)

The issue of subjectivity was explored further through the group interviews, from which it became apparent that students considered it a fundamental aspect of the discipline:

"I don't know if you could remove subjectivity, as it is part of human nature, but you could get a larger group, a larger audience of more well rounded people, and so that you have got opinions coming from lots of different people, so lots of different sides to what's going on"

(group interview, 02.05.05)²²⁴

When asked whether or not they considered that subjectivity coloured judgements relating to assessment, the responses were pragmatic and accepting that this was part of the context for architecture:

"The thing is, that's what's going to happen in the real world, isn't it? You know architectural critics are out there, and they are going to have personal opinions about..."

(group interview, 06.06.05)²²⁵

"I think one of the good things about architecture is the fact that it is subjective"

(group interview, 06.06.05)

A number of comments were recorded suggesting how clarity of assessment practice might be improved. These referred to quantity and quality of feedback, enhanced communication, and guidance on process and expectations, as indicated in the following remarks on what would make assessment clearer:

"Better communication of what is expected"

(Q4, 2004-05, q16.2)

²²⁴ In response to the question:

"What could be done to remove perceptions of subjectivity and engender an understanding of professionally accepted good practice?"

²²⁵ In response to the question:

"Do you think personal opinion of architectural design influences the assessment of design work?"

"More feedback"

(Q4, 2004-05, q16.2)

"Breakdown of what we are expected to do and what will be marked when"

(Q4, 2004-05, q16.2)

"Probably a few sketched diagrams to get the idea across"

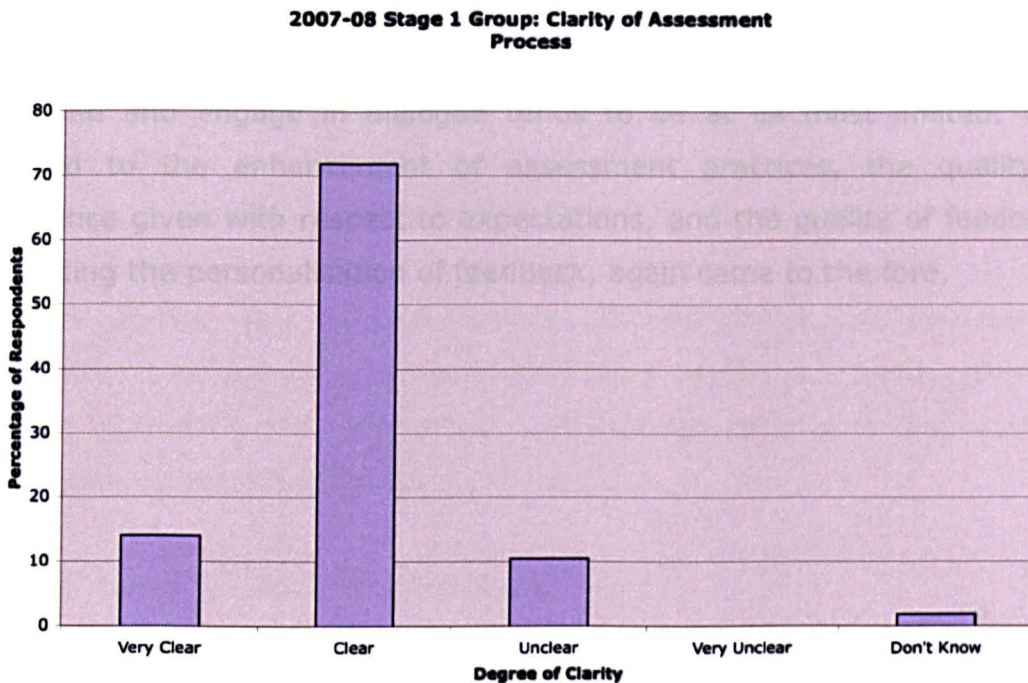
(Q4, 2004-05, q16.2)

(Of the respondents the 2004-05 cohort who suggested measures to enhance clarity, approx. 40% sought better guidance at the outset)

When repeated in Session 2007-08, the results revealed a similar trend as shown in Figure A54, with over 70% considering the assessment process to be clear. It is noted that those believing assessment processes to be unclear had halved from the previous survey. It is recognised that there may be multiple explanations for this, such as the introduction of enhanced practices in the intervening years, the evolution of course delivery, the presence of different staff within the teaching team, institutional initiatives and priorities, etc²²⁶.

²²⁶ The academic appraisal and development cycle at RGU enables evolutionary change to be implemented on an annual basis. Additionally, the QAA (Scotland) Enhancement Themes programme commenced in 2003, with 'Assessment' identified as a theme in its first year.

Figure A54: Clarity of Assessment Process: Session 2007-08



Once again, suggestions regarding the enhancement of clarity from those for whom procedures are unclear focused on guidance that would make assessment more explicit, as demonstrated below:

"We've no indication how our grade is arrived at - what weighting quality of drawing versus quality of design gets"

(Q4, 2007-08, q16.1)

1.9.3 Summary

Surveyed at the end of the academic year, each cohort indicated a high percentage of students regarding the assessment process to be clear, although these views may have been coloured by knowledge of satisfactory personal performance. Nevertheless, between 10 and 20% of each group shared an opposing view. A number of factors were cited as being instrumental in improving clarity, these being procedural uncertainty, confusion arising from differing tutor opinion, and the perception of subjectivity. Qualitative comments suggest that the consensual nature of assessment and the role of moderation as means of resolving diverse viewpoints was not well understood. However, when it came to subjectivity, commentary from Stage 1 students appeared to

accept it as part of the fundamental nature of the subject, and indeed was considered by at least one respondent to be one of the qualities of architecture as a subject, although for the Stage1 student the ability to respond and engage in dialogue tends to be at its most limited. With regard to the enhancement of assessment practices, the quality of guidance given with respect to expectations, and the quality of feedback, including the personalisation of feedback, again came to the fore.

1.10 Feedback

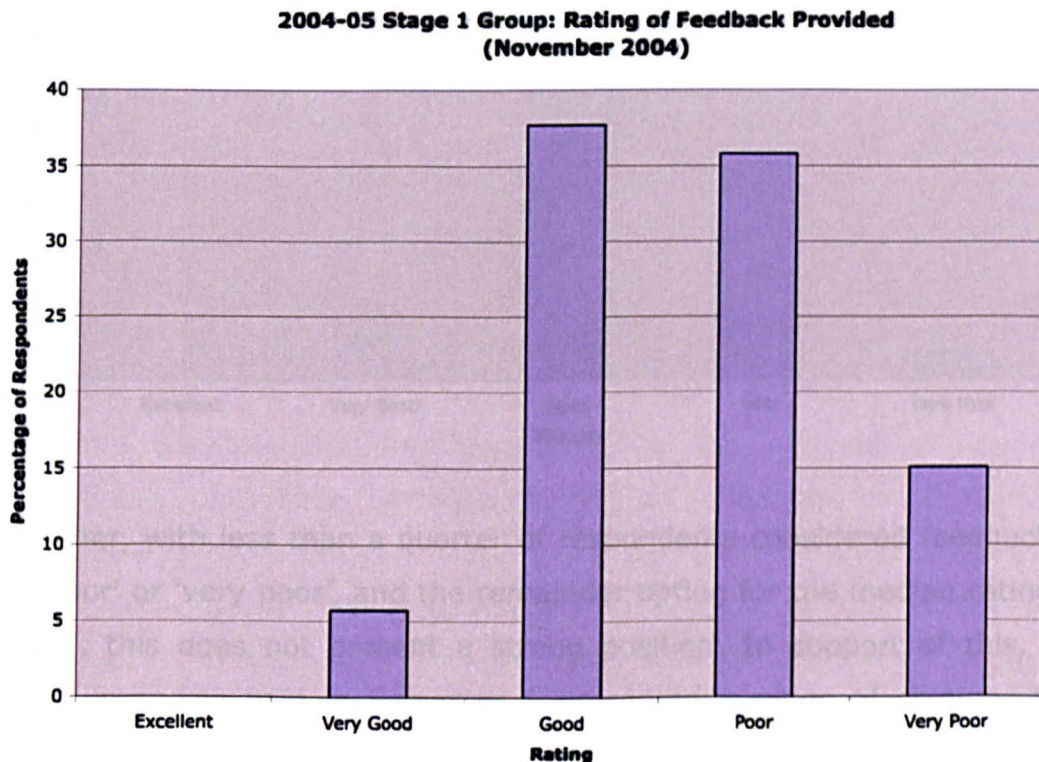
1.10.1 Introduction

Over the span of each academic session, the survey process gathered data relating to the feedback provided to students. As with assessment practices, perceptions of feedback referred to all aspects of the course, although qualitative material includes references that are specific to design studio. This section begins by presenting an overview of perceptions of feedback at different points in the academic calendar, before examining the factors that students are seeking in feedback, or recognise as being feedback.

1.10.2 Initial Perceptions of Feedback

Early perceptions of feedback were gathered at the mid-point of Semester 1, Figure A55 below charting the initial responses from Session 2004-05.

Figure A55: Rating of Feedback Provided: Session 2004-05

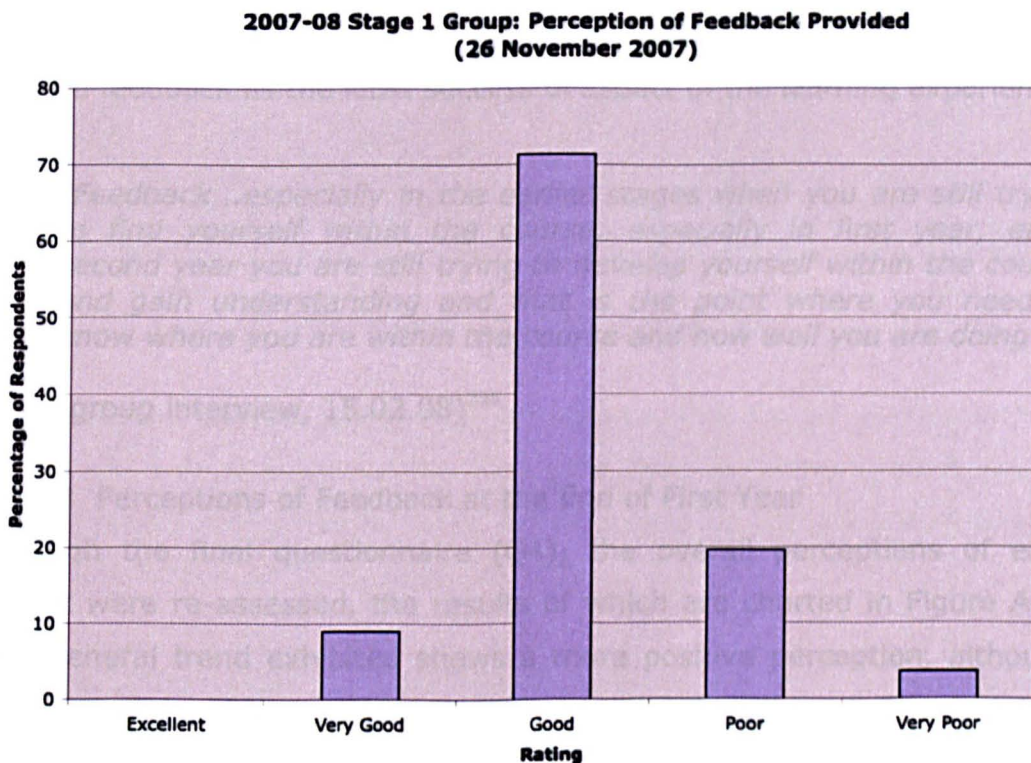


It can be clearly seen that for the majority of respondents, the initial impression tended to be 'poor' or 'very poor'. This result is considered

problematic given the newness of the subject and methods of learning, and given that students may easily become disengaged if they feel unable to judge their own progress or 'fit'. This may be especially true for those who retain a degree of uncertainty about the course selection they have made.

Initial views were again surveyed in Session 2007-08 at equivalent points in the academic calendar. Figure A56 below shows the profile of this study which reveals a higher level of satisfaction at the mid-point of Semester 1.

Figure A56: Rating of Feedback Provided: Session 2007-08



However, with less than a quarter of respondents considered feedback to be 'poor' or 'very poor', and the remainder opting for the median rating of 'good', this does not present a strong position. In support of this, the group interview held in Semester 1 presented a range of opinions that reflect poorly on feedback practices:

"it would be better if, like, especially since it's our first year, it they took time to explain to us what we are doing wrong and if we are

doing it right, because I can do a whole half folio for the year completely wrong and not know about it"

(group interview, 12.11.04)²²⁷

"I think more continuous assessment would be better for us, especially in the first year, so that we can realise what standards and if we are doing it right kind of thing"

(group interview, 12.11.04)

"There is a sense of urgency to get the work in and there is a complete anti-climax because you do not get any mark"

(group interview, 12.11.04)

Furthermore, comments from the group interviews held early in Semester 2 rated feedback as the least successful aspect of the learning experience:

"Feedback...especially in the earlier stages when you are still trying to find yourself within the course, especially in first year, early second year you are still trying to develop yourself within the course and gain understanding and that is the point where you need to know where you are within the course and how well you are doing"

(group interview, 15.02.08)²²⁸

1.10.3 Perceptions of Feedback at the End of First Year

Through the final questionnaire (Q4), the overall perceptions of each cohort were re-assessed, the results of which are charted in Figure A57. The general trend exhibited shows a more positive perception, although approximately 15% continue to regard feedback as 'poor'. The fact that the final questionnaire was completed by the majority of students immediately after their portfolio review (an individual verbal feedback summation of the entire year's work), it is perhaps unsurprising that these results demonstrate improved perceptions. Equally, it may be the case that there is an element of acclimatisation whereby the student begins to become accustomed, accepting, or even resigned to the methods

²²⁷ In response to the question:

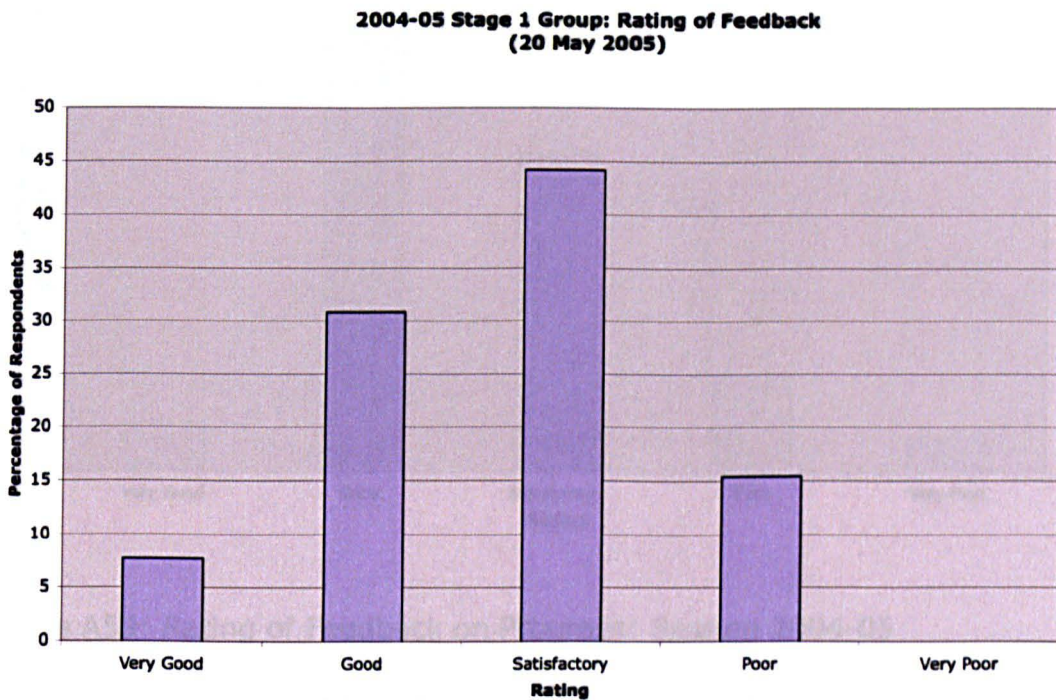
"How do you find design process? I have down here Clear or Unclear"

²²⁸ In response to the question:

"What is the most successful and least successful aspect of your learning experience has been to date?"

employed and, regardless of their merits, becomes more comfortable with this new norm.

Figure A57: Rating of Feedback: Session 2004-05



Whilst comparison of Figures A55 and A56 suggest a gradual improvement in collective impressions of feedback, the different nomenclature applied to the rating categories in these surveys renders the results unreliable. The same is true of Figure A58 below.

However, the above profiles broadly correspond with a triangulating question included in Questionnaire 04, which sought to record perceptions relating to the quality of feedback relating to individual progress. The graphs resulting from this question are shown in Figures A59 and A60. Excepting small numerical deviations, these figures serve to confirm the perceptions of the cohort at the end of the session. Although the graphs indicate a marginal improvement between Sessions 2004-05 and 2007-08, there remains a substantial percentage of the cohort for whom feedback is 'satisfactory' or 'adequate', or worse.

Figure A58: Rating of Feedback: Session 2007-08

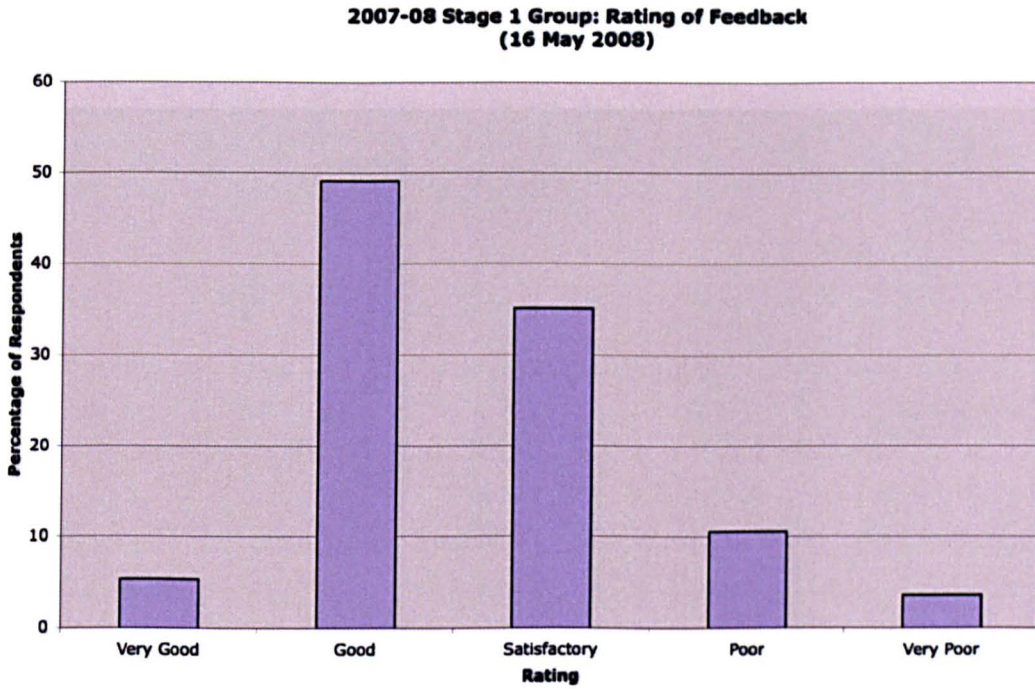


Figure A59: Rating of Feedback on Progress: Session 2004-05

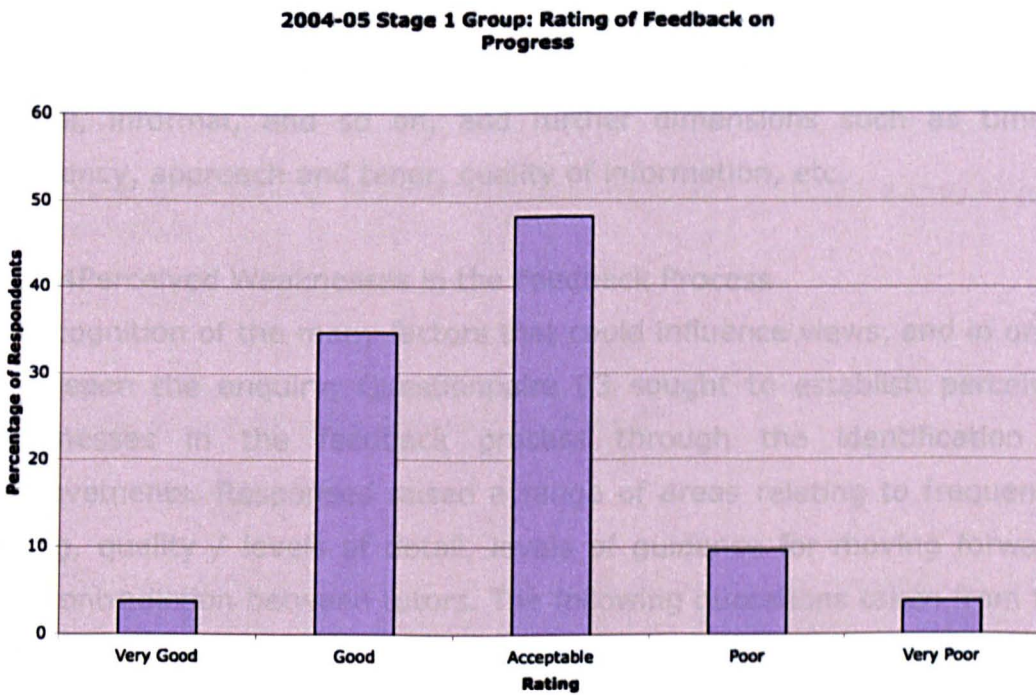
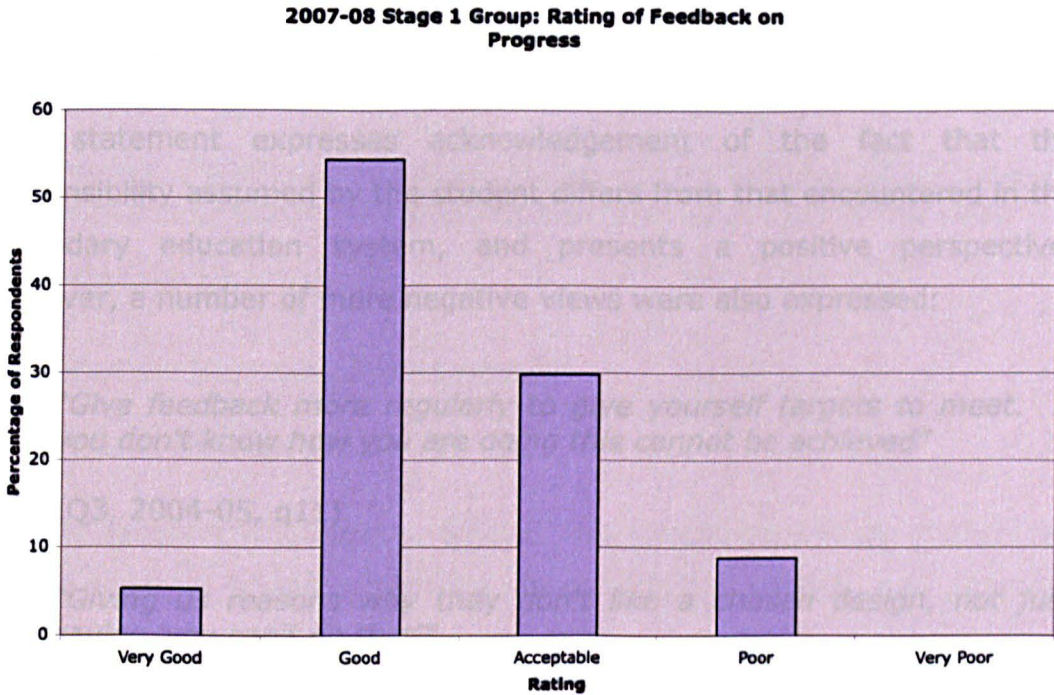


Figure A60: Rating of Feedback on Progress: Session 2007-08



In seeking a deeper understanding of these general trends there exists a fundamental question as to what the student considers or values as feedback, acknowledging that there are many forms; written, verbal, formal, informal, and so on, and further dimensions such as timing, frequency, approach and tenor, quality of information, etc.

1.10.4 Perceived Weaknesses in the Feedback Process

In recognition of the many factors that could influence views, and in order to deepen the enquiry, Questionnaire 03 sought to establish perceived weaknesses in the feedback process through the identification of improvements. Responses raised a range of areas relating to frequency, timing, quality / levels of detail, levels of guidance for moving forward, and contradiction between tutors. The following quotations taken from the data give a flavour of student opinion, and evidence the complexity of this area:

"Students realising that feedback differs from that of school feedback and (that) feedback is actually quite sufficient"

(Q3, 2004-05, q11)²²⁹

This statement expresses acknowledgement of the fact that the responsibility assumed by the student differs from that encountered in the secondary education system, and presents a positive perspective. However, a number of more negative views were also expressed:

"Give feedback more regularly to give yourself targets to meet. If you don't know how you are doing this cannot be achieved"

(Q3, 2004-05, q11)

"Giving us reasons why they don't like a chosen design, not just saying 'you can't do that'"

(Q3, 2004-05, q11)

"More feedback and quicker responses. What's expected from us should be clearly expressed at the beginning not at the end of the projects"

(Q3, 2004-05, q11)

"Written feedback emailed to us of lecturers / tutors suggestions / comments"

(Q3, 2004-05, q11)

"Details, specific points and having a one on one conversation, too many disagreements between reviewers"

(Q3, 2004-05, q11)

"Getting feedback (back) as soon as possible, more depth in what you did wrong (e.g. essays) so that you know what to change for next time"

(Q3, 2007-08, q11)

²²⁹ In response to the question:

"Results from Q2 record relatively low satisfaction from students with the feedback provided relating to progress. What would be the key to improving this?"

"I think tutors need to be more available during studio time and it would help if they all didn't disagree on some aspects as it confuses me"

(Q3, 2007-08, q11)

"Perhaps individual meetings lasting say 10 minutes about progress would help rather than showing everyone up in front of the class"

(Q3, 2007-08, q11)

"Quicker turn around for feedback"

(Q3, 2007-08, q11)

(Of the respondents, approx. 62% of the total were critical of feedback with respect to timing, specificity, format, and guidance, and generally expressed the same sentiment as the quotes above)

These comments refer to issues of frequency and timing, but also to content. Specifically, the inference is that comments tend not to be sufficiently informative in guiding future development and progress. Additionally, it is noted that one comment calls for written feedback, this presumably aiding reflection through the documentation of key points at a given moment or stage in a project. Equally, this relates to comments concerning the review process and the tendency to 'lose' much of the points from fatigue at the time of the discussion, etc (see Item 1.10.5). Some students evidently recognise studio discussion with tutors over the drawing board as a form of feedback, raising the spectre of differing viewpoints serving to confuse, this phenomenon also manifesting itself at formal review events.

1.10.5 Reviews

The centrality of the review, or 'crit', to studio-based learning is well documented in Chapters 3 and 4. Consequently, and as the review possesses a crucial role in the provision of feedback, questionnaires and group interviews gathered data relating to perceptions of the process. Indeed, in group interviews, responses relating to questions concerning feedback, tended to centre on the review process, reinforcing the

prominence of studio with the overall learning experience, and the significance of the review within this.

The review process represented a new learning experience for many, and was found to be challenging as intimated in the following comment:

"It is a bit daunting when you have everyone sitting around, watching you. It is quite scary but I think you get used to it... but you need the encouragement of everyone else around you to be involved"

(group interview, 11.02.08)

"Sometimes it's a bit too much information to take in all at once. You can't remember everything they've said sometimes. That's why it would be good if they gave you something to hold on to so you could remember all the things"

(group interview, 02.05.05)

It was also found to be a point where students seek approval of tutors, thereby demonstrating dependency:

"I think that's what really students actually really do rely on, is the studio staff, because it is in 'crits' that you do really find out whether what you have done is right or wrong and quite verbally as well"

(group interview, 06.06.05)

The importance of the support of the peer group emerges in the first quotation, along with the implication that as the testing experience of the review is shared and common to all, so too is any sense of vulnerability. As evidenced by the following reflections from senior students, the format of the review represents a new learning vehicle, although, as shall be discussed later, the effectiveness of some of its traditional practices and attributes may be called into question²³⁰:

"I must admit, I struggled a lot of the time with taking the criticism and I tended to be the one who cried a lot. But now I have overcome that and I do realise that what they (tutors) are saying is beneficial."

²³⁰ For a more detailed examination of the review process, see Chapter 4.

But I think you all deal with it in different ways. Some people get really defensive and angry, other people laugh about it, cry about it; some people tended to argue, some people just kind of (sic) tended to stand by and keep quiet, and take what's thrown at you"

(group interview, 06.06.05)²³¹

The duress that the review can cause is clear from the above comment, yet despite this, and in the absence of any alternative model being used, students have little option but to 'sink or swim', glean as much value from the process as they can. From the quotations below, it can be seen that, for some, a level of acceptance and acclimatisation is achieved. However, they also refer to the limitation of the student to fully engage in the dialogue through fatigue, and the fact that it is only on reflection afterwards that the points made become clear:

"I think probably after a 'crit' most people would say that everybody's tired, you've kind of been battered with all these opinions, you've been trying to speak back, it's sheer concentration, so I think after it you always think oh, it went much worse, and then maybe, later on that day, or the next day, take a step back, and read the comments about what do I actually have to do and I think it's then that you realise that the opinions have been valuable, that you have maybe been arguing quite blank about the day before"

(group interview, 06.06.05)

"when you are actually standing up there giving your crit and then listening to them, to be honest, when you come away from that you don't actually remember much"

(group interview, 06.06.05)²³²

"I think you learn to accept, maybe you learn to listen and you learn to take some advice and reject other advice and validate somebody else's opinion. Sometimes you've good 'crits' and sometimes you've a bad 'crit', but I think the actual 'crit' process, for the course we are doing, is very, very valuable"

(group interview, 06.06.05)

²³¹ In response to the question:

"What has your strategy been for dealing with diverse views and opinions regarding the development of your work?"

²³² In response to the question:

"What are your views about the adequacy of feedback, both in terms of content and timing?"

Despite the fact that students appear to adapt to the review process (albeit in varying degrees), as documented in the literature (inter alia Anthony, 1991; Vowles, 2000; Parnell, 2000; Webster, 2007), traditional practices may be fundamentally questioned. In particular, issues such as power asymmetries in the tutor-tutee dynamic, the nature of dialogue, the imposition of ideas in ways that counter the core ethos of constructivism, have been identified as flaws in traditional practices.

The nature of the review, in which a panel consisting of tutors and invited guests discuss your work, was noted to appear contradictory and to introduce conflict early on:

"Initially it's conflict. You feel like you've been stabbed in the back"

(group interview, 06.06.05)²³³

On the one hand, this comment could imply that the process of tutor guidance and feedback in the course of learning to design, may not be fully understood by students. Conversely, however, at an early stage in the learning process involving a subject where the students have largely had little or no prior academic exposure, the tutors assume a pivotal role to the student as exemplars of the profession. The issue of contradictory opinion was evident throughout the survey although, as is evident in the following quotations, the ability of different individuals to deal with this, varied considerably:

"It's hard to take in, and you are worried that if you don't change it (your design), then the lecturer will rip into you and give you a bad grade. I don't know how it would be if they don't like it - how much it does affect your grade or whatever (sic)"

(group interview, 02.05.05)

"I don't find it difficult. You have just got to take it on the chin, listen to what they are saying. I mean, we've got, like, 7 years of it,

²³³ In response to the question:

"Did you initially interpret this as conflict or an inherent part of the process?"

so we might as well get used to it now"

(group interview, 02.05.05)²³⁴

"It's just when you are actually working and they give you help, the person who does like it will be, like, sort of encouraging you to keep on going with that idea, but then the one that doesn't will be, "no, I don't like it, change it, change it""

(group interview, 02.05.05)

"Changing it (one's design) to please someone else instead of yourself isn't going to really work (sic), because you have then to come up with designs that you are not happy with"

(group interview, 02.05.05)

The last comment above implies a realisation in the student that learning comes through the critique of their individual judgement and critical reflection in their own work, rather than the interpretation of tutor guidance as a prescribed route to achievement. This is an important realisation for a student approaching the end of their first year, although the enhancement of pedagogies might look to achieving a more widespread identification of this function of tutor interaction earlier in the process, and the ability to place it in the context of the overall learning experience.

It is perhaps unsurprising that in situations that are considered both challenging and potentially confusing, students devise strategies for reducing the impact of negative aspects on themselves, as demonstrated below:

"You know your 'crit' is going really well if you can get your tutors to argue"

(group interview, 06.06.05)

Responses from the group interviews also raised the issue of external involvement in the review process, be that through invited guests or part-

²³⁴ In response to the question:
"Do you find critical discussion difficult to accept?"

time staff who are perhaps unfamiliar with, or less versed in, the academic intent behind the project:

"...there is a problem in that sometimes if you have a visiting lecturer taking the 'crit', and (sic) he won't necessarily understand that this student has got certain things that they have to do academically, you know, certain targets that you have to meet, and they might not have an understanding of the scheme at all"

(group interview, 06.06.05)

This point relates to clarity of understanding amongst tutors about the learning objectives underpinning studio projects, and relates to an issue raised by interviewed academics regarding the integration of part-time tutors into the teaching team²³⁵.

"I think the combined grading and conversation notes back is a lot more beneficial" (than a few sentences of feedback).

(group interview, 06.06.05)

1.10.6 Components of Feedback

Further exploration of the adequacy of feedback took place in group interview discussions, in which a range of opinion was expressed. From these it may be seen that some students clearly struggle with criticism, particularly if this is not balanced by encouragement and constructive advice. Conversely, others appreciate or accept criticism as part of the territory:

"sometimes we get the odd comment, like I said, but it's not enough to let you know exactly how you are doing, or if you are doing it right, and I just kind of feel a bit like (sic) at a loose end just now because I don't know if I am doing it right, if I am up to scratch or if they are going to kick me off the course at the end of the year because I am not doing well enough"

(group interview, 12.11.04)

²³⁵ For discussion of the data gathered from interviews with selected senior academic from UK schools, see Appendix 4.

"At the moment, what we are getting is "That one's wonky". All right, OK, I'll change that, but (sic) not really an overall mark, or any indication of how well you are doing"

(group interview, 12.11.04)

"You want feedback, but you don't want so much, like, bad feedback so you feel completely inadequate"

(group interview, 12.11.04)

"I would rather have that" (relates to quotation directly above)

(group interview, 12.11.04)

(No Matter) "how many times you change it (one's design work), and how good it is, they (staff) will always (sic) criticising it. Because that's their job. They are not there to give you praise or anything, they are there to criticise you, to get you ready to cope"

(group interview, 12.11.04)

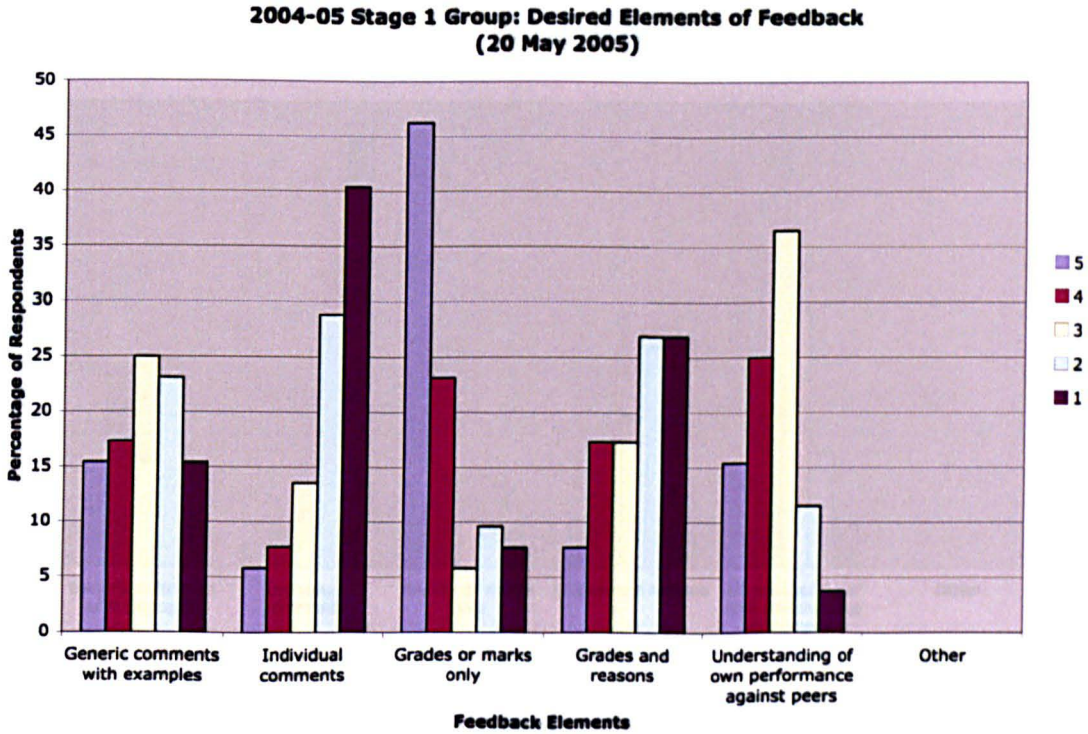
The perception contained in the last comment above are open to strong challenge, as, in the spirit of constructive criticism, it is surely the role of educators to praise as well as criticise. Indeed, it is argued that this attitude must be dispelled as it frames the tutor-tutee relationship as being one that is inherently adversarial in nature. However, this perspective was recognised by other respondents although, as the comment below indicates, practice does not always adhere to this:

"They need to say like at least one thing encouraging, then they will make people so much more enthusiastic"

(group interview, 11.02.08)

The values attributed to different aspects of feedback were explored in greater depth, with students required to rank a number of prescribed elements relating to the feedback process. The resultant rankings are illustrated in Figure A61 below:

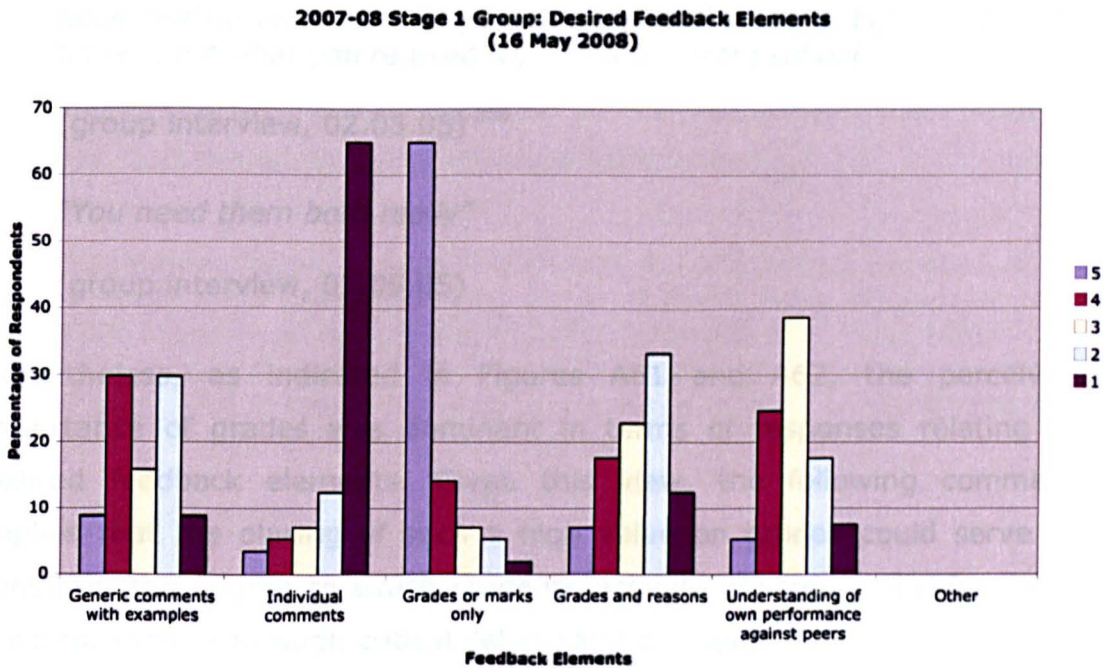
Figure A61: Desired Elements of Feedback: Session 2004-05



It can be clearly seen that the highest rating by a considerable margin is afforded to the receipt of grades or marks, and that this is seen as much more important than grades with accompanying justification. Understanding performance relative to one's peer group was also seen as desirable, with individual comments receiving the lowest rating overall. The importance of the peer group and of developing a relative understanding of personal performance suggests a desire to gain some sense of belonging within the peer group derived from being able to 'stay with the pack'. In a similar way to the statements whereby students establish collective understanding of what is required in some projects through consensus, the same may be true in terms of feedback. In other words, students may seek confirmation that they are keeping pace with their peers amongst whom a mutual reliance quickly develops through the social setting of studio.

The exercise was repeated in Session 2007-08, the results for which are shown in Figure A62.

Figure A62: Desired Elements of Feedback: Session 2007-08



It is evident that whilst there are subtle specific differences in the responses, the overall profile bears remarkable similarity to that of the earlier cohort. Once again the absolute measure offered by a grade or mark is seen as the most desirable element of feedback. The consistency of these results imply that students perceive greatest value from feedback that either positions their performance absolutely or relatively. Once again the ability to gauge performance relative to peers rates highly, as does the ability to benchmark against exemplars from previous cohorts. In both cases, these forms of feedback are relativistic.

Data gathered from group interviews revealed that whilst grades were clearly highly valued by respondents, they sought additional information that offered guidance on how to progress and improve. This is captured below, although the first quotation suggests a need to discriminate between feedback that is formative, and the summative process of grading:

"Yes, it's a balance between the two, because discussion and throwing ideas about is one thing, but like I said, at the end of the day what really counts high up the ways is a number, like how you

are doing physically in black and white, and if you can't say, then you can't judge your performance on a review that went well. It's a good feeling and you feel you've done well from it, but, it's nice to have ... it's what you're used to, I suppose from school"

(group interview, 02.05.05)²³⁶

"You need them both really"

(group interview, 02.05.05)

Nevertheless, as indicated in Figures A61 and A62, the perceived importance of grades was dominant in terms of responses relating to desired feedback elements. Given this view, the following comment implies that the placing of such a high value on grades could serve to constrain the degree to which students actively engage in the feedback process, such as through critical debate and dialogue:

"...you can stick up for yourself but you cannot really grade yourself"

(group interview, 15.02.08)²³⁷

Reflecting responses concerning the review process, subjectivity and contradictory advice was identified as a shortcoming of feedback. The comment below, whilst serving as a demonstration of this, also implies that design work is inherently subjective. It was noted that in the context of studio-based design work, very little reference was made to principles of composition and the role of the canon of built work as a more objective dimension of the discipline:

"...one person might like it, one person might hate it, (sic) personal opinions at times. Personal opinions might get in the way... That is where the confusion starts"

(group interview, 15.02.08)

²³⁶ In response to the question:

"What information would be most useful to you and when you refer to feedback to you refer to discussion on performance or grades?"

²³⁷ In response to the question:

"What do you see as your role in terms of the feedback process? Are you passive or would you prefer to be more active?"

It is in the nature of studio learning that dialogue provides an ongoing process of formative feedback, although it might not be every student that recognises that informal discussions in studio constitute feedback. Responses I group interviews alluded to the variability of tutor-student dialogue, and to the attitudinal variance experienced:

"...between tutors I really found that the differences between some of them were really obvious. Some of them really encourage you. Even though you do something wrong they will say, "okay that's fine, but you can do something better", but rather than just, "no, no" and it just, (sic) it seems like it is just a piece of junk or something like that. I think that is really depressing..."

(group interview, 11.02.08)²³⁸

"I do notice... how many designs all look so similar because the tutors have all suggested the same ideas for everyone, and you are like (sic), "that should not be happening", and you know they should really let us be ourselves on our initial ideas. And okay, they might not have been as spectacular as their designs, but people would have had more motivation because it was their own idea. No one can get exactly what they want, but you would have an extra bit of motivation"

(group interview, 11.02.08)

Whereas the comment above speaks of the de-motivational impact of tutors imposing ideas and suppressing the student's own thoughts, the following statement presents the other extreme where fear of failure or harsh criticism develops because of the effort invested by the student in their work:

"Half the time you are scared because it is quite personal what you design (sic), and you spend a lot of time doing it, and you do a lot of work. And then you are scared to kind of (sic) go up because you think they are going to hate this..."

(group interview, 11.02.08)

The scenarios presented by both of the comments above are at odds with the notion of constructivism as discussed in the literature review, and

²³⁸ In response to the question:
"What about the quality of feedback, does that vary between tutors?"

hence with the idea of facilitating learner independence through valuing and accommodating the perspective of the student²³⁹.

The above results require to be seen in the context of student perceptions of tutor expectations, as well as the comments relating to the existence of diverse views and opinions amongst students. It may be reasonably assumed that where students lack surety about the views and expectations of staff, they look elsewhere for means of determining or validating their position, i.e. to their peers and the work of their fellow students.

1.10.7 Summary

It is clear that feedback constitutes a vitally important area in the eyes of the students, as well as being one that attracts a variety of viewpoints from students, and variable approaches and practices from staff. Despite statistical variations between cohorts, a substantial percentage of respondents in each developed an early perception that feedback was 'poor' or 'very poor'. Given the newness of the subject, and considering that some students are still considering the suitability of the subject for them, this is clearly deemed problematic by them. Although perceptions had improved by the end of each session, there remained approx. 15% whose view remained negative. These statistics relate to the entire course, although many of the comments or group interview extracts relate specifically to studio.

The difficulties associated with feedback recurred throughout the year, the salient points relating to frequency and timing, quality and specificity of guidance, and the absence of grades or marks. In acknowledgement of the many facets and forms of feedback, the survey sought to ascertain what the students regarded as being of value to them, revealing the same points as being the key aspects. In addition were the need to understand and develop means of responding to diverse the viewpoints of tutors, and

²³⁹ It is noted that in valuing and accommodating the perspective of the individual, the importance of criticism is not diminished. Rather, constructivism, and the concept of the independent learner, provides a context for the forms that criticism can take that are consistent with the pedagogic objectives.

the need for written feedback that assists reflection and which forms a documentary record.

As a feedback mechanism, the review attracted diverse opinions, although a number of negative aspects were identified. These included the fact that the intensity of the review process, coupled with the fact that students are usually fatigued, means that little information is retained (hence the desire for written information). Their critical and often confrontational nature was also identified as being daunting for some, and the need for encouragement being singled out as an important aspect of the dialogue. Additionally, there failure of some visiting critics to fully understand or engage with the academic process was also identified.

Unsurprisingly, the ability to accept criticism varies markedly amongst the student body. Equally, as has been discussed already, the ability to handle diverse input from staff also varies within a group and is dependent on the individuals concerned.

Grades and marks are overwhelmingly viewed by students as being of paramount importance for feedback. The reasons for this are complex, including links to practice within learning cultures previously encountered, but also to the desire to understand performance in a new subject area. The importance of the peer group has already been discussed, and was reinforced by the desire of many students to understand their performance relative to their peers, suggesting that understanding of performance relates in part to the individual's sense of belonging within the cohort.

Finally, it is acknowledged that feedback practice at the Scott Sutherland School perhaps does not constitute best practice, and that whilst the findings may or may not be typical of schools more widely, they can be interpreted generically in the sense that they reveal the consequence of the weaknesses identified, on the broader learning experience and on the motivation of the individual.

1.11 Performance and Development

1.11.1 Introduction

Another measure of the effectiveness of feedback comes through the study of the students' understanding of their personal performance and development. Indeed, in the light of the responses relating to feedback, the ability of the student to gauge his or her own development becomes a particularly interesting area of study.

Accordingly, in parallel with studies on perceptions of feedback, the students' perceptions of their own performance and development was tracked, particularly through Semester 2, at which point students had gained familiarity with the learning process and the curriculum, and had completed initial summative assessments.

1.11.2 Initial Perceptions of Individual Performance

Issued early in Semester 2 of both cohorts, Questionnaire 03 gathered perceptions of individual performance in the first semester of study, the results of which are plotted in Figures A63 and A64.

The profile of perceptions performance for Semester 1 is relatively positive, with the majority of students rating themselves above 'satisfactory', and with a low percentage (7.1%) considering themselves to have performed poorly. It is interesting to speculate about the criteria used to formulate these judgements, given that it has been established that many students considered both guidance and feedback to be weaker aspects of the experience. In a group that, to an extent, utilises informal peer consensus to 'agree' approaches and standards, it may be that such judgements are comparative in nature.

Figure A63: Perceptions of Individual Semester 1 Performance: Session 2004-05

2004-05 Stage 1 Group: Perceptions of Individual Semester 1 Performance (09 March 2005)

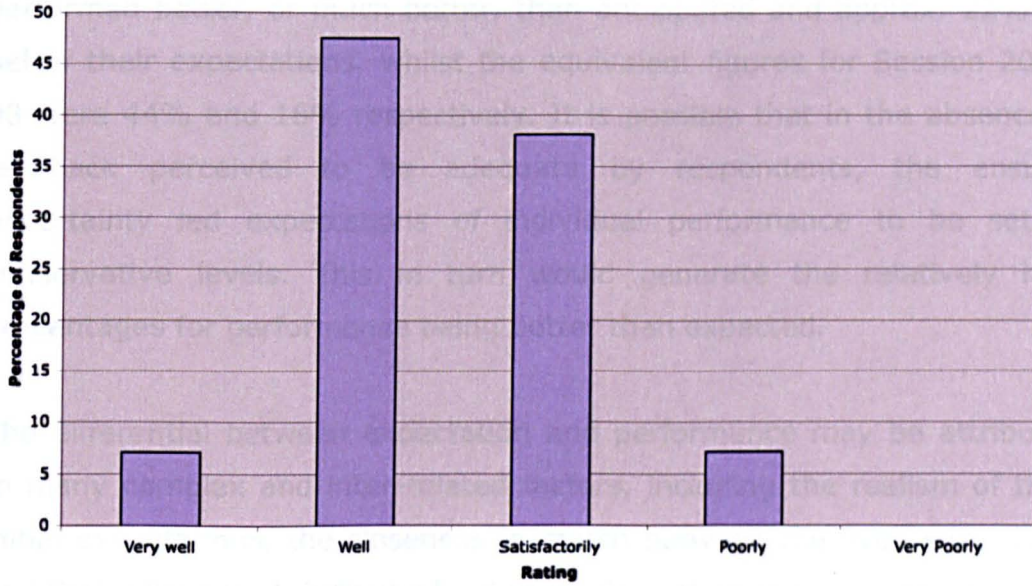


Figure A64: Perceptions of Individual Semester 1 Performance: Session 2007-08

2007-08 Stage 1 Group: Perceptions of Individual Semester 1 Performance (19 March 2008)

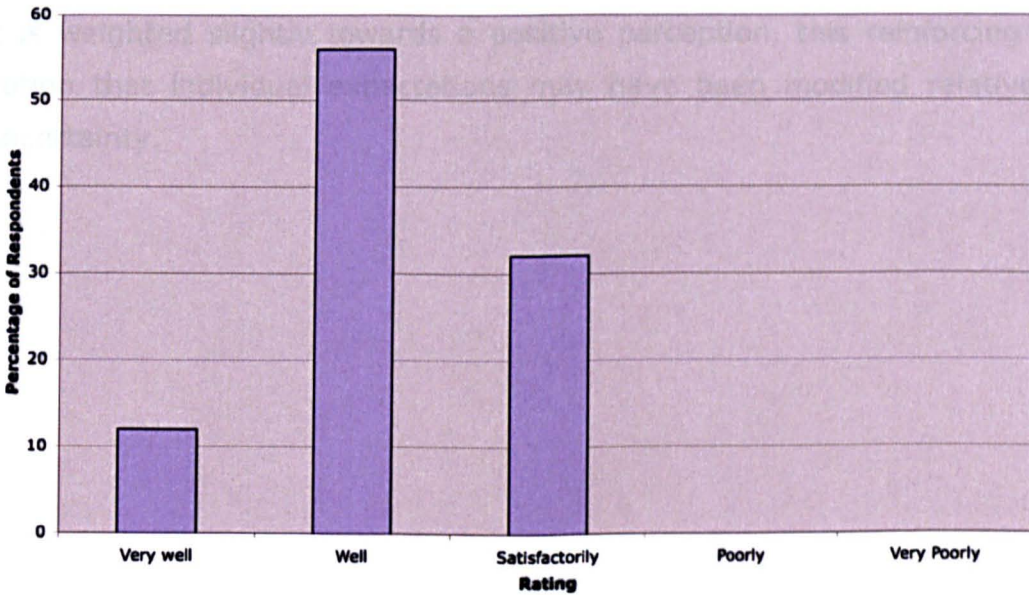


Figure A64 shows a similar profile for Session 2007-08. Whilst in both cases the results showed a high level of satisfaction with their own performance, Figures A65 and A66 indicate that this initial profile masks an underlying picture. In Session 2004-05, some 35.7% of respondents performed better, or much better, than anticipated and approx. 22% fell below their expectations, whilst the equivalent figures for Session 2007-08 were 44% and 16% respectively. It is possible that in the absence of feedback perceived to be adequate by respondents, the ensuing uncertainty led expectations of individual performance to be set at conservative levels. This in turn would generate the relatively high percentages for performance being better than expected.

The differential between expectation and performance may be attributed to many complex and inter-related factors, including the realism of their initial expectations, the closeness in match between the lived experience and that anticipated, individual interpretation of feedback received, levels of engagement and application, and so on. Statistically, it might be reasonably expected that these results conform to a standard distribution curve, particularly if feedback is effective in enabling the student to understand their individual progress. The profiles in Figures A65 and A66 generally do conform to a standard distribution albeit that, in both cases, it is weighted slightly towards a positive perception, this reinforcing the notion that individual expectations may have been modified relative to uncertainty.

Figure A65: Individual Reflection on Semester 1 Performance: Session 2004-05

2004-05 Stage 1 Group: Individual Reflection on Semester 1 Performance (09 March 2005)

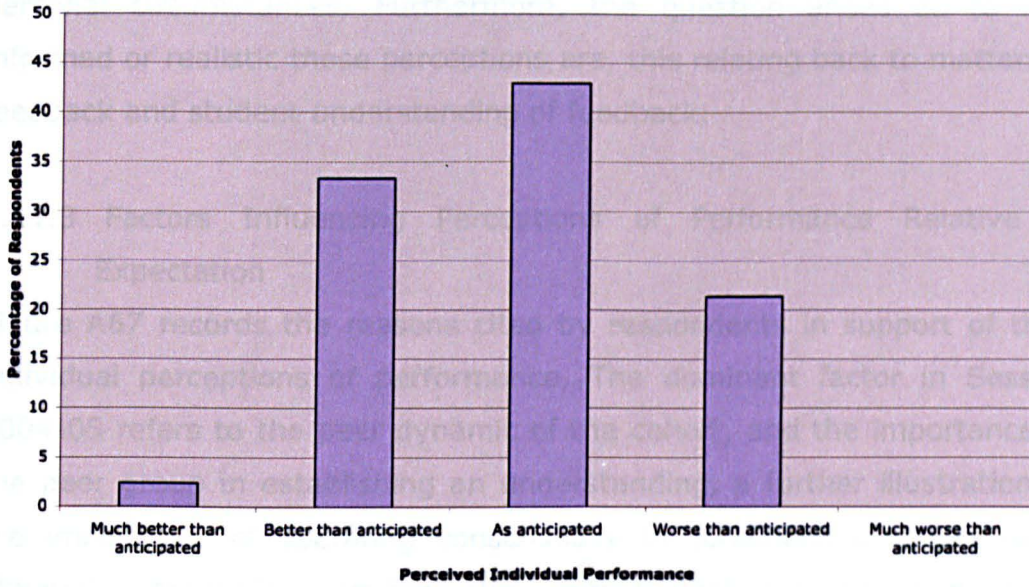
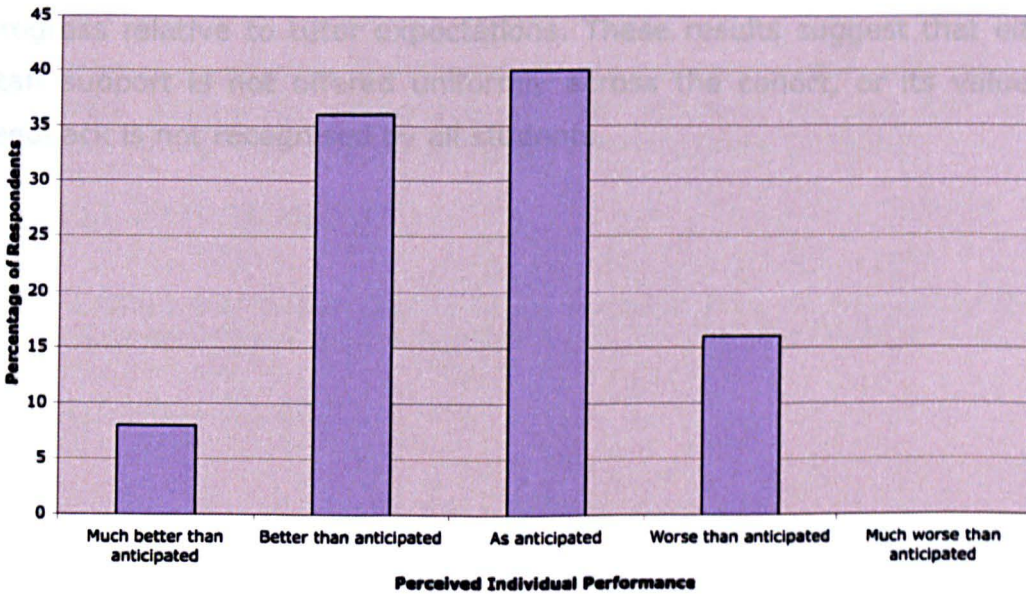


Figure A66: Individual Reflection on Semester 1 Performance: Session 2007-08

2007-08 Stage 1 Group: Individual Reflection on Semester 1 Performance (19 March 2008)

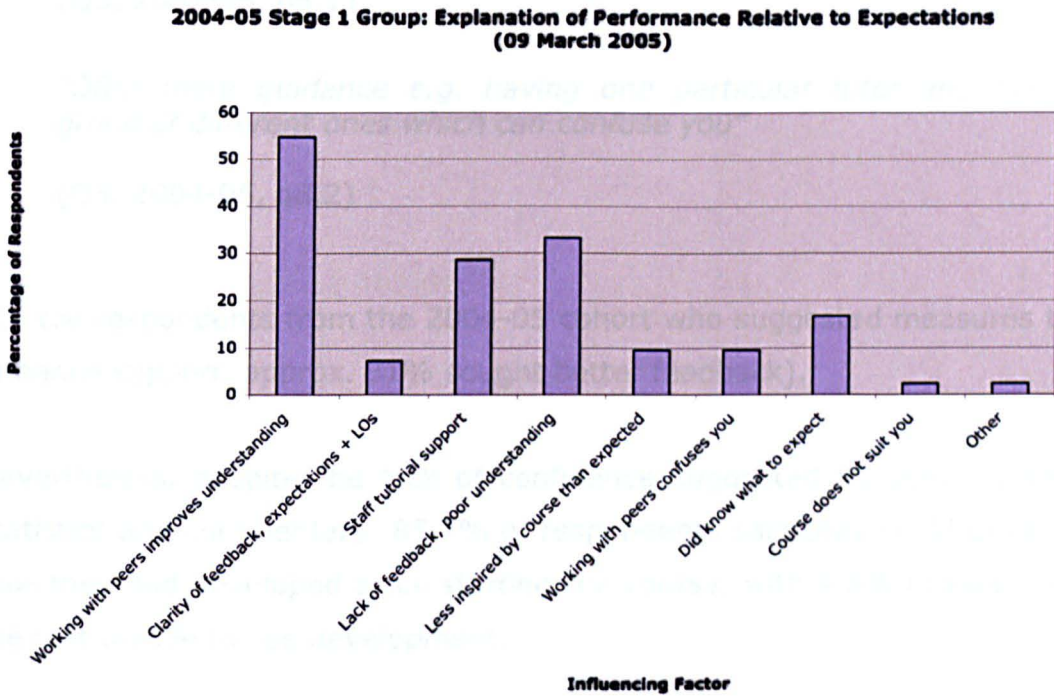


As mentioned already, there are many diverse reasons why performance may be better or worse than anticipated, ranging from being poorly informed at the outset, not engaging with the subject, perceived level of difficulty, ability to achieve transition to university study, and external personal circumstances. Furthermore, the question arises as to how informed or realistic these perceptions are, this relating back to matters of feedback and student understanding of feedback.

1.11.3 Factors Influencing Perceptions of Performance Relative to Expectation

Figure A67 records the reasons cited by respondents in support of their individual perceptions of performance. The dominant factor in Session 2004-05 refers to the peer dynamic of the cohort, and the importance of the peer group in establishing an understanding, a further illustration of the importance of operating consensually in conditions of uncertainty, although conversely, approx 10% stated that working with peers introduced confusion. The perception of a lack of feedback contributes to any sense of uncertainty as does the fourth most significant factor, i.e. the uncertainty of what to expect. Contrastingly, however, staff tutorial support was cited by nearly 30% of respondents, this guidance presumably providing guidance that enables students to understand their progress relative to tutor expectations. These results suggest that either staff support is not offered uniformly across the cohort, or its value as feedback is not recognised by all students.

Figure A67: Explanation of Performance Relative to Expectations: Session 2004-05



From the comments made as to how additional support might be provided, a number of areas emerged, namely the guidance given relating to the objectives and expected standards, feedback, and models of tutorial support.

"Tutors could be a lot clearer about expectations for work, and how work should be presented. At the moment we are left to do something wrong before being told how it should be done"

(Q3, 2004-05, q8.2)²⁴⁰

"Explain the easier things to us because they (staff) presume we know more than most of us do"

(Q3, 2004-05, q8.2)

²⁴⁰ In response to the question:
 "If your performance differs much from your expectations, to what do you attribute this? With reference to your answer to Q8.1 (the previous question), what additional thing(s) could the school do to support you?"

"The feedback should be given much quicker so that I know how to improve on the next projects"

(Q3, 2007-08, q8.2)

"Offer more guidance e.g. having one particular tutor and not a group of different ones which can confuse you"

(Q3, 2004-05, q8.2)

(Of the respondents from the 2004-05 cohort who suggested measures to enhance support, approx. 31% sought better feedback).

Nevertheless, despite the lack of confidence suggested by some of the statistics and commentary, 85.7% of respondents said they could discern how they had developed since starting the course, with 4.8% unsure and the rest unable to see development.

In an attempt to ascertain the basis of the respondents' ability to judge personal development, Questionnaire 3 gathered views on enabling factors. From the factors that emerged as being of significance, it is evident that acclimatisation to the course and the broader student experience is important, as is the capacity for reflection, as indicated in the following quotes:

"I have a better understanding of the course but I could do with a lot more"

(Q3, 2004-05, q12.1)²⁴¹

"Looking back over previous tasks and seeing my progression, even over this short period of time"

(Q3, 2004-05, q12.1)

²⁴¹ In response to the question:

"Can you see how you have developed since starting the course? What enables you to make this judgement?"

"By seeing the work I have produced, knowledge I have gained and the feedback which I have received"

(Q3, 2004-05, q12.1)

"I am gaining more understanding in what I need to do to improve my work to meet the required standard"

(Q3, 2004-05, q12.1)

"More confidence in abilities"

(Q3, 2007-08, q12.1)

(Of the respondents from the 2004-05 cohort who had perceived a development in their skills and knowledge, approx. 67% attributed this to reflection on work to date and to a better understanding of the subject)

The issue of guidance regarding course / staff expectations and standards was also touched upon by several respondents, particularly given the lack of comparable experience for any²⁴². This is exemplified by the following quotation:

"It's my first year and I have nothing to compare it with"

(Q3, 2004-05, q12.1)

Of those unable to discern personal progress or unsure of their ability in this respect, the different nature of the learning experience was identified, along with a sense of confusion and lack of orientation. This confusion was found to negatively impact on levels of incentive and personal motivation.

"Feel confused and lost, lack of motivation"

(Q3, 2004-05, q12.2)²⁴³

²⁴² For findings relating to tutor expectations and guidance, see Section 1.7 of this Appendix.

²⁴³ In response to the question:

"Can you see how you have developed since starting the course? What enables you to make this judgement? If your answer to Q12 is 'No', why?"

"Because my previous education was fairly different and doesn't compare with this here"

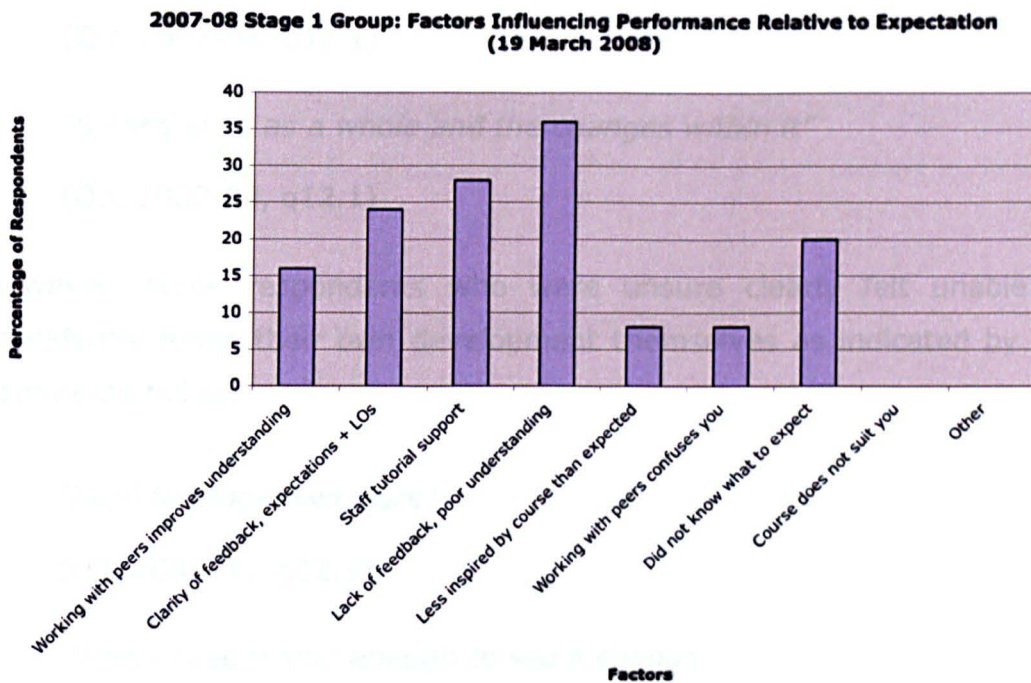
(Q3, 2004-05, q12.2)

"I am unsure as to whether I have improved or not, regular feedback would help"

(Q3, 2004-05, q12.2)

When repeated in Session 2007-08 (Figure A68), the responses relating to influences on performance relative to expectation differed subtly from the cohort surveyed previously. Whilst 3 of the 4 factors most highly rated in Session 2004-05 are replicated, the relative weightings attributed to each differ. This is principally due to the significantly lower percentage of respondents identifying 'working with peers improves understanding'. 'Lack of feedback, poor understanding' is the dominant factor overall, achieving a very similar percentage rating to the previous cohort. The other substantial difference is the higher rating accorded to 'clarity of feedback, expectations and LOs (learning outcomes)'.

Figure A68: Explanation of Performance Relative to Expectations: Session 2007-08



As before, and consistent with the graph above, the comments recorded identified feedback as the primary area of additional support sought. With reference to the results relating to the components considered important in assessment, it can be extrapolated from these results that feedback and guidance are critical to developing an understanding of personal performance, alongside the support structure and comparative element represented by the peer group.

Of the respondents, 72% said that they could discern how they had developed since starting the course, with 16% unsure and the rest unable to see development, with the comments revealing the importance of reflection in this process:

"(I) think a lot more about architecture in my day to day life even out-with Uni(versity)"

(Q3, 2007-08, q12.1)

"I know I have shown development specially in understanding on this course, as I show it everyday, with an increased interest in architecture outside of the university"

(Q3, 2007-08, q12.1)

"Seeing work as a whole and the changes within it"

(Q3, 2007-08, q12.1)

However, some respondents who were unsure clearly felt unable to confidently judge their own development themselves as indicated by the comments below:

"Hard to judge own work"

(Q3, 2007-08, q12.3)

"Doesn't seem long enough to see a change"

(Q3, 2007-08, q12.3)

(Of the respondents from the 2007-08 cohort who had perceived a development in their skills and knowledge, approx. 56% attributed this to reflection on work to date and to a better understanding of the subject)

whilst others still presented a more negative picture, exemplified by:

"feedback saying where / how to improve is nigh on non-existent"

(Q3, 2007-08, q12.2)

"feels like I'm failing"

(Q3, 2007-08, q12.1)

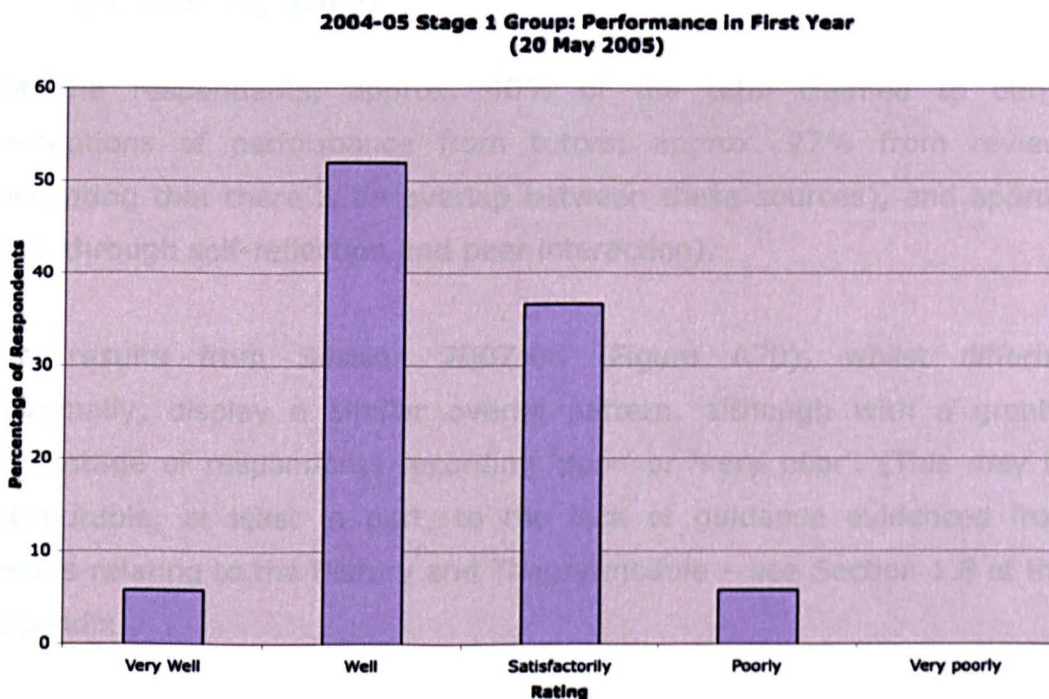
1.11.4 Perceptions of Performance in First Year

The final component in the tracking of performance involved a survey of opinions at the end of the academic session. As noted elsewhere, the final Questionnaires were issued on the day that overview feedback and

provisional grades were issued, with the probability of some influence on data gathered, especially from those completing the questionnaire after their review.

The profile shown in Figure A69 shows a high level of satisfaction with personal performance at the end of the first year of the course in Session 2004-05.

Figure A69: Performance in First Year: Session 2004-05



Of respondents to the question generating the graph above, 75% said they understood the things to be focused on next session to improve performance, while a further 17.3% said they understood this in some areas. From the comments recorded, understanding appears to be acquired from a combination of feedback and personal reflection as illustrated below:

"From reviews and tutorials in studio"

(Q4. 2004-05, q10.2)²⁴⁴

²⁴⁴ In response to the questions:

"Looking back over my mistakes figuring out where I went wrong"

(Q4. 2004-05, q10.2)

"Personal feeling and also the results I got from semester 1, and overall opinion on progress in studio"

(Q4. 2004-05, q10.2)

"From peer and tutor reviews"

(Q4. 2004-05, q10.2)

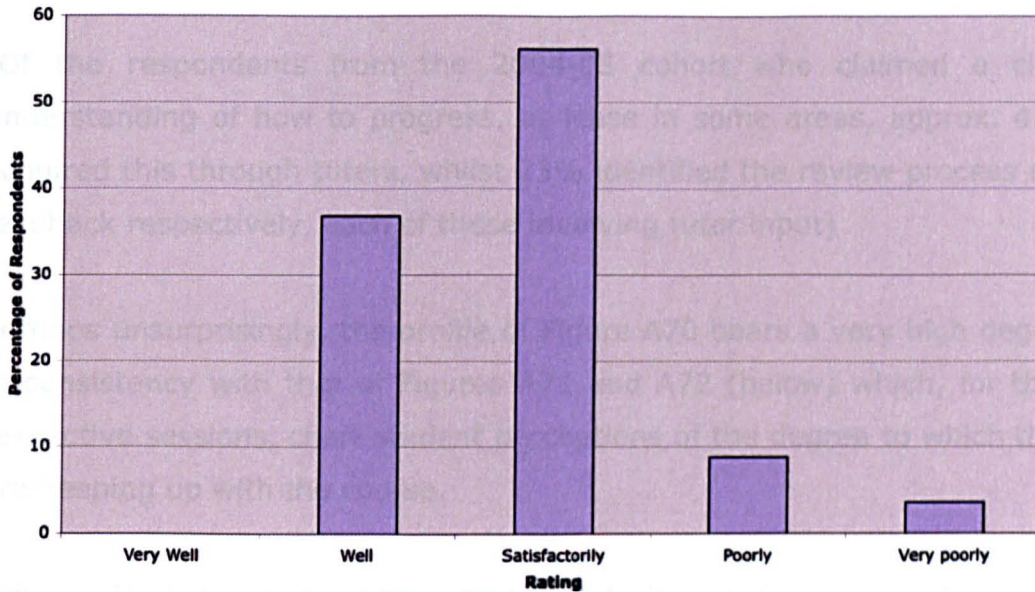
(Of the respondents, approx. 40% of the total claimed to derive perceptions of performance from tutors; approx. 27% from reviews (accepting that there is an overlap between these sources), and approx. 17% through self-reflection and peer interaction).

The results from Session 2007-08 (Figure A70), whilst differing marginally, display a similar overall pattern, although with a greater percentage of respondents recording 'poor' or 'very poor'. (This may be attributable, at least in part, to the lack of guidance evidenced from results relating to the History and Theory module – see Section 1.8 of this Appendix).

"Do you have a clear understanding of the things you need to focus on next session to improve your performance? If 'Yes' or 'In Some Areas', from where did you acquire your understanding?"

Figure A70: Performance in First Year: Session 2007-08

**2007-08 Stage 1 Group: Perceptions of Performance
(16 May 2008)**



When compared to the Session 2004-05 results, a lower 64.9% of respondents said they understood the things they required to focus on next session in order to improve, with a further 24.6% unsure and the residual percentage not understanding. This suggests a need for greater guidance, correlating to the responses on the factors influencing understanding of individual performance. Of those with an understanding of their weaknesses, this had been generally acquired through feedback, including reviews, staff discussions and grading sheets, coupled with self reflection and comparative evaluation in looking at the work of peers as captured below:

"From feedback from the tutors and personal development"

(Q4. 2007-08, q10.2)

"Project reviews, grading sheets"

(Q4. 2007-08, q10.2)

"From reviews and looking at others' work"

(Q4. 2007-08, q10.2)

"Own observations and feedback from lecturers"

(Q4. 2007-08, q10.2)

(Of the respondents from the 2004-05 cohort who claimed a clear understanding of how to progress, at least in some areas, approx. 42% acquired this through tutors, whilst 23% identified the review process and feedback respectively, each of these involving tutor input)

Perhaps unsurprisingly, the profile of Figure A70 bears a very high degree of consistency with that of Figures A71 and A72 (below) which, for their respective sessions, chart student perceptions of the degree to which they are keeping up with the course.

Figure A71: Perceptions of Keeping Up With Course: Session 2004-05

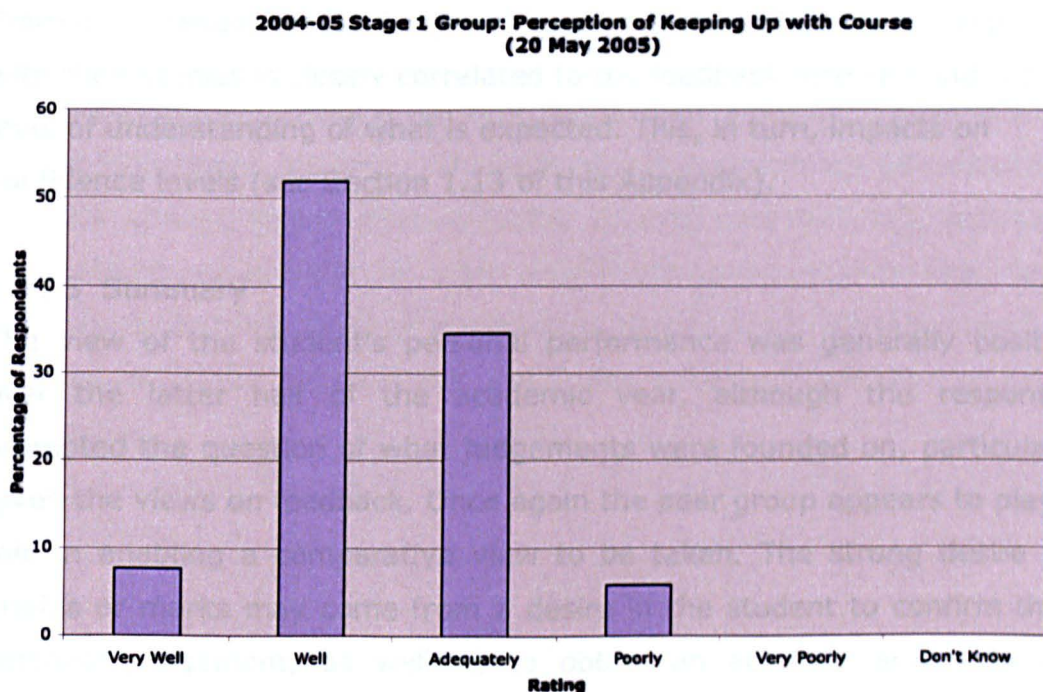
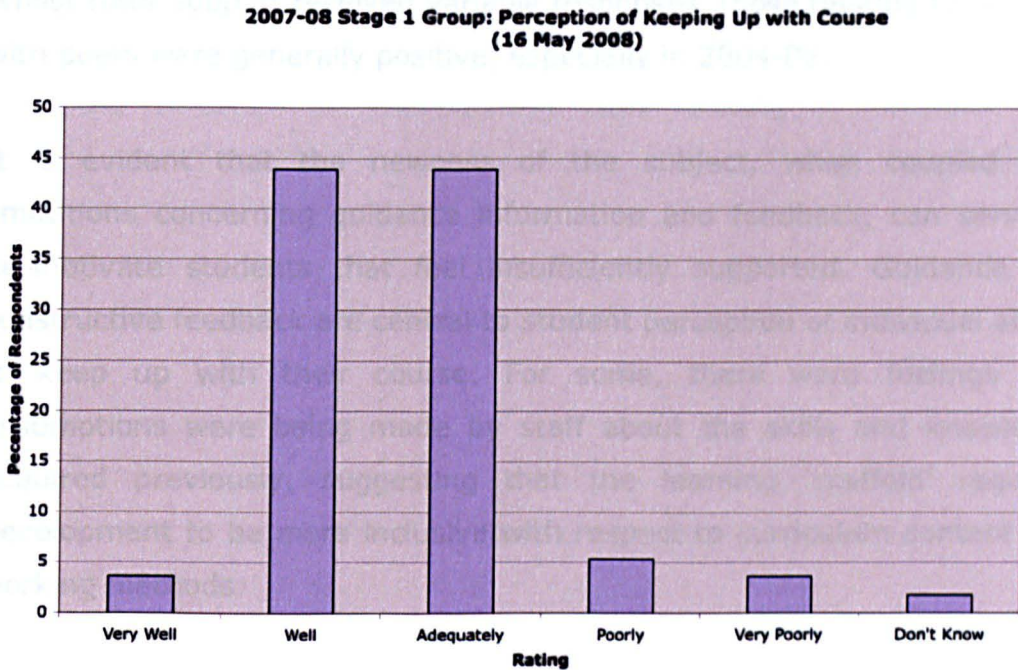


Figure A72: Perceptions of Keeping Up With Course: Session 2007-08



From these results it would appear that perceptions of ability to keep up with their studies is closely correlated to the feedback received and the level of understanding of what is expected. This, in turn, impacts on confidence levels (see Section 1.13 of this Appendix).

1.11.5 Summary

The view of the student's personal performance was generally positive over the latter half of the academic year, although the responses prompted the question of what judgements were founded on, particularly given the views on feedback. Once again the peer group appears to play a role in enabling a comparative view to be taken. The strong desire for grades or marks may come from a desire in the student to confirm their personal judgement, as well as to obtain an absolute and definitive response from tutors.

Approximately 15-20% of respondents considered their performance to be worse than expected, this being attributed to a number of factors such as not knowing what to expect, perceptions of poor support from tutors, and quality and timeliness of feedback, the latter two being revealed as areas

of variable practice and behaviour across the session and across the team. Whilst tutor support received variable responses, those relating to working with peers were generally positive, especially in 2004-05.

It is evident that the newness of the subject, when coupled with limitations concerning guidance information and feedback, can serve to de-motivate students that feel insufficiently supported. Guidance and constructive feedback are central to student perception of individual ability to keep up with their course. For some, there were feelings that assumptions were being made by staff about the skills and knowledge acquired previously, suggesting that the learning 'scaffold' required development to be more inclusive with respect to curriculum content and working methods.

Lastly, the fact that for many the learning experience differed from that experienced before, meant that they lacked a reliable benchmark against which to judge their performance or progress. This relates to the comments made regarding the role of the peer group in providing some ability to compare. However, students also commented on perceptions of personal change based on observations of their own thinking, responses, observations developing in their daily lives in ways that bear some relationship to the subject of architecture or learning process involved. In its own way these observations constitutes a form of reflection and self-awareness.

1.12 Understanding Strengths and Weaknesses

1.12.1 Introduction

With the intention of triangulating data relating to feedback and perceptions of performance, the study also surveyed respondents' understanding of their individual strengths and weaknesses at three points for each subject group. This longitudinal study enabled the identification of any patterns or trends throughout the academic year.

1.12.2 Longitudinal Trends

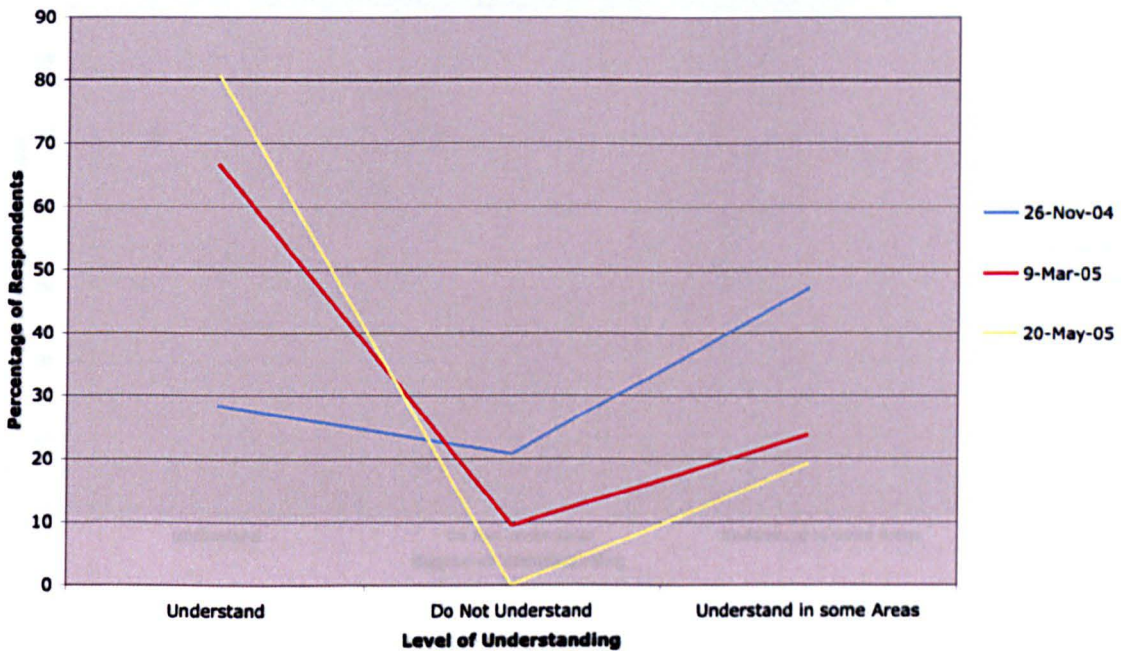
The graphs for 2004-05 reveal a fluctuation in perception according to the specific point in the academic cycle. Figure A73 shows that the collective level of understanding increased from below 30% to above 80% of respondents between the mid-point of semester 1 and the end of the session, the increasing being rapid between the mid-point of Semester 1 and early Semester 2. Conversely, those claiming they had no understanding of their strengths and weaknesses progressively diminished as the session progressed, with no students claiming to be in this position at the end of the session (once again it must be remembered that the final questionnaire was completed after receipt of final feedback for the year. Those recording partial understanding also diminished from 47.2% to 19.2% as the session progressed.

These results suggest a progressive acquisition of knowledge and confidence about the learning process. Relate to feedback, confidence, tutor expectations, etc.

The overview chart for Session 2007-08 is shown in Figure A74, this differing from the previous cohort due to its constancy. Whereas in comparison with Session 2004-05 the level of understanding achieved 60% early in the course, the fact that this level remained unaltered over the course of the year warrants further analysis. Accepting the notion that students are involved to varying degrees in a process of acclimatisation when embarking on the course, the results from Session 2004-05 appear unsurprising. However, the same cannot be said for the later cohort.

Figure A73: Longitudinal Tracking of Strengths and Weaknesses: Session 2004-05

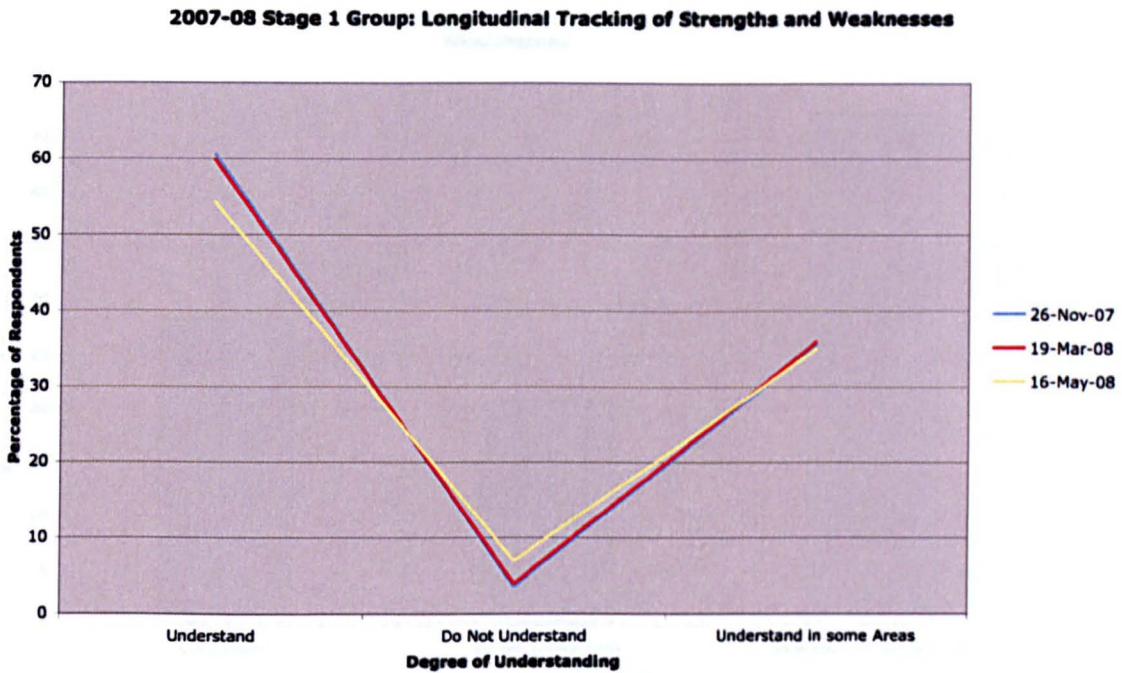
2004-05 Stage 1 Group: Longitudinal Tracking of Strengths and Weaknesses



Despite the consistency across the year, this set of results indicates a lower level of understanding across the session, with the final reading proving the lowest of all (54.4%), whilst those of partial understanding proved higher at between 35.1% and 36%. Those claiming not to understand also marginally increased during the session (from 3.6 to 7%), although these figures were substantially lower than the 2004-05 cohort.

Once again, this probably bears a strong relationship to uncertainties induced by poor perceptions of feedback, guidance, clarity of expectation, and ultimately, confidence.

Figure A74: Longitudinal Tracking of Strengths and Weaknesses: Session 2007-08



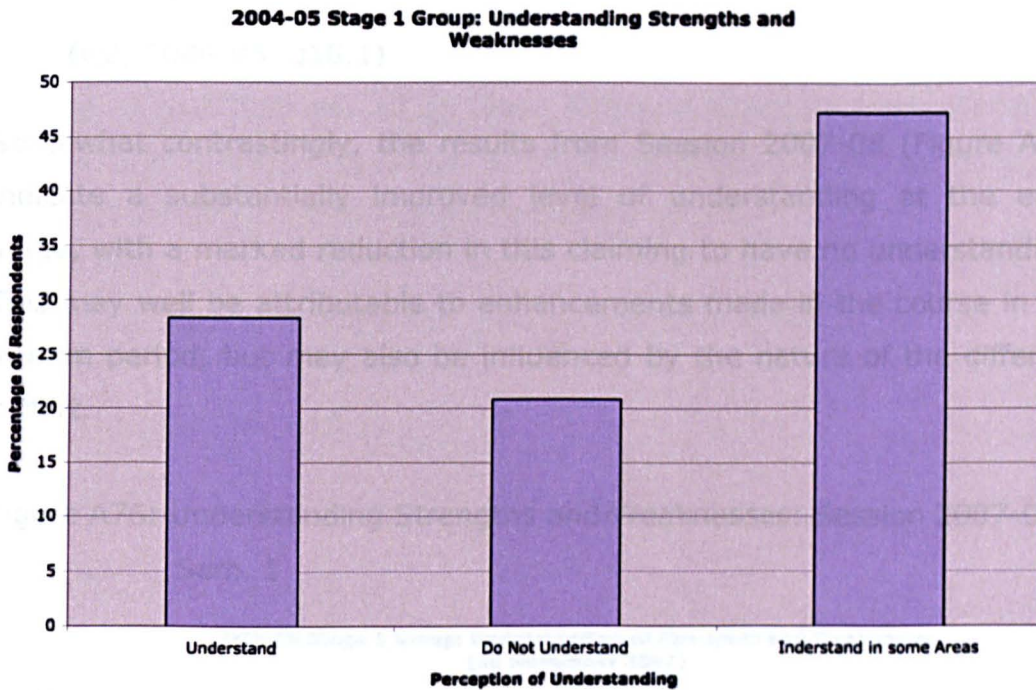
1.12.3 Initial Perceptions of Understanding

Beneath the overviews presented through the preceding commentary, there lies a level of detail that sheds light on perceptions at different points in the academic year. For each cohort studied, Questionnaire 02 student perceptions of their understanding of the strengths and weaknesses in their studies. At a point only a matter of weeks after enrolment, this represented an evaluation of initial viewpoints, and a sense of how the students began to develop an ability to orientate themselves academically in relation to course expectations and their peer group.

Figure A75 shows that at this early stage, only a minority of students believe themselves to have a full understanding of their strengths and weaknesses.

Response from those possessing partial understanding suggested that the perceived failings in the feedback process applied to areas of the course beyond studio-based activity.

Figure A75: Understanding Strengths and Weaknesses: Session 2004-05,
Sem. 1



Consistent with results relating to feedback, the view that receipt of marks is essential to obtaining comprehensive feedback was again expressed. The following comments represent a typical sample:

"Design studio feedback is regular and helpful but in other subjects there is little/none"

(Q2, 2004-05, q18.2)²⁴⁵

"Comments in the studio helps understanding in some areas however, no actual marks back leaves me unaware of how I am progressing"

(Q2, 2004-05, q18.2)

Furthermore, of the comments received, those from students with no understanding of their strengths and weaknesses referred to aspects of feedback, such as the need for comprehensive commentary in order to gain a complete picture (see below):

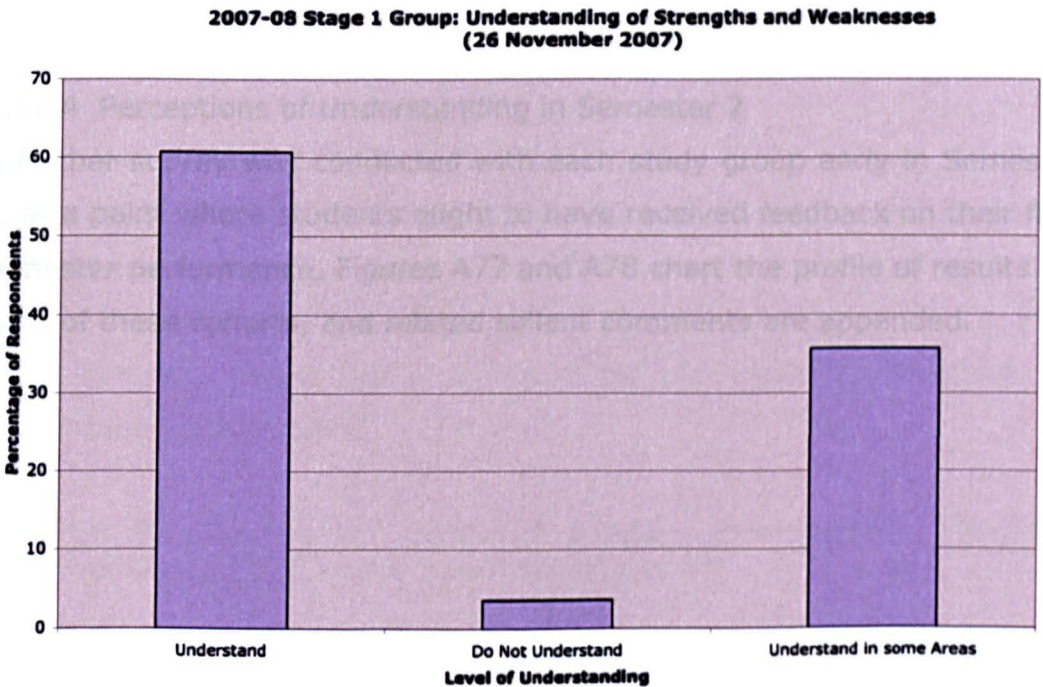
²⁴⁵ In response to the question:
"Do you understand the strengths and weaknesses of your work to date? If you have answered 'In Some Areas', please explain why"

"I've only received feedback on presentation style, not design or drawing ability. I'd rather know"

(Q2, 2004-05, q18.1)

Somewhat contrastingly, the results from Session 2007-08 (Figure A76) indicate a substantially improved level of understanding at the early stage, with a marked reduction in this claiming to have no understanding. This may well be attributable to enhancements made in the course in the interim period, but may also be influenced by the nature of the different cohort.

Figure A76: Understanding Strengths and Weaknesses: Session 2007-08, Sem. 1



In Questionnaire 2, one student who claimed not to understand noted that

"some pieces of work which I would consider (my work) of an equal standard gained two very different marks"

(Q2, 2007-08, q18.1)

This comment suggests a lack of understanding of the assessment criteria, or an inability to recognise the qualities in work that the criteria refer to. However, it could also be explained by inconsistent marking, and poor moderation processes. Those with partial understanding gave a variety of justifications, all of these referring either to inadequacies in feedback or guidance given at the start of projects. Comments, which were specific to studio in this instance, included:

"Feedback not always clear enough and work criticised but not explained what needs to improve"

(Q2, 2007-08, q18.2)

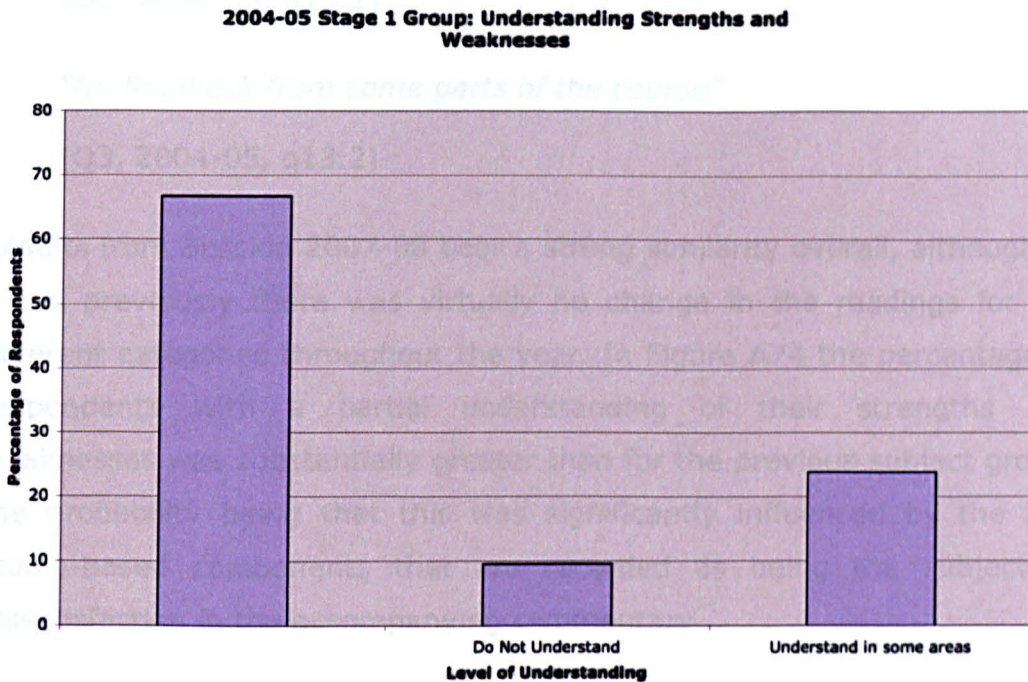
"Unsure of what is required in some areas of projects"

(Q2, 2007-08, q18.2)

1.12.4 Perceptions of Understanding in Semester 2

A further survey was conducted with each study group early in Semester 2, at a point where students ought to have received feedback on their first semester performance. Figures A77 and A78 chart the profile of results for each of these cohorts, and related salient comments are appended.

Figure A77: Understanding Strengths and Weaknesses: Session 2004-05, Sem. 2



In Session 2004-05, comments recorded by students with a partial understanding of their strengths and weaknesses referred to aspects of subjectivity and indeterminacy, as well as a lack of consistency in feedback practices and patterns across all elements of the course. It is clear, however, that a lack of clarity exists with respect to feedback for studio-based design work.

"Some issues raised by tutors appear to be personal opinions, therefore isn't clear if it is technically wrong"

(Q3, 2004-05, q13.2)²⁴⁶

(Of the respondents claiming a partial understanding of their strengths and weaknesses, approx. 30% noted confusion caused by diverse tutor opinion)

²⁴⁶ In response to the question:
"Do you understand the strengths and weaknesses of your work to date? If you have answered 'In Some Areas', please explain why"

"Design studio is easy to see where problems lie but in other aspects of the course it can be a little difficult to discern"

(Q3, 2004-05, q13.2)

"No feedback from some parts of the course"

(Q3, 2004-05, q13.2)

Results from Session 2007-08 bear a strong similarity overall, although as noted previously there was virtually no change in the readings for the different categories throughout the year. In Figure A74 the percentage of respondents with a partial understanding of their strengths and weaknesses was substantially greater than for the previous subject group, the probability being that this was significantly influenced by the non studio-based components that are recorded as being the subject of dissatisfaction in the accompanying commentary.

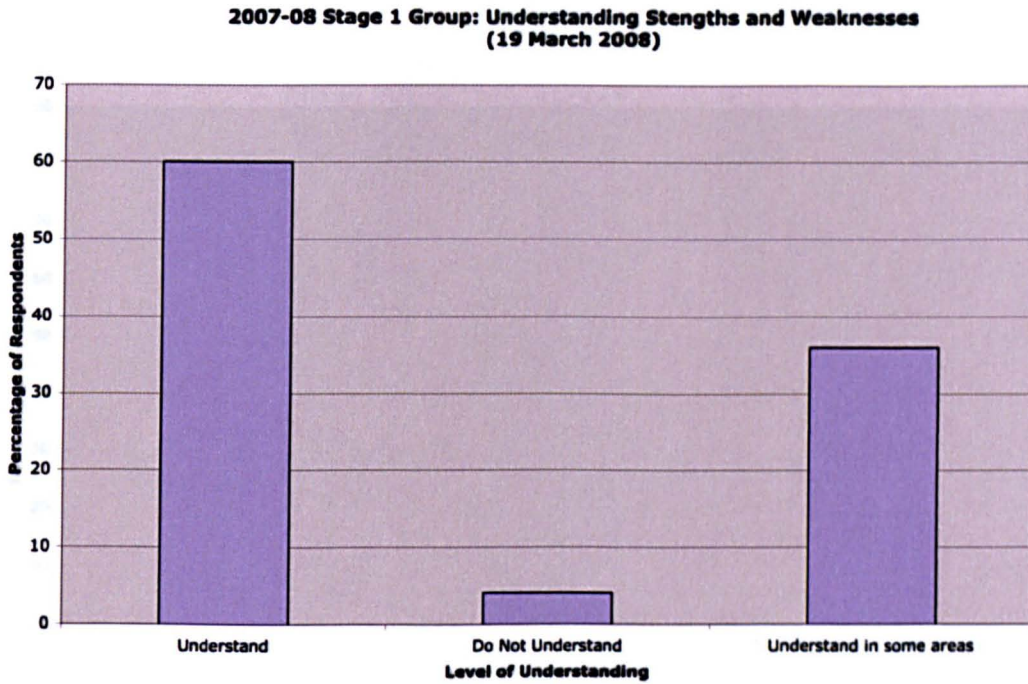
"I feel studio work does get proper feedback but for our exams and other coursework the feedback and organisation is poor"

(Q3, 2007-08, q13.2)

"I know to a certain extent, but in some areas I haven't been explained what or how I can change my work to improve"

(Q3, 2007-08, q13.2)

Figure A78: Understanding Strengths and Weaknesses: Session 2007-08, Sem. 2



Of the 100% of respondents, the most common response was:

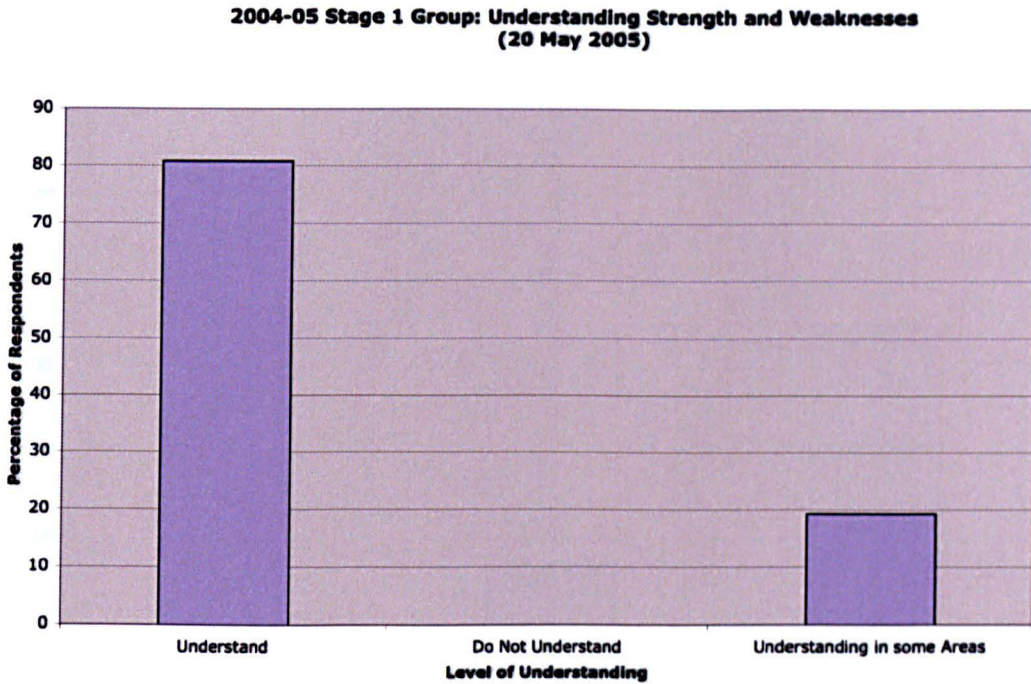
1.12.5 Perceptions of Understanding on Completion of First Year

The findings from surveys conducted at the finale of each academic year are represented in Figures A79 and A80, and reveal different profiles. In Session 2004-05 the level of understanding is at its highest at the conclusion of the session, having increased steadily as the course progressed, whereas the results for Session 2007-08 show a marginal decline in the percentage of respondents claiming to understand their position from Questionnaire 03. This is converse to expectations and, once again, appears to be affected by practice in non-studio components.

Of the 100% of respondents, the most common response was:

Given that the final questionnaire was completed at the point where final feedback was given at the 'portfolio review', it is surprising that approx. 20% of respondents still claimed to have a partial understanding of their strengths and weaknesses, although it is possible that reviews did not offer the equivalent level of detail relating to each component subject.

Figure A79: Understanding Strengths and Weaknesses: Session 2004-05, Sem. 2



Of the comments recorded, the most notable (below) suggests a student with strong visual sensibilities who is perhaps less confident when dealing with theoretical ideas²⁴⁷:

"I can identify my weaknesses in something visual like studio work but less easily something more abstract like philosophy"

(Q4, 2004-05, q19.2)²⁴⁸

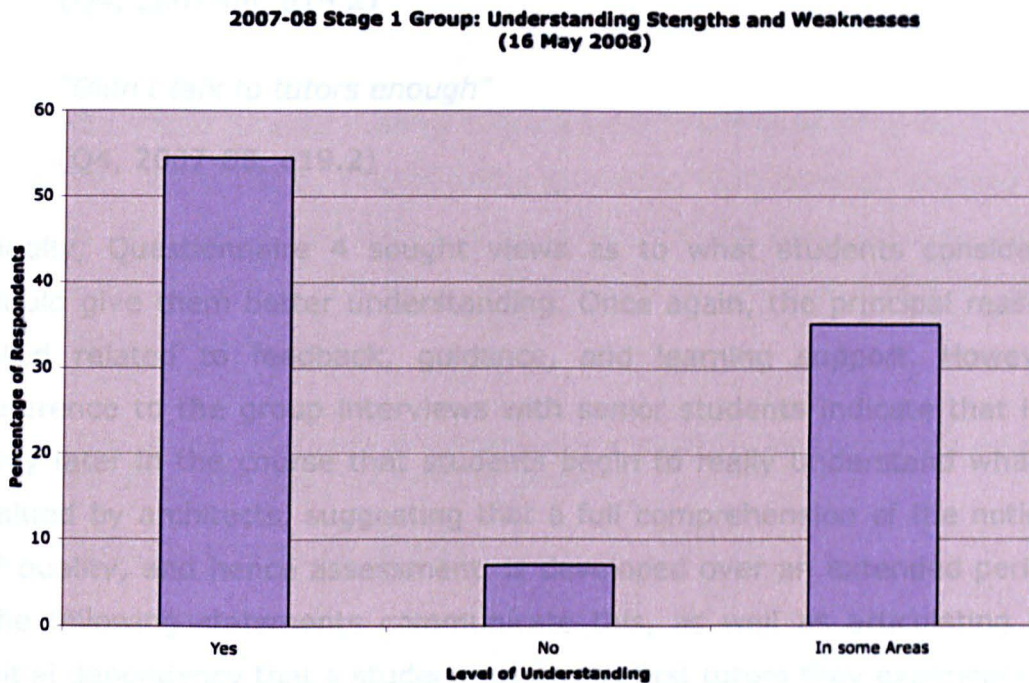
Figure A80 shows the corresponding profile for Session 2007-08, indicating a substantial difference in response patterns. Most notably, the percentage possessing understanding of their strengths and weaknesses has diminished by approx. 25% whilst those with partial understanding had nearly doubled.

²⁴⁷ This relates to Gardner's Theory of Multiple Intelligences. See Chapter 3: Design Studio: A Theoretical Model for Holistic Learning and Appendix 3.

²⁴⁸ In response to the question:

"Do you understand the strengths and weaknesses of your work to date? If you have answered 'In Some Areas', please explain why"

Figure A80: Understanding Strengths and Weaknesses: Session 2007-08,
Sem. 2



As with previous comments, feedback was identified by students possessing no understanding. However, of those claiming to have partial understanding, a range of issues were commented on, a sample of which is included below. These covered clarity regarding the marking process, uncertainty relating to feedback, and the degree of contact with tutors (where studio was favourably viewed). The final comment views this issue from a different side, acknowledging that the student too has responsibility to develop the dialogue between student and tutor.

"Don't understand the way it is being marked"

(Q4, 2007-08, q19.2)

"I don't feel we're given enough time to discuss this"

(Q4, 2007-08, q19.2)

"Not very sure what good at and bad at"

(Q4, 2007-08, q19.2)

"Because some subjects are more in contact with lecturers ie design studio"

(Q4, 2007-08, q19.2)

"Didn't talk to tutors enough"

(Q4, 2007-08, q19.2)

Finally, Questionnaire 4 sought views as to what students considered would give them better understanding. Once again, the principal reasons cited related to feedback, guidance, and learning support. However, reference to the group interviews with senior students indicate that it is only later in the course that students begin to really understand what is valued by architects, suggesting that a full comprehension of the notions of quality, and hence assessment, is developed over an extended period. The following statements communicate this, as well as articulating the initial dependency that a student has on the first tutors they experience:

"For me personally it kind of clicked in 3rd year, but from the beginning, the kind of fundamental basics are pretty well taught. You tend, I think it's probably something that you just kind of learn, through the seven years that you don't really realise that you have learned"

(group interview, 06.06.05)²⁴⁹

"I think that in 1st year the only architects you know are your tutors, they are the architects, and then you get your theory side where you are learning about various architects and learning their principles"

(group interview, 06.06.05)

"when you first come in you are only aware of those that are around you, tutors and then those that you are being taught about"

(group interview, 06.06.05)

²⁴⁹ In response to the question:

"At what point did you understand what is valued in architecture by architects?"

"the tutors that come in from practice are actually dealing with problems day in day out, that their resource is actually quite valuable"

(group interview, 06.06.05)

The notion that it takes time to acquire a confident level of understanding is further reinforced by the following quotation that, through drawing the analogy of a secret and the need to guess, implies that issues of design quality are inherently difficult to comprehensively or unambiguously state in written or verbal form.

"It's almost as if they are keeping it a secret - about exactly what is required, and you just have to guess"

(group interview, 06.06.05)

1.12.6 Summary

The data gathered in relation to student perceptions of their understanding of strengths and weaknesses referred to the entire course, not just studio-based design elements.

Although there were differences in the profiles demonstrated by each cohort, the general trend showed an escalation in understanding during the latter half of the session. This is consistent with the generally progressive acquisition of skills and knowledge. The results indicate a strong relationship between understanding of strengths and weaknesses and feedback across all areas, although comments recorded expressed greater dissatisfaction with non-studio elements.

Comparable to the results recorded in the specific section on feedback, students sought both guidance and commentary as well as grades, the latter being afforded greater status through their representation of a quantifiable measure and as such, confirmation of performance and achievement.

The fact that approx. 20% of students still claimed a partial understanding at the point of their end of session Portfolio Review, suggests that the information given was not comprehensive, with the likelihood that the

primary focus was on studio-based activity. The need for greater clarity and guidance emerges as a key theme in relation to the student's ability to understand their progress, although the precise areas of guidance may bear some relationship to the individual learning preferences and intelligence profiles of the student.

However, it was the view of senior students that the acquisition of a full understanding of issues such as assessment and quality develops over extended periods of time, suggesting that it is the role of the tutor to reinforce and reiterate expectations, structure, etc to facilitate this.

1.13 Confidence Levels

1.13.1 Introduction

The issue of confidence is of central importance to the independent learner, not simply in terms of motivation and enthusiasm, but also in terms of taking ownership of personal learning and capitalising fully on the educational process. Consequently, this section analyses perceptions of confidence throughout the academic year using data from the questionnaires and group interviews.

1.13.2 Longitudinal Tracking of Confidence Levels

The issues of student engagement in learning and ability to successfully achieve transition to university education generally, and architecture education specifically, have a relationship with the level of confidence in the individual.

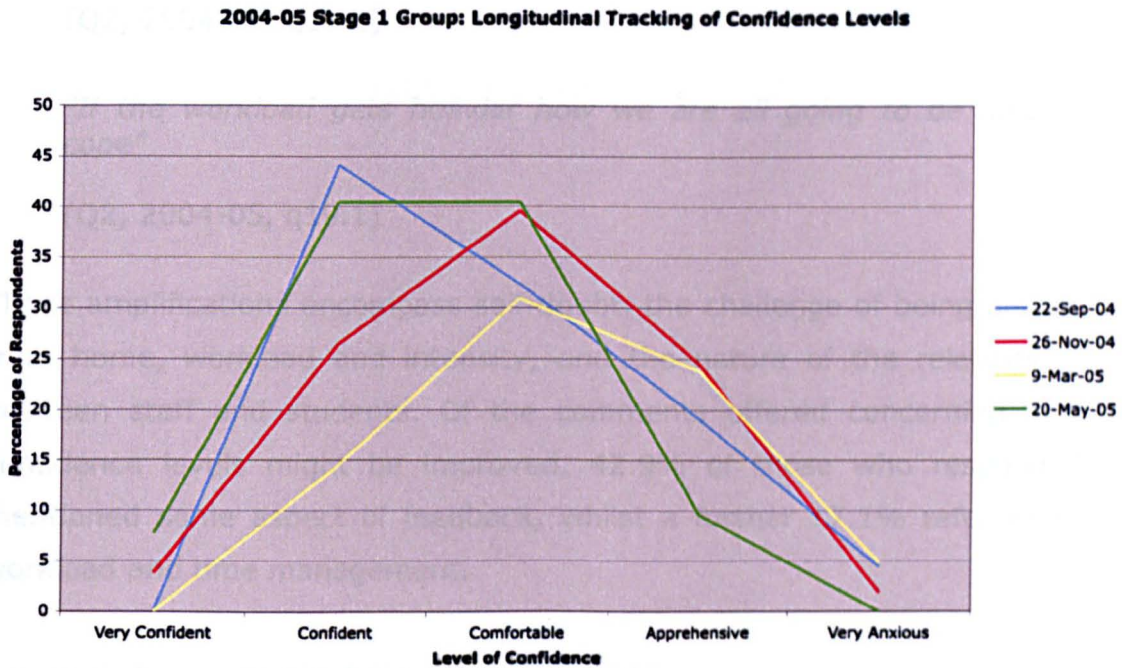
Over the course of the academic session, the Questionnaires tracked the collective profile of confidence levels within each subject group, measuring at 4 points throughout the year. Figure A81 plots the distribution of different confidence levels for each questionnaire in Session 2004-05.

Consideration of the peaks of this graph reveals that during the middle of the year (Q2 and Q3), overall confidence levels reduce, with the majority of respondents recording levels of confidence that are 'comfortable' or 'apprehensive'. Reference to responses in a number of areas suggests that the reasons for this are both academic and non-academic.

The general trend in confidence levels over time closely follow that for perceptions of transition to higher education²⁵⁰. However, in seeking to understand the reasons for this it is important to bear in mind that both perceptions are likely to be influenced by both academic and non-academic factors.

²⁵⁰ For Perceptions of Transition to Higher Education, see Section 1.3 of this Appendix.

Figure A81: Longitudinal Tracking of Confidence Levels: Session 2004-05



It might be reasonable to assume that the 'confident' peak relating to the first questionnaire reflects the excitement and anticipation of students who are newly enrolled on their course of choice. However, comments recorded in Questionnaire 2 revealed a range of reasons for perceptions of apprehension as follows:

"(I wonder) if I am getting it right and finding a balance and pattern in my life"

(Q2, 2004-05, q19.1)²⁵¹

"I am not sure if my work is good enough, if I am good enough"

(Q2, 2004-05, q19.1)

"I feel it is a very pressurising course and wish we could be dealt with on a more human level"

(Q2, 2004-05, q19.1)

²⁵¹ In response to the question: "Having experienced eight weeks on your course - how do you feel about what lies ahead? If you feel apprehensive or anxious, can you describe why?"

"I have to be away from family and friends for a long time"

(Q2, 2004-05, q19.1)

"If the workload gets heavier how we are all going to be able to cope"

(Q2, 2004-05, q19.1)

These amplifications encompass self-doubt, the challenge of being distant from home, workload and intensity, and the nature of the relationship between staff and students. Of the comments offered concerning how confidence levels might be improved, 42.9% of those who responded mentioned some aspect of feedback, whilst a further 17.1% referred to workload and time management.

Amongst the strongest statements made was:

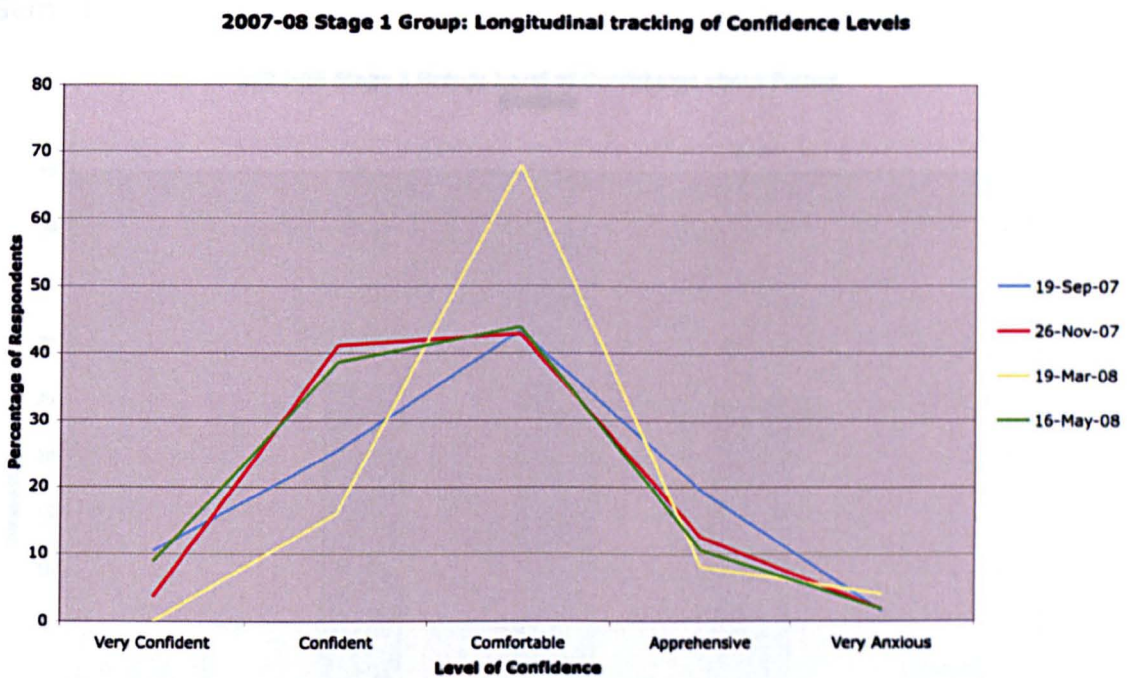
"(We need) slightly more praise. We are given work which we have to do. We make an attempt even though we are not sure but more criticism than praise is communicated back"

(Q2, 2004-05, q20)²⁵²

Figure A82 below shows the corresponding patterns of confidence levels from the 2007-08 cohort.

²⁵² In response to the question:
"What, if anything, would improve your level of confidence?"

Figure A82: Longitudinal Tracking of Confidence Levels: Session 2007-08

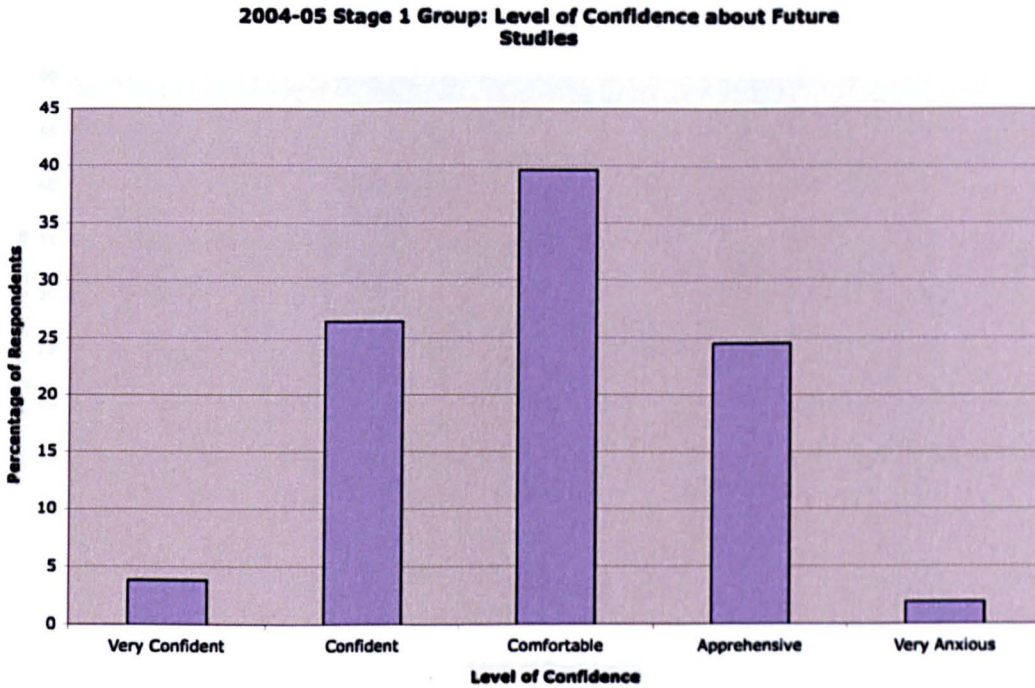


The trends here differ significantly from those of the 2004-05 group. At the start of the survey, perceptions broadly follow standard distribution patterns, with a symmetrical trace centred on the 'comfortable' category. General perceptions in the second and final plots are virtually identical, whilst the graph from the mid-point of Semester 2 shows the migration of perception towards the median category from both extremes. This may be attributed to the perception of a lack of feedback, and a resultant tendency for respondents to position themselves at the median in the absence of clear guidance that would support a different view.

1.13.3 Initial Confidence Levels

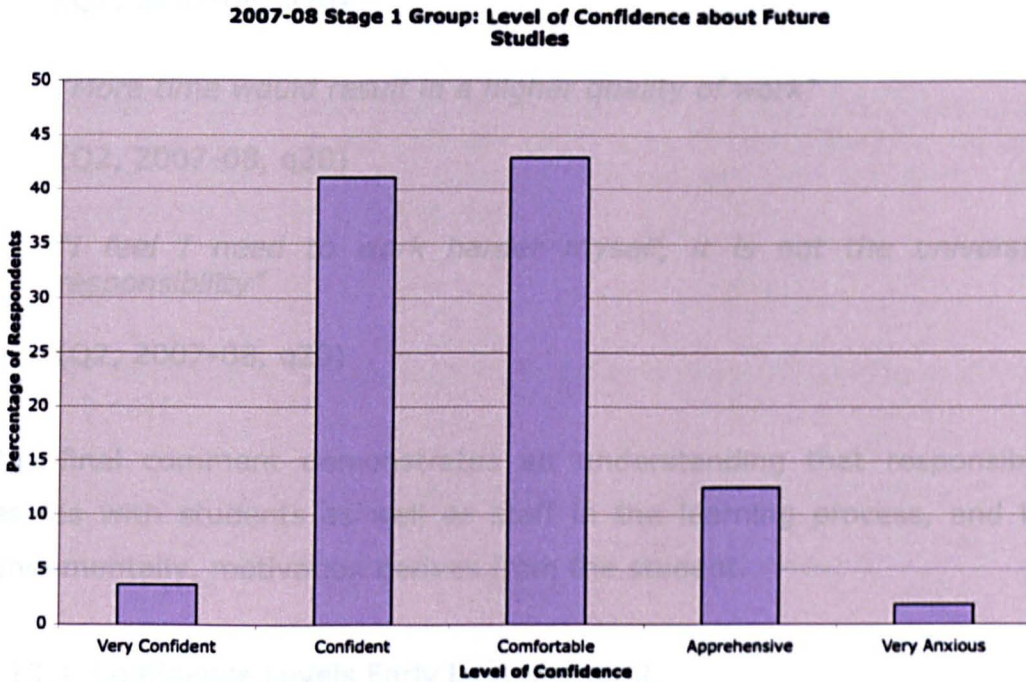
Looking at the analysis at each stage of the process in Session 2004-05, it can be seen in Figure A83 that the profile of confidence levels at this early point in the session (Questionnaire 2) takes the form of a standard distribution curve, symmetrically disposed around the median, or 'comfortable' confidence level.

Figure A83: Level of Confidence About Future Studies: Session 2004-05, Sem. 1



Repetition of this survey in Session 2007-08 revealed a distribution across all categories of confidence level, although the level of respondents declaring 'confidence' was considerably higher (by approx. 15%), and the number recording 'apprehension' correspondingly lower (approximately) (see Figure A84).

Figure A84: Level of Confidence About Future Studies: Session 2007-08, Sem. 1



The increase in numbers reporting that they are 'confident' may be attributable to improvements in practice in the intervening years between the two cohort surveys.

Comments in substantiation of individual ratings across both subject groups included:

"I am stressed out as it is, and we keep getting more and more work"

(Q2, 2007-08, q19.1)

"Atmosphere will be more stressful as final deadlines approach"

(Q2, 2007-08, q19.1)

"It only gets worse"

(Q2, 2007-08, q19.1)

Thoughts on what might improve these perceptions included:

"Earlier and better explanation of areas to be studied in future so we know what to expect"

(Q2, 2007-08, q20)

"More time would result in a higher quality of work"

(Q2, 2007-08, q20)

"I feel I need to work harder myself, it is not the university's responsibility"

(Q2, 2007-08, q20)

This final comment demonstrates an understanding that responsibility resides with students as well as staff in the learning process, and that fundamentally, motivation derives from the student.

1.13.4 Confidence Levels Early in Semester 2

Questionnaire 03 issued early in Semester 2 repeated the survey, Figure A85 showing the results from Session 2004-05 and Figure A86 for Session 2007-08. The profiles, although different, share a broad similarity in that they are centred on the median category of 'Comfortable'. However, the some 24% of respondents admitting apprehension in Session 2004-05 had decreased to only 8% (approx) in 2007-08, whilst those perceiving themselves to be 'comfortable' more than doubled over the same period.

Of the things noted by respondents that would improve levels of confidence, feedback, workload, time management, and commitment represent the major concerns as exemplified below:

"The feedback wasn't what I was expected so I think I need to be more committed, I also need to concentrate more"

(Q3, 2004-05, q16)²⁵³

²⁵³ In response to the question:

"Now that you have had feedback on your Semester 1 performance, how do you feel about what lies ahead?"

"I am worried that I cannot cope with the workload. I want to finish the course well but have a lot going on outside Uni(versity)"

(Q3, 2004-05, q16)

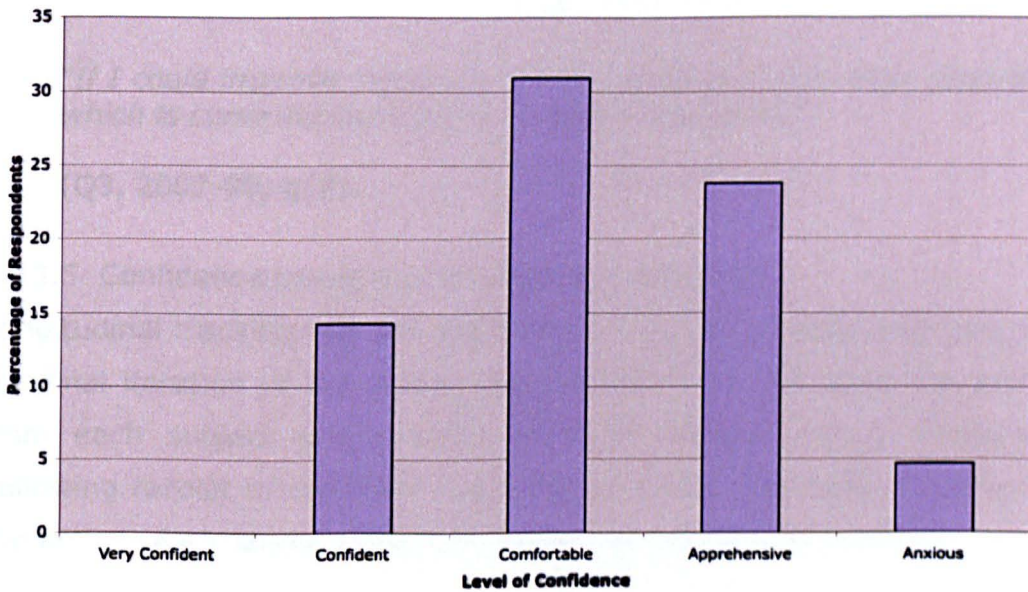
"Better organisation of work, time to learn. As just now I sacrifice all my time on drawing. Maybe some interim tests just to make us spend some time on learning theory too. So we don't leave everything for the reading week"

(Q3, 2007-08, q17)²⁵⁴

"Financial security, easing workload and therefore giving more time for work"

Figure A85: Feelings About Future Studies: Session 2004-05, Sem. 2

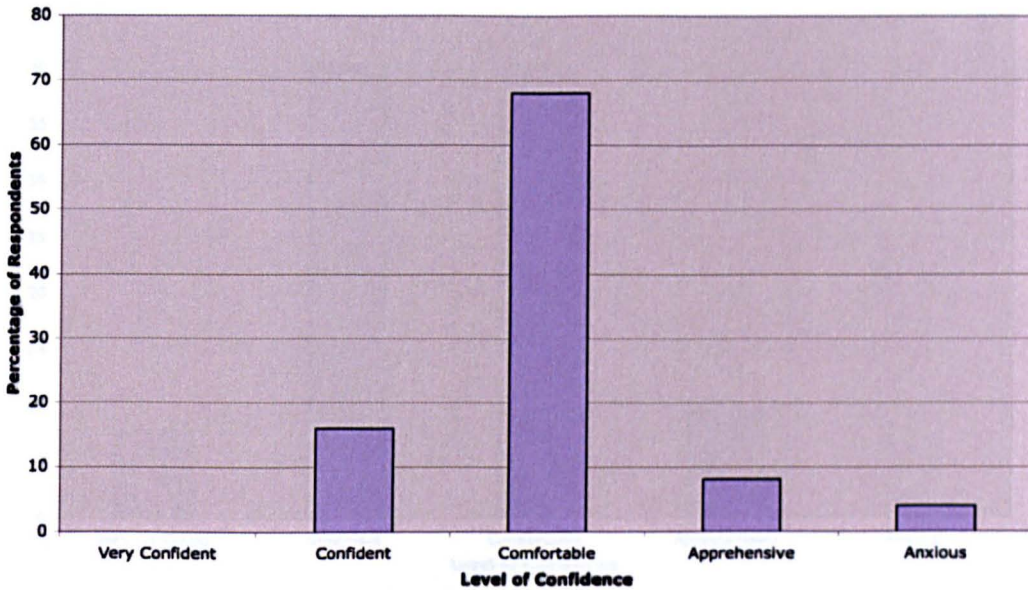
2004-05 Stage 1 Group: Level of Confidence about Future Studies



²⁵⁴ In response to the question: "What, if anything, would most improve your level of confidence?"

Figure A86: Feelings About Future Studies: Session 2007-08, Sem. 2

2007-08 Stage 1 Group: Level of Confidence about Future Studies



"If I could improve my ability to time-keep and gain more motivation which is currently lacking due to high travel times"

(Q3, 2007-08, q17)

1.13.5 Confidence Levels on Completion of First Year

Longitudinal tracking was completed at the end of the academic year with the final iteration of the survey. Figures A87 and A88 show the profiles from each subject group, both of which possess strong similarities. Following receipt of summary feedback, and with the ability to reflect on the entire year's study, confidence levels show a general increase.

Figure A87: Feelings About Future Studies: Session 2004-05, End of Year

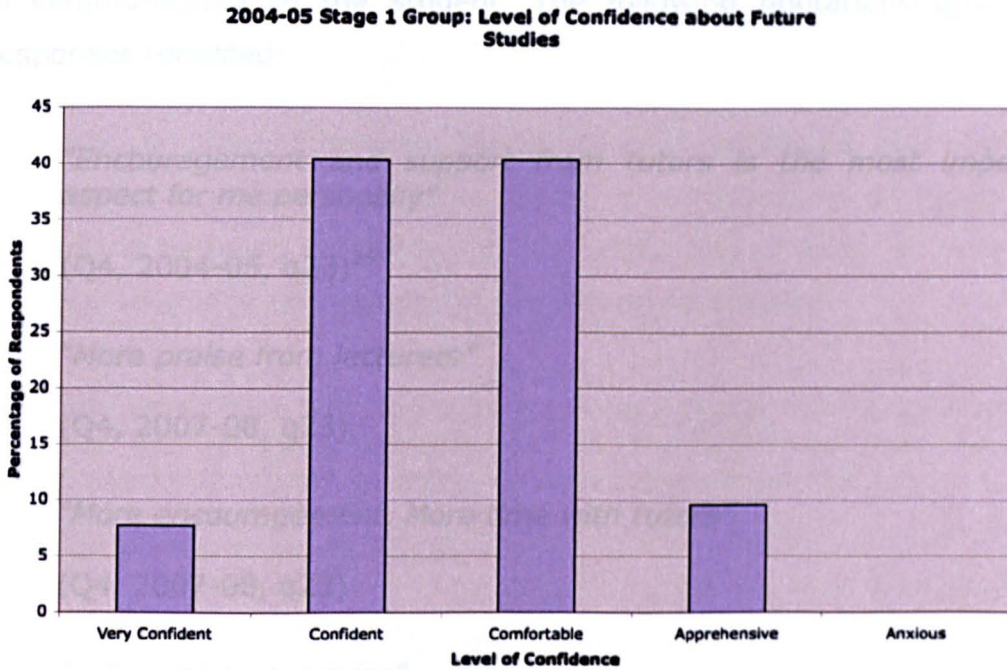
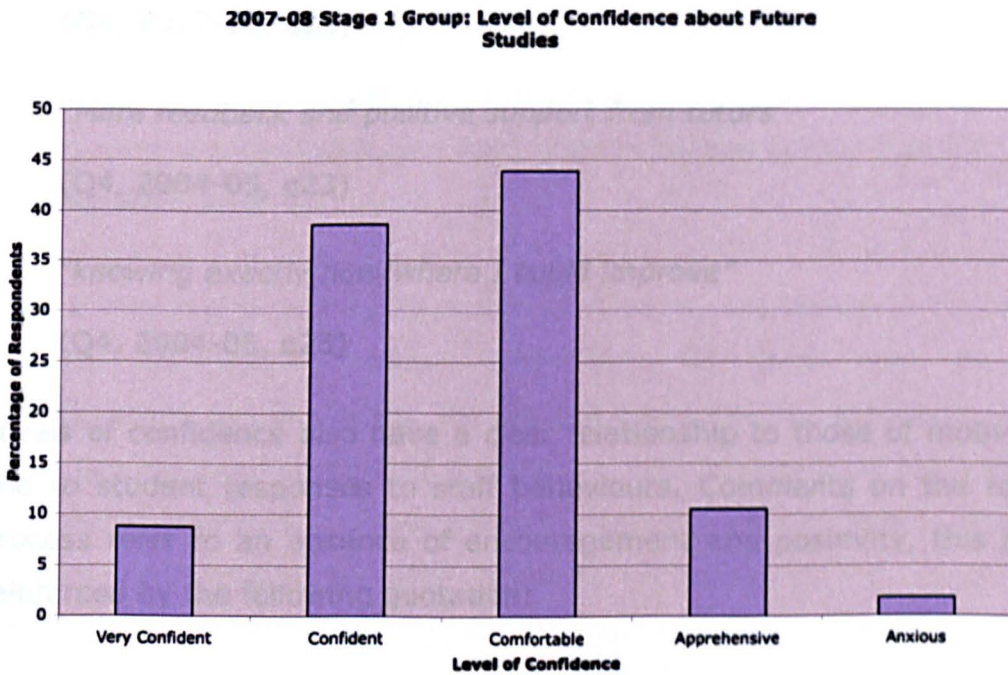


Figure A88: Feelings About Future Studies: Session 2007-08, End of Year



Despite the improved confidence levels overall, over 40% felt merely 'comfortable' in both cohorts, suggesting scope to introduce measures to enhance perceptions. In the view of respondents, these should address

specificity of feedback, and consideration of the manner in which guidance is communicated to the student. The following quotations typify the responses recorded:

"Encouragement and support from tutors is the most important aspect for me personally"

(Q4, 2004-05, q23)²⁵⁵

"More praise from lecturers"

(Q4, 2007-08, q23)

"More encouragement. More time with tutors"

(Q4, 2007-08, q23)

"Achieving high grades"

(Q4, 2004-05, q23)

"More direction and more positive feedback"

(Q4, 2007-08, q23)

"More feedback and positive support from tutors"

(Q4, 2004-05, q23)

"knowing exactly how/where I could improve"

(Q4, 2004-05, q23)

Levels of confidence also have a clear relationship to those of motivation and to student responses to staff behaviours. Comments on the review process refer to an absence of encouragement and positivity, this being reinforced by the following quotation:

"To build up confidence to be able to stand there and be proud of what you have done almost and not have the fear of, you know, that they are going to shout at me. You know it is more constructive"

²⁵⁵ In response to the question:

"What, if anything, would most improve your level of confidence in the future?"

comments, better feedback, encouragement rather than 'that's wrong', you know you are not going to build up confidence..."

(group interview, 11.02.08)²⁵⁶

However, in group interviews senior students expressed the view that confidence develops over time, citing a combination of rigour and application as being significant factors within this process, as well as a personal resilience as intimated in the second statement:

"my confidence has grown from having a pretty hard time in second year and struggling with the work and then third year really working, putting in the hard work has increased my confidence"

(group interview, 11.02.08)

"Definitely a thick skin" (contributor to growing confidence)

(group interview, 15.02.08)

1.13.6 Summary

Student perceptions of their own confidence in future studies are directly influenced by both internal and external drivers. Internally, levels of motivation appear to have a strong bearing, whilst a range of external factors including feedback, workload, and deadlines were frequently cited as being significant.

Viewed over the course of an academic session, confidence levels, whilst variable amongst individuals depending on their own personal circumstances and attributes, the general trend was for confidence levels to dip around the mid-point of the session, and to recover at the end at a point when overall performance was understood. This correlates with the growth in dissatisfaction with feedback (recorded in the Section on Feedback) and explicit guidance. The range of perceptions followed a standard distribution curve, although levels of anxiety and confidence at each extreme of the graph fluctuated over time. It is important to note in considering this that confidence is a multi-faceted concept, and that

²⁵⁶ In response to the question:

"What would enhance your confidence in terms of your learning, your motivation?"

academia may only play a partial role in its state. For instance, the findings with respect to confidence levels relate strongly to perceptions of the transition to Higher Education, these in turn being determined by a combination of academic and non-academic factors.

Non-academic factors recorded by students include financial security or stability, external commitments, and distance from family and friends who in many cases have constituted the previously held support structures. On the other hand, the salient academic factors were clarity of guidance and expectation, feedback, and workload and the organisation of assignments. This latter factor also introduces the question of the student's personal motivation and commitment, which is central to successfully negotiating a workable interface between academic and non-academic dimensions of study in architecture. Other issues such as study skills including time management abilities also play a critical role in defining levels of confidence.

Finally, the approach or ethos of staff was also raised, with many students referring to the lack of praise or encouragement that so readily becomes a by-product of the inherent culture of criticism commonplace in architecture education generically, and found in the Scott Sutherland School specifically. It is evident that the manner and behaviour of staff can deeply influence the tenor of the learning process, something that all staff should be continually aware of.

1.14 Study Skills

1.14.1 Introduction

For many, enrolment on an architecture course represents embarkation on a challenging journey of study involving a new subject area and learning processes that are equally novel. Additionally, the transition to higher education involves change of a non-academic nature, often related to issues of personal development and independence. Consequently, this section analyses data gathered relating to study skills and the preparation of students for the variety of challenges that they might encounter.

1.14.2 Key Issues

As has already been seen, a salient issue arising from the students in both study groups, has been the intensity of workload and the challenge that this presents to students acclimatising to university life and their course of study. Consequently, Questionnaire 03 sought to explore the issue of work pressure in greater depth by examining perceptions of where responsibility for management of workload lies, and exploration of the perceptions of the principal factors impacting on the ability to manage study time.

In addressing the first point, student perceptions of the control of time management was recorded for each cohort as indicated in Figures A87 and A88.

Figure A89 below broadly accords with a standard distribution curve, although more respondents considered the student to have greater control of the management of time.

By contrast, Figure A90, which is very symmetrically disposed, is slightly weighted towards control residing with the staff although, as in Session 2004-05, the majority of students (approx. 50%) viewed this as a matter of equal responsibility between staff and students.

Figure A89: Control of Time Management: Session 2004-05

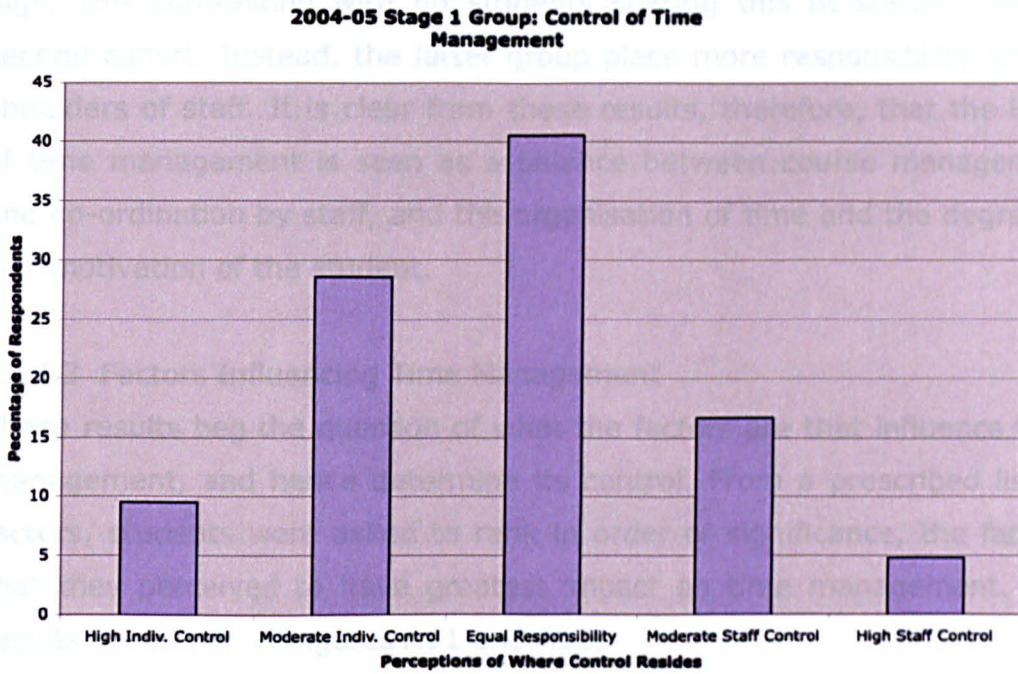
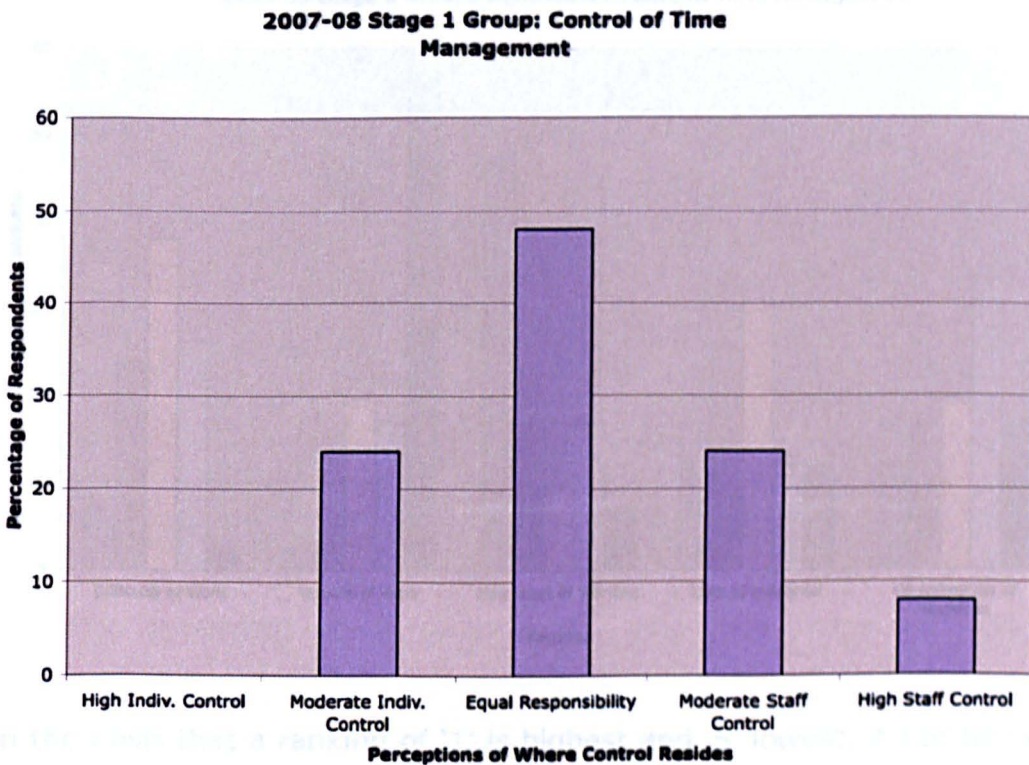


Figure A90: Control of Time Management: Session 2007-08



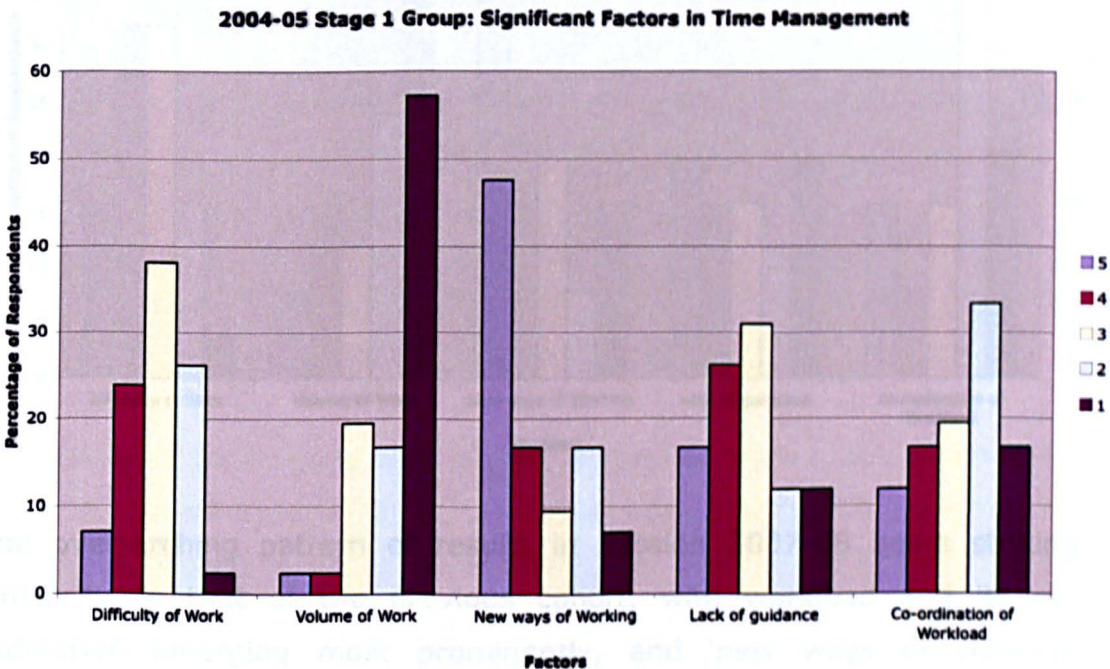
The primary difference between the two sets of results is in the varying perceptions at the extremes of the graph, with approx. 10% of

respondents in Session 2004-05 viewing individual student control as high, this contrasting with no students sharing this perspective in the second cohort. Instead, the latter group place more responsibility on the shoulders of staff. It is clear from these results, therefore, that the issue of time management is seen as a balance between course management and co-ordination by staff, and the organisation of time and the degree of self-motivation of the student.

1.14.3 Factors Influencing Time Management

These results beg the question of what the factors are that influence time management, and hence determine its control. From a prescribed list of factors, students were asked to rank in order of significance, the factors that they perceived to have greatest impact on time management. The results are shown in Figures A91 and A92.

Figure A91: Significant Factors in Time Management: Session 2004-05

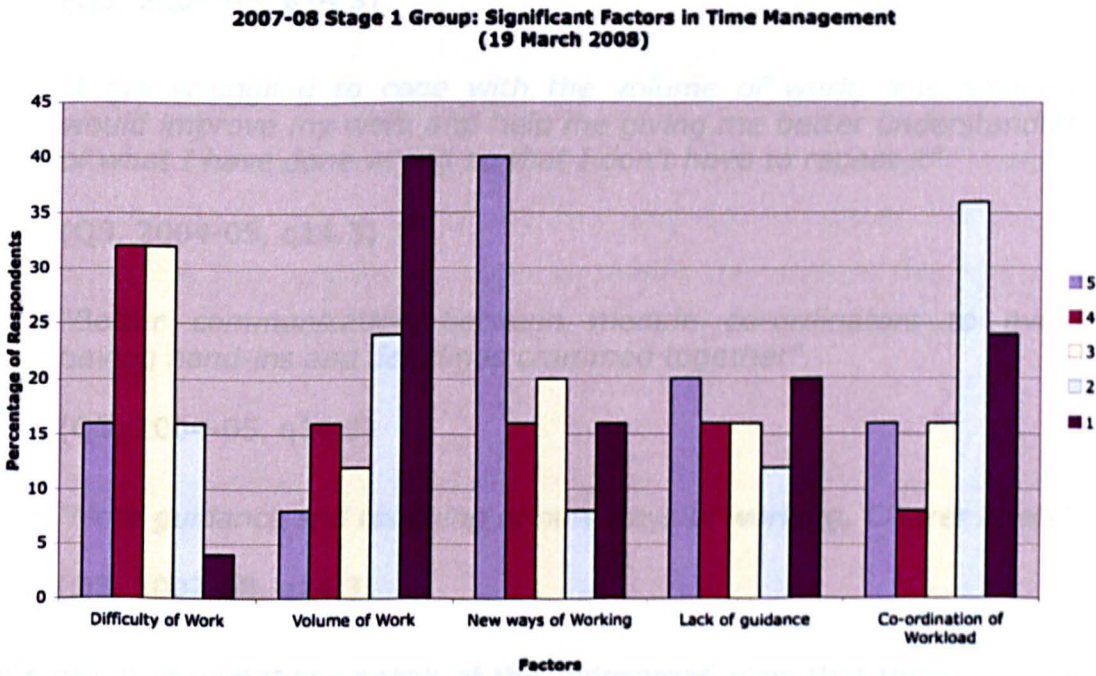


On the basis that a ranking of '1' is highest and '5' lowest, it can be seen that the volume of work is perceived to be the most significant factor by a substantial margin, followed by the co-ordination of student work. This latter point is presumed to relate to comments elsewhere regarding the

need for greater co-ordination of assignment submission, etc. Lack of guidance, and the difficulty of the work involved feature as secondary concerns. Considered in the light of Figures A89 and A90, these results are interesting as the most significant factors identified are largely within the control of staff. As regards workload, these responses seen together suggest that the students feel that they could respond better than they generally do.

This survey of perceptions was repeated in Session 2007-08, the results of which are shown in Figure A90.

Figure A92: Significant Factors in Time Management: Session 2007-08



The over-arching pattern of results in Session 2007-08 bears striking similarity to that of the previous cohort, with workload and its co-ordination emerging most prominently, and 'new ways of working' perceived to be of least impact. Indeed, when considered against the overwhelmingly positive responses concerning the studio environment, whilst its newness presents certain challenges, it is not generally viewed as an inhibitor to progress with work.

Students of both cohorts were asked to identify any support that might improve time management skills and alleviate the difficulties encountered. Suggestions included:

"Realistic time to complete tasks - need a social life too!"

(Q3, 2004-05, q14.3)²⁵⁷

"Better organisation among staff and more personal feedback"

(Q3, 2007-08, q14.3)

"More guidance, so that work doesn't need to be repeated, and repeated over and over again because of small errors"

(Q3, 2004-05, q14.3)

"I am struggling to cope with the volume of work, less amounts would improve my work and help me giving me better understanding of what I have done wrong so that I don't have to repeat it"

(Q3, 2004-05, q14.3)

"Better communication between module co-ordinators to avoid having hand-ins and deadlines crammed together"

(Q3, 2004-05, q14.3)

"More guidance and coaching of new ways of working. Clearer briefs"

(Q3, 2007-08, q14.3)

This group of quotations speak of the widespread view that time could be more effectively used were the volume of work managed more carefully, and more explicit guidance given with each exercise or project. Whilst volume of workload is expressed as a concern across the entire course, and may not refer solely to studio, the comments suggest that a lesser volume would enable greater time for thought and reflection.

²⁵⁷ In response to the sequence of questions:

"Questionnaire 02 showed that student workload and issues of time management are perceived to be the least enjoyable aspects of the experience. Who do you feel has greatest control over this situation, I.e. do the reasons for this lie with you, or are conditions imposed by staff? What do you consider the most significant factors? What support could be offered by staff to improve this?"

The second group of comments relate to the nature of key feedback and discussion mechanism, and to the expectations of staff. These statements correspond with those that view the review process as being critical and de-motivating, being devoid of encouragement and enthusiasm (see Section 1.10 of this Appendix).

"To be more optimistic in reviews"

(Q3, 2004-05, q14.3)

"Don't expect so much work after such a short period"

(Q3, 2004-05, q14.3)

1.14.4 Acknowledgement of External Commitments of Students

Finally, the statement below express the view that staff do not sufficiently acknowledge the many and varied commitments that compete for student time. Failure to do so not only has the potential to render the course exclusive, but also conceivably limits or denies the student the ability to develop other facets of their learning and persona through broader social interaction²⁵⁸:

"Better guidance and co-ordination, and understanding that some of us have part time jobs!"

(Q3, 2007-08, q14.3)

"More understanding in terms of personal needs of students. Co-ordination of hand ins, projects etc"

(Q3, 2007-08, q14.3)

Continuing this theme, in session 2004-05, 64.3% of respondents felt that the course does not acknowledge external commitments, whilst 26.2% did and 9.5% did not know.

²⁵⁸ This corresponds with the conclusions of the AIAS Studio Culture Task Force Report (2002).

The statistics from the Session 2007-08 survey were broadly similar, although there was a rise in the number feeling that their commitments are not acknowledged, with a commensurate reduction in those who thinking that they are (76% of respondents felt that the course does not acknowledge external commitments, 8% said it does, and 16% did not know).

Of those answering 'no' the following thoughts as to how it might be achieved were submitted. As well as reiterating points concerning the design of workload and the nature of support provided, these refer to student responsibility and the need for staff to develop a greater understanding of the individual student:

"Unsure"

(Q3, 2004-05, q15.2)²⁵⁹

"Probably not much. We'll both just have to make do"

(Q3, 2007-08, q15.2)

"More communication and understanding that we have to have a part time job"

(Q3, 2004-05, q15.2)

"Not expect so much from us in terms of actual time spent in school after hours"

"Realise that when away from home it is hard to adjust - keeping up hobbies from home would be something to ease the change"

(Q3, 2004-05, q15.2)

"Understand the difficulty that students have trying to meet deadlines when having part-time jobs. Be more understanding"

(Q3, 2004-05, q15.2)

²⁵⁹ In response to the question:

"What, if anything, could the School do to help achieve an appropriate balance between study and other commitments?"

"Workload is very high making it difficult to work as well"

(Q3, 2004-05, q15.1)

"the School could provide more of an understanding to some of us that cannot stop part time jobs and require more time with course work"

(Q3, 2007-08, q15.2)

"Allowances made for those people by giving preference for presentation times etc"

(Q3, 2004-05, q15.1)

"Because we are expected to work the rounds of the clock in order to have work done and it's hard to fit in sport"

(Q3, 2004-05, q15.1)

"Providing extra tuition and/or making workload more manageable"

(Q3, 2007-08, q15.1)

"Stop expecting us to work on coursework a lot over the weekends"

(Q3, 2007-08, q15.1)

"A more accommodating time table"

(Q3, 2007-08, q15.1)

"Only have lectures as compulsory and allow us to manage our own time for studio"

(Q3, 2007-08, q15.1)

"Allow far more work to be carried out in your own time"

(Q3, 2007-08, q15.1)

"Not including weekends into the course structures"

(Q3, 2007-08, q15.1)

"I think, it really is up to the individual to take more care in time management"

(Q3, 2007-08, q15.1)

"More understanding of the individual at hand"

(Q3, 2004-05, q15.1)

"Would be hard to achieve since every student is different"

(Q3, 2004-05, q15.1)

This final comment is echoed by a statement arising from the group interview with Stage 4 students:

"Everyone has got a different work ethic, everyone works differently, some people you know prefer to leave some people will work from the very beginning and work all hours, some people do not need that much time to do it, some people are not more clever but are better actually better at things so... everyone is different"

(group interview, 11.02.08)²⁶⁰

The difficulties relating to time management are recurrent in the responses from students throughout the course, and indeed were offered as the most difficult thing in the study of architecture by respondents to one group interview:

"(the most difficult thing is) having to work on your own because it is so much work, especially the studio work, sort of self discipline, and your time management and stuff you really learn that along the way"

(group interview, 11.02.08)²⁶¹

Referring back to the comments made about perceptions of academic difficulty and the intensity of workload, it is noted that respondents saw the concentration of work as the major issue. This raises questions about the appropriateness of the balance between volume of work (i.e. output),

²⁶⁰ In response to the question:

"Do you feel you use your time better than you did in your first year?"

²⁶¹ In response to the question:

"What is the most difficult thing about studying architecture?"

time for reflection and consolidation of learning, and the reasonable accommodation of student commitments outside of study which are often themselves key factors in successful progress.

1.14.5 Summary

The challenges presented by enrolment on higher education have been discussed earlier, as have a range of subject specific factors that the design of contemporary pedagogy should consider. If these, time and workload management emerged as being of fundamental importance.

In earlier analysis, time management skills were identified in response not only to the academic challenge, but also in seeking to achieve an appropriate and sustainable balance between academic and non-academic functions. Time management was seen by the great majority as a shared responsibility between staff and students, demanding that it be recognised and accommodated by staff in the design of the learning process, and acted upon by students.

Students saw the salient factors in time management as being the volume of workload and assessment, coupled with its overall co-ordination and organisation and the nature and quality of guidance offered. Of less importance was the academic difficulty of the work itself, begging the question as to the effectiveness of the programme intensity as opposed to less volume but time to complete, reflect, and hopefully excel. It is interesting to note that new ways of working are seen to be of least importance, although given the broad endorsement of studio as a learning medium, this is hardly surprising. These results strongly suggest the need for deliberate action in course design together with the specific development of time management as an essential study skill for the student.

1.15 Summary

This chapter represents the analysis of the data gathered from the two student cohorts as set out in Chapters 6 and 7. Chapter 8, 'Results and

Discussion' draws on this analysis, together with that contained in Appendices 2, 3, and 4 which follow.

APPENDIX 2:

ANALYSIS OF LEARNING AND TEACHING STYLES INVENTORIES

2.1 Introduction

This Appendix documents and analyses the findings from the Learning Styles Inventories completed by students from each cohort studied. The purpose of this component of the methodology was to assess the degree of diversity in terms of disposition to the four cognitive functions identified by Jung²⁶². Although Jung noted that individuals display characteristics of 'introversion' or 'extroversion' that relate to the propensity for action or reflection whilst interacting, the analysis focuses on the four learning styles identified in Figure 01 (Chapter 3). This is justified by the fact that introversion and extroversion do not alter an individual's learning style preference, but instead relate to the ways in which learning styles are utilised by the individual, and as such these dimensions are not central to the study (Silver et al, 2000). As the assertion within the research aim relates to the support of independent learning through the development of inclusive pedagogies²⁶³, the premise is that any such approach would by definition accommodate both active and reflective learners, thereby catering for variety of utilisation.

This Appendix also analyses the findings from the Teaching Styles Inventories (TSI) which staff were given the opportunity to complete on a voluntary basis. The purpose of the TSIs was to evaluate at a general level the diversity existing amongst the academic team with respect to teaching behaviours and instructional decision-making.

2.2 Analysis of Learning Styles Inventories

The evaluation of Learning Styles was conducted with both cohorts during the second semester of their first year of study. Response rates were high, being 68% and 86% of the 2004-05 and 2007-08 cohorts

²⁶² For Jung's cognitive functions, see Chapter 3: Design Studio: A Theoretical Model for Holistic Learning.

²⁶³ In terms of how cognitive functions or dispositions are interpreted as a result of characteristics of persona.

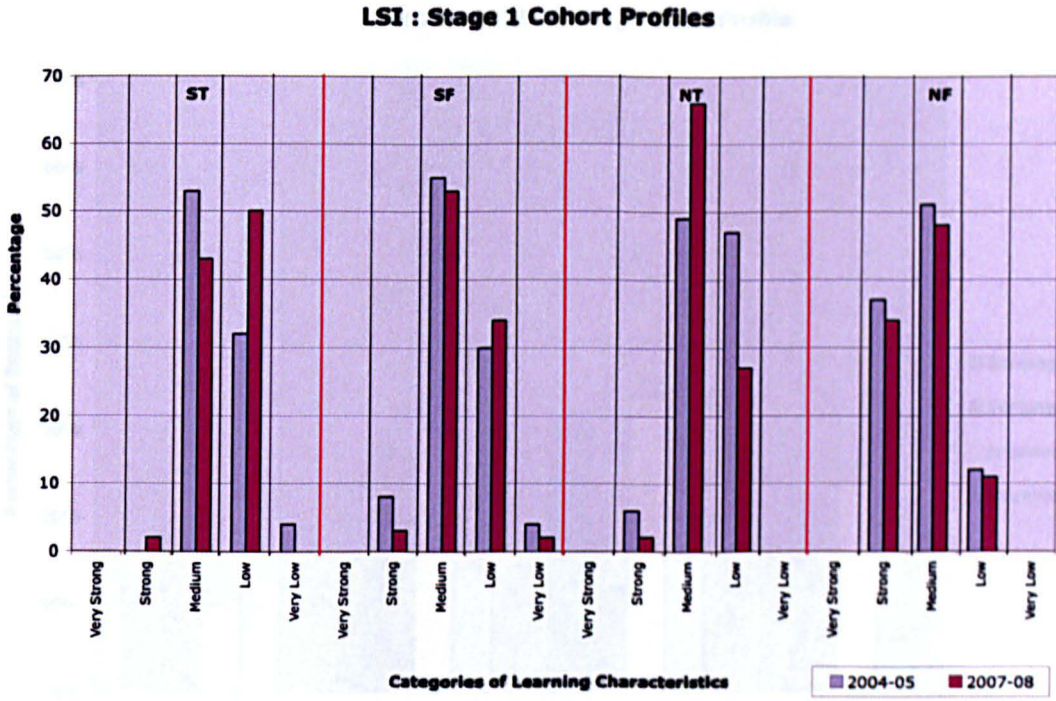
respectively. It is widely accepted that individuals develop their learning styles over time (Silver et al, 2000), varying this disposition to suit particular conditions and contexts. This raises the possibility of student responses being influenced by their initial experiences of architecture education during the first semester, and indeed to the prospect of individuals seeking to modify their response to the Learning Styles Inventory (LSI) in ways that they consider meet their perception of what is expected of them as student architects. Were the former accurate, it would serve as evidence of the dynamic nature of engaged learners, whereas the case of the latter would skew results artificially. Nevertheless, accepting this limitation in determining the absolute veracity of the findings, the primary purpose of the survey was to establish the breadth of diversity existing at any point in time amongst a group of students united through their chosen course of study²⁶⁴.

Viewed overall, the results of the Hanson Silver Learning Styles Inventories (LSIs) reveal a diversity of dominant to inferior styles across each of the two cohort groups. With reference to Jung's 'mandala' (see Chapter 3, Section 3.4.3) the results show all four quadrants represented in all four preference modes (see Figure A93 below).

With reference to Figure A93, and consistent with patterns of normal distribution, it can be seen that the frequency of occurrence of all styles peaks in the 'medium preference' zone, although in the both cohorts, the Intuitive-Feeling dimension scores notably higher than the other styles. Indeed, the Intuitive-Feeling style is dominant in the 'strong' category, while the Sensing-Thinking style registers most strongly in the 'low' category.

²⁶⁴ Although, as may be seen from Chapter 8: Results and Discussion, and Appendix 1, Section 1.2, motivations vary considerably.

Figure A93: Distribution of Learning Styles



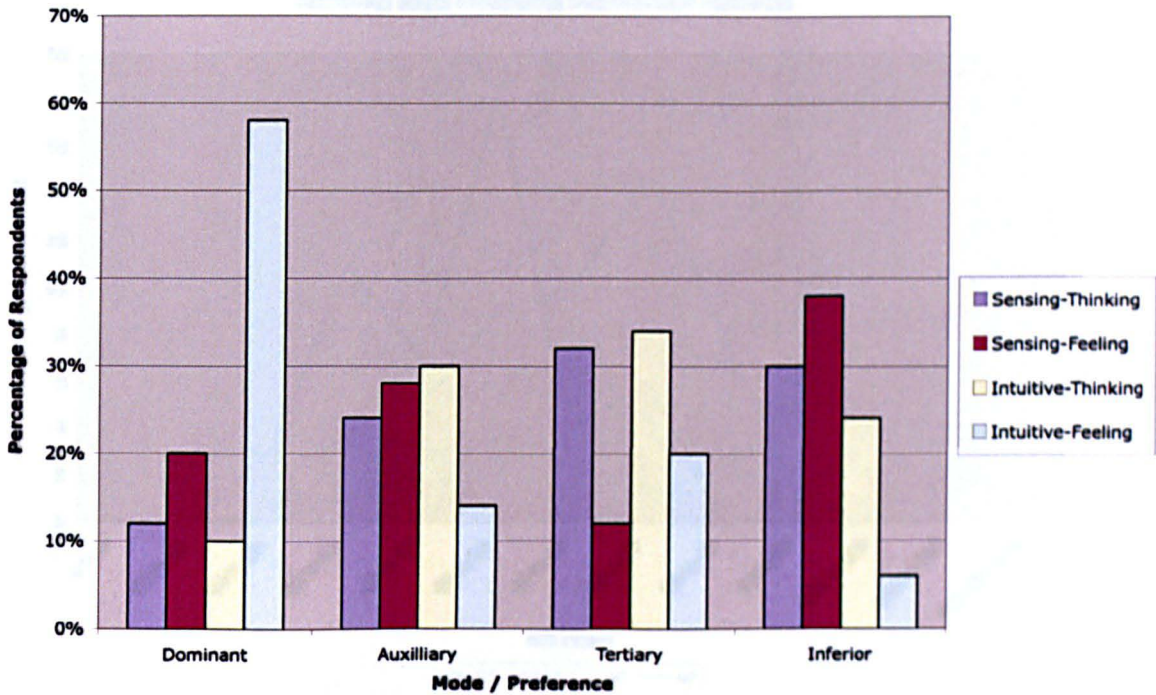
It can also be seen that the extremes of the categorisation scale are also poorly represented, with very few respondents recording values that demonstrate a Very Low comfort with any learning styles, and no respondents proving Very Comfortable with any style.

The following considers each cohort in turn, identifying the salient patterns and phenomena arising from the responses.

Figure A94 clearly demonstrates the dominance of the Intuitive-Feeling style, and the high occurrence of Tertiary or Inferior ratings for the 'Sensing-Thinking', 'Sensing-Feeling', and 'Intuitive-Thinking' preferences. Figure A95 superimposes the profiles for each style on one another, thus showing the relativity of the results.

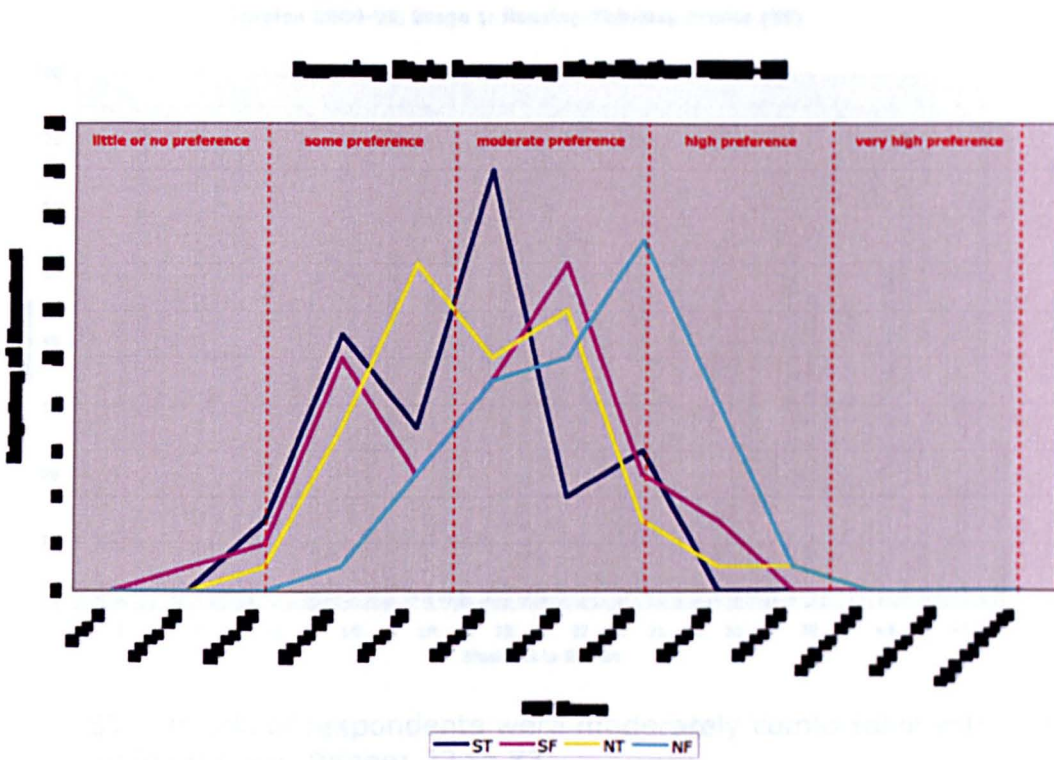
Figure A94: Learning Styles Inventory Profile, Session 2004-05

Session 2004-05 Stage 1 LSI Profile



The graph below charts the distribution of Learning Style Preferences for the cohort. These projections map the LSI scoring bands against the frequency of occurrence across the cohort, revealing the relative profile for each learning style:

Figure A95: LSI Distribution for 2004-05 Cohort (Stage 1)

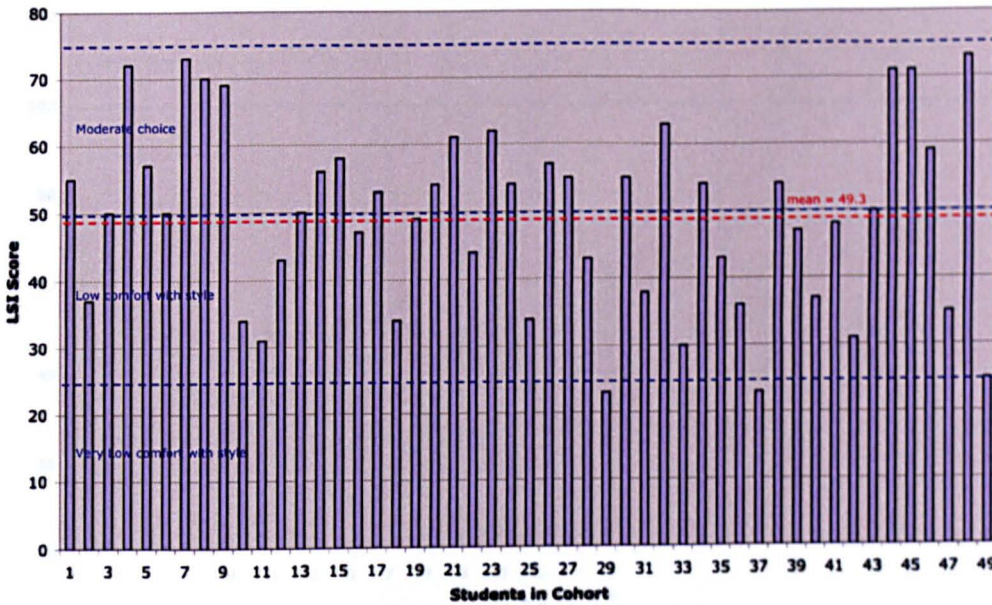


Figures A96 to A99 overleaf shows the breakdown for each respondent using four graphs depicting the cohort profile for each learning style. For ease of comparison and interpretation, each graph shows the LSI scoring bands²⁶⁵ as well as the mean cohort score.

²⁶⁵ This describes the preference categories relating to scores on the X-axis

Figure A96: Overall Learning Style Profile: Session 2004-05

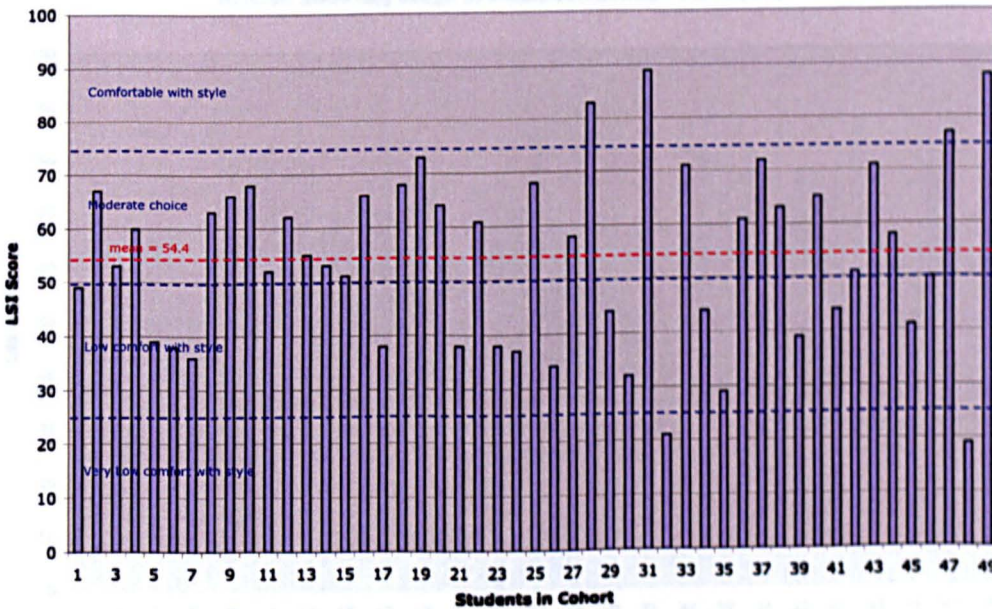
Session 2004-05, Stage 1: Sensing-Thinking Profile (ST)



ST : 46.9% of respondents were moderately comfortable with this learning style. Range: 23 to 73.

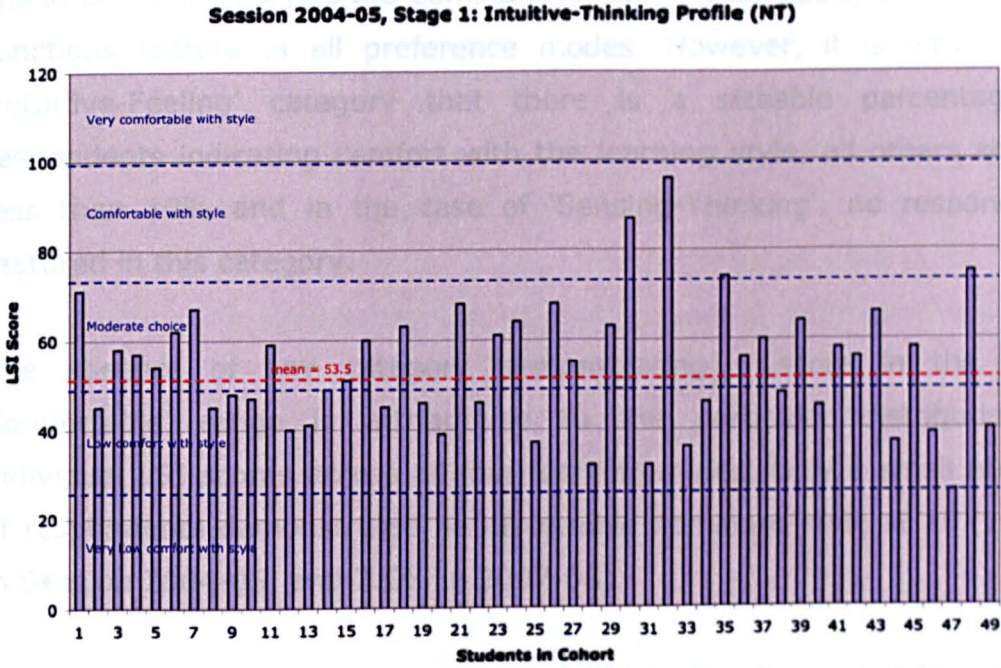
Figure A97: Sensing-Feeling Profile (SF): Session 2004-05

Session 2004-05, Stage 1: Sensing-Feeling Profile (SF)



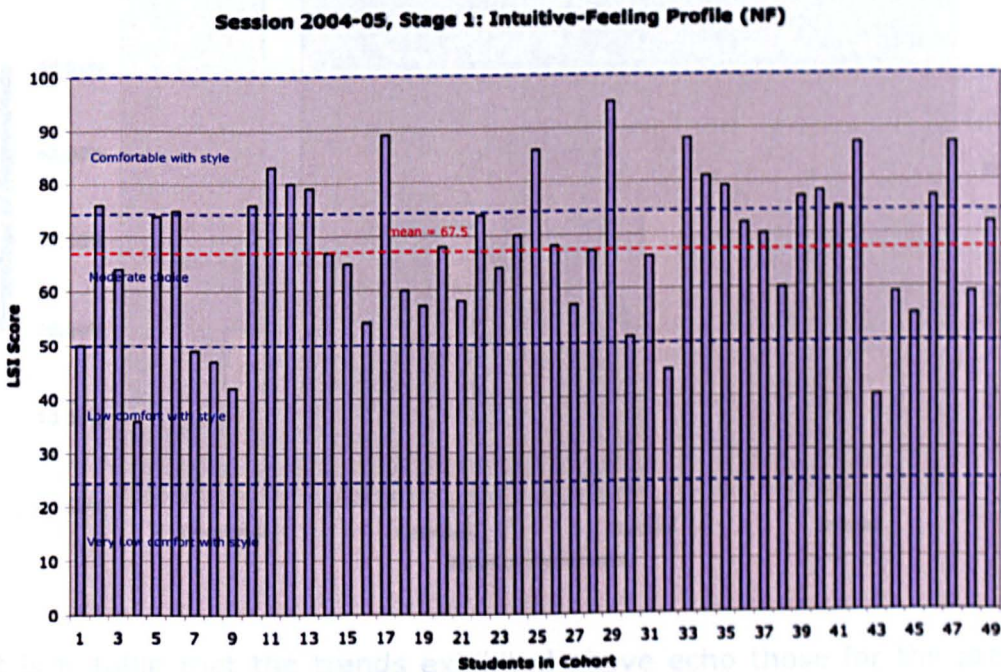
SF : 51% of respondents moderately comfortable with this learning style; 8.2% comfortable with learning style. Range: 19 to 89.

Figure A98: Intuitive-Thinking Profile (NT): Session 2004-05



NT : 46.9% of respondents moderately comfortable with this learning style; 8.2% comfortable with learning style.
Range: 26 to 96.

Figure A99: Intuitive-Feeling Profile (NF): Session 2004-05

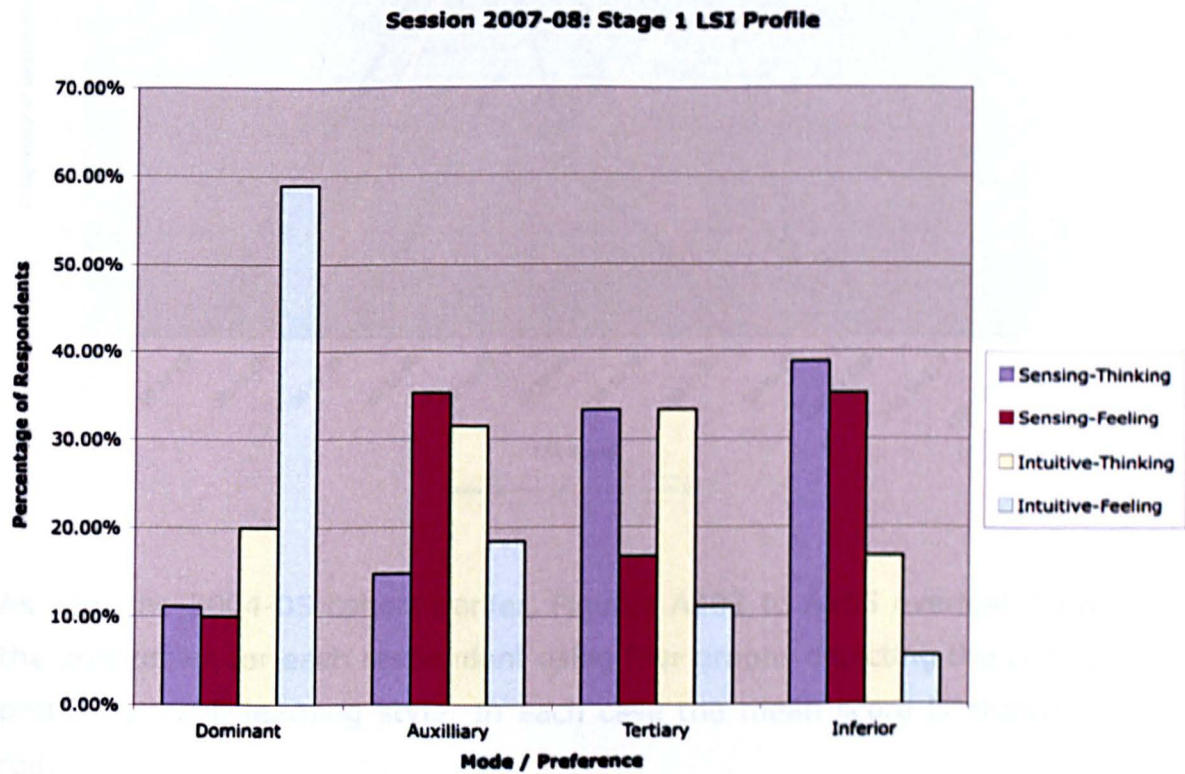


NF : 42.9% of respondents moderately comfortable with this learning style; 34.7% comfortable with learning style.
Range: 36 to 95.

This detailed analysis sheds further light on Figure A93, revealing that whilst all learning styles are dominant for some individuals, all 4 cognitive functions feature in all preference modes. However, it is only in the 'Intuitive-Feeling' category that there is a sizeable percentage of respondents indicating comfort with the learning style, all others scoring less than 10% and in the case of 'Sensing-Thinking', no respondents featured in this category.

The absence of any category demonstrating a score in the 'Very Comfortable' range is attributable to the particular distribution of individual LSI scores across all four learning styles. Only a small number of respondents demonstrated no discernible dominant style at all (10.2% in Session 2004-05, and 7.5% in 2007-08).

Figure A100: Learning Style Inventory (LSI) Profile, Session 2007-08

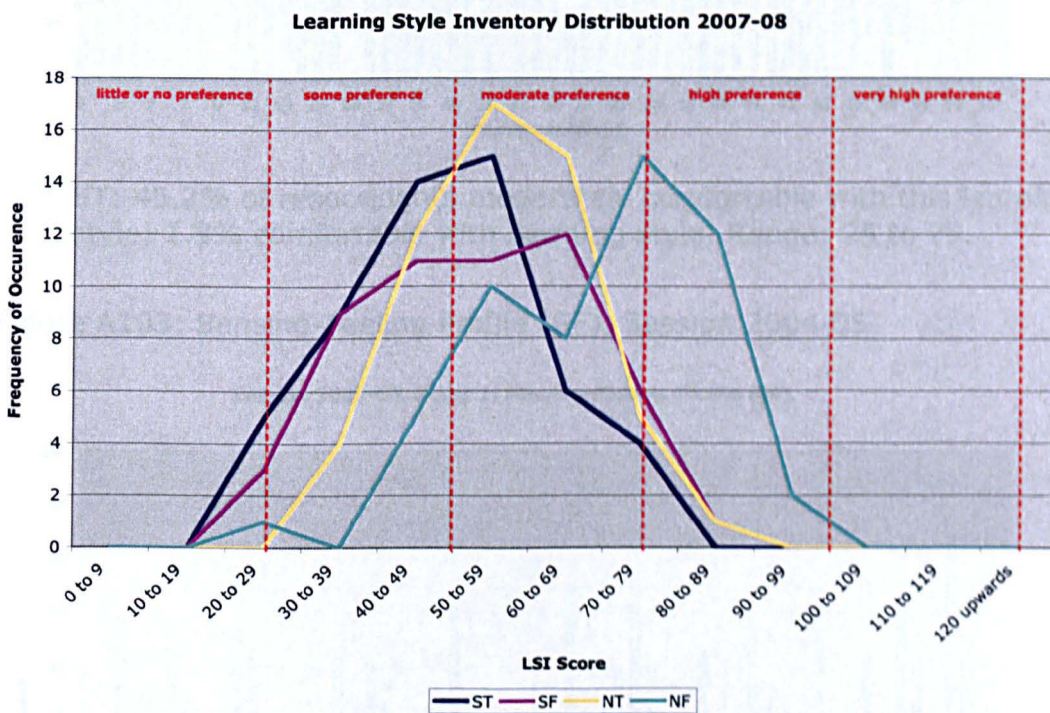


It is notable that the trends exhibited above echo those for the previous cohort, especially in terms of dominant tendencies towards the 'Intuitive-Feeling' style. Indeed the percentage profiles show remarkable consistency between the two cohorts (see Figures A98 and A99). Both

'Sensing-Thinking' and 'Sensing Feeling' register strongly as inferior tendencies, with 'Intuitive-Thinking' again showing the most even distribution across all modes of preference.

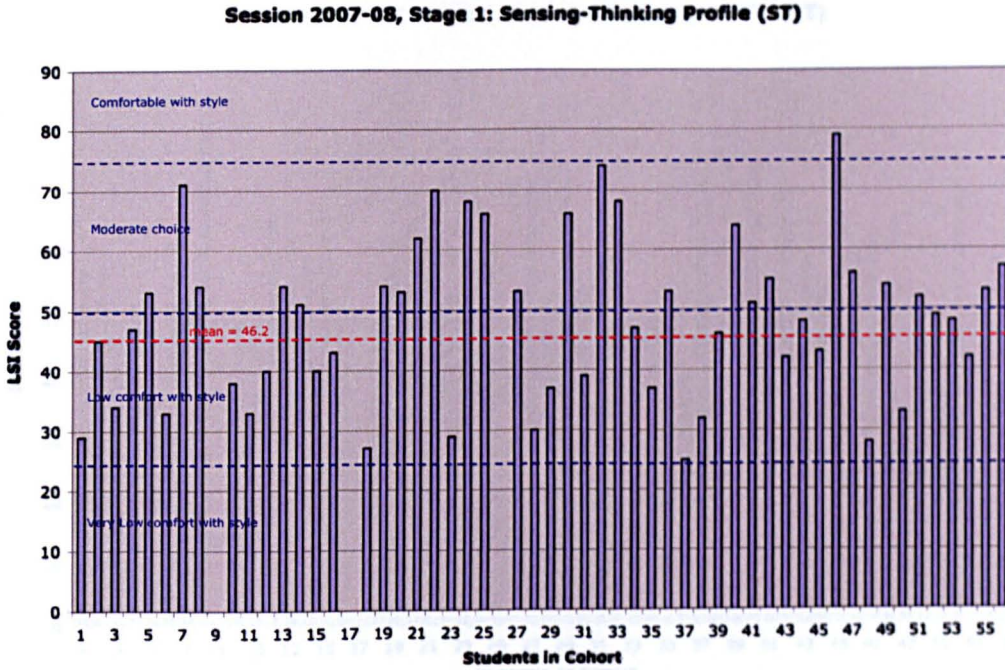
As for Figure A95, the graph below (Figure A101) traces the profile of Learning Style preferences across the 2007-08 cohort. This clearly shows the peaking of the majority of styles in the 'moderate preference' band, the very low occurrence of responses at either extreme of the scoring scale, and the dominance of the 'Intuitive-Feeling' (NF) style.

Figure A101: LSI Distribution for 2007-08 Cohort (Stage 1)



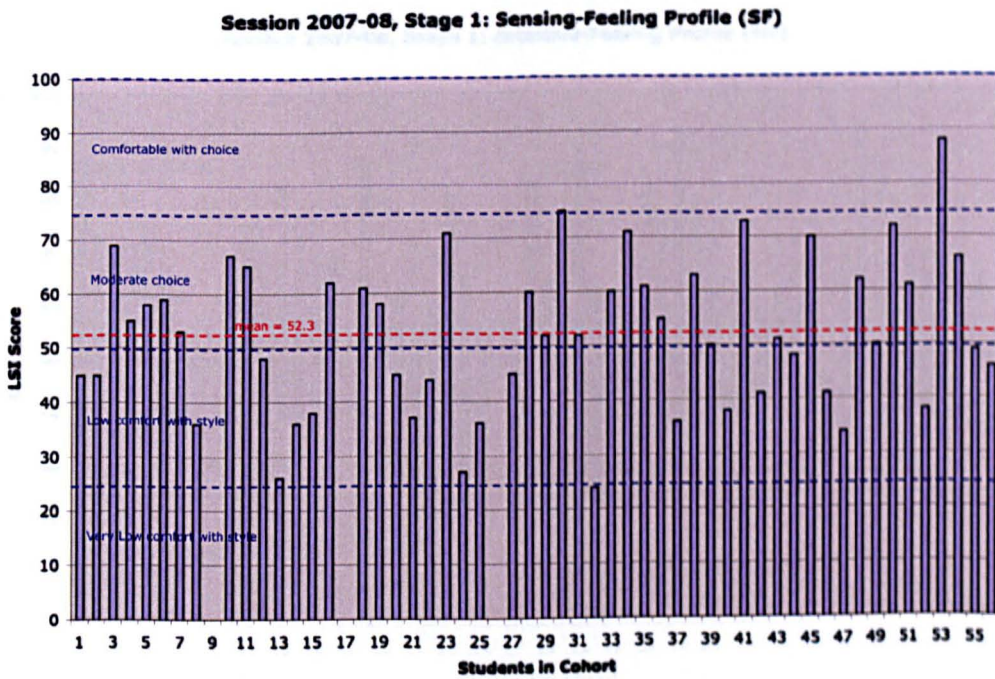
As with the 2004-05 cohort earlier, Figures A102 to A105 overleaf show the breakdown for each respondent using four graphs depicting the cohort profile for each learning style. In each case the mean score is shown in red.

Figure A102: Sensing-Thinking (ST) Profile, Session 2007-08



ST: 45.2% of respondents moderately comfortable with this learning style; 1.9% comfortable with learning style. Range: 25 to 79.

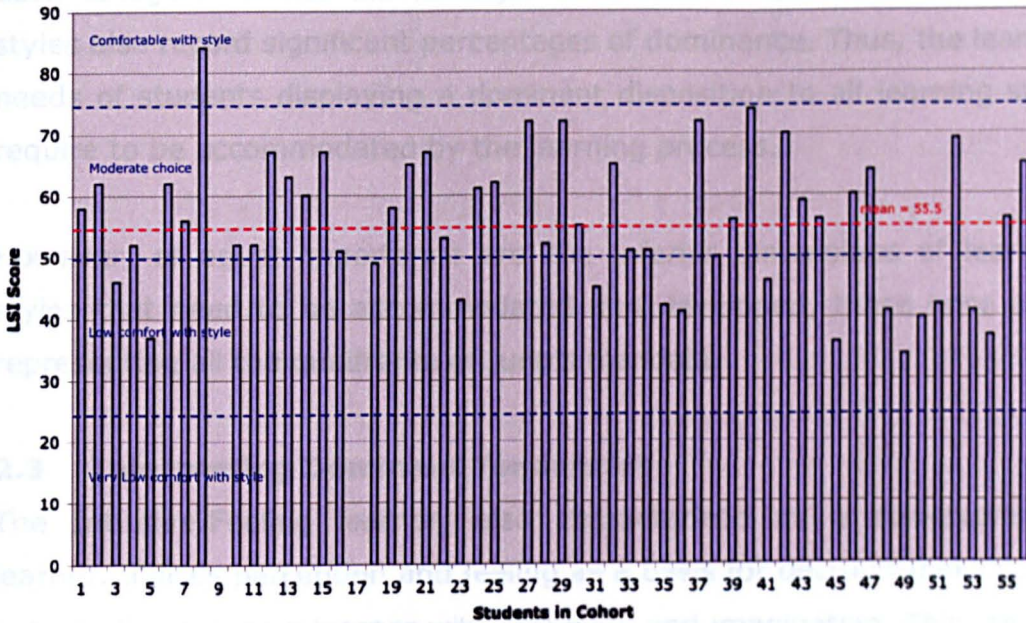
Figure A103: Sensing-Feeling Profile (SF), Session 2004-05



SF: 50.9% of respondents moderately comfortable with this learning style; 1.9% comfortable with learning style. Range: 24 to 88.

Figure A104: Intuitive-Thinking Profile (NT): Session 2007-08

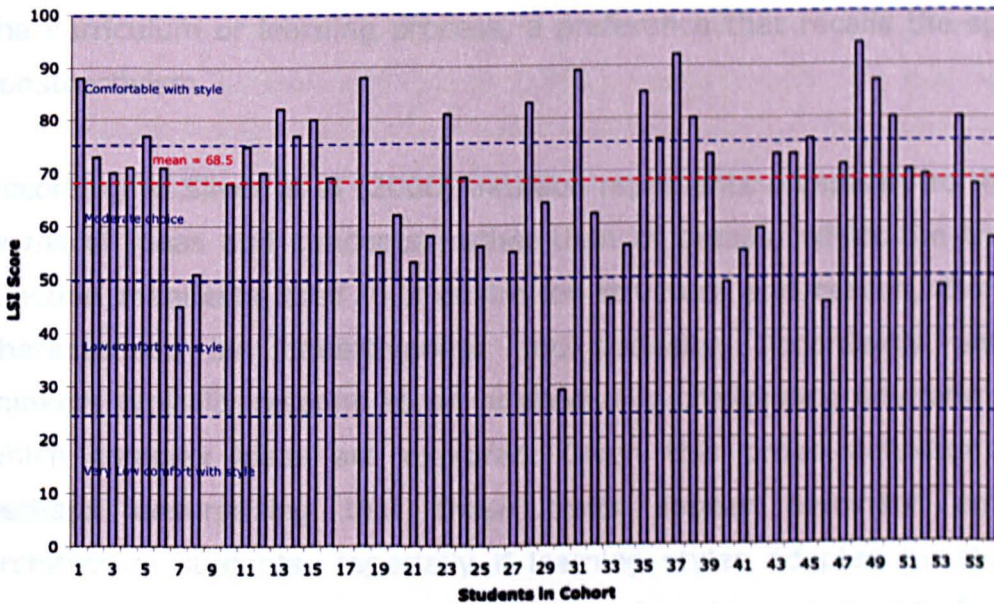
Session 2007-08, Stage 1: Intuitive-Thinking Profile (NT)



NT : 66% of respondents moderately comfortable with this learning style; 1.9% comfortable with learning style. Range: 34 to 84.

Figure A105: Intuitive-Feeling Profile (NF): Session 2007-08

Session 2007-08, Stage 1: Intuitive-Feeling Profile (NF)



NF : 54.7% of respondents moderately comfortable with this learning style; 32.1% comfortable with learning style. Range: 29 to 94.

It is notable that the overall profiles and percentage breakdowns for both cohorts bear a strong correlation, with very similar percentages found in each category. Whilst the NF style dominates in both cases, all other styles also record significant percentages of dominance. Thus, the learning needs of students displaying a dominant disposition to all learning styles require to be accommodated by the learning process.

However, of equal importance are the inferior dimensions of learners' styles that need to be accommodated and developed, these once again representing all the quadrants of Jung's mandala.

2.3 Interpreting Dominant Tendencies

The Intuitive-Feeling learner, also characterised as a self-expressive learner, utilises perception and feeling as a basis for decision-making, and is typically seen as a learner with creativity and imagination. This creative propensity in turn demands that learning is stimulating and unpredictable. Intuitive-Feeling learners typically seek clarity as well as capacity to express emotion and passion, and need time for reflection, development, and implementation. Moreover, Hanson and Silver (1996) suggested they seek tutors who endeavour to create linkages between the individual and the curriculum or learning process, a preference that recalls the spirit of constructivism.

According to Silver et al (2000) intuition represents a capacity to think in terms of ideas and concepts, rather than of details, whilst the thinking function manifests itself in a desire for structure and reason, this often characterised by inquisitiveness and curiosity. Accordingly, intuitive thinkers typically respond to an intellectually challenging environment in which complex ideas are explored. Given this broad definition, it is perhaps unsurprising that these traits appear dominant amongst architecture students, especially if learning styles adopted by students have already begun to be shaped by their learning experience. Although many students embark on studies in architecture without much detailed

knowledge of what is involved²⁶⁶, there is evidence to suggest that there is some prior understanding of the association with design, creativity, and the studio as a creative environment. This being the case, it is possible that some students are drawn to the subject due to a perceived, albeit subconscious, fit between their preferred learning style and the learning process. The essential ubiquity of the learning process may support this possibility, although the data gathered cannot verify this.

2.4 Interpreting Auxilliary and Tertiary Tendencies

Sensing-Feeling learners are also characterised as 'interpersonal' learners. This group typically base decisions and judgements on feelings and perceptions, these often relating to tangible entities that relate to personal experience. Interpersonal learners thrive on an orderly learning environment that exudes a sense of community and togetherness, as studio does, and which promotes the building of bonds between staff, students, and other relevant stakeholders. Social interaction is thus of great importance, as is a sense of comfort in the learning setting.

Group work is a preferred mode of study. Dialogue and open communication is viewed as being critical, but listening skills are sometimes diminished, especially if there is a tendency to use dialogue to 'think aloud'. Hanson and Silver (1996) suggest that for this type of learner feedback "is more a matter of coaching and conference and less a matter of objective feedback" (p.17). In terms of these salient characteristics, it might be suggested that these align most closely to the essence of what Schön celebrates (yet which subsequent research has challenged in terms of the manner of execution), i.e. the discourse and dialogue between tutor and tutee.

Intuitive-Thinking

This style relates to an interest in theory and intellectual challenge (Hanson and Silver, 1996). Intuitive Thinkers enjoy hypothetical exploration, often tending to approach ideas through highly structured

²⁶⁶ See Chapter 8: 'Results and Discussion', and Appendix 1.

and ordered processes. They are logical and rational in their approach, which is also knowledge-oriented, and are guided less by their sensory perception. Thinking may thus be viewed by some as being too rigid or constrained, and it is this characteristic that is interesting in the context of architecture, where the generation of ideas may not be determined by knowledge, but may instead be more intuitively or emotively derived.

Intuitive Thinkers also typically display a preference for working autonomously, this also being contrary to the interactive and socially dynamic environment of the studio setting.

2.5 Interpreting Inferior Tendencies

Lastly, the Sensing-Thinking or 'mastery' learner combines perception with thinking in order to make decisions and form judgements. They favour precision and organisation, requiring outcomes and expectations to be clearly articulated, and are practically or vocationally oriented. It is argued that learning processes have to be suitably staged to give regular direction and to maintain interest and stimulation. Practical experimentation and demonstration are favoured over formal taught material and independent reading, and this group are typically hungry for feedback and information that informs development. Practical solutions are also favoured over consideration of abstract concepts or solutions. High levels of application are typical, as is a decisive nature aimed at generating solutions. The corollary to this is that such learners can be inflexible in their thinking, and have a tendency to over-simplify complex problems. The Sensing Thinker enjoys a clear process and direction from tutors, is a systematic worker, and dislikes ambiguity and indeterminacy. The latter being a hallmark of architectural design learning.

Jung maintained that all learning styles have equivalent value, each possessing strengths and weaknesses. Moreover, he noted that the learning style preference of an individual can vary depending on the circumstances or context. Irrespective of the influences that may have impacted on the data gathered, and the findings discussed here, it is clear that at any given point in time there will exist a diversity of learning styles

within a cohort, and the probability that each quadrant of Jung's mandala will be represented in each mode of preference.

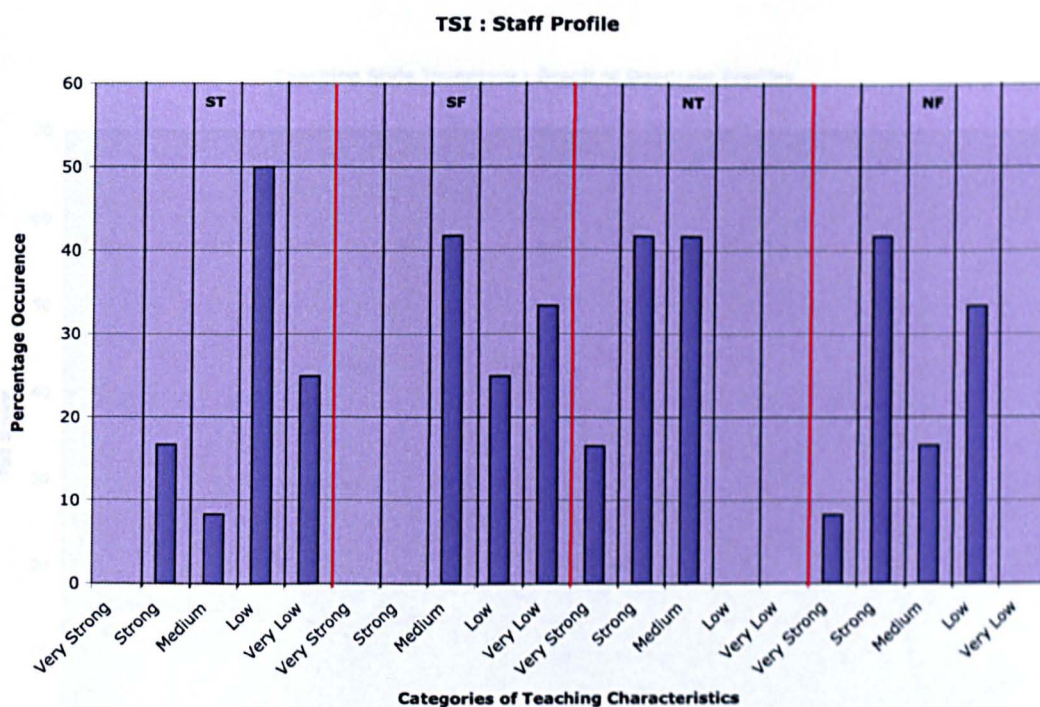
Viewed broadly, it can also be seen that aspects of overarching studio pedagogy can relate to each learning style, although it may be argued that styles such as 'Intuitive-Feeling' (NF) are more closely aligned than 'Sensing-Thinking' (ST).

2.6 Analysis of Teaching Styles Inventories

The evaluation of teaching styles was carried out in the first year of the study, and involved on a voluntary basis a range of staff teaching on the architecture courses. The staff surveyed using the Hanson Silver Strong Teaching Styles Inventory (TSI) contained 58.3% architects, with the remainder coming from a range of allied professions in the construction industry. It is acknowledged that the sample was very small and that therefore it would be inappropriate to extrapolate any broad generalisations or conclusions from it. However, its primary purpose within the study was to reveal a diversity of teaching styles existing at any moment in time amongst the tutor group.

Figure A106 below shows that whilst there is a broad range of results, there is an overall leaning towards the Intuitive-Thinking style, with the Intuitive-Feeling style also registering highly. Both these styles record high levels of comfort with the teaching styles.

Figure A106: Distribution of Teaching Styles in Staff Team



The greatest spread within any single style occurs with the Sensing-Thinking and Intuitive-Feeling categories. In the case of the Sensing-Thinking and Sensing-Feeling styles, the results are dominated by high levels of discomfort, and in the latter case no respondents recording a comfortable disposition at all.

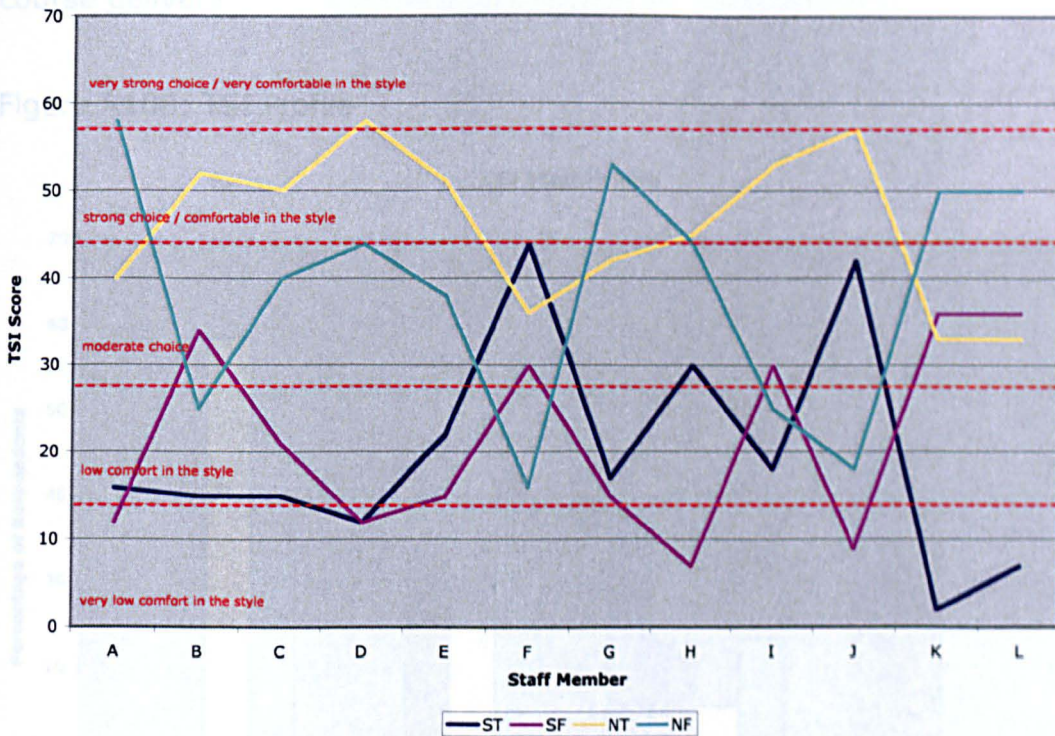
Viewed from a different perspective, the graph overleaf (Figure A107) plots the Inventory scores for each member of staff, and shows relative to one another the profiles of each teaching style across the staff group.

In terms of the dominant, auxiliary, tertiary, and inferior categories, Figure A107 shows the diverse range of responses, although it is clear that Sensing-Thinking is the only style to not feature in the tertiary category, and Intuitive-Thinking the only style not to feature in the inferior category. The results for the Intuitive-Thinking (NT) reading show a preference for comfort from Tertiary to Dominant, while Sensing-Thinking (ST) readings revealed the opposite.

Figure A107: Graph of Teaching Style Profiles in Staff Team

basis for conversation, but it does indicate the existence of diversity in the teaching styles and preferences of the individuals responsible for the course.

Teaching Style Inventory : Graph of Quadrant Profiles

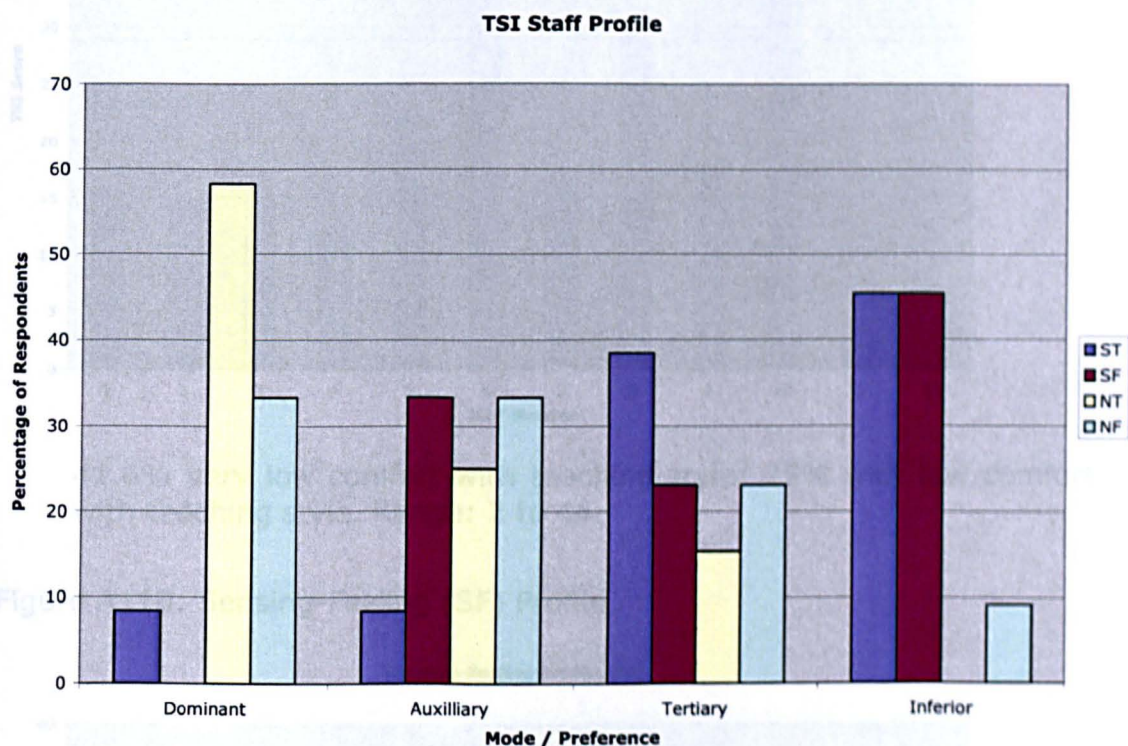


The above results clearly show the dominance of Intuitive-Thinking as a characteristic, with Intuitive-Feeling characteristic registering as the second highest set of readings. Only these two styles register in the 'Comfortable in the Style' and 'Very Comfortable in the Style' categories. At the low end, the Sensing-Thinking and Sensing-Feeling characteristics appear as the lowest readings, although the variance in the results for Sensing-Thinking is greater.

In terms of the Dominant, Auxilliary, Tertiary, and Inferior dimensions, Figure A108 shows the diverse range of responses, although it is noted that Sensing-Feeling is the only style to not feature in the Dominant category, and Intuitive-Thinking the only style not to feature in the Inferior category. The results for the 'Intuitive-Thinking' (NT) readings showed a progression in comfort from Tertiary to Dominant, whilst the 'Sensing-Thinking' (ST) readings revealed the opposite.

Once again, the size of the sample group renders it unsuitable as the basis for generalisation, but it does indicate the existence of diversity in the teaching styles and preferences of the individuals responsible for course delivery.

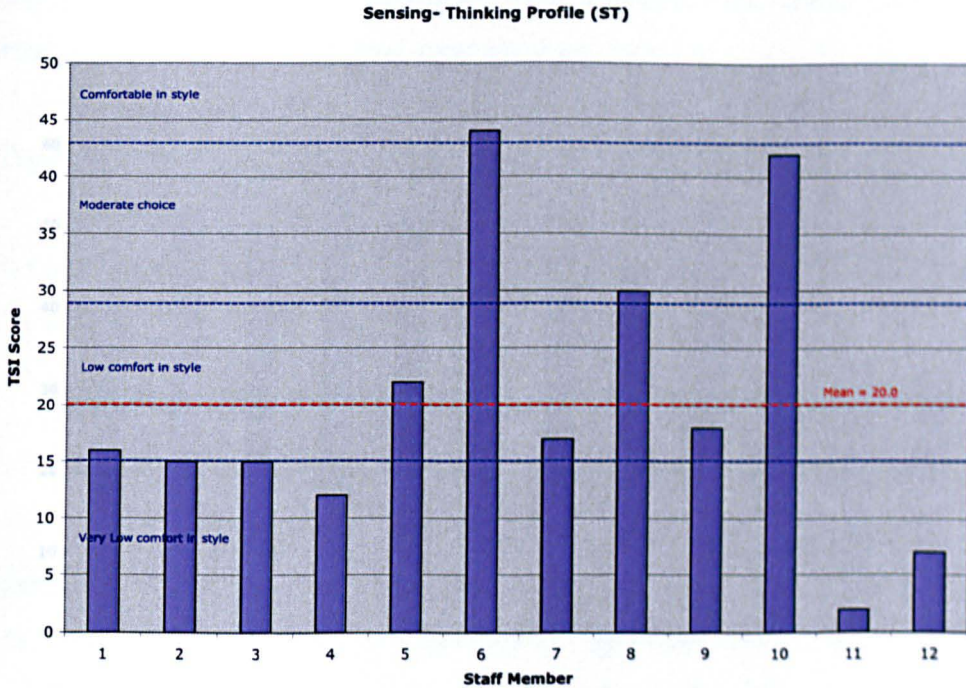
Figure A108: TSI Profile



In order to assist comparison between the Learning Style and Teaching Style results, the graphs shown below (Figure A109) provide the breakdown of individual staff member scores for each style, together with the mean score indicated in red.

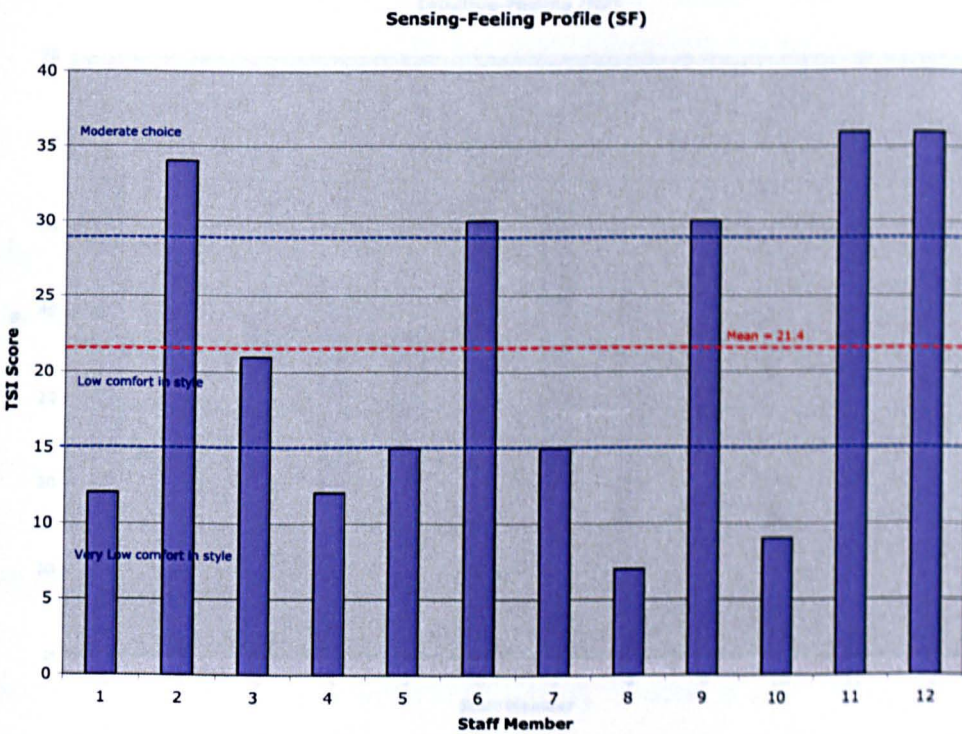
50% with dominant with teaching style; 41.6% moderately dominant with Learning style. Range: 7 to 36.

Figure A109: Sensing-Thinking (ST) Profile



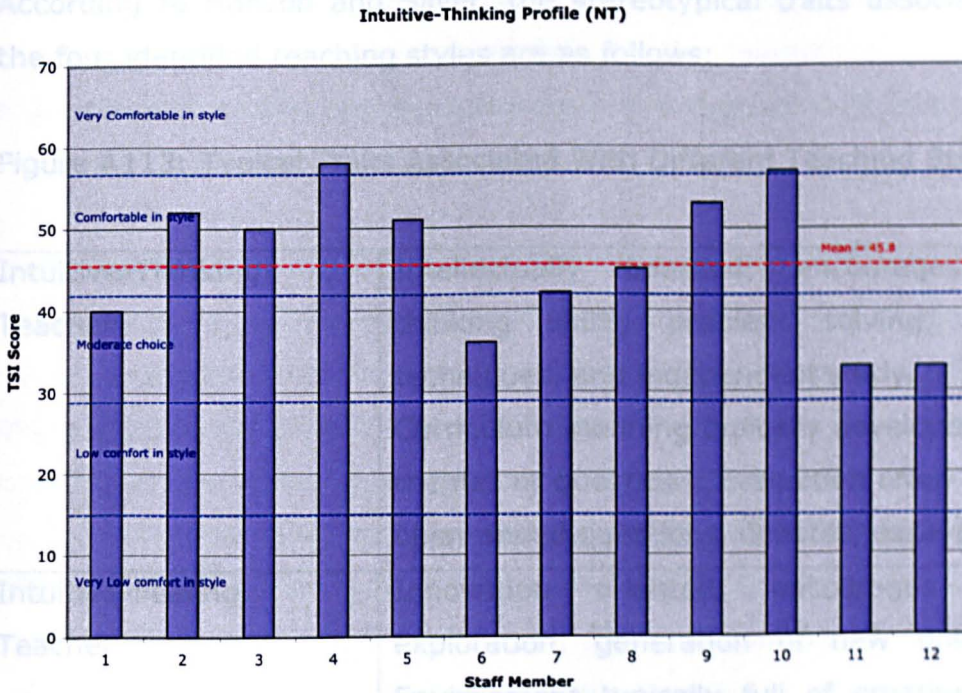
41.6% very low comfort with teaching style; 25% with low comfort with teaching style. Range: 2 to 44.

Figure A110: Sensing-Feeling (SF) Profile



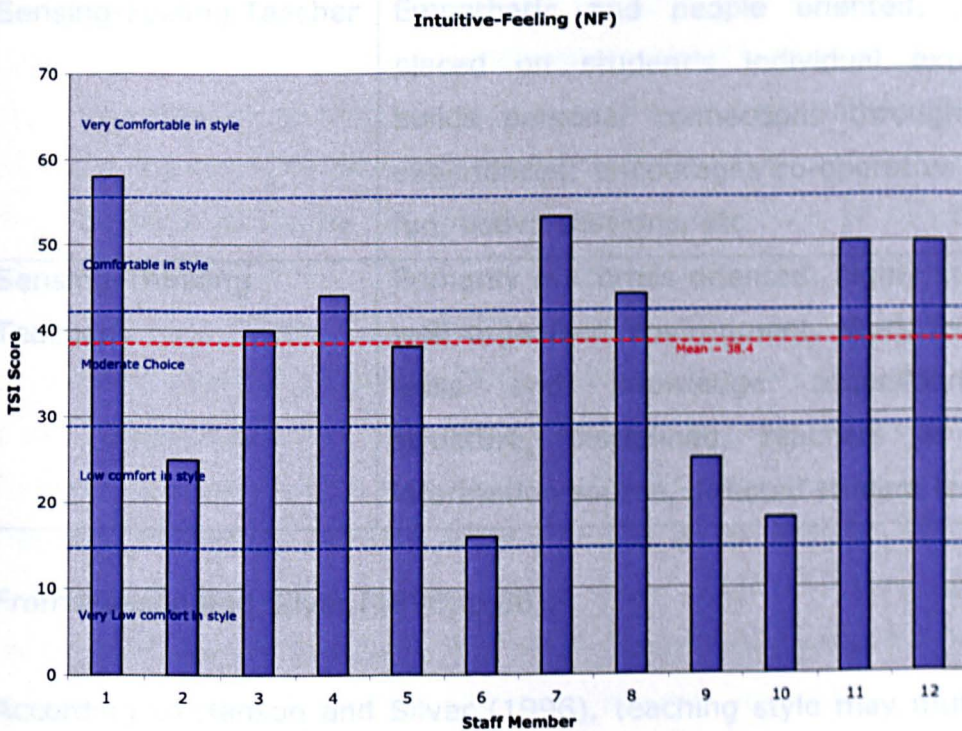
50% very low comfort with teaching style; 33% low comfort with teaching style; 16.6% moderately comfortable with teaching style. Range: 7 to 36.

Figure A111: Intuitive-Thinking (NT) Profile



50% comfortable with teaching style; 16.7% very comfortable with teaching style. Range: 33 to 58.

Figure A112: Intuitive-Feeling (NF) Profile



41.6% comfortable with teaching style; 33% low comfort with teaching style. Range: 16 to 58.

2.7 Typical Traits

According to Hanson and Silver, the stereotypical traits associated with the four identified teaching styles are as follows:

Figure A113: Typical Traits Associated With Different Teaching Styles

Intuitive-Thinking Teacher	Intellectually oriented; encourages critical thinking skills, problem solving, research techniques, and independent study. Curriculum planning typically developed around themes or questions. Evaluation often based on open-ended questions, debates, essays, etc
Intuitive-Feeling Teacher	Innovation oriented; encourages creative exploration, generation of new possibilities. Environment typically full of creative clutter. Encouragement of individuals style, imagination, artistic self-expression, and creative thinking welcomed
Sensing-Feeling Teacher	Empathetic and people oriented; emphasis placed on student's individual experiences, builds personal connections through sharing experiences; encourages co-operative working, fun, active sessions, etc
Sensing-Thinking Teacher	Primarily outcomes-oriented; highly structured, well organised environment. Work focuses on skills and knowledge acquisition; clear structure, disciplined, teachers as primary information source, directed student learning

From Hanson and Silver (1996, p.88).

According to Hanson and Silver (1996), teaching style may mutate over time and depending on circumstances. However, dominant and auxiliary styles are most accessible and hence typically most practised, although

with conscious effort, all styles can be utilised and made more accessible for use. Indeed Hanson and Silver contend that teachers adapting their teaching styles consciously depending on the learning objective to be addressed, is a valid approach, although it is argued here that inclusivity may remove the need for this.

The intuitive-thinking tutor is often characterised by the following behaviours. He or she is commonly noted for a dearth of attention to detail, and may overlook the acquisition of basic skills in students who show intellectual promise (Hanson and Silver, 1996). In pursuance of creating an engaging learning environment, the tutor may not sufficiently specify precisely what the learning objectives are. Moreover, the tutor's disposition to independent study may genuinely frustrate those students who need closer tutorial guidance or group interaction, and the use of open-ended questions may irritate those sensing students that need to work within clearly defined boundaries. Furthermore, the intuitive-thinking teacher may show reluctance to engage with students at their level, may appear too critical, particularly to the Sensing-Feeling student, and to withhold praise when it is sought (Hanson and Silver, 1996). With reference to Appendix 1 and Chapter 8: Results and Discussions, it is observed that many of these typical student responses reveal themselves in the analysis of the data gathered from the cohorts studied, particularly with respect to clarity of guidance and the nature of feedback and criticism.

It is noted that the properties of the dominant Intuitive-Thinking teaching style correspond to the open-ended nature of the subject area, in which a fundamental component of learning is the development of a process for research, synthesis and evaluation of proposals to complex indeterminate problems or scenarios. However, that there is an inevitable relationship would presuppose that there is a direct correlation between subject area or professional sphere and the teaching style of academics involved in its teaching. Indeed, there are two interesting questions here; do teachers in a given subject area adopt a style that is perceived to best suit the nature of that subject and / or, do staff teaching a particular academic or

professional discipline possess innate characteristics that determine a teaching style profile at a more fundamental level? It is interesting to hypothesise regarding this, but research on this lies out-with the scope or focus of this study, and would necessarily demand a different subject group and methodology. It was noted that the completed TSI results did not suggest any discernible difference in Teaching Styles and preferences between architects and non-architects, although the sample was too small to permit reliable extrapolation.

Whilst all teaching styles have some bearing to educational methods in architecture, the low levels of comfort with the Sensing-Thinking style correspond with the more prescriptive characteristics associated with this style. When considered in relation to the student questionnaire data in which lack of structure and clarity of outcomes were noted as a weakness or source of frustration or confusion, there would appear to be a correlation.

2.8 Summary

In a broad comparison of Learning and Teaching Styles profiles across the subject groups, there was some correspondence between the dominant leanings of teachers with those of students. In particular the Intuitive-Feeling and Intuitive-Thinking functions registered consistently strongly, whilst the Sensing-Thinking dimension was consistently lowest in both cohorts, with the mean values being in the category of 'Low comfort with style' in each case. The Sensing-Thinking function was also lowest amongst academic staff. However, the distinction between the 'sensing' and 'intuitive' styles is much more marked in the Teaching styles, there being a consistently discernible margin between these two groupings (see Figure A106).

It is noted that the whilst there is some correspondence between the inferior styles of both students and tutors, these nevertheless represent dominant traits for some. The use of simple diagnostic tools, coupled with the small sample sizes, especially in the case of the staff survey, limit the

extent to which more general interpretations may be made and conclusions drawn.

NB: Due to the primary focus of the study being on student perceptions, the Teaching Styles Inventory results were not considered of key importance to the study. Reinforced by the low returns, the decision was made not to include the Teaching Styles Inventory results in the analysis contained in Chapter 8: Results and Discussion.

APPENDIX 3:

ANALYSIS OF MULTIPLE INTELLIGENCES INDICATORS

3.1 Introduction

Reference to Chapter 3 reveals the significance of Gardner's Theory of Multiple Intelligences as a means of proposing that human intelligence is multi-dimensional, diverse, and capable of transformation, modification and tuition (Silver, Strong & Perini, 2000; D'Souza, 2007). This Appendix documents and analyses the results from an assessment of the multiple intelligence profiles of each cohort studied, for consideration within Chapter 8 alongside the results of the Learning Styles Inventories, and other data gathered for the thesis.

3.2 Method

Using the Multiple Intelligences Indicator for Adults, developed by Silver and Strong in 1998, samples from both the 2004-05 and 2007-08 cohorts were assessed, the results of which reveal a number of key aspects. It is acknowledged that the 2004-05 sample is small (constituting approx. 11.7% of the cohort), and that consequently overall cohort trends are difficult to reliably identify. However, the results do suggest some similarities with the sample from 2007-08 (approx. 43% of the overall cohort).

3.3 Overall Findings

As indicated in Figure A134, the 'Architecture Education Wheel', all Intelligences have a relationship to the process of architecture education to varying degrees. Whilst the size of the sample makes it difficult to identify meaningful patterns and draw robust conclusions about dominant and subordinate intelligences as a group, the survey clearly reveals the diversity of profiles across the cohort, with both high and low ratings registering in 7 out of 8 categories (the exception being the 'naturalist' category, with approx. 50% rating 'low' in each sample).

However, the samples from both cohorts also reveal a diversity of dominant and subordinate characteristics. Across both samples, the following intelligences appear dominant:

- Spatial
- Logical-Mathematical

- Bodily-Kinesthetic
- Interpersonal

Adapted from Gardner, the following table denotes the characteristics of disposition to these intelligences:

Figure A114: Typical Traits Associated With Dominant Intelligences

Disposition / Intelligence	Sensitivity to	Inclination for	Ability to
Spatial Intelligence	Colour, shape, symmetry, line, images, etc	Visual representation of ideas, visual detail, drawing, sketching	Create visually, visualise accurately
Logical-Mathematical Intelligence	Patterns, numbers and numerical data, causes and effects, objective and quantitative reasoning	Finding patterns, making calculations, forming and testing hypotheses, deductive and inductive reasoning	Work effectively with numbers, effective reasoning
Interpersonal	Body language, moods, voices, feelings	Noticing and responding to other people's	Working with people, helping people overcome

		feelings and personalities	problems
Bodily-Kinesthetic	Touch, movement, physical self, athleticism	Activities requiring strength, speed, hand-eye co-ordination, dexterity, and balance	Use of hands to create / fix, use of body expressively

From Silver, Strong, and Perini (2000, p.11).

Whilst all Gardner's intelligences can be related to architectural education and the development of the breadth of professional skills of an architect, on considering the abilities relating to these dominant intelligences, it is notable that those with innate spatial and hand-eye co-ordination abilities are attracted to architecture as a subject of study. In addition to the more obvious correlation between spatial intelligence and architecture, the other intelligences that score highly also have strong relationships to the subject. For instance, the bodily-kinesthetic intelligence relates to the physical act of drawing and making, whilst inter-personal intelligence would appear to be significant given the interactive, social dynamic of design studio, where communication skills, and awareness of others, play a central role. The logical-mathematical intelligence relates to the scientific dimension of architectural design, such as aspects of building science and technical performance.

Conversely, the following intelligences appear to be subordinate:

- Verbal-Linguistic
- Musical
- Intrapersonal
- Naturalist

The following table shows the characteristics of these intelligences:

Figure A115: Typical Traits Associated With Subordinate Intelligences

Disposition / Intelligence	Sensitivity to	Inclination for	Ability to
Verbal-Linguistic Intelligence	The sounds, meanings, structures and styles of language	Speaking, writing, listening, reading	Speak effectively or write effectively
Musical Intelligence	Tone, beat, tempo, melody, pitch, sound	Listening, singing, playing an instrument	Create music, compose, analyse music
Intrapersonal Intelligence	One's own strengths, weaknesses, goals, desires	Setting goals, assessing personal abilities and liabilities, monitoring own thinking	Meditate, reflect, exhibit self-discipline, maintain composure, get most out of oneself
Naturalist Intelligence	Natural objects, plants, animals, naturally occurring patterns, ecological issues	Identifying and classifying living things and natural objects	Analyse ecological and natural situation and data, learn from living things, work in natural settings

From Silver, Strong, and Perini (2000, p.11).

Given that artistic ability together with qualifications in mathematics or a science-based subject form mandatory components of the stated entry requirements for the course, it is perhaps unsurprising that Spatial and Logical-Mathematical Intelligences register highly, although the results for

Verbal-Linguistic intelligence contradict this when considered against the need for qualifications in English or an English-based subject. However, the ability to perform in a range of academic areas is not necessarily the same thing as the nature of innate ability or inherent individual preference.

Beyond the analysis of the extremes of the collective cohort profiles, the spread of dominant and subordinate areas for each individual covers the breadth of intelligence categories, revealing the diversity of learners within each. Gardner (1993) is careful to note that individual's use intelligences from each of the eight categories, and indeed utilise other intellectual capabilities and capacities, and that their use varies depending on particular contexts. Nevertheless, he proposed that individuals tend to exhibit particular capabilities in one or two categories, the data broadly corresponding with this assertion. In accordance with this thinking, however, it is possible that the context of architecture education has influenced the data in some way, especially given that the survey was not undertaken until the second semester of study on the course.

Despite the existence of trends across the cohort, certain students within the sample possessed strengths in areas generally found to be subordinate, this reinforcing the importance of learning and assessment methods that address all intelligences in order to be inclusive, or the avoidance of delivery methods that disadvantage specific groups or individuals.

In developing his categorisation of intelligence, Gardner noted that the profile of intelligences possessed by an individual at any point in time is not a fixed entity, but rather a fluid phenomenon that mutates over time. He also noted that the majority of human functions, tasks, and actions rely on a combination of intelligences acting together. Thus the interfaces and connections between different intelligences are also of significance (Gardner, 1993).

Perkins, Jay, and Tishman (1993) advocate that rigorous thinkers are disposed to think in certain ways, this influencing the processing of

information. They contend that such a 'disposition' constitutes sensitivity to a particular type of intelligence. They further contend that dispositions develop through exposure and sensitivity to particular behaviours, and that over time individuals develop a leaning to such behaviours. Progressively, as the ability of the person becomes more sophisticated, he or she gains the capability to apply them to a variety of diverse contexts and situations. However, the development of dispositions is also dependent on the existence of agents such as teachers and mentors, and historical and social contexts such as professional cultures. This perhaps bears some relationship to Schön's notion of learning to 'think like an architect'. Whilst beyond the scope of this study, it would be interesting to conduct a broader survey of professionals to see if any patterns could be identified in the intelligence profiles of professional members, that might suggest a broad professional disposition amongst architects. Indeed it would be of further interest to see if students' profiles move towards some broad collective norm as they progress through their education.

3.4 Multiple Intelligences Profiles

The following analysis discusses the findings from the profiling of multiple intelligences conducted with the two cohorts. Whilst it is acknowledged that they are not necessarily typical in the sense that the findings and profile trends would be directly replicated in another cohort, or indeed another institution, the range of findings serve as a vehicle for discussing the broader implications for the design of the pedagogies, including the development of curriculum design and delivery methods.

As can be seen from the ranges provided, the collective profiles for each of Gardner's intelligences include both high and low readings, accentuating the point that diversity exists here too.

At this point, it is important to reiterate Gardner's assertion that intelligences can be developed, and that therefore one's view of learning design should not be purely reactive to student profiles in the sense of developing learning around existing strengths.

With reference to the results for Session 2007-08, it should be noted that students numbered 3, 4, 15, and 18 (see the x-axis) did not complete the Multiple Intelligences Indicator and therefore record a zero rating in each category.

3.5 Findings for Individual Intelligences

3.5.1 Verbal-Linguistic Intelligence

The graphs on the following page (Figures A116 and A117) illustrate the range of readings relating to Verbal-Linguistic Intelligence for each cohort group. Both cohorts exhibit a similar distribution. The mean values recorded represent the second lowest for all the intelligences, although in both cases the range of readings is amongst the highest (range from 2-22 in Session 2004-05, and from 1-25 in Session 2007-08). These results suggest that the majority of students in the cohorts studied are less disposed to learning through verbal instruction, and are less confident (at Stage 1) of communicating ideas and concepts through language whether oral or written. Yet, at the level of the qualified architect, there exists a public expectation of refined capabilities in verbal communication and ability to persuade, reinforcing the importance of propagating these skills through the learning experience. However, Verbal-Linguistic learners are predisposed to conversational learning, such as that commonly found in the studio context, and to using linguistic metaphors as a means of conceptualising thoughts and in the generation of ideas.

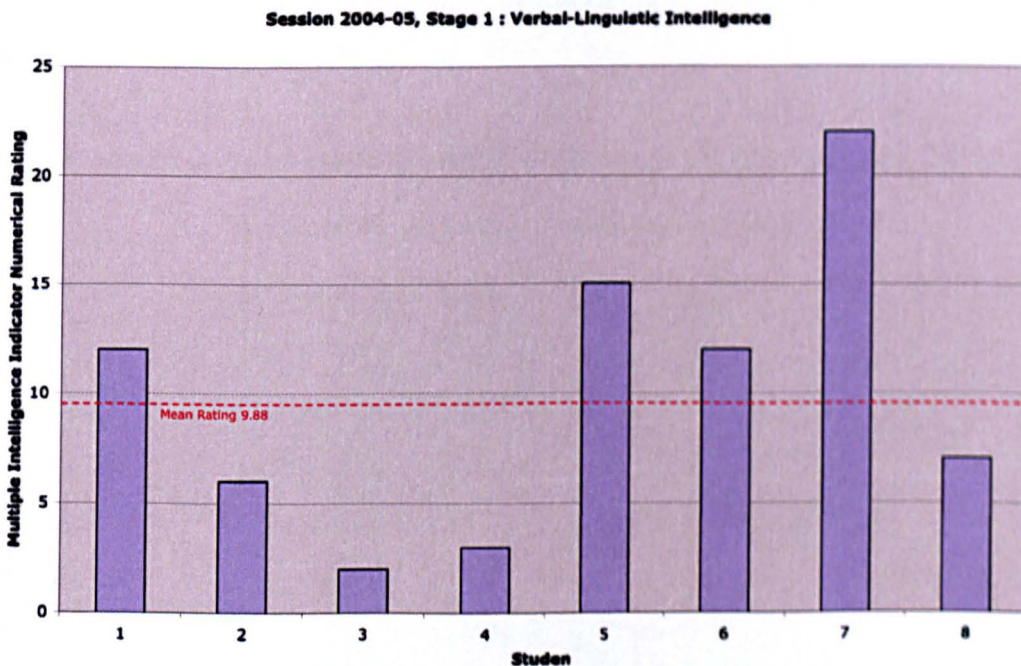
The assessment of Multiple Intelligences was undertaken towards the end of the academic session, thus the results may already have been influenced by experiences on the course up to that point. For example, questionnaire results indicate a widespread feeling that reviews, one of the primary vehicles for the provision of feedback, tend to be negative, and that criticism was perceived by some to be harsh. Were students directly relating these perceptions of negativity to their own verbal presentations in initial reviews, it is conceivable that this might have some bearing on the measurement of Verbal-Linguistic Intelligence. Conversely, the review may be seen as having the potential to provide a productive means of developing this Intelligence, along with written assignments aimed at honing ability to articulate ideas powerfully and concisely.

The correlation between low disposition to verbal-linguistic Intelligence and the strong reliance on skills in this area demanded by the design

review is noted. Indeed, as a further study, the longitudinal tracking of the individual intelligence profiles of students over the duration of their course would be a valuable exercise in revealing the degree to which profiles evolve and develop, and the extent to which this corresponds with changing levels of confidence and experience.

The low disposition also suggests that the lecture as a didactic means of instruction may also be ineffective for many. On the basis that students are largely attracted to the course because of its creative nature²⁶⁷, as supported by the questionnaire findings, it is possible that the prior learning context has also influenced disposition to other intelligences perceived more central to studio-based learning. This is underscored by the high values attributed to Interpersonal and Bodily-Kinesthetic intelligences which align closely with the social, conversational, and active dimensions of learning within the design studio.

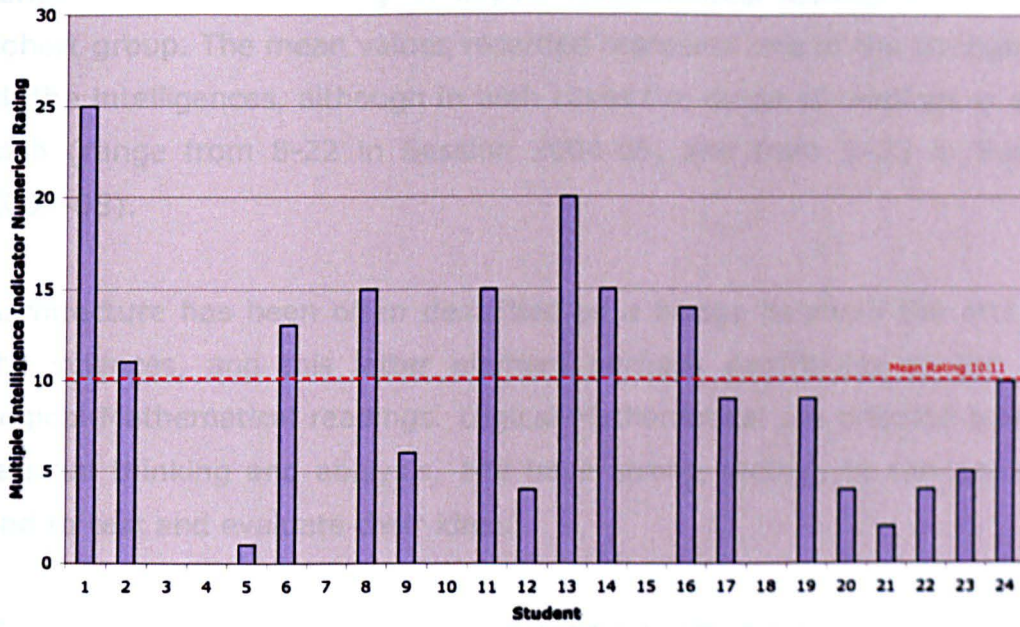
Figure A116: Verbal-Linguistic Intelligence Profile: Session 2004-05



²⁶⁷ This is evidenced by data from the Questionnaires, as discussed in Appendix 1.

Figure A117: Verbal-Linguistic Intelligence Profile: Session 2007-08

Session 2007-08, Stage 1: Verbal-Linguistic Intelligence



3.5.2 Logical-Mathematical Intelligence

The graphs on the following page (Figures A118 and A119) illustrate the range of readings relating to Logical-Mathematical intelligence for each cohort group. The mean values recorded represent one of the strongest of all the intelligences, although in both cases the range of readings is again high (range from 8-22 in Session 2004-05, and from 3-25 in Session 2007-08).

Architecture has been often described as a bridge between the arts and the sciences, and this latter element perhaps contributes to the high Logical-Mathematical readings. Logical-Mathematical are oriented towards rational thinking and analysis, and have strong abilities to conceptualise and to test and evaluate their ideas.

Gardner contends that previous educational cultures and social contexts (Silver Strong Perini, 2000), and from this it might be argued that the UK secondary curriculum with its heavy bias towards more determinate subjects such as the sciences and mathematics, is instrumental in creating this dominant disposition.

Figure A118: Logical-Mathematical Intelligence Profile: Session 2004-05

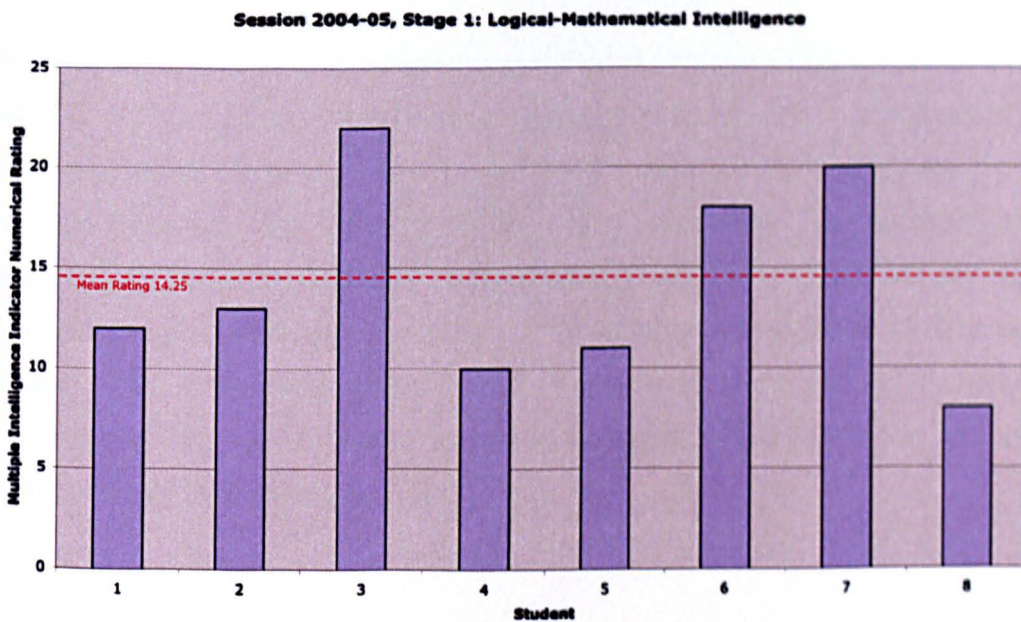
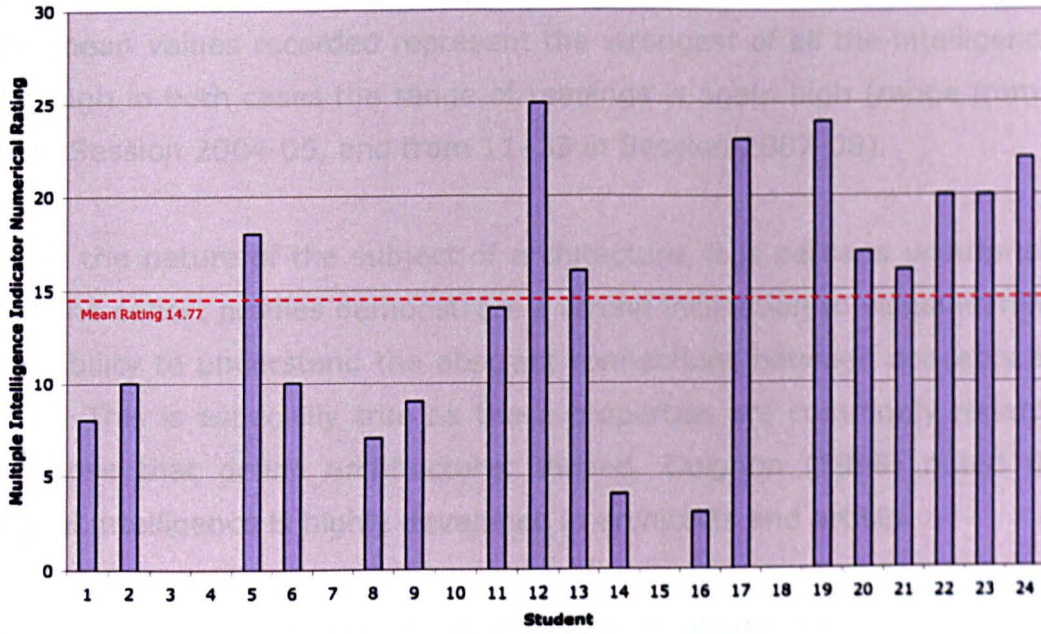


Figure A119: Logical-Mathematical Intelligence Profile: Session 2007-08

Session 2007-08, Stage 1: Logical-Mathematical Intelligence



3.5.3 Spatial Intelligence

The graphs on the following page (Figures A120 and A121) illustrate the range of readings relating to Spatial Intelligence for each cohort group. The mean values recorded represent the strongest of all the intelligences, although in both cases the range of readings is again high (range from 6-21 in Session 2004-05, and from 11-33 in Session 2007-08).

Given the nature of the subject of architecture, it is perhaps unsurprising that the cohort profiles demonstrate a strong inclination to visual learning, and ability to understand the abstract connections between concepts and ideas. This is especially true as these properties are commonly regarded as those that define architecture. Indeed, Guignon (1998) noted that spatial intelligence is highly developed in architects and artists.

Spatial thinkers typically respond poorly to linear learning processes, preferring the iteration found in creative problem-based learning (Silverman, 1996). Learning for this type of student is most effective when achieved through instructional approaches that closely align, such as the use of clear visual tools and graphic material. Spatial learners tend to think primarily in terms of visual imagery, a process commonplace within studio-based design activity.

Thus the studio-based process for developing design skills is well suited to spatially disposed learners as it involves the generation of visual images that represent ideas through the act of drawing, CAD, and model making. In this respect the connection is noted between the aspects of the learning experience and the subject that the students found stimulating and enjoyable, and the prominence of spatial intelligence in the cohort profile. The integrative nature of studio also accords with the propensity for holistic learning typically found in students highly disposed to spatial intelligence (Silverman, 2002).

Figure A120: Spatial Intelligence Profile: Session 2004-05

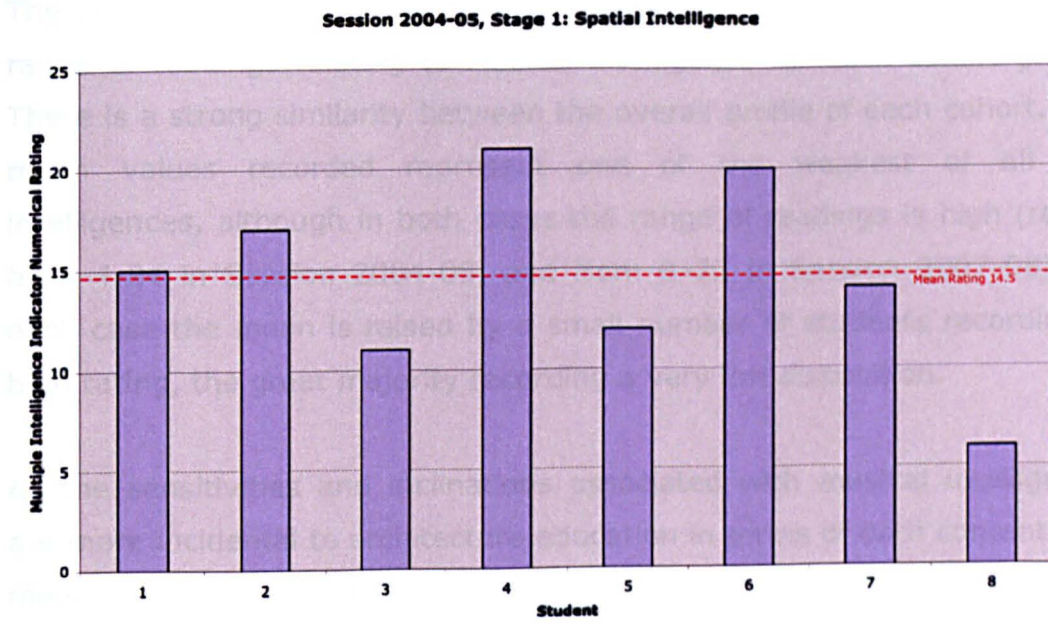
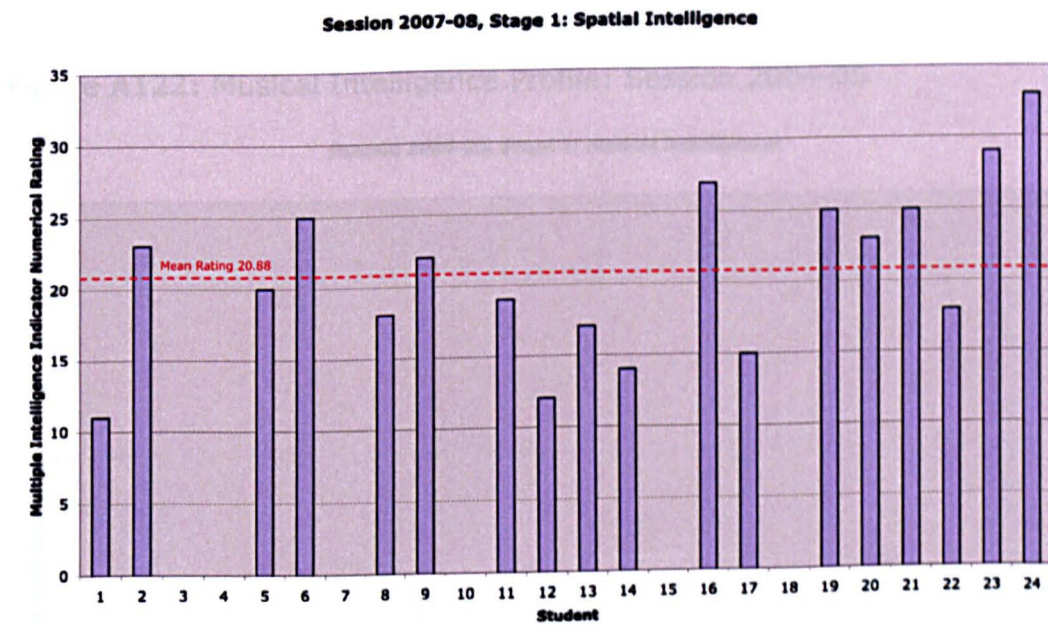


Figure A121: Spatial Intelligence Profile: Session 2007-08



3.5.4 Musical Intelligence

The graphs on the following page (Figures A122 and A123) illustrate the range of readings relating to Musical intelligence for each cohort group. There is a strong similarity between the overall profile of each cohort. The mean values recorded represent one of the weakest of all the intelligences, although in both cases the range of readings is high (range from 4-24 in Session 2004-05, and from 0-22 in Session 2007-08). In each case the mean is raised by a small number of students recording a high rating, the great majority recording a very low disposition.

As the sensitivities and inclinations associated with musical intelligence are more incidental to architecture education in terms of both content and mode of delivery or learning process, it might be reasonably expected that this form of intelligence would not register strongly. It is possible also that those with a high rating represent students who have musical interests independent of their studies, although this could not be verified.

Figure A122: Musical Intelligence Profile: Session 2004-05

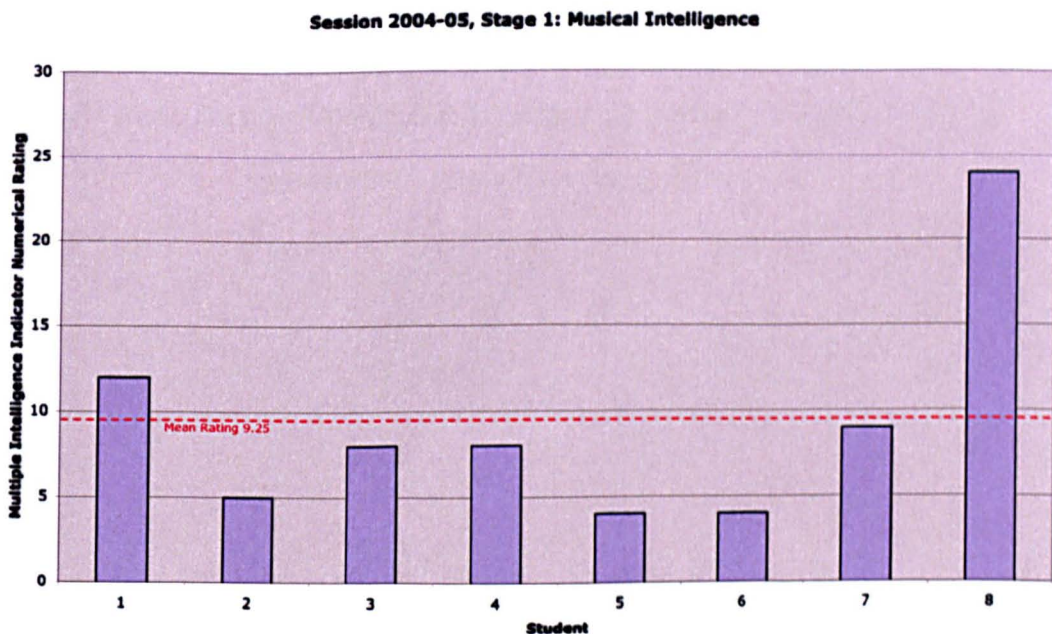
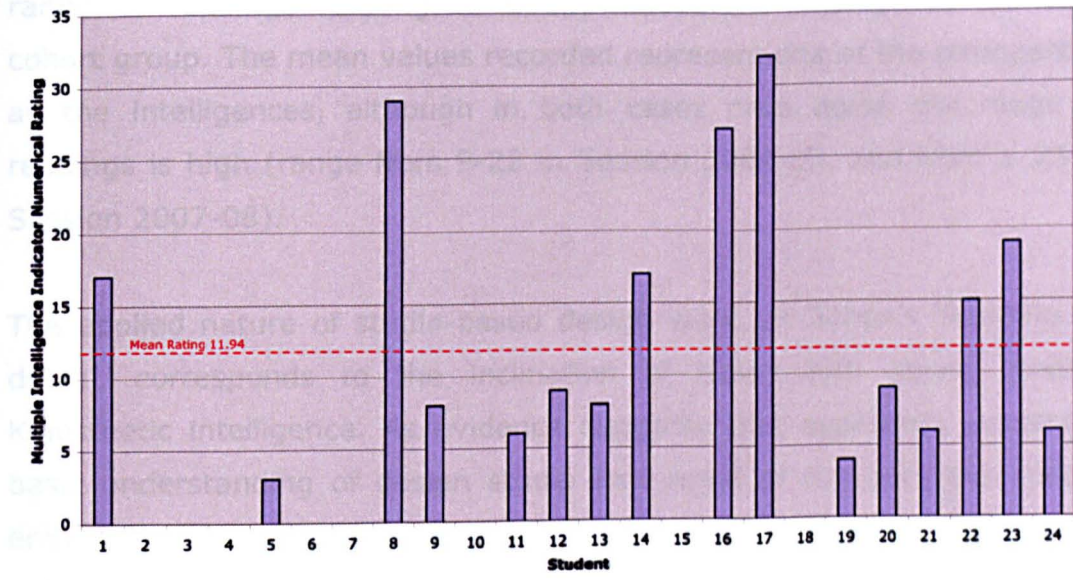


Figure A123: Musical Intelligence Profile: Session 2007-08

Session 2007-08, Stage 1: Musical Intelligence

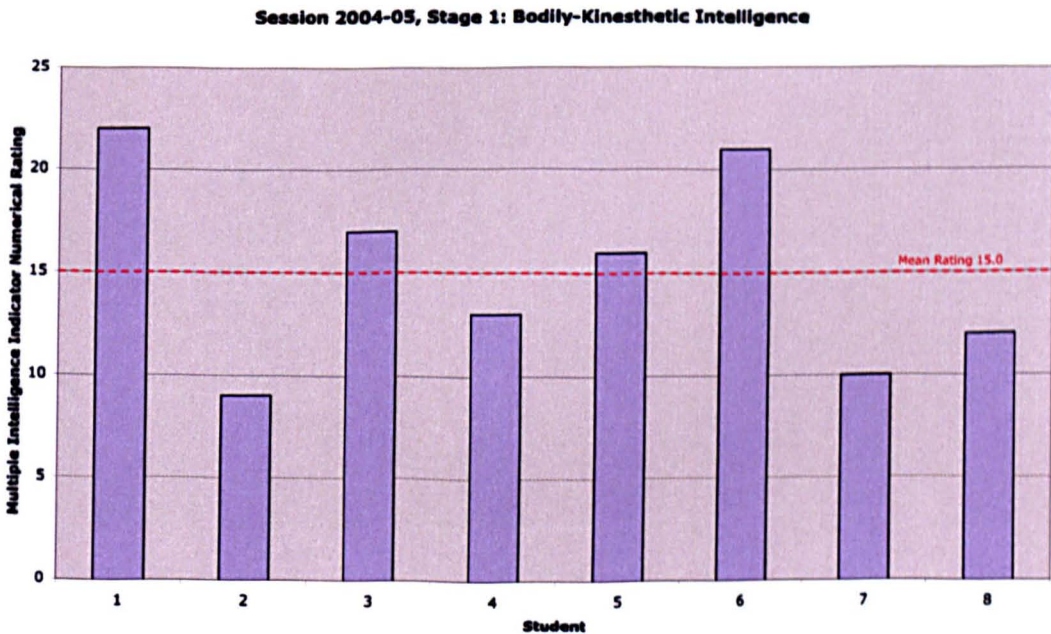


3.5.5 Bodily-Kinesthetic Intelligence

The graphs on the following page (Figures A124 and A125) illustrate the range of readings relating to Bodily-Kinesthetic intelligence for each cohort group. The mean values recorded represent one of the strongest of all the intelligences, although in both cases once again the range of readings is high (range from 9-22 in Session 2004-05, and from 1-25 in Session 2007-08).

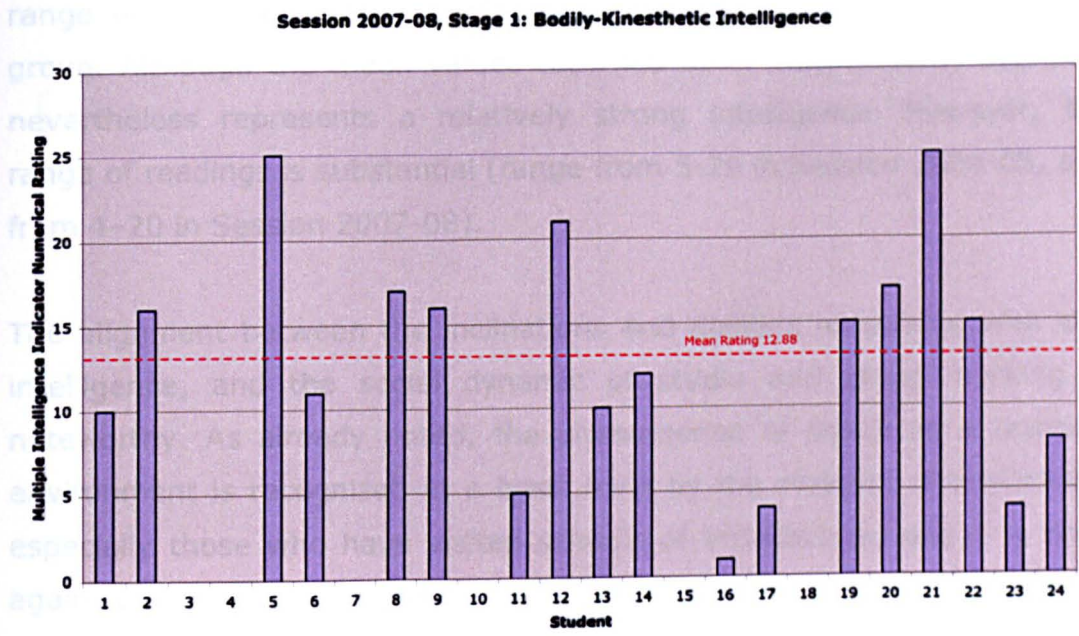
The applied nature of studio-based design work, or Schön's 'learning by doing', corresponds to the inclination of those with strong Bodily-Kinesthetic intelligence. As evidence suggests that applicants possess a basic understanding of design studio and some of the activities that it embodies, it is possible that students disposed to this intelligence are naturally attracted to architecture as a subject. If one considers the undertaking of a studio-based design project, Gardner's note regarding the use of combinations of intelligence is apposite here in that spatial and bodily-kinesthetic intelligences work together in the creation of spatial ideas, communicated through media demanding hand-eye co-ordination in the act of drawing and making.

Figure A124: Bodily-Kinesthetic Intelligence Profile: Session 2004-05



3.5.5.1 Student Profile

Figure A125: Bodily-Kinesthetic Intelligence Profile: Session 2007-08



3.5.6 Interpersonal Intelligence

The graphs on the following page (Figures A126 and A127) illustrate the range of readings relating to Interpersonal intelligence for each cohort group. Although the mean values recorded differ considerably, overall it nevertheless represents a relatively strong intelligence. However, the range of readings is substantial (range from 5-29 in Session 2004-05, and from 4-20 in Session 2007-08).

The alignment between the inclinations and abilities associated with this intelligence, and the social dynamic of studio and group working is noteworthy. As already noted, the phenomenon of studio as a learning environment is recognised at a basic level by the majority of applicants, especially those who have visited schools of architecture, and it is once again possible that students with particular dispositions, or sets of dispositions, are drawn to architecture.

Interpersonal learners tend to be strong team players, with capability to manage groups of people also.

Figure A126: Interpersonal Intelligence Profile, Session 2004-05

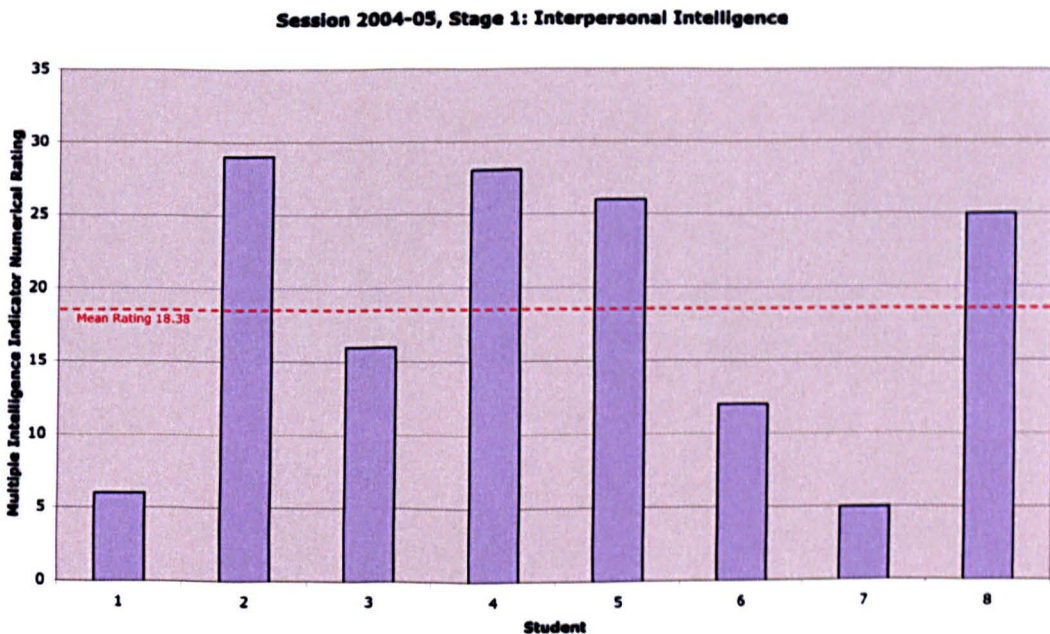
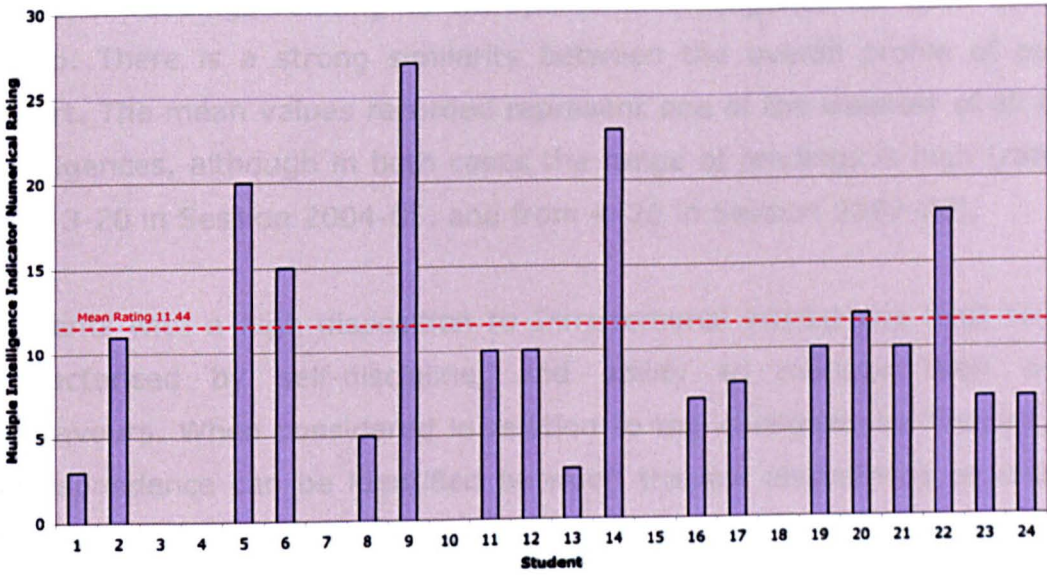


Figure A127: Interpersonal Intelligence Profile, Session 2007-08

Session 2007-08, Stage 1: Interpersonal Intelligence



3.5.7 Intrapersonal Intelligence

The graphs on the following page (Figures A128 and A129) illustrate the range of readings relating to Intrapersonal intelligence for each cohort group. There is a strong similarity between the overall profile of each cohort. The mean values recorded represent one of the weakest of all the intelligences, although in both cases the range of readings is high (range from 3-20 in Session 2004-05, and from 4-20 in Session 2007-08).

Students with a high disposition to Intrapersonal intelligence tend to be characterised by self-discipline, and ability to manage their own endeavours. When considered in relation to the questionnaire findings, a correspondence can be identified between the low dispositions generally recorded and the difficulty acknowledged by many students in time management, work planning, and self-discipline.

Figure A128: Intrapersonal Intelligence Profile, Session 2004-05

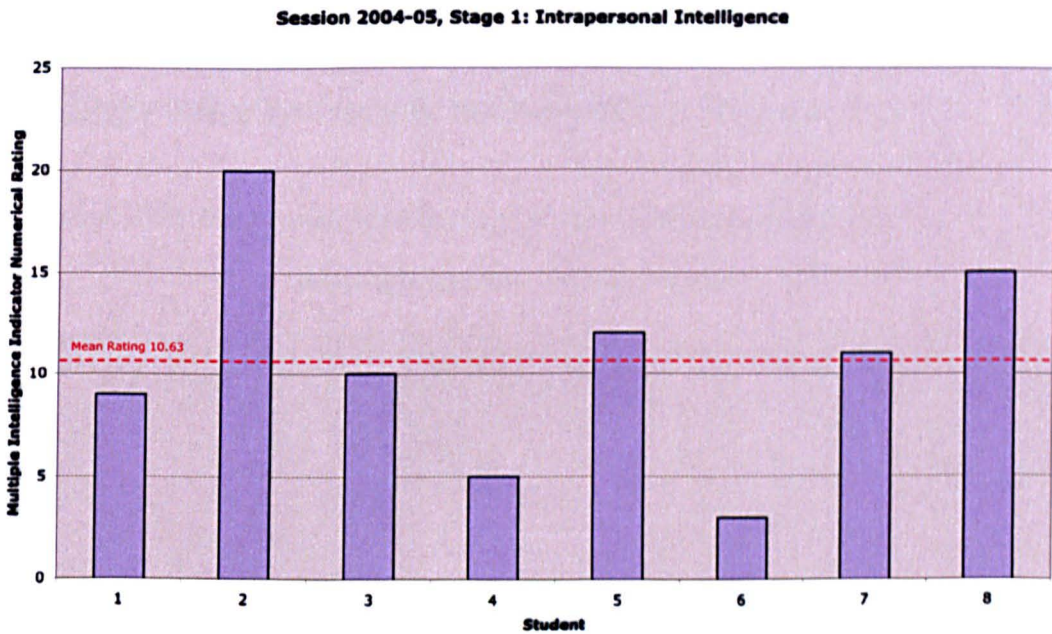
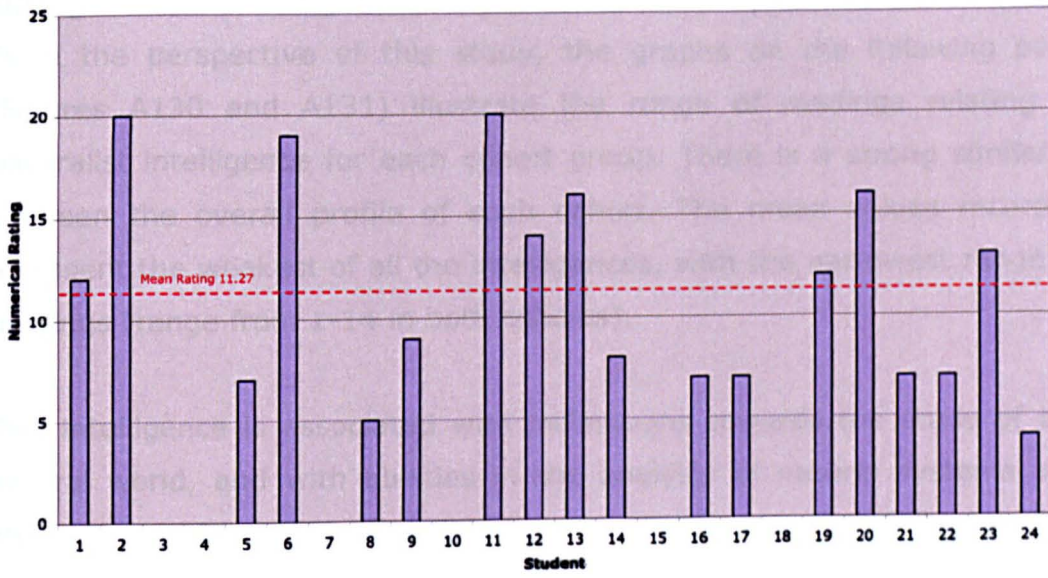


Figure A129: Intrapersonal Intelligence Profile, Session 2007-08

Session 2007-08, Stage 1: Intrapersonal Intelligence



3.5.8 Naturalist Intelligence

The 'naturalist intelligence' represents the eighth of Gardner's identified intelligences, it having been added more recently to the other seven. From the perspective of this study, the graphs on the following page (Figures A130 and A131) illustrate the range of readings relating to Naturalist intelligence for each cohort group. There is a strong similarity between the overall profile of each cohort. The mean values recorded represent the weakest of all the intelligences, with the narrowest range of readings (range from 1-14 in both cohorts).

This intelligence is associated with inclinations towards the study of the natural world, and with abilities in the analysis of natural systems and phenomena. Assuming that intelligence disposition can influence the choice of subject for study, whilst the study of natural environments can have a strong bearing on architecture and in informing human interventions this association may not be obvious to those disposed to ecology. Indeed it may be the case that designed human environment is considered by some to be contrary to the concern for the natural world, particularly where perceptions and suppositions are superficial.

Figure A130: Naturalist Intelligence Profile, Session 2004-05

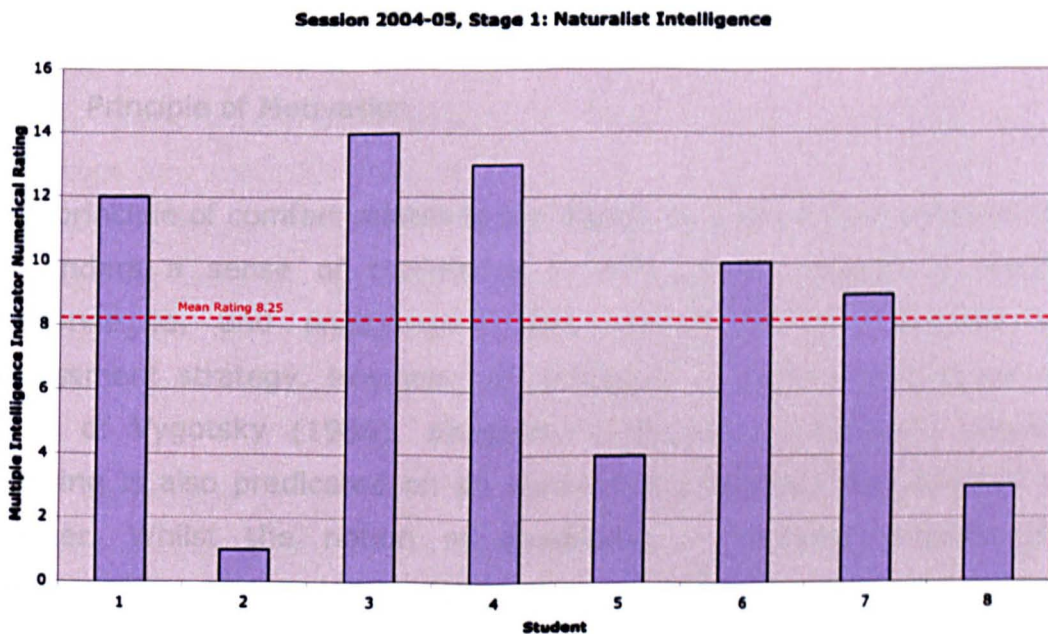
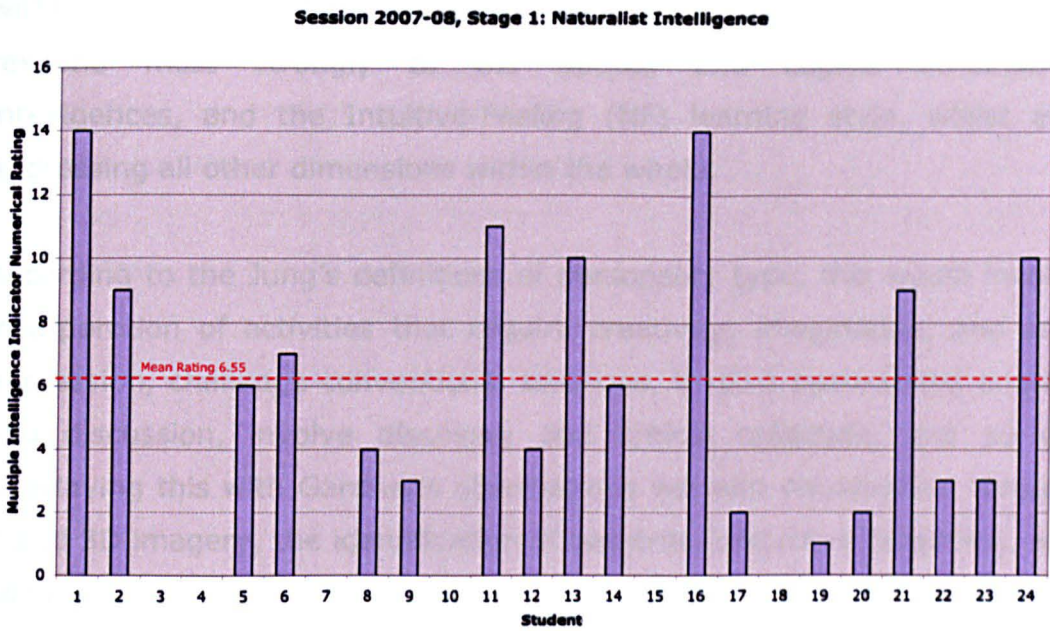


Figure A131: Naturalist Intelligence Profile, Session 2007-08



3.6 Multiple Intelligences and Learning Styles

Silver Strong and Perini (2000) argue that in order to derive benefit from the creation of a holistic model that integrates learning styles with multiple intelligences, it is necessary to observe four principles as follows:

- Principle of Comfort
- Principle of Challenge
- Principle of Depth
- Principle of Motivation

The principle of comfort relates to the design of a learning experience that engenders a sense of confidence in the learner through a positive response to, and engagement with, aspects of the learning and assessment strategy. However, as discussed in Chapter 3 through the work of Vygotsky (1986), alongside a degree of 'comfort', effective learning is also predicated on an element of challenge that extends the learner. Whilst the notion of developing a learning strategy that encompasses and accommodates all quadrants of the learning styles 'mandala' (see Figure 01, Chapter 3, Section 3.4.3) and all of Gardner's intelligences, Silver, Strong and Perini (2000) contend that the balance

between comfort and challenge is key to optimal learning. In other words, within the context of this study, an appropriate learning strategy might respond most strongly to the Spatial and Logical-Mathematical Intelligences, and the Intuitive-Feeling (NF) learning style, whilst also addressing all other dimensions within the whole.

According to the Jung's definitions of personality type, this would involve incorporation of activities that require creativity, imagination, and self-expression, challenge conventional solutions, involve open-ended enquiry and discussion, involve discovery and critical reflection, and so on. Overlaying this with Gardner's observations will add visualisation through 2 and 3D imagery, the identification of patterns, deductive reasoning, and so on.

In 1996, based on neurological research, Jensen (1996) proposed that effective learning is achieved where there is scope to achieve a depth of study, i.e. where sufficient time is allowed to study complex subjects, topics or scenarios. Indeed he suggested that learning in this way is much more effective than that resulting from a diluted, superficial curriculum created by attempts to cover too broad a territory, and that this phenomenon, that forms the core of the principle of depth, should influence the design of learning strategies (Jensen, 1996).

Finally, the principle of motivation identifies the need for variety in the activities and methods adopted, as a means of providing stimulus and maintaining engagement. It is suggested that the diversity of learning and assessment methods associated with the range of learning styles and intelligences offer the key to providing motivation and, hence, to the development of learner confidence.

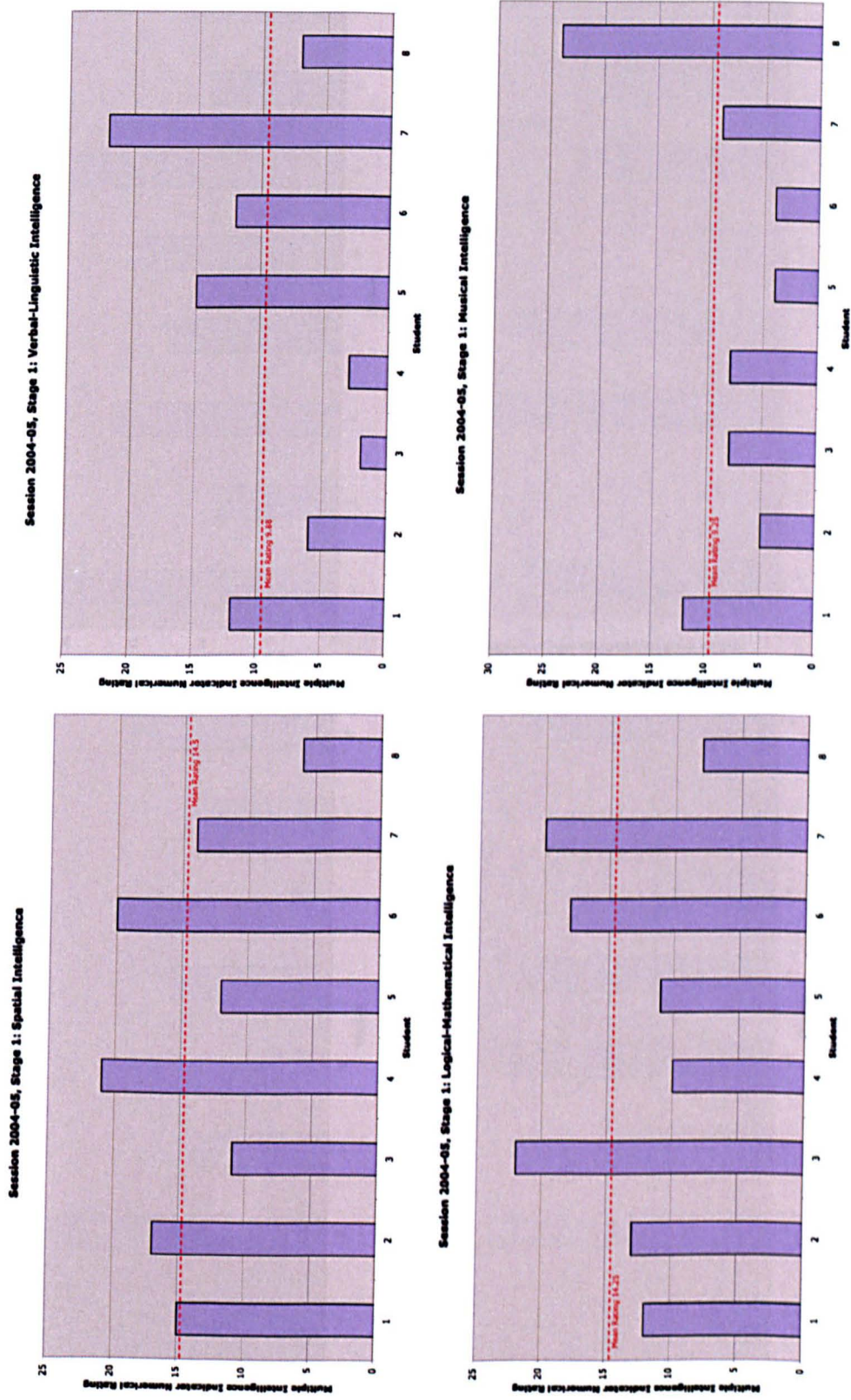
3.7 Summary

Analysis of the results of the Multiple Intelligences Indicator for Adults reveal a diversity of intelligences profiles across each cohort studied. This diversity, whilst indicating prominence in spatial and logical-mathematical

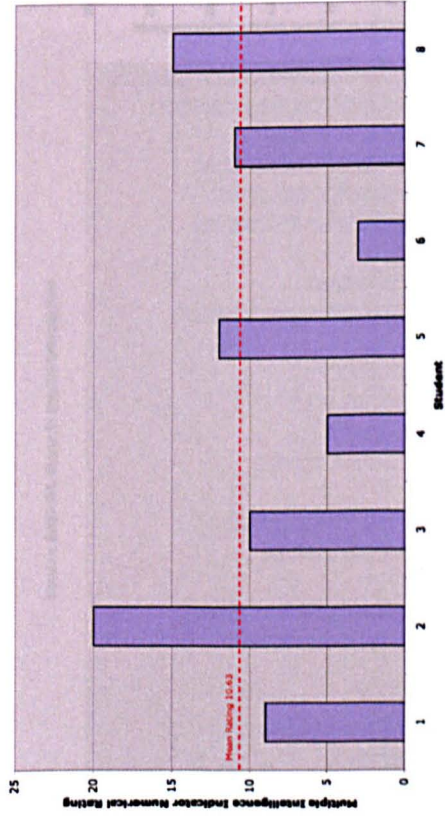
intelligences, demonstrates that across the cohort, each of Gardner's intelligences registers as being dominant for someone.

Whilst the low scores attributed to verbal-linguistic intelligence are perhaps surprising given the importance of communication within the profession, the weak scores for intrapersonal intelligence tally with the perceptions of the students regarding difficulties encountered with structuring and management of time, and in the process of self-reflection and criticism at an early stage in the learning process.

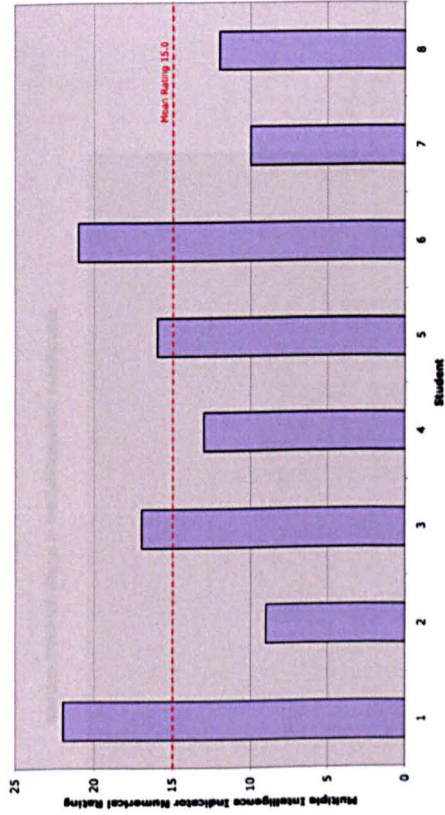
Figure A132: Session 2004-05: Summary of Multiple Intelligences Profile



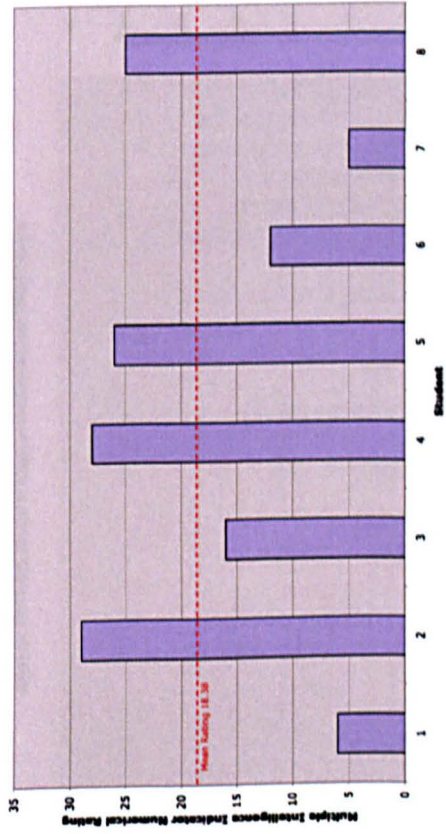
Session 2004-05, Stage 1: Intrapersonal Intelligence



Session 2004-05, Stage 1: Bodily-Kinesthetic Intelligence



Session 2004-05, Stage 1: Interpersonal Intelligence



Session 2004-05, Stage 1: Naturalist Intelligence

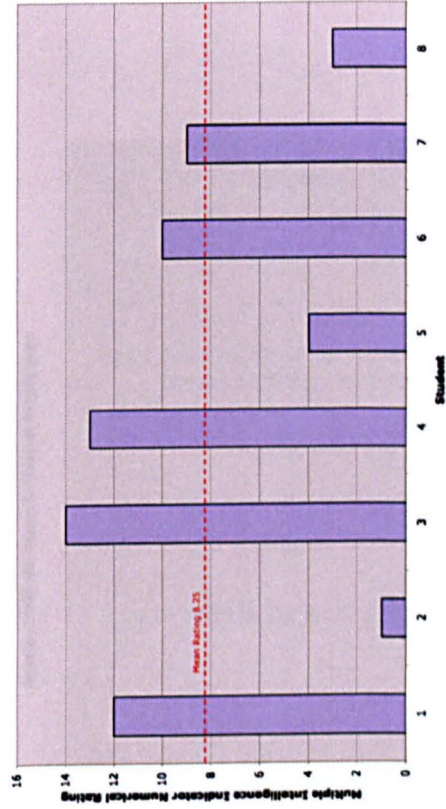
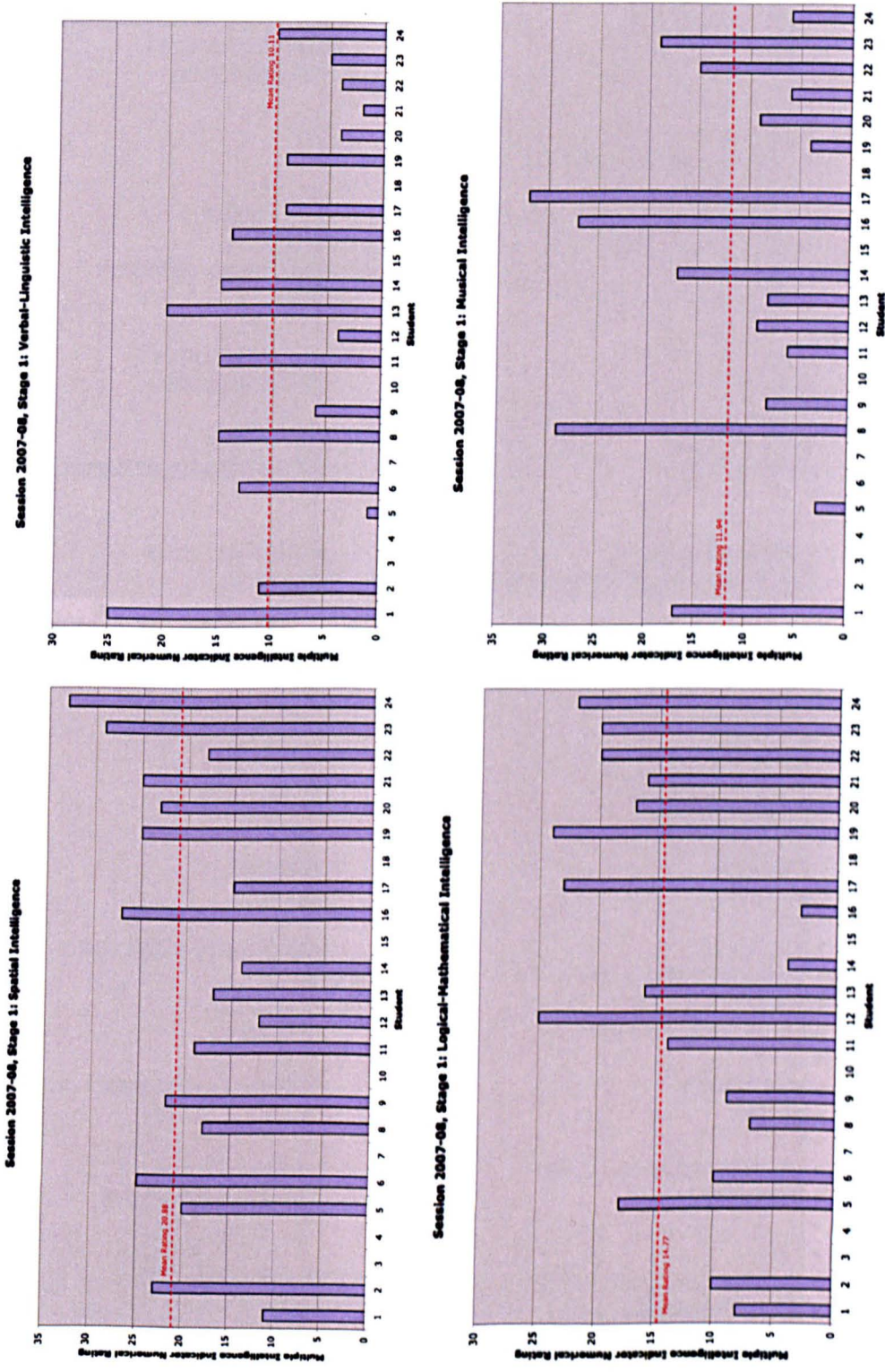
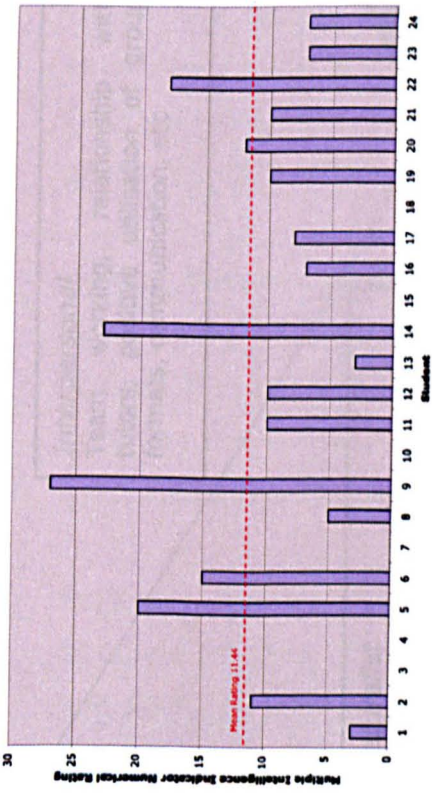


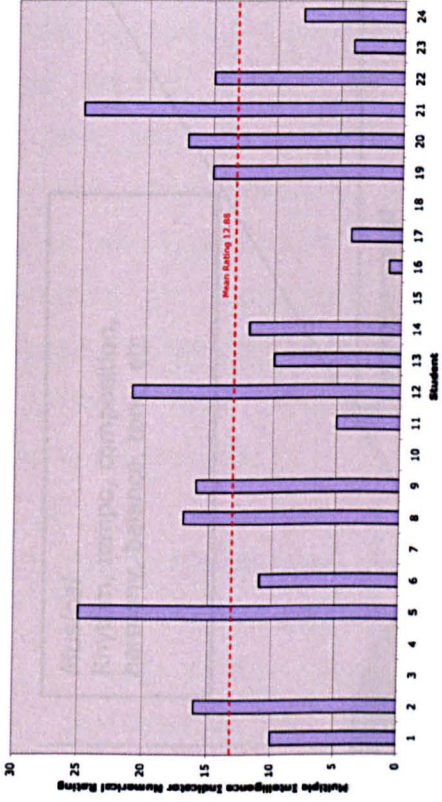
Figure A133: Session 2007-08: Summary of Multiple Intelligences Profile



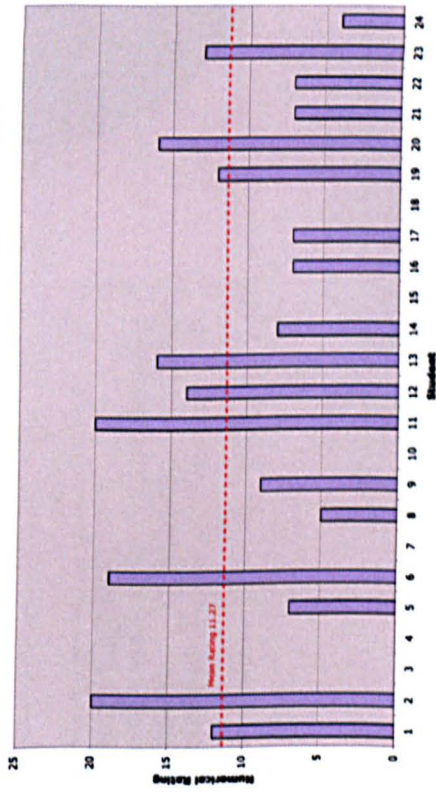
Session 2007-08, Stage 1: Interpersonal Intelligence



Session 2007-08, Stage 1: Bodily-Kinesthetic Intelligence



Session 2007-08, Stage 1: Intrapersonal Intelligence



Session 2007-08, Stage 1: Naturalist Intelligence

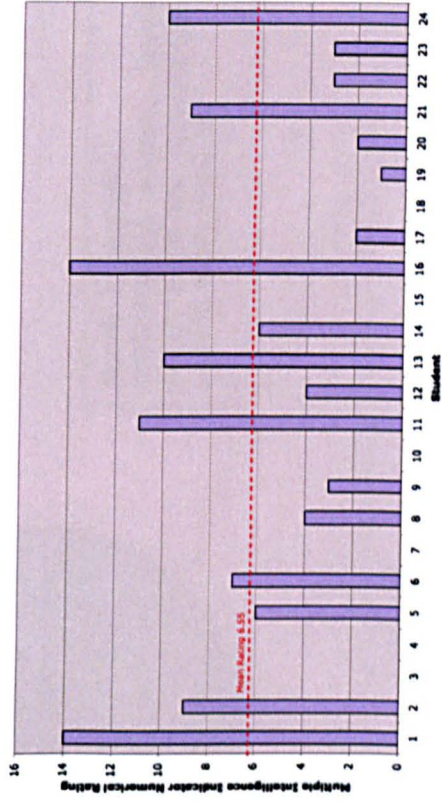
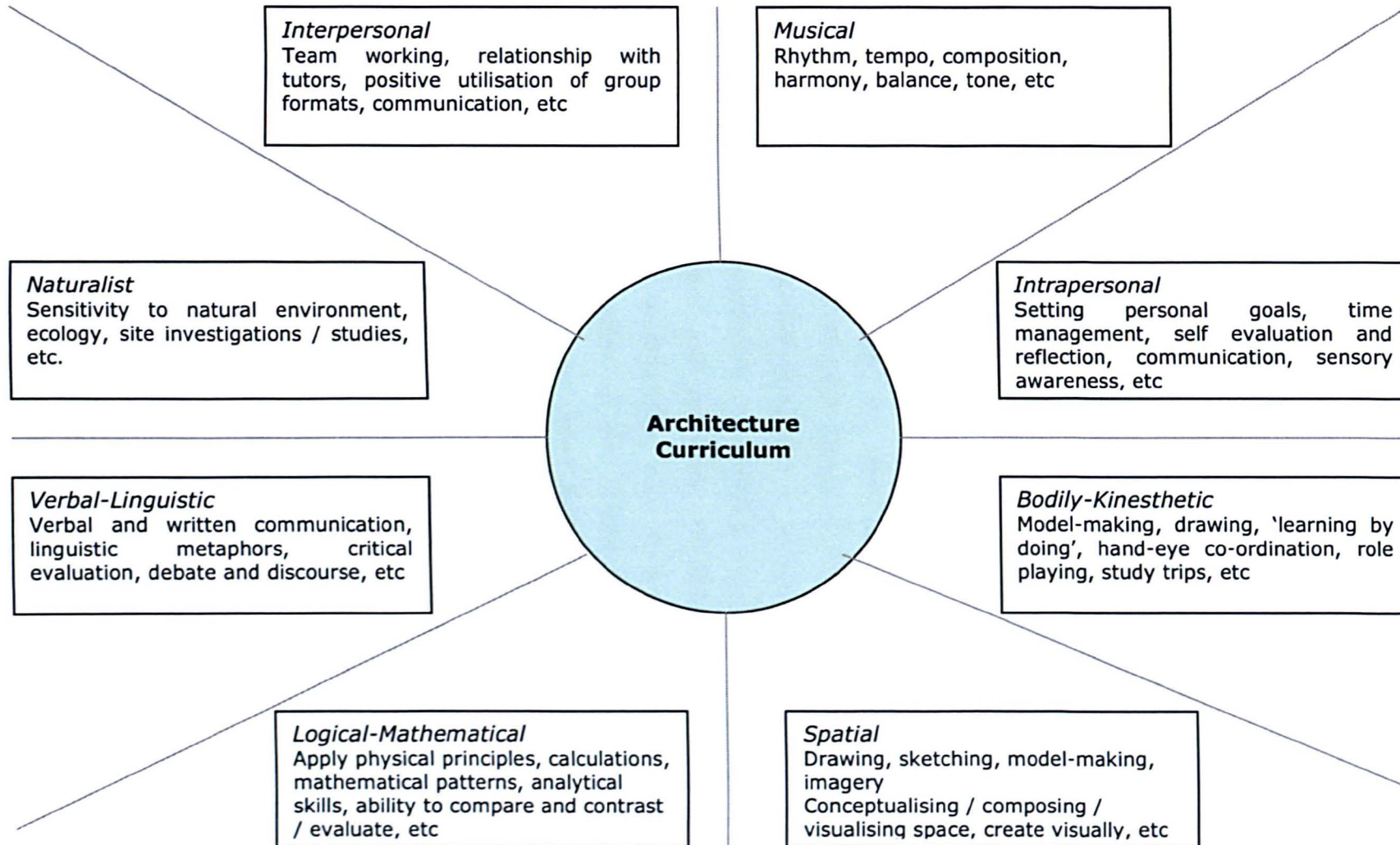


Figure A134: Architecture Education 'Wheel'



Adapted from 'The Curriculum Wheel' by Silver et al (2000, p.16).

APPENDIX 4

SOME CURRENT THINKING IN UK SCHOOLS: INTERVIEWS WITH SELECTED ACADEMICS

4.1 Introduction

In order to relate the research conducted at The Robert Gordon University to the broader context of UK architecture education, semi-structured interviews were held with senior academics recognised for pedagogical innovation and teaching and learning excellence in the field of architecture. The schools with which each individual is associated are also recognised for pedagogic development in the field, although it is emphasised that the views expressed are personal. This chapter presents the findings from these interviews which were conducted with the following individuals:

- Anne Boddington, Director for the Centre for Excellence in Teaching and Learning through Design (CETLD), and Dean of the Faculty of Arts and Architecture at the University of Brighton. Ms Boddington has substantial experience in the leadership of academic development and practice, research and consultancy within the fields of architecture and design, and has worked extensively with a number of key bodies including RIBA, ARB, DEED, CHEAD, the QAA, and international organisations. She is also a member of the AHRC Peer Review College.
- Helena Webster, Deputy Head (Academic) and Reader at the Department of Architecture, School of the Built Environment at Oxford Brookes University. Ms Webster has been a National Teaching Fellow from 2006-08, and to date is the only one to have been appointed from the field of architecture.
- Professor Jeremy Till, Director of Architecture at University of Sheffield (at time of interview), and Head of School between 1999 and 2005. In 2007 Professor Till was awarded by the University of Sheffield the Inaugural Senate Teaching Award for excellence in

teaching leadership. Prior to Sheffield, he taught at the Bartlett School at University College London, and in October 2008 took up the post of Dean of Architecture at the University of Westminster in London. In 2006 Professor Till was selected to curate the British exhibition at the Venice Biennale. His work as an educator, researcher and practitioner is internationally recognised.

4.2 Purpose

The purpose of the interviews was to establish what work is ongoing in leading centres at present, and to gain a fresh perspective on the key challenges identified that are of relevance to the study. Consequently, a range of topics was covered, these being grouped under three main headings; the learning experience, studio environment, and staff development.

4.3 Method

The interviews generated approximately 6 hours of recorded conversation from which the contents of this chapter have been distilled. Each interviewee was asked the same questions, although the sequence of these was at times influenced by the expansiveness of responses that ranged over a number of themes. Nevertheless, care was taken to ensure that each interview covered the same territory.

The presentation of the material gathered proved challenging as its content raised several areas of potential concern with respect to clarity of presentation and attribution. Firstly, the exploration of specific discussion topics in a conversational format invites the possibility of anecdote. In order to preserve the robustness of the research, material of this kind has not been reported within the findings. Secondly, the reporting of findings from the study introduces potential for confusion between the comments and opinions of the interviewees and the voice of the author. In order to avoid any such ambiguity, great care has been taken to ensure that the content of this chapter represents the voices and views of the interviewees, the contribution of the author being limited purely to the provision of the thread necessary to offer fluency and thematic continuity. Notwithstanding the authority of the interviewees within architecture

education, it is acknowledged that although related to broader literature, research and practice, the points expressed nevertheless represent personal opinion which inevitably contains elements of subjectivity. Indeed such an interview process inevitably presents the opportunity for points to be made which are personal, as well as the articulation of opinion. In some instances points are articulated particularly vigorously, with language becoming passionate and evocative. Whilst the use of forceful language is recognised in places, it was considered important to capture the intensity of these comments and to avoid the risk of weakening the work through their dilution. Where required for the benefit of clarity or explanation, the author has added comments to quotations, these being shown in brackets.

Since the selection of interviewees was determined specifically to capture the views of individuals who are nationally regarded as authorities in the field of architecture education, it was considered important to let their opinions speak through the widespread use of quotations. Lastly, and in a similar vein, the prospect existed of an interview being used as a platform for expressing strongly held beliefs that depart from the defined question topics. In practice, however, this did not occur.

With the overall methodological approach defined, the selection of material for inclusion was made on the basis of the following criteria:

- Points that were central to the questions posed
- Statements and opinions that contributed to the subject of the study through their challenging nature, or the vibrancy with which they were expressed
- Reference to specific exemplars of progressive practice

4.4 Context

The principal contextual challenges identified by all three interviewees were generic, concerning external pressures relating to funding, student

debt, changing study patterns and attitudes to study, an increasingly litigious climate, and the evolving positions of regulatory bodies. These however constitute a set of conditions that schools can only react to, whereas there was broad agreement that the key question of the relationship between education and the profession is one that permits greater pro-activity and influence, as well as offering latitude for interpretation.

Theoretical Framework

Consistent with much of the literature, it was clear that in all cases the theoretical framework offered by Donald Schön, which has served as the prevailing paradigm since the early 1980s, is increasingly being called into question. Criticisms expressed by the interviewees included the view that despite the acclaim afforded its reflective and liberal properties, the studio-based model of one-to-one tuition propagates values that are regressive and undesirable.

"...one of the reasons I'm critical of Schön is that it (sic) embodies that (one-to-one teaching). Whereas in fact we would say that the one-to-one tutorial actually manifests and inculcates a whole set of values which are highly distasteful, which are to do with lack of communication, to do with the heroic genius, to do with the passing of knowledge in a semi-masonic manner from me to you as it were, to do with students claiming work as their own, etc"

(Till)

A further consequence of Schön's work was identified as a result of the dominance of his singular, celebrated model, namely the stifling of critical debate and (somewhat ironically) of reflection amongst educators. This view is illustrated by the following quotations:

"I think Schön, for architecture education, has completely shot us in the foot, because actually people say 'well Schön said it is great'"

(Boddington)

"It (Schön's model) has completely put the lid on it (debate), you know its impossible to open up that debate, and every time you ask staff groups, and we've had pedagogy day... all the staff say "It's a

management problem, its for managers to deal with, its nothing to do with us"

(Boddington)

Increases in student intake in recent years proved a common condition, stretching traditional teaching models and thereby focusing attention on more fundamental issues of pedagogy, and causing conventions to be challenged. (All the schools represented by the interviewees had experienced substantial growth in numbers within the last 5-10 years, but nevertheless remain considerably smaller than the largest schools in the country) footnote. Unanimity was expressed regarding the need to explore new models, as exemplified by the statements below:

"Teaching large numbers – that's a real pedagogic struggle because numbers have been increasing over time, and we've been teaching in the same way, and you can't teach 35 in the same way that you teach 140"

(Webster)

"Once the student numbers go up, things have to shift – you can't keep the same set of paradigms, but of course, as soon as you do that it could be seen that you are weakening the model, whereas we saw it as an opportunity to strengthen it. So, for example, as soon as it goes up to those

kind of numbers you can no longer do one-to-one teaching. Now that for many people is an absolute, that's what defines architecture education..."

(Till)

It is notable that the view that this situation presents advantages, and creates opportunity to develop and advance teaching and learning practice, was shared by all. For instance, the statement below welcomes the move away from the one-to-one tutor-tutee relationship so highly endorsed by Schon:

"one of the great things about increasing numbers, despite everybody squealing... is that it depersonalises education. Now I think there's a degree where that becomes unmanageable... but I

think the 'sitting by Nellie' model where you model everyone in your own image (god forbid!) – you think 'how do you balance a number and mass as one of the ways of doing it?'

(Boddington)

However, it was clear that despite a variety of initiatives being progressed in each school, obstacles to progress had been experienced, the most significant of which related to the academic team. Specifically, an attitude intent of preservation of the status quo was referred to, this compounded by a perception of reluctance or inability to engage in discussion on pedagogy.

"...people (staff) are not encultured to talk about how they do what they do – they always will talk about what they do, so they'll talk about the projects"

(Boddington)

"I think its true to say that the majority of staff have never been asked to think about their teaching practice and so find it very difficult to... they've never experienced different teaching practices, and so find it very difficult to even think about it, think about other methods"

(Webster)

" The language of pedagogy is alien, which is problematic, and its one thing that the CETLD is dealing with"

(Boddington)

"There's a... blinkeredness that tends to happen and its very difficult to get people (staff) to extend their view outside of that... its very difficult to get them (staff) out of their containment mentality"

(Boddington)

As a result of the attitudes conveyed above, rates of pedagogic development appeared to be largely determined by the experience of staff, their conditioning, awareness and acknowledgement of extrinsic drivers and pressures in the sector, and engagement with the theoretical frameworks within which architecture education sits. In response, a variety of measures had been put in place, such as the work of the CETLD

at Brighton and staff 'away days' at Sheffield focusing on aspects of learning practice.

It was further contended that in common with the architecture profession generally, educators in architecture, relative to some other academic disciplines, lag behind in the scholarly development and evaluation of pedagogies. Indeed Till suggested that the nature of the output produced by some schools creates an illusion of progressiveness, this masking an underlying adherence to traditional practice and convention:

"A huge confusion that they (some 'leading' schools) have (is that) because they are producing avant-garde form, they think they're avant-garde, but actually they're dramatically conservative in all their practices - and I think that's been a real confusion. I think that confusion in architectural education is what has stopped it - because there is continual production of fresh form, globally, it has actually masked the conservative nature of the processes in production"

(Till)

Webster made references to the potential benefits of broadening the theoretical base and the translation of thinking from other disciplines, exemplified by the strong parallels existing between architecture and medical education in the form of the existence of very specific cultures, over-worked students, a dependency on isolated, self-referential conditions, etc.

"they (the students) kind of remove themselves from the outside world and become dependent on this hermetic environment which has, it's a bit like Foucault's idea of heterotopia, it's like an asylum or a seminary - architecture school has its own rules, its own ethos, its own calendar, its own pattern of work - daily pattern, monthly pattern, yearly pattern, and its different from outside"

(Webster)

Cumulatively, the coincidence of increasing student numbers, criticism of Schon's analysis, and the instigation of initiatives aimed at opening up discussion on teaching and learning methods, have paved the way for the exploration of new models.

4.5 Defining New Models

The importance of establishing new pedagogic models formed a common theme, there being three principal reasons. Firstly, criticism of Schön's analysis formed a theoretical rationale:

"Schön pretends that (architecture education) is a nice, empowering, reflective thing when its absolutely completely the reverse; completely sexist, completely dominating, I literally don't understand his analysis at all given the empirical evidence he gives to you"

(Till)

Secondly, the need to identify pluralist paradigms of practice and the professional was identified:

"that model of saying 'I'm your tutor, do what I say' and produce drawings like mine is not fair on a student, and I suppose we're trying to overcome that at the moment by saying, well, we're offering you multiple models and you can choose - but there is another model which as far as I know nobody has explored which is saying 'OK, I'm going to help you construct your own model... you're going to explore this subject, and you decide what it is and who you want to be - that's more liberating but more difficult pedagogically'"

(Webster)

And thirdly, current and foreseen funding constraints demand more radical thought and a deeper consideration of alternatives:

"There are extrinsic pressures - architecture's going to get increasingly squeezed by funding, and that's clearly going to create great challenges, and in my view the only real response to that... the only good thing about that is that it might finally make us understand what we do, and for me architectural education is still a 'black box', and the pedagogy is naturalised, we feel its always been there, and its correct, yet we hardly know anything about it at all"

(Webster)

However, it was agreed that the dominance of the traditional paradigm creates an inertia in many academic staff, who commonly depict change as a weakening of the conventional model rather than an opportunity to strengthen learning methods. Although such a stance portrays tradition as

some kind of ideal, the existing model whilst largely unsustainable, continues to attract support and strenuous efforts to perpetuate it in spite of prevailing conditions:

"Somebody's got to start to look at it or we're just going to be unviable, because at the moment we keep on going for this model that is really not viable, but because of people's commitment and goodwill it kind of works, but its not going to last forever... we can't forever continue cross-subsidising design studio because we think the idea of 28 students to 3 days of staff is the right thing - we need to 'get grip', and I think one of the major problems is we believe the students need us more than they actually do. We think students only learn when they're with us, and all the evidence suggests that that's not true"

(Webster)

"The reason I think so many staff are stressed or distressed is that when we increase numbers as institutions, they try and do what they always did, but if you change the pedagogic model you will release the strain that you are placing on yourselves, but the strain is because you want to do what you did with 30 students with 130, but if you do that you put the whole model under incredible stress"

(Boddington)

It is clear that some serious attempts are being made to uncover and analyse aspects of architecture pedagogy and, in doing so, to develop models that address contemporary conditions whilst also responding to the growing body of literature. However, in addressing change in the design of learning methods and processes, perspectives on the ease with which pedagogy could be debated amongst academic staff varied considerably. Indeed, as background to the first quotation, Boddington added that at Brighton they had elected to consciously avoid the word 'pedagogy' because of its associations and the assumptions amongst staff arising from these which typically generate defensive or negative behaviours and responses. This she saw as a generic issue, citing two recent international workshops that had elicited similar responses.

"We're not the worst by a long way, and we've had these discussions, but people are not encultured to talk about how they do

what they do – they always will talk about what they do, so they'll talk about the projects"

(Boddington)

"I think its true to say that the majority of staff have never been asked to think about their teaching practice and so find it very difficult to... they've never experienced different teaching practices, and so find it very difficult to even think about it, think about other methods"

(Webster)

"The language of pedagogy is alien, which is problematic, and that's one thing that the CETLD is dealing with... The CETLD is about learning through the things that you do, rather than about the things you do"

(Boddington)

In relation to this last statement, Boddington noted that the CETLD was utilising the recommendations of the Building Commission (Boyer, 1998) as its frame of reference for pedagogic development.²⁶⁸

The first two of the following quotations record the key inhibitors to dialogue about learning methods, namely the implicit belief that architecture and architecture education practice are somehow interchangeable, demanding mutually compatible skill sets; and the inherent opposition to pedagogical change, borne out of familiarity and personal experience; one that is particularly strong amongst practitioners:

"(Architects are) wrong thinking that they can directly transfer actions from practice into the studio, and that seems to me to be the

²⁶⁸ The Boyer Commission, *Reinventing Undergraduate Education: A Blueprint for America's Research Universities*, 1998. The 10 recommendations were as follows:

1. Make Research-Based Learning the Standard
2. Construct an Inquiry-Based First Year
3. Build on the First Year Foundation
4. Remove Barriers to Interdisciplinary Education
5. Link Communication Skills and Course Work
6. Use Information Technology Creatively
7. Culminate with a Capstone Experience
8. Educate Graduate Students as Apprentice Teachers
9. Change Faculty Reward Systems
10. Cultivate a Sense of Community

thing that is very rarely discussed and certainly at the so-called leading schools what they do is appoint leading architects. Some of them are absolute disasters..."

(Till)

"Part-time staff are incredibly resistant to change - enormously resistant - not because they've got good reason to be but because, you know, its always been like that - and you don't want to disenfranchise them, so its hard to have a discussion"

(Webster)

"We're one of the few schools that invites part-time staff to teaching away days where we make explicit our pedagogy - that made a huge difference"

(Till)

Webster also saw as a limitation the fact that most teachers required to reflect on their teaching practices have no experience of an alternative model to draw upon. However, the introduction at an institutional level of a mandatory teaching and learning course for new staff had begun to equip academics to think about pedagogy with greater confidence and agility.

"the pedagogy is naturalised, we feel its always been there, and its correct, yet we hardly know anything about it at all"

(Webster)

Despite the impediments noted above, there was nevertheless a strong sense that the more progressive schools to which the interviewees belong were beginning to systematically explore new learning methodologies, accepting the extrinsic constraints as the catalyst for change.

At Oxford Brookes University, Webster had attempted to demystify the learning process and build student confidence through the drawing of parallels with a successful learning experience of an individual student, such as learning to play an instrument or a sport where iterative processes, multiple inputs, and immersion in the associated culture contribute significantly to the understanding of value systems. The

learning from this use of analogy was seen as being particularly important for the encouragement of diversity, especially for those students that have no prior exposure to the field, and forms part of the case for utilising the studio environment with its community and social attributes.

"Full and clear information is really useful, and having assessment forms as part of the handbook allows students to assess their own work in an intermediate phase as a kind of synoptic assessment, which is incredibly different from a tutorial which is project focused – you know you rarely have a tutorial which assesses your performance over the range of Learning Outcomes, so the students are feeling more secure about what they're being required to do"

(Webster)

"We are making pedagogy explicit... people like (name) are incredibly important because they are able to theorise it, which is important, I don't think things have radically moved on, but we've only got it going in the last 5 years so maybe we're allowed to consolidate"

(Till)

There was a consensus that the derivation of new and effective models of studio learning is contingent on the development of a n ethos of independent learning, this been seen to directly challenge some of the assumptions of Schon. However, the attainment of a level of understanding of the pedagogic rationale and basis for their practice was seen to be a component that is essential for the facilitation of such a spirit. Equally, the clarity with which the students themselves understand and 'own' the learning process was also agreed to be fundamental to this agenda.

4.6 Fostering the Independent Learner

"The rhetoric is that design studio is student-centred learning, and compared to other disciplines, it's a hell of a lot better, but once you interrogate practices in design studio you realise that in some cases it has the potential to be student centred but often it's actually much more like transmission"

(Webster)

The challenge of developing cultures that genuinely promote independent learning was shared by all, with a range of initiatives being implemented aimed at furthering this agenda. Nevertheless, there appeared to be a deep-seated belief that many of the processes that are commonplace in architecture education are fundamentally at odds with the notion of true learner independence²⁶⁹. This view is evidenced not only by the above quotation, but also by comments below that speak of the disparity between the dominant prior learning culture and that of architecture education in the context of universities, as well as of the demands that addressing such difficulties imposes on staff in terms of the teaching and learning skills:

"We have to change the task driven model of secondary school into something independent. You cannot do that without teaching people how to learn and structure things. This is hard; how to put safety nets under them"

(Boddington)

"There is that problem of school education being very, very different from architectural education, and a lot of students find difficulty adjusting"

(Webster)

"staff honestly want to help students, there's no doubt about that, but they tend to focus on the project not on the person, therefore they rarely do any diagnostics of the learning difficulties of the person, and so they rarely help the students to overcome the learning difficulties they have, and because they focus on the project, they're determined to show directions for the project, but those directions are more to do with them as designers rather than the student. So, in other words they really are imposing their model of design / designing on the students"

(Webster)

It is implicit in the previous comment that students need to obtain a thorough understanding of the journey that their course of study represents in terms of its structure, nature and ethos. Equally, an

²⁶⁹ For definitions of the learner independence, see the Glossary.

expectation is described that staff have the capability to diagnose learning aptitudes and persuasions, and capacity to support the learning of the student, incorporating personal values, opinions, experiences and observations, rather than impose their own views as an experienced designer. However, Webster's view also suggests that staff efforts are inadvertently mis-directed through a failure to recognise or respond to the learning needs of the individual. This failure is perhaps due to the ease of perpetuating traditional methods and values that tutors have been exposed to in their own education, or perhaps because they lack the ability to place educational practice in a context of learning theory, or to draw on a range of appropriate pedagogic responses.

At Oxford Brookes University (OBU), Webster has attempted to demystify the learning process and build student confidence through drawing parallels with a successful learning experience of an individual student, such as learning to play an instrument or sport where iterative processes, multiple inputs, and immersion in the associated culture contribute significantly to the understanding of value systems. The learning from this use of analogy was seen as being particularly important for the encouragement of diversity, especially for those students that have no prior exposure to the field, and forms a strand of the rationale for harnessing the community and social attributes of the studio environment. More generally, the school at OBU was seeking to dismantle the traditional tutor-student model through offering a number of approaches, although Webster felt that there are new models that better represent the true spirit of Constructivism, and that merit exploration:

"its wrong to say in order to get from here to here you've got to model yourself on this individual - so that model of saying 'I'm your tutor, do what I say and produce drawings like mine' is not fair on a student, and I suppose we're trying to overcome that at the moment by saying, well, 'we're offering you multiple models and you can choose' - but there is another model which as far as I know nobody has explored which is saying 'OK, I'm going to help you construct

your own model... you're going to explore this subject, and you decide what it is and who you want to be – that's more liberating but more difficult pedagogically"

(Webster)

First year studio-based projects at OBU are structured on a rotational basis, each under the direction of different tutors, the aim being to enable students to develop varying ideas of what the tutor-student relationship might be. A similar concept is developed at Brighton where students explore different professional models in their second year with a view to them beginning to position themselves as a developing professional.

The notion of plural models of practice related not only to views of appropriate teaching and learning practice, but also to the idea that the singular, static, classical model of the architect is no longer relevant. This sentiment appeared to be shared by all interviewees. Indeed, strenuous efforts are being made to break down accepted norms rather than reinforcing them, signalling to students that there are a number of professional models that have legitimacy, and hence that there is scope and latitude to explore, interpret and define, and that the boundaries to this are not too prescriptively drawn.

"its about how you allow students to go their own way and find their own version of being an architect within the boundaries of architecture – you can't develop your own identity within architecture and have none of the skills of an architect, so there has to be some mediation, but that's not to say there's only one model"

(Webster)

With similar intent, work has been ongoing at Sheffield over the last 5 years to place the students at the heart of learning, thus empowering them and cultivating a deeper engagement with process. Till was of the view that some success has been achieved in the first year, where students' assumptions and preconceptions are tested and questioned. Additionally, early projects are designed to perform a critical role in articulating the multi-faceted nature of the subject and the fundamental importance of communication and social interaction.

"My ideal first year was to set them a three week project which was to design a house basically, because that's what they think you do in architecture school, let them do that and give them incredibly normative tutorials and whatever, in a sort of mechanical manner, then to have an absolute crit from hell, you know really brutal, and then just completely blow apart everything and just start again. XX's method was somewhat different... which was to sort of do that but at the end of the project the students had to write a list of what they thought they needed from an architectural education on the basis of the short project, and that was very revealing because they come with certain expectations, you know they think architecture is about making pretty shapes, and actually they then discover at the end of two weeks that they don't have any idea about how to speak to each other, or they don't have any idea about social relationships, or whatever"

(Till)

One of the characteristics of the students at Sheffield is that they have achieved very highly at secondary school, although in Till's view this did not necessarily represent an advantage, especially with respect to independence. Established dependencies have been found to be particularly difficult to deconstruct and arguably form, in Till's view, a stronger impulse in students who have excelled within secondary learning cultures. Consequently, measures had been devised to challenge ingrained dependency-oriented routes to achievement fostered in previous educational settings. A significant element in the implementation of such measures lies in the fact that they demand new attitudes amongst tutors, from which new skills develop over time.

"one of the things I think is really important in a first year is to run a series of projects which includes projects that some students are going to fail on and some students are going to succeed on, and then to reverse it. That means that they can't predict a safe route through... it makes them fall back on themselves, and away from dependency"

(Till)

Fundamentally, however, Till regarded the development of the learning process to be the primary purpose of the first year, thereby developing skills, understanding, and confidence levels essential for progressive

independence over the period of the course. Moreover, by focusing on pedagogy, the potential for inculcating values and attitudes that may militate against independence is reduced:

"First year has to be seen as an issue of pedagogy... I don't think its an issue of architecture, architecture is just a kind of vehicle for the pedagogy. If you make it an issue of architecture then you inevitably will embody the value system of architects, whereas if you make it a thing about pedagogy and learning, you know, critical pedagogy, in a critical manner, then I think you avoid the fact of it being about architecture and you make it about learning, and whatever that might mean in relation to the profession"

(Till)

This sentiment was echoed by Boddington in the following statement:

"You have to change the task driven model of secondary education into something which is independent - you can't do this overnight without teaching people how to learn and how to structure things, which is hard - it's how you put safety nets under them"

(Boddington)

At Sheffield much focus has been applied to the start of first year, and the 'de-culturising' or re-assimilation of students through initial exercises. However, Till resisted the notion of 'induction' because of its suggestion of a singular, linear process:

"What induction suggests is that there is a linear process from year 1 to year 6 and that you're being inducted into that process - I might actually challenge that as a notion because it suggests a linearity and that first year is just a mini version of sixth year I think 'induction' is the wrong word, it's a kind of re-assimilation... Kind of 'de-culturising', trying to break some of the accepted norms about what an architect is"

(Till)

Beyond first year, the programme at Sheffield offers greater freedom through student choice, although the unit-based system of the upper years, where students embrace aspects of specialism was questioned pedagogically when viewed through the prism of independent learning:

"there is more freedom as one progresses, but I think that is common to most architecture schools. In terms of structuring independent learning... there might be an argument actually that they become less independent when they move into the MArch and it gets into (fairly traditionally run) studios... I think units are antithetical to independent learning"

(Till)

Reflecting on the norms within architecture education more generally, the question of exactly what independent learning means in the context of architecture was posed. As an illustration of the context, Till, paraphrasing a conversation with a leading academic in the field, recounted how an internationally respected school deliberately subscribes to the spirit of apprenticeship, this approach clearly continuing to prove appealing to students:

"the most brutal tutor is the most popular, and actually architecture students, particularly at places like (name of school) don't want independent learning, they want product - they want to ensure that they're going to come out with product, and the best way to do that is to go into brutal, prescriptive, determinist, and generally formalist units... which is a function of professional values"

(Till)

Once again, this view was reinforced by Boddington who noted the additional demand that the unit system places on the skill of academic staff:

"we kept the year structure for pedagogic reasons really because it stopped this (XXX) - what we wanted to get right was the learning structure for each year and sort out the progression properly... If we can guarantee that then you can then see whether or not you can put it into units. The more I go on, and I was educated in an atelier system, the more I don't think its wise, actually... you get such a differential experience unless you've got incredibly skilled teachers and I think pedagogically, while we have teachers who are very good in their subject areas, it is still too much of an ownership of those areas"

(Boddington)

Lastly, the physical space of studio was considered important in the creation of an effective learning culture that supports independence, particularly one that fosters an ethos of learning through community interaction. Unsurprisingly, recognition was given to the value of the studio as a social setting facilitating informal communication and yet contributing tangibly to development and performance, as illustrated below:

"One of the hardest things to learn in architectural education is what is the value system of the culture of architecture, and the only way you can learn that is engaging with it, going to debates, exhibitions, read books, you know - all the things that nobody teaches you - and in terms of that the studio provides the sort of place for discourse leading to having a better understanding of not only what architectural culture values, but actually that directly relates to how their work is going to be assessed- so you find the people who really struggle to understand why they fail are the people who work at home - the people who work in studio who are surrounded by architectural culture, they know the grade they're going to get because they've learned how architecture is valued, so I'm not sure its replaceable"

(Webster)

However, although recognising the social dimension of studio, and indeed of the broader institution, the following statement implies that pedagogical approaches must address issues of student engagement by harnessing the social dynamic in the learning process. Indeed, Boddington suggests that failure to do so would compromise, or even fatally undermine, the concept of learning community as represented by studio:

"What is a campus for?... why would they (students) come into an institution - why wouldn't they just stay at home? And there's not the same argument anymore because even an architecture student now works on a screen. Most of the time... The only point now of coming into an institution is something to do with dialogue and bumping into other people, and talking to other people, so how do we maximise that?"

(Boddington)

As has been seen, the development of student-centred learning was being explored in the schools of each interviewee, principally through carefully

constructed processes that balance challenge, empowerment, the explicit rendering of learning methods, and the establishment of a sense of learning community fostered through the physical setting of studio; at once a place of exploration, invention, dialogue and reflection.

4.7 The Reflective Process

"It (reflection) is fantastically important for architects – judgement skills, otherwise you assume that what you do is acceptable, and architects are not very self-reflective as a profession"

(Till)

There was broad consensus that feedback represents a major area for development, especially as it is something that students do not appear to have a firm grasp of in terms of what it constitutes (ref). Furthermore, it is an aspect of the learning process that closely corresponds to aspects of relationships and power, this aspect being discussed later. In recognition of the fundamental role that reflection plays in learning (ref), a variety of initiatives were being introduced in the schools of the interviewees in order to stimulate reflective learning, and in response to a shared ambition to further embed it as an integral component of the learning process. Concerning feedback, three underlying issues were identified through each interview; the quality of feedback and staff skills required, the importance of grades, and the means by which reflection and feedback take place. This last point relates to power asymmetries and will be returned to later in this chapter.

The question of what is acknowledged as feedback was a common one leading to the introduction of highly structured mechanisms aimed at clarity and explicitness:

"In first year, the feedback... they don't understand it as feedback, which is a continuing problem... in reviews there's a fairly structured system of feedback which is both students feeding back and staff feeding back as well, and that explicitly has categories you are

feeding back on... .conceptual idea, process and development, final... it is reasonably mechanical but quite explicit as well"

(Till)

However, it was strongly felt that a fundamental confusion between grades and feedback commonly exists:

"They (the students) always associate feedback with grade"

(Till)

However, as an independent issue from the particular system adopted, Boddington observed that the nature of feedback on studio project work often served as being of minimal value to the students in terms of constructive guidance on how to move forward:

"we did an open online feedback... it was set up so that all the feedback could be seen. What the staff were doing was using shorthand. And when you looked at them from a students perspective and kind of took the tutor's lens off and you just look at the feedback sheets, what you got was a drawing of the project, which is fine, and then its got "build a model", and that's it... what you were actually getting was a memory device, but you weren't getting the feedback as such, the feedback was verbal, it was somewhere else if it was ever said at all, and the trouble is you never know because there's no record of it. So there was never anything that was explicit to the student. The trouble in architecture is that people will so often just draw the project, but what they're doing is recording what's there - they're not actually giving feedback about where you go next and quite often the feedback for a whole cohort is quite common"

(Boddington)

Contrastingly, as a means of inculcating a process of self-reflection, the experience of reflective diaries at OBU was that these are often perceived to constitute an additional task rather than forming an integral component of the learning process itself. Accordingly, the following comment cautions against the introduction of reflective exercises that lack purpose to the student as an embedded and integral part of the learning process:

"deep learning comes from students doing things that are meaningful to them in a critically reflective way"

(Webster)

Staff had identified students who had mastered the art of reflective diary writing, rather than being truly critically reflective, this phenomenon leading to a shift in the focus of attention to the portfolio as a vehicle for developing self-criticism. Indeed, in common with many schools, the portfolio had effectively become the means by which personal development planning is discussed and overall progress and development reviewed.

Alternatively, the strategy at Sheffield was to develop a reflective medium that forms part of the learning infrastructure provided to students. Set up using Web CT as part of a funded project, the facility, which records diary entries, does not form a component of assessment. Despite this it was judged successful in terms of student engagement, and in its objective of reducing learner dependency, this aspect being declared as the school's greatest enduring challenge.

Representing a different interpretation, reflection and critical inflection is encouraged at Brighton through a faculty-wide programme of 'extension studies' in which students select from a broad range of subjects, offering independence about the inflections they wish to put on their architectural studies, and aimed at widening their critical view.

The issue of power asymmetries was also raised in relation to feedback. Certainly, it was thought that perceptions alter considerably when feedback is given by peers.

"Students don't always know when they're getting feedback... There is a whole issue around that because part of the power relationship is the feedback mechanisms and what those are - if your peers are doing it, its very different to if a teacher is doing it"

(Boddington)

"As a manager, and this is where the asymmetry is even more extreme... there are things that the students will say to me, that they would not say to the staff because of marking and because of fears of the asymmetry, but they'll say it to me because I'm not actually involved in the marking"

(Boddington)

In response to similar observations, methods had been introduced at Sheffield that have sought to utilise the dynamic of the peer group, and of the wider student body:

"Reflection through "very open year forums, which is sometimes managed not by the year tutors, which is important, so we might get a diploma student to run a year forum, or someone from outside, so there's not a conflict of interest going on"

(Till)

Such approaches have been introduced principally to counter the phenomenon of power asymmetries. Indeed the desire to minimise the existence of asymmetries was shared by all interviewees, being viewed as one of the greatest pedagogic obstacles of architecture education, with progress in countering it reported as being limited due to the 'weight' of tradition, the strength of naturalised behaviours, and inherent difficulties in the articulation of coherent alternatives in light of the dominance of convention.

"the Achilles heel of architecture - understanding that design tutors operate so there is an over-dependence on them, and there are loads of reasons for that - one is ego, you know it feels good when students sit at your feet... draw up your diagram, so people who have read even basic books... suddenly realise that that's not good, the students might not be learning anything at all, but are just following your instruction. Its not what the tutor does that matters, it's what the student does that matters"

(Webster)

The issue of power was seen as a combination of awareness, responsibility, and management, demanding that academics are explicit about its use within the learning process:

"You cannot dissolve power, whatever you do; you can only be honest about it. But architecture education up till now has been incredibly dishonest about it... It pretends it's a liberal profession"

(Till)

Whilst views were clearly shared that the general level of ability to appropriately manage power relationships remains as a significant impediment to pedagogic development, there was also recognition of progress in recent years, as captured in the following statement:

"I think the really tricky bit within architecture education is that there is something about how the students learn within the institution and the world they experience outside – we've gone a long way from the crits I received as student which were brutal, adversarial, but also alcoholic and down-right rude. It was not just about an adversarial argument, it was actually quite testing in how you managed that situation"

(A Boddington)

The inertia witnessed by all participants has its roots not only in the master / apprentice relationship of the atelier, but also in the star culture that the profession has constructed, which is itself related to the creative ego (ref). There was a sense that radical change or development in pedagogy is reliant on this culture being challenged, as exemplified in the following unequivocal statements:

"That (star system / culture) exploitation of power (emulation of the 'master') is one of the most distasteful things about architecture education, and I think that needs to be confronted"

(Till)

At Brighton, efforts are being made to more radically re-cast the overall academic culture. Boddington envisioned establishing a sense of a single learning community encompassing different levels of experience amongst staff and students. Such a culture would be founded on dialogue and on learning rather than teaching and, in seeking to minimise the impact and overt consequences of power asymmetries, aims to place peer learning at

its heart. Boddington sees the cultivation of a culture of peer group learning as a natural direction, as students are already predisposed to this form of learning. Indeed she saw the introduction of peer learning as beginning to propagate a dynamic within groups that is reducing the dominance of authority prevalent with more prescriptive methods.

Similarly, the experience at Sheffield of introducing group-based tuition methods was reported to have been highly productive, with the true benefit being realised in the senior years where discussion is more 'mature, generous and critical' (Till). The model was seen by Till to have pedagogic, professional, and ethical advantages. The challenge, however, is seen to be that staff are generally not naturally disposed to peer learning, this demanding fresh approaches and skills development.

Notwithstanding the above, Webster contended that whilst an appropriate management of power is vital, it is nevertheless unrealistic to expect student behaviours, emanating from their prior learning, to markedly change given that they are of a society hungry for success and which thrives on competition. Despite the stated liberal intentions of developing skills and knowledge, constructing professional identities, advancing the field, and enhancing the world in which we live, staff are also the people who assess student work and thus with whom some students tactically play. Various initiatives were being tested, such as the use of 'self-assessment workshops' at OBU, in which students assess themselves against a set of pre-determined criteria and, in doing so, had begun to understand the basis of the assessment regime, what expectations are, and what is valued.

"we have things like self-assessment workshops where the students are asked to assess an essay by somebody else, and mark it according to the assessment mark sheet, so they start to understand and then compare that to the real mark sheet, so they start to understand what counts"

(Webster)

The common theme with respect to the lessening of power asymmetries and of student dependencies was the importance of the role that the student body has to play and, in all cases, initiatives were being introduced aimed at exploiting the potential of peer learning and the learning setting of the studio environment. Inevitably, use of the peer group necessitates a clear understanding of the learning process, expectations, and learning outcomes amongst the students, and a fresh outlook amongst tutors including explicit and precise guidance. Referring to staff attitudes, Webster's observation below suggests that the full potential of the group dynamic of studio cohorts is typically under-appreciated:

"A major problem is that we believe that the students need us more than they actually do - we think students only learn when they're with us yet all the evidence suggests that its not true"

(Webster)

The work ongoing at Brighton has been deliberately designed to harness the potential of the group and use it as a tool for modifying tutor-tutee relationships:

"To a certain extent, the way we have set up the first year which has necessarily been about peer learning has helped that (power asymmetries), because you cannot have the same kind of authority when you have set up groups that have their own dynamic, and I think that's really helpful"

(Boddington)

Nevertheless, the challenges involved in embedding such a cultural shift cohesively amongst the staff community was acknowledged as being significant:

"I think its quite hard about how you try to break these down, its quite hard, other than you start to set up and trust the idea of peer group learning, and that there is a kind of sharing, which is not in the culture of tutors - its more in the culture of students than it is in tutors"

(Boddington)

Correspondingly, developments at Sheffield have begun to achieve similar objectives. Indeed Till believes that teachers require to be very explicit regarding behaviours and the responsible use of power, from the very start of the course, and that over time the culture begins to evolve:

"Once we started to do group tutorials as a system, that didn't dissolve our standards, it shifted us into a new method of teaching, and it was highly productive"

(Till)

Having experienced the maturation of this ethos as it has been progressively implemented throughout the school over time, Till has observed positive change amongst the senior students:

"By the time you get up to 5th year... you can have a discussion with a bunch of students round the table, where they're much more generous with each other, much more critical, so that seemed to me a shift that was imposed from outside through numbers but actually, once you thought about it from a pedagogical point of view, and a professional point of view, and an ethical point of view, you use it to your advantage"

(Till)

Yet he cautioned that there is a delicate balance to be struck between empowering students and staff retreating too far. This had occurred at Sheffield where the full value of skilled tutors had been diluted when the balance was lost:

"two years ago we went so far, almost too far the other way where means that actually we were losing the skilful and empowering input of teachers, you know, backing off so much, and I think that was a mistake... I think that balance is quite difficult to keep"

(Till)

"there is a danger that you throw the baby out with the bathwater, i.e. if its completely independent learning, where is the contribution of the teacher in terms of their embedded skills and knowledge"

(Till)

Indeed the need for mediation between providing opportunity for exploration and experimentation and developing the requisite skills of an architect was a common theme, this echoing the tension of academia and practice referred to in Chapter 1. So too is the need to reconcile the tensions between the conventional and stereotypical model of the profession, and new conceptions of what it might become.

"I think in architecture schools the balance between the development of skills, and the kind of development of means of making judgements, is the trickiest thing"

(Till)

"its (education) about how you allow students to go their own way and find their own version of being an architect within the boundaries of architecture - you can't develop your own identity within architecture and have none of the skills of an architect, so there has to be some mediation, but that's not to say there's only one model"

(Webster)

4.8 Staff Development Issues

"The rhetoric is that studio is student-centred learning, and in comparison to many disciplines it (architecture) is a lot better, but once you interrogate practice you realise that it has the potential to be so, but in many cases it is much more like transmission"

(Webster)

To varying degrees, all interviewees described a struggle with staff (and a profession) steeped in convention and frequently resistant to the possibility of new models, as implied by the above quotation. This places great reliance on those persuaded of the need for change, and their need to creatively define approaches that address the contemporary context, as well as tactics for achieving 'buy-in'.

"I think we have to call it (pedagogy) something else - I've come to the conclusion that the pedagogic word is like the death knell, and one of the

things we've talked about here is what's a way of having the confidence to talk about your subject in terms of methods"

(Boddington)

Closely allied to this is the propensity amongst many teachers to focus on the output or product, rather than on the process (this recalling the statements made earlier about unit systems being antithetical to independent learning, and to perceive deficiencies in the secondary education system).

"As an architect, but as a designer too, you have two kinds of designing going on; one which is the designing of the method, and the other which is the designing of the thing, and what we tend to talk about is the designing of the thing not the method. And if we don't talk about it as teachers then its almost impossible for a student to then construct method because we don't make the distinction explicit between those two things"

(Boddington)

On the matter of method, Boddington noted architecture's poor record in terms of academic research, as exemplified by global patterns of doctoral completion, citing this as an example of how methodological rigour is subordinated and under-valued:

"the greatest drop-out rate in doctoral education worldwide is in architecture (ref), and I think its partly an educational issue; that nobody talks about the 'how', you know, what are the methods you are employing, how are you setting up, I mean we do a lot of it, actually very, very good work and I thinks that's why people get frustrated by it - nobody actually says "this is a series of research methods and this is one way of doing it and then the next project might be a different set of research methods that require a different set of models"

(Boddington)

Additionally, the development and implementation of new models or the explicit articulation of methods, necessitates new skills and potentially quite radical modification of behaviours and practices, this requiring managed developmental processes:

(Independent learning etc) "Demands new skills out of which new skills may become... staff have to accept a different model"

(Till)

In the case of Brighton, Boddington noted that in opening up the debate about process and method, of all the disciplines within the Faculty of the Arts, architecture had proved to be the most resistant with a number of staff displaying difficulty in thinking beyond a 'containment model' aimed at perpetuating the status quo. She further observed that staff frequently use the stipulations of the regulatory bodies as a foil, although in her view these organisations are often the least resistant parties in developing a discussion about learning methods. Thus, developing a deep understanding of the learning process, and building a dialogue about teaching and learning methods, was seen to be a key development need in staff, especially if the ultimate expectation is that students will construct their own methodologies. An ability to articulate pedagogic methods, and related learning objectives and methods are also central to any discussion about alternative models, and equips staff with the creative agility to adapt or devise methods to suit different scenarios and individuals. The ability to place educational process within a context of learning theory was identified as being central to development at Sheffield, as stated below:

"We are making pedagogy explicit... people like (specific staff) are incredibly important because they are able to theorise it, which is important. I don't think things have radically moved on, but we've only got it going in the last 5 years so maybe we're allowed to consolidate"

(Till)

However, as a lubricant for more lateral thought about pedagogies in architecture education, Webster suggested that:

"we could learn a lot by broadening our theoretical learning base... mostly from cognitive psychology, but there are other things we

could look at which would add that cultural dimension... the social dimension..."

(Webster)

There was agreement that part-time and visiting staff typically constitute the most intransigent group, perhaps because of their more peripheral relationship with debate within the academy. Consequently, a significant investment of time for dialogue is required in order to convince staff to make the changes themselves, this also requiring leadership and co-ordination skills in key individuals.

"Part-time staff are incredibly resistant to change - enormously resistant - not because they've got good reason to be but because, you know, its

always been like that - and you don't want to disenfranchise them, so its hard to have a discussion"

(Webster)

The dominance of the traditional paradigm, coupled with the opacity of the learning process compounded by a historic dearth of discussion on pedagogy specifically, was seen to propagate an assumption in many that professional skills as an architect are somehow interchangeable with those required of an educator. This view was captured by the following quotations:

"I think one has to have an awareness that being a teacher is different from being an architect, and that there is a very different set of dynamics and skills and cognitive processes going on"

(Till)

(Architects) "wrong by thinking that they think they can directly transfer actions from practice into the studio, and that seems to me to be the thing that is very rarely discussed and certainly at the so-called leading schools what they do is appoint leading architects. Some of them are absolute disasters..."

(Till)

Addressing the notion of the independent learner was also regarded as having major implications for staff, including the development of new attitudes to the tutor-student dynamic and a corresponding acceptance of new models of power, as well as a fundamental awareness of differences within the student body. These might include the differing demands created by diverse learning cultures, diversity of individual background and experience, and so on.

Finally, despite strongly held beliefs about the endemic weaknesses in architecture pedagogy, Till expresses reservations about teaching processes becoming too structured and methodologically driven, adding in the second statement below that there exists an intuitive dimension to effective, inspirational teaching too:

"I have to say I'm a sceptic at the level of formalised instruction of teaching methodologies - I just think that that could kill the whole thing - but I'm not a sceptic about the idea of being aware of the difference, making that explicit... I think that's important"

(Till)

"Without a doubt there is a chemistry about teaching too"

(Till)

4.9 Summary

The semi-structured interviews conducted with selected prominent academics within the field of architecture education revealed a number of broad consistencies in terms of perspective and critical position. They also showed a range of initiative being undertaken by the schools with which the interviewees are associated, aimed at addressing perceived weaknesses in conventional teaching practice, and the pressures imposed by external factors such as funding.

Consistent with the literature, aspects of Schön's analysis of studio-based teaching were challenged, this opening the door for fresh thinking and new pedagogic concepts. Perhaps ironically, given that Schön advocated studio teaching methods as an appropriate model for many academic

subject areas, there interest was expressed in methods adopted in other disciplines from which educators in architecture might learn. The overriding sense coming from all interviewees was the need to pose questions of a fundamental nature about the intentions of architecture education, its methods, and indeed about the profession that it serves. This appeared to further validate the position articulated at the start of this study, namely that the confluence of external pressures and phenomena, and a growing body of critical thinking and research on pedagogy, offers a unique set of conditions that provide an impetus to determine new methods, models, and approaches.

Whilst various efforts had been made to lay the foundation for positive pedagogic change, the inertia amongst significant staff groups was clearly rendering the progress slow, and there were suggestions that this was perhaps constraining more radical thinking. Certainly, there were indications that where staff are deeply engaged in pedagogy, and have the ability to position their actions within a theoretical context, there exists a greater level of buy-in to change and accordingly, evidence of the implementation of progressive initiatives.

Learner independence was closely related to issues of power asymmetry, and the need to manage tutor-student relationships to enable the development of confidence as well as a sense of the legitimacy of personal experience and view, proved a consistent theme. Indeed a number of initiatives had been introduced aimed at reducing dependencies and the influence of power on the learning process, and empowering students to take ownership of the learning process. Central to this was the need for clear guidance that provided the student with a full understanding of the processes employed. Finally, the importance of informal learning was noted, facilitated by the studio environment, this aiding understanding of many diverse facets of the discipline from professional and cultural values to comprehension of assessment procedures and criteria.

Finally, the success of any pedagogic change was agreed to be reliant on the attitude and capability of staff to accept the notion that alternative

models to convention have validity and, beyond this, to embrace and initiate fresh approaches that have the potential to transform studio-based education in the future.

APPENDIX 5:

COMMONLY PREVAILING MYTHS IN DESIGN STUDIO AND ARCHITECTURE SCHOOLS: AIAS STUDIO TASK FORCE REPORT

The following constitutes a list of common myths that have been found to prevail in design studios and architecture schools (Koch et al, 2002, p.6):

- 'Architecture education should require personal and physical sacrifice
- The creation of architecture should be a solo, artistic struggle
- The best students are those who spend the most hours in studio
- Design studio courses are more important than other architecture or liberal arts courses
- Success in architecture school is only attained by investing all of your energy in studio
- It is impossible to be a successful architect unless you excel in the design studio
- Students should not have a life outside of architecture school
- The best design idea only come in the middle of the night
- Creative energy only comes from the pressure of deadlines
- Students must devote themselves to studio in order to belong to the architecture community
- Collaboration with other students means giving up the best ideas

- It is important to finish a few extra drawings than sleep or mentally prepare for the design review
- It is possible to learn about complex social and cultural issues while spending the majority of time sitting at a studio desk
- Students do not have the power to make changes within architecture programs or the design studio'

Koch et al (2002) consider the above to be detrimental to the educational effectiveness of design studio, and advocate that these perceptions and beliefs be consigned to history.

APPENDIX 6:

SUGGESTED FURTHER RESEARCH INCORPORATING JUNG'S DIMENSIONS OF INTROVERSION AND EXTROVERSION

This thesis considers the issue of embedding independent learning in architecture education from a holistic perspective, with particular respect to the design studio. The adoption of a holistic, integrated approach necessarily required investigation of a number of different factors, of which learning styles represents but one.

The use of the simplified Hanson Silver Learning Style Inventory for Adults adequately addressed the purpose of the learning styles survey within this thesis, i.e. to demonstrate the diversity of cognitive function within the cohorts studied. However, the inability of this model to measure the introversion / extroversion dimension prevented consideration of how the range of attitudes and personalities relate to the learning experience. Were the phenomenon of learning styles to become the subject of deeper study with a view to developing and implementing inclusive pedagogies, it is suggested that the measurement of attitude would form an important component. Given the social dynamic and interaction that typically forms a central property of the learning environment for architecture students, this is especially true with regard to design studio. Indeed, the qualitative data gathered for this thesis, included perceptions about, and responses to, this environment, are suggestive of both introverted and extroverted individuals within the cohort.

The anonymity that was central to this thesis limited analysis to the identification of broad trends and patterns, and prevented the study of any individual over time. However, it is suggested that a valuable further study would be a longitudinal survey of individuals over the duration of their course, measuring the following:

- changes in student learning style over time;

- **student attitudes (introversion / extroversion) including active or reflective responses to processes within the learning experience, and;**
- **relating student perceptions of individual staff to their teaching styles.**

APPENDIX 7:

SCHEDULE OF SUPPLEMENTARY INFORMATION INCLUDED ON CD

- **Schedule of Contents**

- **Questionnaires**

- Questionnaire Templates (Q1 to Q4)
- Microsoft Excel files of coded data from Questionnaires (Q1 to 4, Sessions 2004-05)
- Microsoft Excel files of coded data from Questionnaires (Q1 to 4, Sessions 2007-08)

- **Group Interviews**

Microsoft Word files of all Group Interviews (transcribed and coded):

Session 2004-05:

- Group interview, 12 November 2004 (Stage 1 students)
- Group interview, 05 May 2005 (Stage 1 students)
- Group interview, 06 June 2005 (Stage 6 students)

Session 2007-08:

- Group interview, 11 February 2008 (Stage 4 students)
- Group interview, 11 February 2008 (Stage 1 students)
- Group interview, 15 February 2008 (Stage 4 students)

- **Interviews with Academics**

Audio files of interview with:

- Anne Boddington (1 file)
- Helena Webster (2 files)
- Professor Jeremy Till (1 file)

- **Learning Styles Inventories**

- Template of Hanson Silver Learning Style Inventory for Adults

Session 2004-05:

- Learning Style Inventory graphs for Individual Students
- Learning Styles Inventory Results Summary

Session 2007-08:

- Learning Style Inventory graphs for Individual Students
- Learning Styles Inventory Results Summary

- **Teaching Style Inventories**

- Template of Hanson Silver Teaching Style Inventory
- Microsoft Excel file showing TSI Distribution
- Teaching Style Inventory graphs for Individual Staff Members

- **Multiple Intelligences Indicators**

- Template of Silver, Strong and Perini's Multiple Intelligences Indicator
- MI Indicator Cohort Profiles, 2004-05 and 2007-08
- MI Indicator Results for Individual Students

- **Data Coding Schedule**
