

THE DESIGN PROJECT REVIEW AND ITS ROLE
IN THE PROCESS OF BECOMING AN ARCHITECT IN ENGLAND

CARL MEDDINGS

A thesis submitted to the University of Huddersfield in partial fulfilment of the requirements
for the degree of Doctor of Education

The University of Huddersfield

September 2020

Copyright Statement

- i. The author of this thesis (including any appendices and/or schedules to this thesis) owns any copyright in it (the “Copyright”) and he has given The University of Huddersfield the right to use such Copyright for any administrative, promotional, educational and/or teaching purposes.
- ii. Copies of this thesis, either in full or in extracts, may be made only in accordance with the regulations of the University Library. Details of these regulations may be obtained from the Librarian. This page must form part of any such copies made.
- iii. The ownership of any patents, designs, trademarks and any and all other intellectual property rights except for the Copyright (the “Intellectual Property Rights”) and any reproductions of copyright works, for example graphs and tables (“Reproductions”), which may be described in this thesis, may not be owned by the author and may be owned by third parties. Such Intellectual Property Rights and Reproductions cannot and must not be made available for use without permission of the owner(s) of the relevant Intellectual Property Rights and/or Reproductions.

Acknowledgments

I should like to express my gratitude for the encouragement and support of the following people:

Professor Roy Fisher

Professor Kevin Orr

Professor Patricia Tzortsopoulos

Professor Adrian Pitts

Professor Nic Clear

Hannah Vowles

Dr David McClean

Elena Marco

Derek Hales

Adrian Evans

Elaine Meddings

Ian Prady

Alison Lock

and

Lindy Duncalf

The Design Project Review and its Role in the Process of Becoming an Architect in England.

List of Contents

Abstract	8
Chapter 1 Introduction	9
1.1 Motivation for the study	9
1.2 Research objectives	11
Chapter 2 Notes on the History of Architectural Education	13
2.1 The middle ages	13
2.2 <i>Académie Royale</i> de Architecture	14
2.3 <i>École Royale</i> des Beaux Arts	14
2.4 The British architecture schools	15
2.5 The twentieth century	16
2.6 The influence of the Bauhaus 1919 – 1933	17
2.7 Modernism and the Architectural Association	18
2.8 1940s and 1950s	19
2.9 The Oxford conference 1958	20
2.10 After the Oxford conference	20
2.11 Underlying tensions	22
2.12 The persistence of the design project	23
2.13 Summary	24
Chapter 3 Situating the Design Project Review (DPR)	26
3.1 Epistemology of architectural design	26
3.2 Constructivism	26
3.3 The design project	29
3.4 Approaches to learning	31
3.5 Conversation Theory	32
3.6 The design studio	34
3.7 The design project review	37
3.8 Tacit knowing	39
3.9 Acculturation	42
3.10 Bourdieu – Capital, Field and Habitus	45

3.11	Articulating problems	54
3.11.1	Competition	56
3.11.2	Time constraints	57
3.11.3	Power dynamics	58
3.12	Alternative approaches	60
3.13	Summary	67
Chapter 4	Research Method	69
4.1	Positionality	70
4.2	Reflexivity	72
4.3	Research design	74
4.4	Data collection and analysis	78
4.5	Ethical issues	79
4.6	Observation of design project reviews	81
4.7	Student group interviews	84
4.8	Interviews with design tutors	86
Chapter 5	Observations of the Design Project Reviews	90
5.1	DPR observation at ASA (OA)	90
5.2	DPR observation at ASB (OB)	96
5.3	DPR observation at ASC (OC)	102
5.4	Comparisons	108
5.4.1	The review spaces	109
5.4.2	The work on display	111
5.4.3	Timings	113
5.4.4	The participants	115
5.4.5	The conversations	116
5.4.6	Patterns of engagement – Variations on a theme	120
Chapter 6	The Interviews	127
6.1	Architectural expression	128
6.1.1	Techniques of representation	128
6.1.2	The final presentation	131
6.1.3	Ongoing conversations	134
6.2	Individual expression	137
6.2.1	Thinking expressively	137
6.2.2	Talking about architecture	139

6.2.3	Developing critical skills	141
6.3	Acculturation	143
6.3.1	Doing the DPR	144
6.3.2	Interactions	146
6.3.3	A celebration of architecture	151
Chapter 7	Analysis and theoretical considerations	154
7.1	Components and organisation	155
7.1.1	The environment	155
7.1.2	The work	157
7.1.3	Time	158
7.1.4	The participants	160
7.2	Underlying principles	165
7.2.1	Architectural ideas	165
7.2.2	Design processes	166
7.2.3	Representation techniques	167
7.2.4	Acculturation	167
7.2.5	Conversations	170
7.2.6	Individual expression	171
Chapter 8	Conclusions and Discussion	173
8.1	Expression, as an underlying principle of becoming an architect	175
8.2	DPR as the central feature of the process	176
8.3	Learning to engage	183
8.4	Limitations of the methodology	186
8.5	Endpiece – Reflexivity	188
References		195

The Design Project Review and its Role in the Process of Becoming an Architect in England.

List of Figures

Figure 1.	The assessments of the Oxford Studio as a series of presentations	30
Figure 2.	The studio as bridge between professional and academic communities of practice	43
Figure 3.	Layout of review space at OA including position of students and reviewers	92
Figure 4.	Layout of review space at OB including position of students and reviewers	98
Figure 5.	Layout of review space at OC including position of students and reviewers	104
Figure 6.	Second configuration of review space at OC	106
Figure 7.	Typical spatial configuration of DPR	110
Figure 8.	Representation of DPR at ASA	121
Figure 9.	Representation of DPR at ASB	123
Figure 10.	Representation of DPR at ASC	125
Figure 11.	Table showing similarities and differences between the three DPR events	126
Figure 12.	Spatial configuration of DPR	156
Figure 13.	Conceptual relationship of structural elements in DPR	164
Figure 14.	Structural elements, pedagogic techniques, and epistemic principles	172

The Design Project Review and its Role in the Process of Becoming an Architect in England

Abstract

The design project review (DPR) is an established event in architectural education in England and in many other countries. It is a central element of the design studio in which architecture tutors, visiting critics and students come together to review the work of a group of students at various stages on their journey to becoming an architect. It is generally viewed as an opportunity to discuss both individual projects and broader concepts of architecture and the architectural profession in a safe and supportive environment. This thesis takes a naturalistic world view, informed by an interpretive epistemology that seeks to uncover what is happening in the DPR through an enquiry into how the participants in the situation (students under review, their peers, in attendance and their tutors) comprehend and interpret the occasion. It examines the experience of participants in a DPR, their roles and patterns of engagement, and seeks to better understand the nature of the event and its contribution to the process of becoming an architect.

The data was collected through first hand observations of final year, undergraduate DPRs in three English schools of architecture, together with interviews with design tutors and group interviews with student participants in each location. This data is analysed using the interpretive tools of 'habitus' and 'field' developed by Pierre Bourdieu and with reference to the literature on studio culture and the DPR.

The thesis acknowledges that, as a fundamental (and enduring) aspect of architectural education, the DPR has significant value in both its relationship to each student's experience of the culture and cultural practice of architectural education, and in situating the student experience within the broader context (or field) of architectural practice. The problems of the DPR are expounded and key themes are identified and critically examined: specifically, the nature and purpose of the DPR, the behaviours and interactions of participants, the environments in which DPRs are situated and the relationship of the DPR to other teaching and learning events.

The learning experience in architectural education is fundamentally one of individual expression and self-constitution. This study places the individual architecture student at the centre of the process, and shows that it is their awareness of their own particular position in relation to their work and in relation to the field of architecture that underpins and motivates their learning and personal development. The relationship of an individual's habitus to the architectural field is found to be at its most intense within the DPR, where the individual student and their work is held up for examination by professionals in the field. In this way the event serves to act as a powerful 'staging post', which stimulates students to develop their work expressively.

Key words: architecture, architectural education, Bourdieu, the crit, design studio, design project, design project review, studio culture.

The Design Project Review and its Role in the Process of Becoming an Architect in England.

Chapter 1 Introduction

1.1 Motivation for the study

The purpose of this research is to critically examine the DPR and its contribution to students' learning, in the process of becoming an architect in England. Architectural education in England is studio based. Students undertake design exercises alongside colleagues in a shared and supportive process of learning through doing. An essential component of this model of education is dialogue; both ongoing, through peer discussions and tutorials, and in summary through design project reviews, also known as 'crits', in which students present their work to a group of other students and tutors, join in discussion about common issues and ideas and receive commentary and feedback on their designs. The design project review is firmly established in architectural education and in many other fields of art and design, both in the UK and in many other parts of the world.

The study has its roots in an initiative that was begun in 1996 when the Higher Education Funding Council for England created a 'Fund for the Development of Teaching and Learning' from which the group 'Clients and Users in Design Education' (CUDE) was set up. The aim was to conduct research into design education in order to promote greater understanding of clients, users and cross-disciplinary working. In architectural education a number of research projects were funded at Sheffield School of Architecture and at De Montfort University in Leicester, culminating in a conference at Leicester in 1999 and a subsequent publication in 2000 entitled 'Changing Architectural Education: Towards a new Professionalism' (Nicol and Pilling, 2000). The conference aim was to share experiences in innovative studio teaching methods by bringing architectural educators together to explore the changing context of architectural practice, how this may be reflected within architectural education, and to focus on the processes of architectural education; to look at "how students learn, rather than just what they learn" (Nicol and Pilling, 2000. p. xiii).

This seminal publication includes a number of papers on the design project review, notably: 'Reviewing the review' (Wilkin, 2000, pp. 100-106), which gives an account of the author's research into 'the crit'; 'Introducing alternative formats for the design project review' (Brindley, Doidge and Willmott, 2000 pp.108-115), which summarised a series of trial formats for design project reviews and reported the issues encountered; 'The student led crit as a learning device' (White, 2000. pp. 211-219), which reported on experimentation with the review format, with the aim of increasing participation, encouraging presentation skills and

constructive criticism; and 'The 'crit' as a ritualised legitimation procedure in architectural education' (Vowles, 2000 pp. 259-264), which examined broader issues of acculturation.

The CUDE initiative also led to an Architectural Press (Seriously Useful Guides) publication 'The Crit. An Architecture Student's Handbook' (Doidge et al., 2000), which was intended for student use, and offers tips on how to prepare for, participate in and learn from a review. The book attempts to provide a 'framework for thinking' to help students develop their own approach to the occasion.

Both of these publications express an unease with the DPR system in schools of architecture in England. Wilkins (2000) declares that "the project review process, as traditionally conducted, is not as fully effective a learning context as it might be" (p. 103), whilst White (2000) points out that "there is scope in the current crit system for negative qualities to suppress the positive, thereby eradicating much of the potential of the crit as a learning experience" (p. 211).

The project Review or 'crit' has been the cornerstone of architectural education for generations. In it the student explains and defends his or her design ideas in an open forum – a situation that is considered to mimic, and therefore is an important preparation for, professional practice. Despite an underlying concern in most schools of architecture about the format of the review, its effectiveness and even its morality (Brindley, Doidge and Willmott, 2000. p. 108).

The defence of ideas, drawings and models in an open forum before staff and fellow students is variously perceived: while academic staff see it as a healthy, creative debate, many students view it as a hostile confrontation – an ego trip for staff and humiliation for them (ibid. p. 108).

Successful initiation is ... a form of immaculate conception. This is often most graphically and tragically revealed by the plight of students who fail this rite, and fail to see why (Vowles, 2000. p. 262).

The concerns expressed are rooted in questions about learning and about professionalism, and the usefulness of the review process in embedding appropriate behaviours and attitudes. Webster (2005) posits that the system "presents a paradox" (p. 266) because of the differing perceptions of its participants. In relation to the 'crit' she says:

On the one hand staff perceive the review as a highly valued method of collective dialogue and objective assessment, while on the other hand students perceive the review as a tutor-centred pseudo-mystical ritual that elicits feelings of fear and failure (p. 266).

Webster's article also builds upon the earlier studies by Anthony (1987, 1991), and also Cuff (1991), and attempts to "untangle this paradox by asking what is really going on in the architectural review, and why?" (Webster, 2005. p. 267). Her findings suggest that the review processes fall "a long way short of a collective celebration of student achievement." (p. 271). Indeed, she finds a "highly ritualized performance characterized by its appeal to tradition... and choreographic formality" (p. 273). Whilst the review is seen to be important, students reported feelings of "fear, ... humiliation, failure and occasionally success" (p. 273).

Whilst a number of studies have focused on the DPR as a key learning experience it is, nonetheless, only one aspect of a broader milieu within the design studio. More recently, from the growing network and affiliations of architectural educators, a new group has emerged called the Association of Architectural Educators (AAE), who have held four conferences at different educational centres since the first at Nottingham in 2013, which explore a wide range of pedagogic issues in relation to architecture, and now regularly publish a peer reviewed journal entitled *Charrette* where conference themes and other issues are given further consideration. In 2016 Royal Institute of British Architects (RIBA) published the book *Radical Pedagogies: Architectural Education and the British Tradition* (Froud and Harris, 2016), which is a series of essays and articles that provide the basis for a debate about the future of architectural education.

These publications provided the motivation and continued stimulation for this research project. The DPR is a robust format, but one that still exercises architectural educators, students and others.

1.2 Research objectives

Taking as its starting point the notion that DPRs, as a key element in design studio pedagogy, are problematic in a variety of ways (inter alia: Anthony, 1987, 1991; Blair 2006a, Flynn, 2018; Mewburn, 2010; Maclean and Hourigan, 2013; Sara and Parnell, 2004, 2013; Smith, 2011; Stevens, 1995; Vowles, 2000; Webster, 2005, 2010) the overarching aim of this research is to critically examine the key processes of interaction and dialogue between students and tutors that take place within architectural education in the United Kingdom.

The archetypical vignette of the DPR is examined. Experiencing architectural education is an experience of deep reflection and innovation (through design) on the one hand and discussion (and the broad variety of events and circumstances in which we join in discussion about the work and the topic, through critique, challenge, praise, advice, opinion, etc.) on the other.

Specifically, then the study has the following objectives:

- 1) To better understand the DPR in architectural education and how it is experienced by students and academic staff.
- 2) To examine and critique the nature and conduct of DPRs to explicate their purposes, learning benefits and problems, in relation to both the academic programme and broader professional acculturation.
- 3) To critically analyse the elements, techniques and principles that underpin DPRs; how they are assembled; and the variety of modes of dialogue and interaction that take place, both in and around this forum, in relation to studio design projects in contemporary processes of learning architecture.
- 4) To articulate the benefits and shortcomings of the current situation in order to inform curriculum design and development and pedagogic practice in architectural education.

The central theme under investigation is the participant experience of the DPR and its role within the general schema of architectural pedagogy and the process of becoming an architect. Where the research offers additionality to previous work in this area of architectural pedagogy, is that it critiques the participant experience of the processes of learning and acculturation within the subject, in order to illuminate the principles inherent in the DPR that might inform the future design of architectural educational programmes.

The data is collected through observations of DPRs in three English schools of architecture, together with interviews with design tutors and group interviews with student participants in each location.

Chapter 2. Notes on the History of Architectural Education

Architecture cannot be the world's oldest profession – tradition has decided that issue a long time ago – but its antiquity is not in doubt. The presence of architects is documented as far back as the third millennium before Christ. Graphic conventions of architectural practice make their appearance even earlier, as for example the plan of a residential cluster in a wall painting of the seventh millennium B.C. at Catal Hoyuk in Asia Minor. Indeed, even without documentation it can fairly be postulated that architects were abroad from the moment when there was the desire for a sophisticated built environment. For buildings of substantial scale or a certain degree of complexity must be conceived by someone before construction can begin.

(Kostof, 1977. p.xvii)

This chapter explores the relationship between architectural education and the architecture profession, as both the profession, as we might begin to conceive of it today, and consequent notions concerning the knowledge and skills that such a professional should have (what they should properly be taught/learn) emerged together sometime over the last 400 years or so (Crinson and Lubbock, 1994).

2.1 The middle ages

During the middle ages, after the collapse of Roman Empire, the philosophical schools in Rome and elsewhere didn't survive, and much of their learning was lost. Architectural skills, during this period, were largely acquired through forms of apprenticeship, and became part of the skills and craft traditions of Masons and Lodges, in which the "secrets" of the guilds were "inaccessible to the general public and even ordinary builders" (Broadbent, 1995. p.11). The vast legacy of buildings, particularly the churches, cathedrals and other monastic structures in Europe, from around 300 - 1200, as well as the documentary evidence of drawings that survive (Broadbent, 1995), is testament to the persistence of architectural enquiry and experimentation, if not the formal instruction of architects, throughout this period. Cunningham (1979) references Erwin Panofsky who argued that architectural education had become part of the "synchronous development of Gothic art and scholasticism" (p.133).

'It is very probable that the builders of Gothic structures... had gone to School: they listened to sermons: they could attend the public 'disputationes de quolibet'... dealing as they did with all imaginable questions of the day.... The very fact that neither the natural sciences nor the humanities nor even mathematics had evolved their special esoteric methods and technologies kept the whole of human knowledge within the range of the normal non-specialised intellect. This professional architect... grew into a man of the world, widely travelled, often well-read and enjoying a social prestige unequalled before and unsurpassed since...' (ibid. p.133)

The guilds provided a form of apprenticeship training of "example, imitation and practice [which] comfortably lent itself to the mentality of the early Middle Ages" (Griffin, 2008. p.

261). Guild members would learn architectural drawing techniques and constructional methods in a strict instructional manner. “The emphasis was placed on workability, which exuded the inherent beauty of the building rather than entertaining the individual’s creative perception” (ibid. p. 261). The dogmatic approach of the guilds had become more relaxed by the twelfth century as they became more open to new ideas and influences from outside Europe. “This renewed self-awareness slowly began to affect the guilds’ customs and eventually caused them to be quite inventive” (ibid. p. 262).

2.2 Académie Royale de Architecture

In 1635 the Académie Française was set up (to regulate the French language) and later, by 1648, an Academy of Painting and of Sculpture was added. In the 1660s Jean-Baptiste Colbert the French Controller of Finances under Louis XIV, and former Superintendent of Building works, set up a number of educational institutions for History and Archaeology, Inscriptions and Medals, Dance, Sciences, Music and, in 1671, the *Académie Royale de Architecture* (Griffin, 2019).

Initially founded as a discussion group of eminent architects who advised King Louis XIV on architecture, and claimed to “bring forth a more exact knowledge and a more correct theory” of architecture (Broadbent, 1995. p.13), the Académie formalised the training of architects into a form of articulated pupillage, whereby an initiate would learn their professional skills and knowledge through the study of architectural texts and the learning of the conventions of architecture and architectural drawing through drawing practice, and through engagement with real projects, under the wing of an experienced architect (Griffin, 2019). Public lectures were given twice a week on topics such as arithmetic, geometry, military architecture, fortifications, mechanics, perspective and stone cutting. Colbert had been battling with the trade guilds in France over a number of years over the control of the professions (Griffin, 2019; Kostof, 1977) and had set up the Académies to assert the power and prestige of the state and, for reasons not dissimilar to those of Alberti and Lorenzo di Medici in Florence, some two hundred years earlier, “to raise architects from the status of craftsman to that of a philosopher” (Broadbent, 1995. p.13). By 1717 the instruction had evolved into a two, or three year course.

2.3 École Royale des Beaux Arts

After the French revolution in 1789, the Academies struggled to survive. In 1793, under the guidance of professor J-N-L Durrands, the École Polytechnique was established and, during the next few years, new schools were organised in astronomy, medicine, political science and music, as well as architecture, painting and sculpture. These separate components were later brought together as a single school, which became known as the École Royale des

Beaux Arts, and formally named as such under Louis XVII in 1819 (Broadbent, 1995). This was really the first school of architecture as we might begin to recognise one today. According to Broadbent (1995), the school offered an architectural course which consisted only of lectures in history and theory of architecture, construction, mathematics and perspective, and later physics, chemistry and building law.

The students were normally under the supervision of a patron, whom they might work for. Although, more often, they would join an atelier, which would be administered and organised by one of the students (the *massier*), on behalf of the patron, who would also provide design tuition. Together they would select the students who wished to join the atelier. The junior students would learn a great deal by working in service of the more senior students, helping prepare drawings for entry to the competitions. The mode of education in the *École Royale des Beaux Arts* was the dominant form of instruction through into the twentieth century, and as Broadbent (1995) notes: "...there were two kinds of teaching in the *École Royale des Beaux Arts*: theory in the classroom and design in the *ateliers*. Quite separate things, taught by different people" (p.16).

2.4 The British architecture schools

In 1834 the Institute of British Architects was founded and, by 1837, it had gained its Royal Charter, which outlined that it was to be: "An Institute for the general advancement of Civil Architecture, and for promoting and facilitating the acquirement of the knowledge of the various arts and sciences connected therewith" (ibid. p.41).

The first British architecture schools following a largely academic model were established in London at King's College in 1840 and University College in 1841 and independently (by the Association of Architectural Draughtsmen) with the formation of the Architectural Association (AA) in 1847. This latter being the most significant, in that it was intended to augment the education provided by pupillage and the Royal Academy, and offered an architectural design class in which students responded weekly to design exercises. In addition, the Government School of Design (1826) was set up to provide design training and specialism to support industry, with several outposts across the country. Initially, they didn't provide any specific architectural training but, by the 1850s, had begun to teach architecture both as an art subject, to art teachers, and as a science subject, to builders (ibid).

In the 1850s the RIBA was considering developing an examination in architecture and by 1869, after much debate and controversy about the nature and content, set up a 'voluntary' examination for its membership. By 1882 this had become an obligatory examination for associateship of the institute. With the aim of exploring ideas for different models for architectural education, a conference was organised by the RIBA in 1887, which included

speakers from the American (Beaux Arts style) schools, as well as from the French *École des Beaux Arts*. The qualifications for membership of the RIBA were subsequently transformed into a system that included three levels of expertise: Preliminary, Intermediate and Final. The AA reacted by changing the way that it organised classes to suit this new system and by the 1890s other architectural schools across the country had begun responding to these new requirements. In 1895 the first full time architecture course was established at Liverpool (ibid).

2.5 The twentieth century

At the start of the twentieth century teaching consisted of institutions funded and managed in a variety of ways. What was taught was largely determined by the director of each school. Some schools stressed classicism and drawing, others construction and the sciences. However, there was no established route to taking the three levels of professional examinations. The RIBA came under additional pressure from architects and students to define the boundaries of architecture, to avoid overlap with other professions such as surveying and building. A uniform exam was not considered sufficient and the RIBA Board of Architectural Education, which was formed in 1904, set up a system of 'recognition' by which architecture schools could have the graduates from their courses exempted from some of the formal examinations. The first courses to be 'recognised' were at the AA and at Liverpool, who were given recognition for the intermediate examination (Crimson and Lubbock, 1994). At that time the RIBA Board of Architectural Education favoured two years' full time followed by two years' evening classes as a form of pupillage. "It was an offer that no school could afford to refuse and it gave the RIBA the power to decide what an acceptable curriculum should contain" (Powers, 2015. p.10).

The new courses that emerged in the late nineteenth and early twentieth century in Britain were set up very much on the Beaux Arts model. The 1887 conference had included presentations from schools in France and America (where there had been a growing Beaux Arts interest in the preceding decades). Liverpool became the exemplar model:

...with its emphasis on the systematic studio-led teaching of design based on classical principles; easier to teach and supposedly easier to assess. Furthermore, pupillage in the French-tinted vision, could never adequately convey these principles: education had to be within the academy; ateliers would replace pupillage becoming the hub of the educational wheel. (Crimson and Lubbock, 1994. p.82).

At Liverpool the director, C.H. Reilly, developed further links with French and American schools and oversaw a growth in numbers from just 12 in 1904 to an intake of over 200 in 1909. The curriculum began to include civic design and town planning and established a studio system of teaching, which took up more than half the syllabus, increasing year on

year as students progressed. Reilly also instituted an American style jury system of criticism for project reviews (Crinson and Lubbock, 1994). Powers (2015) tells us that Reilly and his colleagues “defended this method as international and urban... Dreaming of great palaces or law courts by the third year gave students a sense of excitement at least once in a lifetime, even if their actual work would never rise to this level” (p.10).

By 1924, the Beaux Arts influence was complete. It had been established as the principle model for architectural education, with its emphasis on classicism and drawing.

This was then the height of Beaux Arts... in Britain, when the RIBA and most of the architectural schools were in general accord with the French and American approaches; in other words, a time when the RIBA had at last established some of the mechanisms necessary for overseeing and regulating the training of architects, and when the schools had adopted those methods - dominated by elaborate studio projects – that could instruct students to design in the Grand Manner (ibid. p.85).

The formalising of a set of examinations and a system of recognition and validation of courses, for exemption from those examinations, led to a push for more formal registration in order to provide legal protection for the professional use of the title ‘architect’. The Architects’ Registration acts of 1931 and 1938 established the Architects Registration Council of the United Kingdom (ARCUK) as a body that would keep a register of all the architects who had successfully passed the examinations or graduated from a recognised course (ibid).

2.6 The influence of the Bauhaus 1919 - 1933

In Germany, the architect Walter Gropius had formed the *Staatliches Bauhaus* in 1919, drawing on the two modes of instruction that came together when the Weimar School of Arts and Crafts was combined with the Academy of Art. Gropius developed a manifesto for the school in which he laid out his belief that there should be no real distinctions; that the arts and crafts could all be brought together in the service of architecture. Initially the Bauhaus was a School of Art and Design, rather than a School of Architecture. Gropius held that crafts should be mastered before beginning to study architecture.

There were some eminent artists employed by the Bauhaus (such as Wassily Kandinsky and Paul Klee) and students were encouraged to abstract principles of colour, composition, tone, rhythm etc. through studying the old masters. Following a basic introductory course, students would then spend their time on theoretical investigations, including “nature, fabrics, geometry and colour and composition, constructions and presentations” (Broadbent, 1995. p. 17). Importance was given to the abstraction of meanings and principles.

In its short existence the Bauhaus had a huge influence, and became widely discussed in Britain. Its approach was very different to the Beaux Arts. It embraced modernism and new technologies; its design ethos exemplified the development of craft skills and the search for

underlying principles through abstraction, and the creativity of the individual; it embraced functionalism, and the forging of an academic concern for modern issues from industrial design to the planning of cities. The Bauhaus was closed in 1933 by order of the Nazi Party (ibid). Its enduring influence however, was primarily through its publication, the *Bauhausbucher*, in which it had “spread a potent image or myth about itself” (Crinson and Lubbock, 1994. p.94), through 14 publications between 1929 and 1930, articulating a more holistic and coherent view of its ideals and ethos than were probably extant in reality (ibid).

Students in the UK were influenced by Gropius and the Bauhaus and, although the AA had initially rejected the Bauhaus model, its ideas and methods were becoming more widely discussed. There was, at that time, little sense of how the Bauhaus ideas might translate into an educational system.

2.7 Modernism and the Architectural Association

In the 1930s there was something of a schism between the more radical educationalists (and their students), who advocated modernism, and the established order, who followed the Beaux Arts. One of the principle battlegrounds for this was at the AA, where, in 1936, the new principle E.A.A. Rowse changed the structure of the teaching programme from five consecutive years, in which students progressed from one ‘year’ group to the next, to a system of 15 teaching units, each under the supervision of a unit tutor, which consisted of around 17 students all at different stages (ibid). The idea was more akin to the ateliers of the early *École Royale des Beaux Arts*, or even the Italian *Academie Platonica*, with students operating under the guidance of a master. The aim was to allow students to support each other through research. The unit would have a theme that set the framework for research and design for all of the students in that unit. The approach was modernist, in that designs were not produced simply based upon precedent and a flair for composition, which characterised the individualistic and competitive system of the Beaux Arts, and the examination format of the RIBA, but were something that followed an integrated exploration and analysis of the issues, prior to starting to design (ibid). Rowse advocated this deeper approach to research, which he felt was missing from the Beaux Arts agenda, with its focus on composition.

In 1937 the students of the AA published a report, which outlined their ideas for the way that the course could be improved. This report became known as ‘The Yellow Book’ and was “one of the first manifestos of modernist architectural education produced in this country” (Crinson and Lubbock, 1994. p.103). The report was quite far reaching; not only suggesting much deeper integration of structural, constructional and design teaching or rejecting a simple chronological approach to architectural history in favour of a more nuanced history of

social movements, but also in its critique of the “elaborate system of consciously imposed competition” (ibid. p.104), leading to formal qualification.

In 1938 the school saw quite a lot of turmoil, as Goodhart-Rendel produced his own educational manifesto, which harkened back to the Beaux Arts, and Rowse was dismissed. Students and staff (loyal to Rowse) were deeply opposed to any changes. By 1939 a new advisory committee had been established “loaded with modernists, to make recommendations on educational policy” (ibid. p.106). Similar changes had been taking place in other schools across the country, perhaps less dramatically, but no less importantly, most notably at Liverpool, where projects with a distinctly modernist agenda were now being set and tutors and visiting critics associated with modernist ideals (including Gropius) loomed large (ibid).

2.8 1940s and 1950s

Following the second world war, in the 1940s and 1950s, Britain developed an ambitious building programme for schools, hospitals, housing and industry, which became the driver for a great deal of research and development in construction and environmental technologies. The Building Research Station through its relationships with industry, the Nuffield Foundation Division for Architectural Studies and the development of multi-disciplinary research teams, and the Ministry of Education, through publication such as the School-Building Bulletins were all pushing the boundaries of architecture and construction (Musgrove, 1983). All the schools of architecture had, by this time, shifted to “some form of modernism” (Powers, 2015. p.13), although within the schools there were still rumblings of discontent and a suggestion in some quarters that getting rid of the Beaux Arts hadn’t really achieved the fundamental shift that was anticipated. “We have reacted, but I do not think the reaction has got rid of the trouble, because we live in an academic age” (Raymond Erith speaking in 1960, quoted in Powers, 2015. p.13).

Within the RIBA there had been debates about architectural education throughout this period, with (to simplify a complex history) something of a power struggle between traditionalists and modernisers. By the mid-1950s “a new breed of younger, public authority modernists had come to dominate the Board of Architectural Education and the RIBA Council” (Crinson and Lubbock, 1994. p.131) and by 1956 proposals were being made for a conference aimed at modifying the education of architects (Musgrove, 1983; Crinson and Lubbock, 1994).

2.9 The Oxford conference 1958

The Oxford conference held at Magdalen College in 1958 and organised by the RIBA, is seen as something of a watershed in the history of architectural education. It was driven by a small group of modernists, including Leslie Martin, professor of Architecture at Cambridge and Richard Llewelyn Davies, later to become the head of the Bartlett school of architecture in London (1960). The conference recommendations laid out a framework for architectural education, calling for higher entry standards (at least 2 'A' levels), the situating of 'recognised' courses within universities, abolition of non 'recognised' courses, full time study or combined full time/sandwich study, development of other forms of training, for those interested in related disciplines, but not intent on entering the profession, and the development of post-graduate / research courses (Martin, 1983).

Prior to the Oxford conference there had been a number of different routes into the profession. At the time of the conference almost half of the students entering the register had not been trained at 'recognised' schools, but had taken the RIBA examinations as external candidates (Musgrove, 1983). As well as the 'recognised' schools there were also 'listed' schools, with full time courses, at the end of which the students took the RIBA examinations, and 'facilities' schools with part time courses, which were also not exempted and similarly led to external candidacy to RIBA via its examinations, but which also allowed students to work in architectural practices in a form of pupillage. This situation subsequently changed, as more and more schools aligned with what was now being thought of as the 'official system' and the recommendations made at Oxford began to be realised (Crimson and Lubbock, 1994).

2.10 After the Oxford conference

In the decades that followed the Oxford conference there was a shift in the structure of architectural education in Britain, as more and more courses aligned with the 'official system' and became absorbed into, or established at, universities and polytechnics. The entry requirements had risen to two 'A' levels, in accordance with the directions of the Oxford conference, and at the same time there was a rapid growth in student numbers. The teaching of architecture became an academic subject, although not a subject that was divorced from the realities of making buildings, as courses embraced the development of environmental sciences and material and construction sciences. At the Bartlett school, for example, in the 1960s, under the leadership of Llewelyn Davies there was a move to bring the arts and sciences closer together, in an overhaul of the curriculum, which was somewhat akin to the ethos of the Bauhaus in many ways. There were arts classes aimed at freeing up the students from pre-conceived ideas, and adjacent workshops in design based on an

expression of form and material, and an understanding of the physics of design. According to Crinson and Lubbock (1994), Llewelyn Davies saw the first year of the course as “the time when the fundamentals of a range of science and social sciences should be taught, in order that the environmental and social factors should be seen as inherent to the process of design” (p. 148). Powers (2015) describes it as “a science-based approach to design, from which traditional forms of architectural knowledge were virtually excluded” (p. 14). Architecture was seen as a social art, but one that was to be dealt with “by using the newly related specialisms to re-examine the activities that it served, discarding the lessons of precedent, traditions and conventions” (Crinson and Lubbock, 1994. p. 153).

The architecture schools of the sixties and seventies were quite experimental in their methods, and new ‘technological’ approaches to architecture flourished in the new intellectual environment of the universities. The architecture profession was confident and forward looking and had faith in the reinvention of the world through scientific, social and technical thinking. However, the period was also to see a loss of faith within the profession. A financial crisis at the RIBA, coinciding with a decrease in architects’ commissions, led to concerns within the profession about the purpose of architectural education.

Powers (2015) discusses how “the end of the 1960s brought a more general shake-up of education”. There had been a rise in interest in Postmodernism throughout the 1970s, with its rejection of the purely scientific approach in favour of reference to precedent and cultural symbols. There were community architecture movements that rejected formalist architectural ideas in favour of social engagement. There were graphically driven provocations, such as Archigram’s ‘Walking Cities’. There was also a corresponding rise in theory, which encompassed social theory, aesthetic theory, phenomenology, and other radical approaches to architectural ideas. “Taken collectively, they demonstrated the breakdown in supposed unity, and a form of pluralism” (p. 15).

Regardless of content, the ‘official system’ had become firmly established. There is an argument that this represents a freeing of the shackles of a certain kind of established dogmatism represented by the Beaux Arts. Indeed, the transformation in architectural education under the influence of modernism after Oxford 1958 has led to a blossoming of creative and technological innovations in architecture and associated disciplines of urban design and town planning, and has seen the emergence of a spectrum of theoretical and philosophical enquiries that have led to a great deal of diversity within the system. However, as Crinson and Lubbock observe, “the Official System can also be seen as having great consistency with certain Beaux Arts ideals, refining and taking some of them to an extreme... The variety of routes into architecture... had been transmuted by the 1960s into a

uniform system. Thus, modernism in Britain did not destroy the academy, it perfected it” (p. 154).

2.11 Underlying tensions

Throughout the history of architectural education there has been an undercurrent of tensions, conflicting philosophies on its form and content and contradictory approaches and practices that have meant that it has always been in some state of flux. There are conflicting demands of academia and practice, both in terms of the ideals embodied in each, as well as in relation to the changing structural and political form of each. “Architectural education has always been in tension with architectural Practice” writes Broadbent (1995), adding: “that’s as it should be; practice sometimes gets complacent and education is there as a kind of conscience”. From the Académie Royale de Architecture; from the Beaux Arts, by way of the Bauhaus, to the ‘official system’ overseen by the RIBA there have been questions of how to achieve some kind of equilibrium between these two fundamental aspects.

Those who see architecture as a *discipline* of design and building tend to emphasize the *study* of it, while those who see architecture primarily as a *professional practice* of designing and building emphasize the *doing* of it (Teymur, 1992. p. 17).

In 2013 the Standing Conference of Heads of Schools of Architecture (SCHOSA) published a review of the structure and regulation of architectural education called Pathways and Gateways (Wright, 2013). The RIBA launched a review of architectural education in the UK: the ‘RIBA Education Review’ (RER). This is an ongoing process and considers a range of issues including EU legislation, rising student debt and the proliferation of architecture courses outside the UK. The review seeks alternative structures for architecture courses. The online RER statement states: “The RIBA Education Review group, representing academia and practice, intends to catalyse relevant new models for architectural education, to be taken forward and established by schools of architecture and other course providers” (RIBA, 2017).

Crinson and Lubbock (1994) concluded that, whilst there had been great changes in architectural education, particularly in recent years, the model established by the Beaux Arts (transformed into the ‘official system’) had, in the main, endured. “Theoretical changes in the history of architectural education”, according to Powers (2015), reflecting upon Crinson and Lubbock’s conclusions, “had essentially been only changes of fashion” (p. 16). The range of various methods and theoretical positions adopted by architecture schools in the wake of modernism and post-modernism are a response to a variety of influences, interests and agendas to be found in both academia and 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” (McClellan, 2009. p. 25).

2.12 The persistence of the design project

This “plethora of diverse approaches” gives rise to a seemingly endless range of architectural ideas and dialogues that are rich, complex and tremendously varied. However, they generally take place within a “uniform and homogenous educational setting” (ibid. p. 25). In the main, the ‘theoretical’ design project, engaged with by students in a shared (collaborative and competitive) design studio, with access to experts in the form of academics, practitioners and others, and culminating in a public presentation of the individual design solution, persists. It is acknowledged that it is an intense and difficult education; what Powers (2015) refers to as “a labour-intensive process of learning that can veer between misery, exhaustion and rare moments of delight” (p. 17).

The RIBA publication ‘Radical Pedagogies: Architectural Education and the British Tradition’ (Froud and Harris, 2015), provides a flavour of the most recent debates about the future of architectural education and explores possible developments and practices that will be relevant for architectural education and the profession in the 21st century.

Perplexingly, the education of students to join a profession that is often regarded with envy by those outside it, is, in fact, grounded in conflict. Some readers will, however, be used to the idea that architecture education is a scene of instruction against which *sacrifice* has to be made; the axiom ‘if it doesn’t kill you, then you’re no good’. All those participating in the teaching of architecture should recognise this truth without feeling satisfied in making such an acknowledgement”

(Gloster, 2015. p. viii)

Within the range of innovations in architectural education currently being explored, the design studio project, culminating in the DPR, remains central to the processes in architectural schools, although its effectiveness has come under scrutiny in the last thirty years and continues to exercise academics and students:

Experienced tutors and professors are rightly esteemed by the school, but their very experience leaves a generational ‘gap’ between themselves and their students. Many have not been students themselves for a long time and can potentially romanticise past experiences that really don’t work as effective teaching tools in today’s studio.... The critic is one such example. There is a real danger to the creative process in incubating a people-pleasing mentality. It becomes impossible to cultivate a collaborative environment (Dutton, Gaskin, and Telberg, 2015. p. 82).

Just as the design project, and design project review, remain a mainstay of the architecture student’s experience (and have been remarkably resilient through the changing landscapes of architectural education), so the disquiet and concern that something is not right about the

process continues to exercise the minds of architectural students and architectural educators.

Changes in architectural education are fundamentally driven by political and societal changes. Since 1998 students at universities in the UK have had to contribute to paying course fees, initially set at £1,000.00 per year this had risen by 2013 to £9,000.00. This placed increased pressure on students to partially fund their studies, through part time work, which potentially alters their relationship with the university, and consequently with the educators. Since the 1980s the growth in the power of and use of computers within architectural education has been exponential; current students have enormous computing power at their fingertips and the ability to create extraordinarily detailed computer models and representational graphics. With the development of the internet through the 1990s and of social networks in the 21st century, the contemporary architecture student operates in a very different social and educational context. Vowles (2012) finds that:

The context of the studio in UK architecture education is evolving due to changing economic, financial, technological and social conditions. It has come under pressure from several quarters, including space charging, student numbers, the impact of the virtual or dispersed studio, student fee increases, student lifestyle aspirations and employment (p. 46)

Powers (2015) suggests that there is an “intensity of self-belief amongst educators” and advocates that “if architectural education is a fiction, the stories could at least be more varied and genuinely engaging” (p. 17)

Slick digital presentations in digital moving images or laser cut models are now all too easy to achieve, while the underlying social and physical substance of architecture remain as neglected as they were in the worst excesses of the Beaux Arts (ibid. p. 17).

2.13 Summary

There are a number of ‘radical pedagogies’ that have emerged in architectural education in the last thirty years or so, including explorations of critical regionalism, the introduction of the project office in universities, and the use of live projects, with real individual clients, or community groups. The relationship between design and manufacture, including digital manufacturing such as 3D printing have been (and are being) explored. New forms of relationships between academia and practice (modern versions of pupillage), such as the relatively new London School of Architecture (Froud and Harris, 2015), are emerging.

There seems to have been a rumbling ‘crisis’ in architectural education for at least the last sixty years; since the previous crises were ‘settled’ at the Oxford conference.

It also seems to be that we may now be at something of a point of departure. Even so, Vowles, Low, & Doron (2012) concludes that “studio culture endures as both a rich and intensive medium of teaching and learning, lending weight to the conventional wisdom that studios are ‘a good thing’” (p. 46).

The following chapter takes a closer look at design studio and design studio projects, explores the epistemology of architecture, and reflects upon the problems and potential of the design studio and the design project review for contemporary architectural education.

Chapter 3 Situating the Design Project Review

In any discussion about 'the crit'...in architectural education we quickly find how slippery is the object of scrutiny, in that the crit is a sophisticated social event that is traditionally both an assessment of representation... and a reproduction of the social relations in the architectural profession (Vowles, 2000. p.259).

3.1 Epistemology of architectural design

The primary focus of activity in architectural education is the design project. Students work both collaboratively and independently in a variety of situations. Architectural courses vary in their construction and patterns of delivery, but the format of design projects tends to be relatively similar with an assortment of reasonably standard components and modes of interaction. Students normally engage with projects as a group, often as a whole cohort at a particular level or sometimes in smaller units within a cohort. The size of the group may vary, but might typically involve 20 to 50 students or more. Design projects have a lead tutor who sets out the design brief and the overall timetable and agenda for the project. The lead tutor will have assistant tutors and together they will provide tutorial support for the students on a regular basis (once or twice a week). Staff:student ratios for design tuition vary but may typically range between 1:8 – 1:20 (Vowles, Low, & Doron, 2012, p.42). Projects normally involve a period of research, which might include a site visit, analysis of location, development of brief, analysis of functional and programmatic requirements and the study of precedent. Seminars and group discussions explore themes and develop ideas. Tutorials (sometimes referred to in the literature as 'desk crits', in American terminology) with individuals and sub groups, discuss and explore emerging ideas and designs. Interim and final design project reviews (variously called 'crits', 'reviews', 'juries') critique the work and provide feedback.

3.2 Constructivism

The literature encompassing architectural pedagogies (and other art and design disciplines) is broadly constructivist, and relates to social theories of learning that see the processes of developing architectural knowledge as something that is the result of active participation by individuals within a social group. In this sense knowledge and knowing are lived experiences, constructed by the individual and contested and contestable rather than complete and unchanging. Meaning is therefore not something that is initially held by the teacher and transmitted to the student, but rather something that is arrived at by the student through engagement in meaningful experience, which can be questioned, interpreted, reflected upon and developed. Fosnot (2005) points out that constructivism is not a theory of teaching, but that it does allow for a different relationship between the teacher, the teaching activity and the learner:

The classroom in this model is seen as a mini-society, a community of learners engaged in activity, discourse, interpretation, justification, and reflection. The traditional hierarchy of teacher as the autocratic knower, and the learner as the unknowing, controlled subject studying and practising what the teacher knows, begins to dissipate as teachers assume more of a facilitator's role and learners take on more ownership of the ideas. Indeed, autonomy, mutual reciprocity in social relations, and empowerment become the goals. (p.ix).

The individual student constructs and reconstructs personal models/representations of their reality as new patterns of relationships are perceived through their engagement with the world.

Learning, as a process of constructing knowledge, is central to the work of Jean Piaget (1896-1980) and Lev Vygotsky (1896-1934), both of whom developed theories of learning that situate the learner in a self-structured framework of learning within a social context. Piaget, a biologist in his early career, developed the notion of "cognitive equilibration", in which he proposes that "the mechanism for promoting change in cognition was the same as that in evolution – namely equilibration" (Fosnot and Perry, 2005. p.16). The way in which this comes about, he suggests, is through a "dynamic process of self-regulated behaviour balancing two intrinsic polar behaviours, assimilation and accommodation" (ibid. p. 16). 'Assimilation' being one's self-directed action in the world and the tendency to seek out new knowledge; to make sense of new situations or ideas. 'Accommodation' is the internal reflective process (reflective abstraction), by which we integrate the new knowledge and change our behaviour. Vygotsky approaches the subject through an enquiry into the relationship between the development of language and thought. He explores the notion of 'inner speech', suggesting that conceptual ideas arise (in a child) spontaneously and that there are two aspects to this, the "concept-in-itself" and the "concept-for-others" (ibid. p. 24), the latter being the language required in order to explain the concept to others. Vygotsky examines the relationship between the ability of a child to grasp concepts, and the teaching of existing conceptual models. "Vygotsky believed that, whereas scientific concepts work their way 'down', imposing their logic on the child, spontaneous concepts work their way 'up', meeting the scientific concept and allowing the learner to accept its logic" (ibid. p. 23). The term that Vygotsky uses to denote this place, where the spontaneous concept meets the scientific concept is "the zone of proximal development". Because this is a complex situation, which involves the expression of ideas verbally, to negotiate an understanding of meaning between a learner, a teacher and others, Vygotsky also studied dialogue more generally. "He was not only interested in the role that inner speech plays on the learning of concepts, but on the role of the adult, and the learners' peers, as they conversed, questioned, explained, and negotiated meaning" (ibid. p. 24).

Piaget's and Vygotsky's theories on learning are not diametrically opposed, but are, conceptually at least, quite different. Both are grounded in actions; of being (and growing, developing, learning) in the physical world. For Piaget, the biologist, this is naturalistic. Learning is primarily an internal process that gives rise to, and shapes external interactions. For Vygotsky, the psychologist, learning arises from, and within, social contexts of human interaction.

Piaget is more concerned with the development of universal processes for the validation of knowledge, and Vygotsky is more focused on psycho-socio-historical genesis and its interpretation. One is more devoted to the discussion of the constructive character of interpretation and the other more to the interpretive dimension of construction. As such they complement each other well. (Tryphon and Vonèche, 1996. p.9).

Biggs (1996) discusses a number of different constructivist theories and describes a learner-constructed framework for learning as follows:

Whatever particular constructivist theories may variously emphasize, a consensus would be that learners arrive at meaning by actively selecting, and cumulatively constructing, their own knowledge, through both individual and social activity. The learner brings an accumulation of assumptions, motives, intentions, and previous knowledge that envelopes every teaching/learning situation and determines the course and quality of the learning that may take place. (p. 348).

In architectural design the experience that is being transformed is an experience of making things. Learning to design involves the development of a range of techniques of representation, including physical and virtual model making and drawing, in a variety of media, from pencils and pens and cardboard and glue to photography, computer aided design (CAD) and other digital techniques. The construction of architectural knowledge is contiguous with the construction of the objects of design.

There is a very strong aspect of co-learning in architecture and one of the key features of this situation is the relationship between the design work produced by the student and the dialogue that takes place about that work (and the work produced by others) between students, and between students and tutors, in diverse conversational circumstances. Students predominantly work in a studio environment alongside their peers and (inevitably) engage in conversation within this forum about a wide range of topics, including the specific design projects, as well as about broader issues around the subject, around the development of design and communication techniques and around personal/professional development (amongst other things). In this way, architecture students both acquire (construct) their knowledge about design and develop their knowledge of the processes of designing. The student is the central, active participant. As such, the experience of the

student is critical to their own personal development, as new knowledge transforms (and guides) their ever-evolving understanding.

3.3 The design project

The design project is the primary activity within architecture and architectural education. Students are learning to design, and the process by which they learn is through engaging with a design project. Donald Schön (1983) proposes a model of professional education centred on enhancing the practitioner's ability for "reflection-in-action" (p.49). Schön's theories were developed through an analysis of the architectural design studio as an educational model, in which he explores the design processes and corresponding dialogue that takes place in a studio context during the development phase of architectural design. Learning in architecture is essentially experiential. Architects learn by doing; by talking about what they have done, and by reflecting upon what they have done and what they have discussed (Dewey, 1998, Gibbs, 1988, Kolb, 1984). The design projects can vary enormously, from abstract sculpture to design of furniture, from exploring components and building systems to broad strategies for urban design and intervention, from interiors to superstructures, from imagined worlds to live projects. The process includes problem solving, but can be much more than this, in that design projects in architecture, typically, also include having to identify the problems in the first place. They are not necessarily given, but emerge through analysis of the issues and through design activity. Learning-by-doing, in this context, requires students to start doing before they know what it is that they are trying to learn (Schön, 1983, 1985).

Issues students become concerned with in their investigation of architecture are directly influenced by the nature of this pedagogy. In a very real way, [the design project] becomes an instrument for revealing to students how they come to perceive the world (Dutton, 1991. p.179).

Design normally takes place within a studio, or allied to a studio, where students can work alongside each other and both see and discuss each other's emerging designs. Periodically students attend a tutorial with a design tutor to discuss progress, or to explore a specific issue. At the tutorial, ideas and solutions are explored and analysed. This can be as a one to one discussion, but is more commonly a desktop tutorial with a small group of colleagues and one or more tutor, or occasionally as a pin-up exercise akin to a DPR event, but without any expectation of having a finished product. Following a tutorial, the student will refine their design thinking, or explore alternatives. A new design position is reached, which is then discussed at another tutorial/pin-up, and further refinements are made, and so on, until design resolution is achieved. Typically, a structured programme of learning would have interim goals to allow students to gauge progress and to engage with the problems and

solutions at ever greater levels of detail. In his analysis of an architecture studio at the Massachusetts Institute of Technology (The Oxford studio), Shaffer (2003) identifies a series of cycles of activity that take place within the studio, including tutorials (or desk crits) and pin-ups (see Figure 1. below). Reflecting upon the nature of the desk crit Shaffer writes:

Schön... analyzed a key interaction of the design studio, the *desk crit*: an extended and loosely structured interaction between designer and critic (expert or peer) involving discussion of and collaborative work on a design in progress. Schön suggested the crit is central to the development of a student's ability to design thoughtfully. In Schön's description, the desk crit functions as an instantiation of Vygotsky's... *zone of proximal development*, with development taking place as learners progressively internalize processes they can first do only with the help of others. (p.5).

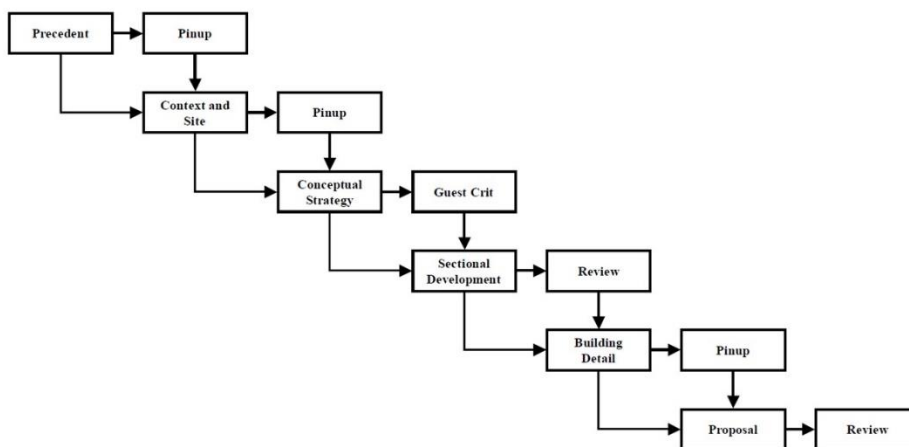


Figure 1. The assessments of the Oxford Studio as a series of presentations (ibid. p.20).

The work produced by the student, and brought to a tutorial or review for analysis and discussion, can be developed in a variety of media, and can include physical models, architectural drawings (plans, sections, elevations, axonometric and so on), computer renders, collage, photo montage and video/animation. Different techniques of representation can emphasise different elements of a design and contribute to the variety of ways in which solutions and approaches are explored. Using different media can alter the way students and tutors perceive the problems and can be an important element of the iterative processes in design activity. In architecture the process of design is the process of expressing an idea through modelling, drawing etc. The act of designing is an act of doing, of making, drawing. This 'reflection-in-action' is what Schön (1983, 1985) identifies as the cognitive basis of design activity. Oxman (1999) suggests that what the student produces is effectively a physical expression of the knowledge that they have acquired, and represents their ability to make sense of that knowledge in an expressive and meaningful way:

The constructional form provides a representation of the structure of knowledge which the student acquires. Design learning then may be considered a process of knowledge acquisition and development in which the knowledge is physically constructed. This contributes to an understanding of the cognitive processes which are characteristics of design. (p. 6).

3.4 Approaches to learning

Individuals learn in different ways. Engaging in similar activities can lead to different learning outcomes, depending upon how an individual approaches the task. Marton and Saljo (1976) developed the notion that there are approaches to learning that can be categorised as 'deep', as opposed to 'surface'. These polarities provide a simple metaphor to frame the idea that some approaches are mechanistic, repetitive, rote (surface), whilst others are more deeply engaged, independent, curious, questioning (deep).

A 'deep' approach to learning is one in which a person tries to understand and construct meaning from a learning event (such as reading this paper). A person using a 'surface' approach does not see past the text to the sense and the meaning of the passage: they would simply try to remember the text (Webb, 1997. p. 195).

There is an argument that effective learning depends upon the approach that a student takes to a learning task. A 'surface' approach is where a student might aim to complete a task with minimum trouble, or effort, such that learning becomes superficial. Biggs and Tang (2011) suggest that when a surface approach is taken "learning becomes a drag, a task to be got out of the way. Hence the presence of negative feelings about the learning task: anxiety, cynicism, boredom. Exhilaration or enjoyment of the task is not part of the surface approach" (p.25). Deep learning, on the other hand, allows the individual learner to construct knowledge from a more involved relationship with the learning task, which provides a more fulfilling, meaningful experience.

When using the deep approach in handling a task, students have positive feelings: interest, a sense of importance, challenge, exhilaration. Learning is a pleasure. Students come with questions they want answered, and when the answers are unexpected, that is even better" (ibid. p.16).

The approach that an individual takes does not mean that this is always going to be characteristic of their engagement with any given task. A different approach may be applied in different situations, depending upon how a task is perceived and how it relates to previous experiences.

The deep/surface dichotomy does not characterize a stable characteristic of the student, but rather describes a relation between the student's perception of a task and his approach to it. The student's perception of a learning task encompasses a multitude of things: it depends on its form and content, on its relation to other tasks, on the student's previous experience, on the student's perception of the teacher who marked it and how it will be assessed. But the operational outcome of this

combination of judgements and perceptions is an intention either to understand or to memorize, and thereby to use either a deep or surface approach. (Laurillard, 1984. p.135).

Thus, Marton and Saljo (1984) interpret the 'approach' to learning as something that an individual learner brings to a task. The same person might take a 'surface' or a 'deep' approach and their choice to do one or the other would affect the outcome:

We had been looking for an answer to the question of why the students had arrived at those qualitatively different ways of understanding the text as a whole. What we found was that *the students who did not get "the point" failed to do so simply because they were not looking for it* (their italics). (p. 39).

Design projects in architecture can be seen as 'deep' learning exercises, in that they require an involvement within the learning experience that is anything but mechanistic or rote. Through engagement with the task 'deeply', students begin to construct their own theories of design. For effective learning Biggs and Tang (2011) advocate a deep approach and set out four factors that might encourage a student to engage deeply in a learning task:

An intention to engage the task meaningfully and appropriately. Such an intention might arise from an intrinsic curiosity or a determination to do well;

Appropriate background knowledge and a well-structured knowledge base;

The ability to focus at a high conceptual level, working from first principles;

A genuine preference for working conceptually rather than with unrelated detail

(p. 26).

Such an approach would be expected in situations where knowledge is constructed. The individual is always central to the task and, as such, sees the act of doing, and the act of constructing meaning, as indivisible.

The deep approach arises from a felt need to engage the task appropriately and meaningfully, so the student tries to use the most appropriate cognitive activities for handling it...When students feel this need-to-know, they automatically try to focus on underlying meanings, on main ideas, themes, principles or successful applications. (ibid. p.26).

The deep approach, set out in this way, has a close alignment with reflection-in-action (Schön, 1983), in the sense that architectural design activity is a reflective process, involving meaningful dialogue in which students build upon previous knowledge through iterative stages of design development. The architectural project and associated means of engagement, including tutorials and DPRs, provide potent opportunities for 'deep' learning.

3.5 Conversation Theory

In addition to notions of deep and surface approaches to learning, it is worth considering Conversation Theory (Pask, 1976), which poses a different, but not entirely unrelated, model. Marton and Saljo developed their theory of 'deep' and 'surface' through research conducted in relation to how students approach reading a text; whether they simply tried to remember the information provided (surface) or whether they tried to comprehend the meaning of the information (deep). Pask explored a different type of pedagogic task, whereby students were given a problem to solve. Regardless of a student's approach to the task, the successful completion of the task meant that the problem had to be solved. What Pask found was that within an overall subject domain there are two distinct ways in which students examine a task: 'locally' and 'globally'. In the first, when students are thinking 'locally', they are attendant to matters of detail and try to look at how things fit together, what the functions, effects and connections are between the components in a given situation. They explore and manipulate the elements. Understanding is based upon focusing upon what is given. In the situation where students are thinking globally, they are trying to reach out beyond the specific task to find connections and parallels with other situations. They are thinking about alternative theoretical frameworks that they can apply to the task. To paraphrase Laurillard (1984), if we were to consider geometric triangles as the subject domain, for example, then the local manipulative level of thinking might be around exploring "techniques, such as constructing a square on a line" (p. 139), whilst the global theoretical level might give us Pythagoras' Theorem.

'Conversation', in this model, is the way in which a student makes sense of, and is able to articulate, what they know; how they are able to explain what they know both to themselves and to others, and how they might look for and compare alternative explanations. Knowledge is constructed through articulating ideas and interpreting the opinions and ideas of others.

In Pask's theory, participants may agree, or agree to disagree, but will always acknowledge a new thought about what is being jointly considered. In this way, Pask's theory describes the possibility that human society has the means to continually renew and reproduce itself, to create the new, the unpredictable, the imagined, to engage with differences, through engaging in learning conversations. (Shumack, 2010. p.4).

The conversations in Conversation Theory are at both the 'local' and 'global' level of thinking. Pask theorised two modes of learning: 'Comprehension learning' (either locally or globally), which involves describing what is known, and looking for analogies and interpretations of meanings; and 'Operation learning', where hypotheses are developed through manipulation and testing of techniques and procedures. 'Operation learning' is a vertical structure, from 'local' to 'global'. 'Comprehension learning' is across the domain,

whether 'local' or global'. Laurillard (1984) suggests (tentatively) that there is some correspondence between 'surface' and 'local' and between 'deep' and 'global', or at least she is able to conclude that a 'surface' approach is unlikely to be compatible with 'global' thinking. In relation to Conversation Theory, she summarises that Pask tells us:

...that for any problem, there are global and localized forms of description of its domain, and the student has to be able both to manipulate the concepts and relations between them and to interpret the meaning of those manipulations (p. 142).

In thinking about architectural design, the architecture student is challenged to consider localised issues when creating forms and spaces driven by an enquiry into specific contextual influences or functional / technical requirements. Equally, the student, developing a project conceptually, or adopting/forming a theoretical position about their work relative to other concepts, theories and practices in architecture, must also be thinking 'globally'.

3.6 The design studio

The design studio has become the 'heart and head of architectural education'. Some proclaim that as a pedagogical model, the design studio is incomparable in its intensity and involvement (Dutton, 1991. p.165).

The design studios in schools of architecture are the central focus of activity. They are places where large numbers of students can spend large amounts of time working on their design projects. The typical design studio will contain desks and surfaces for layout of drawings; model making facilities; meeting spaces; drawing boards; computers; kit and equipment for making and drawing; storage spaces for work in progress, personal effects, useful materials and so on; pin-up space; discussion space; display areas and other flexible spaces for a variety of occasional needs. It is typically, a busy, shared, lived-in environment, which contains the various pieces of developmental work, produced (and sometimes discarded) by students who share the space.

Models, drawings, artworks, installations, half formed concepts, slick presentational graphics and so on, are all artefacts within the studio space, which in turn become the subject of further reflection and discussion during the period of the design project and sometimes beyond.

All work in progress is made public... One of the things you learn in an architectural studio... is to accept critique..., to accept that, to appreciate that, and to learn from that. And that is one of the key platforms that you want for lifelong learning. (Brown, 2008. Video)

The artefacts produced by students within the studio environment become the basis of communicating their ideas through reflection, through tutorials and DPRs, as well as through other more casual conversations and interactions. These interactions allow for ideas and

insights about the functional or aesthetic aspects of design thinking to be shared and built upon, in a kind of continuous feedback loop that informs the learning experience.

From the everyday “Hey, can you take a look at this?” to the masters’ critique, learning in a studio is constant and multidirectional, formal and informal. Collaboration means communicating concepts, critiques, and questions for the betterment of the individual designer and the entire team. Studio surfaces are notoriously littered with inspirations, precedents, concepts, and drafts. In the studio, the process - not just the product - takes center stage... A culture of critical collaboration reframes the concept of failure. In the design studio, mini “failures” are endemic - but they are known by less pejorative names: prototyping, modeling, tinkering, discovery. (Turckes and Kahl, 2011. para 4)

The design project as a learning vehicle, and the design studio as a learning context, occasion a range of interactions between students, and between students and tutors, that support the student to carry out the task of designing (and hence learning). Thus, the design studio becomes a form of design laboratory; a location for design experimentation; for the testing of design hypotheses. The QAA Benchmark statement for architectural education in the UK acknowledges that:

The word 'studio' means much more in architecture education than a convenient workroom. It evokes an image of creative cooperative working in which the outcome: the architectural design and the educational benefit in terms of skill development, is greatly superior to that which could be achieved by the individual student working alone. (Borden *et al.*, 2010, p.13)

The creative, cooperative interactions that take place in the working environment of the design studio are generally referred to in design education as ‘studio culture’ and can often entail a significant shift in students’ modes of learning and personal development.

Although no definitive description of the studio prevails, some core features can be identified: the specific use of material space, project-based learning, learning-by-doing and the requirement for students to experience physical, temporal and cultural immersion. (Corazzo, 2018. p.1250)

The power of the studio as a means of engagement with the subject, and of socialisation into the practices of learning architecture, is particularly apparent in the early years, for students starting their courses, who have come from very different educational backgrounds and often with little knowledge of the subject, or of the processes of design and the breadth of activity that this can entail.

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. (McClellan, 2009. p.96)

The design studio is a place for working, for learning and application of learning. It is also a place for social interaction and often the scene for key events in the cultural life of an architecture school. Within this context, over a period of time, through processes of making, showing, remaking, discussing and so on, the student of architecture develops, in the studio, their abilities to think and act as an architect. The design studio has a number of aspects that are closely aligned and serve to reinforce each other in what Shaffer and Resnick (1999) describe as a “thickly authentic environment” (p.6), which they list as:

- (a) goals that matter to the community outside the classroom,
- (b) goals that are personally meaningful to the student,
- (c) ways of thinking within an established discipline, and
- (d) the means of assessment...

...for example, in the design studio when personally meaningful projects are produced and assessed according to the epistemological and procedural norms of an external community (ibid. p.6).

As an active participant in the process, the student is invested with the responsibility for effective engagement, which in this context relies on the motivation of the student and their confidence in what they will be able to achieve. The student’s own reflection upon their abilities (and hence their confidence and motivation) derives from their reflection upon their own output and the output of other students in the same situation, as well as the perceived abilities and attributes of students at different stages of progression towards becoming an architect.

The design studio can be conceived as an optimum environment in which to develop the multiliteracies that serve important socializing functions for architecture students, such as communicating ideas, creative problem solving and justifying decisions. (Ardington and Drury, 2017. p. 163)

The processes that Schön encountered 30 years ago in architectural education are, in the main, still prevalent in contemporary architectural programmes; namely design projects driven by ‘learning-by-doing’, studio centred dialogue between students and tutors and project assessment through DPR. However, much has changed in university education since Schön’s analysis in the 1980s, not least access to, and ability to utilise, computers, internet, mobile phones and so on. Shaffer (2003) analysed a well-funded and well-structured studio, in which each student had a work-base and was able to spend most of their time working in that environment. Percy (2004) observes an increasing tendency for students to spend more time on computers and more time working from home:

The growth in student numbers meant that it was no longer possible to provide individual workstations or permanent ‘home bases’ in the college environment. Also the growth of dependency on specialist software in many design disciplines, had

aided the exodus from the students' engagement in the open studio to that of the private hinterland of the computer interface. But above all, the students themselves were pushing the agenda of independent learning. Pressure of personal finance, accentuated by the demands of student fees, combined with the desire to maintain consumer lifestyles, meant that the students needed to engage in part-time employment. The students were managing their own learning needs, orchestrating their access to studios and staff around their complex domestic timetables (p.144).

Changes in students' experience of studio culture in architectural education in the UK is picked up by Vowles et al. (2012) in their analysis of the topic and identifies similar themes to those discussed by Percy (2004) and later by McClean (2009), revealing a concern that the effectiveness of the educational model provided by the studio is being eroded by various factors that are contributing to a decline in studio engagement for a variety of structural and personal/societal reasons. However, in the main, they found that the typical studio in architectural education, whilst operating somewhat differently from the studios of the 1980s and 1990s, still maintains its central position as a valued focus for activity and learning.

Staff and students continue to recognise the intrinsic value of peer learning that is facilitated by interaction in studio, especially in undergraduate studies where studio learning can support the fundamental shift in thinking necessary in the transition from school pedagogy. (p.46).

3.7 The Design Project Review

'Interim' and 'final' design project reviews are of particular significance because they are the formal culmination of all of the studio actions and interactions, and the forum for students to (publicly) explain their work and receive critical feedback from peers and tutors. Dialogue and feedback are important components to this mode of study and can be critical to sustaining and engendering confidence and motivation.

The design project itself is the apparent object of scrutiny, but the subject of the dialogue is more divergent; less mechanistic, in that it can expand to encompass many other aspects of the student's progress and development. Danvers (2003) highlights this aspect of learning in art and design as being fundamental to the nature of learning as a form of self-discovery.

Within Art and Design there is a tendency to value and affirm divergence in learning and teaching. Learners are encouraged to progressively extend the arena of possibilities within which they operate, not to seek enduring solutions or answers but to open up unfamiliar territory and new ideas. By encouraging divergent thinking, trying out different ways of doing and making, and exploring different meanings and interpretations learning is experienced as a continuum of changing opportunities for revision, renewal and self-constitution. (p.50).

It is recognised here that conversations about developing design work can take many forms, because of the nature of design disciplines, being studio based, communal, and essentially, dialogical. "Individuals explore and articulate a range of different ideas and material

constructs within a framework of collective experimentation, risk taking and mutual responsiveness” (ibid. p.50). Conversations that take place within a DPR are inextricably linked to the shared experiences of the culture of the studio and the range of earlier conversations and events, both formal and informal, that have taken place.

...where the practice of designing takes place in the public domain of the studio...staff bring to the crit the history of the casual, open-ended, and serendipitous moments of intervention and informal dialogue that have taken place with the students in the design studios...’ (Percy, 2004. p.149).

Such ‘moments of intervention and informal dialogue’ constitute more or less constant formative feedback, whether through conversation between peers or more formally by design tutors through tutorials and reviews. The nature of design processes, particularly in this setting, mean that such feedback can rarely be fixed or prescriptive. Design processes entail an exploration of possible solutions. There is never a definitive answer. Students produce work that is highly individual and opinions offered are inevitably subjective (Oak, 2000). “The crit constitutes a heightened moment of exchange between staff and students” (Percy, 2004. p.152). What is happening in a DPR is, in essence, a form of feedback; but it is reflective, discursive, constructive, multi-layered feedback. In this sense, conversations at the DPR, whether an interim stage of design or as a final project review, are always ‘formative’ in nature.

Whilst the nature of formative feedback has been discussed in the literature since the 1970s (Bloom, Hastings and Madaus, 1971), it was not until the 1990s that interest in this area intensified (Boud, 1990; Sadler, 1989; Wiliam and Black 1996). At this time there was a growth in interest in assessment processes in higher education, coinciding with changes in the sector in the UK, which included increase in student numbers, introduction of modularisation, and the introduction of Quality Assurance Agency (QAA) audits. Blair (2006) suggests that this resulted in “a review of practice and more varied approaches to assessment being sought” (p.12). The dialogue at a DPR (as well as any written feedback received) is certainly aimed at bringing about improvement to the work and thus higher attainment; but it is also part of an ongoing (longer term) developmental process, rather than simply a summary of work completed and instructions for further action. At its root, in design education, and particularly within the context of the DPR, Blair suggests that ‘formative’ may be taken to mean “assessment for learning”, as opposed to “assessment of learning” (ibid. p. 13).

There have been a number of studies relating to formative feedback and its effect upon the quality of learning (inter alia: Black and Wiliam, 1998, 2009; Crooks, 1988, 2001; Gibbs, 1999; Hattie and Timperley, 2007; Kingston & Nash, 2011; Kluger & DeNisi, 1996; Sadler,

1989, 2005, 2010; Torrance, 1993; Wiliam and Black, 1996). They all concur that the purpose of formative feedback is to improve learning. However, the definition of what constitutes formative feedback and what the most effective methods for its deployment are, varies greatly. As Sadler (2010) notes:

Feedback is capable of making a difference to learning, but the mere provision of feedback does not necessarily lead to improvement... At the risk of glossing over the complexities of what is known about feedback, the general picture is that the relationship between its form, timing and effectiveness is complex and variable, with no magic formulas. (p.536)

Askew and Lodge (2000) suggest that “effective learning must include a wider conception of feedback than that of the dominant discourse and take on the characteristics of constructive and co-constructive dialogue” (p.2). Such characteristics are inherent in the DPR event itself, and within the wider context of the design studio. The dialogue (or parts of it) can be taken, at face value, as being formative feedback, directly related to the specific design project, but the exploration of this in architectural education goes beyond a conception of the discourse simply as feedback, because the DPR can be seen as having an important role in the “self-constitution” (Danvers, 2003. p. 50) of individuals becoming architects. “What is important in the teacher/student relationship is how they perceive and interact with each other and how they interpret and make sense of this interactive process” (Blair, 2006. p.18). This is complex in architecture education because of the nature of the work; being an exploration of possibilities, expression of ideas and so on.

The emphasis is on inventiveness, innovation and going beyond the status quo. Individuals and groups within a particular cohort may develop radically different modes of learning and signification grounded in divergent beliefs and values. (Danvers, 2003. p.51)

3.8 Tacit knowing

Design projects in architecture engender many different ways of thinking. There is no single solution, or a correct answer to be found, and so it is difficult from the outset to establish any commonly held understanding of expectations. There are multiple perspectives and students are encouraged to explore ideas and possibilities.

The DPR is a specific event, which includes feedback, in the sense of the pragmatic analysis of a student’s work and related instructions or recommendations for improvement. However, it also includes much broader discussions about ideas, representation, precedent, theory, practice and so on, that might relate to a particular student’s work, but might be far more generic; contextual; broad. In this way the interactions (at least from a tutor’s point of view) are more akin to what Askew and Lodge (2000) describe as a ‘co-constructivist’ model of education, in which the tutor considers themselves to be participating in the learning. The

knowledge that is being constructed isn't simply facilitated by the tutor, but the construction of the knowledge is jointly made with the tutor. Tutors see themselves as being on an even footing with the student.

Fundamental to this aspect of co-construction is the notion of meta-learning; that students are learning about learning; learning how their learning can be transformative not only for themselves, but for others around them.

In this model feedback is an integral part of the learning and better described as dialogue...[and] is much less concerned with judgements. Where it is understood that every part of the system interconnects, cause and effect are not considered so important. As a result, blame and criticism give way to problem-solving and extracting learning from the dialogue. The relationship is no longer one where the expert informs the neophyte of their judgement, but one where the roles of learner and teacher are shared and the expertise and experience of all participants are respected (Ibid. p.13).

Architects and architecture tutors might very well aspire to this model and, indeed, it seems to correlate with the 'studio culture' pedagogy of architectural education and the notion of the tutor in the design studio. Key to the success of this, of course, is the tutor. The tutor is required to be the expert both in relation to the discipline and in relation to processes of learning and personal development. The tutor sets the agenda and manages the process. Students in this scenario adopt a 'deep' approach to their work and become active participants in the process.

The situation is particularly complex, (for a student learning the discipline), because the encouragement to follow certain lines of enquiry (or ways of thinking) is not entirely (or overtly) objective and often depends upon the experience and knowledge of the tutor, which is not always easy to articulate or transmit to the learner.

It remains a challenging forum due to the inherently subjective nature of design studio discourse and practices based on largely tacit understandings of the discipline. (Ardington and Drury, 2017. p. 168)

According to Polanyi (1966) 'tacit knowing' is derived from experience. He uses the example that we can know a person's face, but are unable, through language, to convey that knowledge, or explain what it is (about that face) that we 'know', because "most of this knowledge cannot be put into words" (p.4). He also explores knowing through doing. What we do has an outcome; through repetition we learn to know what the outcome will be. We are able to anticipate outcomes. Consider the process of learning to play a musical instrument. This sort of knowledge is subconscious and not always able to be expressed in words. The same is true for more complex notions of meanings and, for example, ideas about what is good and what is not good. "Teachers' conceptions of quality are typically

held, largely in unarticulated form, inside their heads as tacit knowledge. By definition, experienced teachers carry with them a history of previous qualitative judgements” (Sadler, 1989. p.126).

Donald Schön’s (1983, 1985, 1987) contribution to the study of reflective practice, from his examination of processes encountered in architectural education, has been wide ranging. However, a number of researchers and writers have pointed out the limitations and methodological problems with his analysis (inter alia: Dutton and Willenbrook, 1989; Mewburn, 2011; Till, 2004; Usher et al., 1997; Webster, 2004, 2008). The central issue of their critique is that Schön takes a highly selective approach to the analysis of the design studio situation, which doesn’t fully allow for the complexities of human interaction, notably the asymmetry of the power relationship between tutors and students, and the active contribution to the situation made by the students. The student is cast as a passive recipient of expertise and wisdom from the accomplished studio master, rather than as an active participant in a vibrant learning environment. As Till (2004) puts it: “It is a classic display of domination, right down to its gendered structure and eventual denouement in the jury” (p. 167)

The theory of reflective practice is too simple, and design studios as learning environments are too complex. Schön’s theories may explain to teachers their own, internal, experience of designing, but they are not that helpful to the practice of teaching, especially of students who are beyond the novice stage. (Mewburn, 2011. p. 377).

Nonetheless, what Schön’s model highlights is the way in which students make design decisions and develop ways of thinking and working, which they are not able to fully explain. “In this model, designers make judgments and show skills for which they cannot describe rules or provide explanations. Understanding develops as practitioners refine tacit knowledge through work on subsequent iterations of the design process” (Shaffer, 2003. p.5).

The very nature of tacit knowledge is that it isn’t (easily) articulated, and so the reason that a particular observation or critique is made, may seem obvious to the tutor, but can often be quite obscure to the student. In a DPR event there can regularly be more than one tutor or reviewer appraising the students’ work. What tutors say to students, or to each other, may be interpreted in many different ways by those present. The dialogue between tutors, which carries with it multiple histories of “previous qualitative judgements” can amount to a form of shared tacit knowledge; what Sadler (1989) refers to as “a form of Guild knowledge” (p.126).

3.9 Acculturation

Design principles in architecture are not canonised as a single, unchanging body of knowledge, but each studio, each project, will engender its own perceived and constructed parameters. The very nature of architectural design involves an individual designer's personal interpretations of a design problem, which can have very many possible design solutions. Because the design solutions chosen, or developed, stem from an individual's perspective, there exists great opportunity for rich and complex discussions and debate about the work, which might encompass many different theoretical positions; explorations of technical issues and implications; reference to precedent or the work of other students; historical comparisons and so on. Such a process engenders a degree of freedom of thought that allows for a very flexible and creative approach. In this way the individual architectural student is engaged in a process of learning and personal development that is both self-directed and referential to the wider fields of architecture and the architectural profession.

Roos and Hamilton (2005) draw upon the work of Piaget, Vygotsky and others to explore education from a cybernetic viewpoint. The use of the term 'cybernetic' refers to the self-direction of the learner in an educational setting. Learning and personal development in this framework, becomes a teleological exercise, whereby students govern and direct their own learning. At the heart of this notion is the idea that the student, through learning, changes, and is able, subsequently, to decide how (best) to build upon these changes. The assumption is that "individuals are inducted and, in the process, induct themselves into ways of thinking, working and seeing" (p.16). The processes are deeply social, in that they theorise active participation by tutors and students in a learning community. The pedagogy of the design studio encourages divergent thinking, autonomy and self-direction within an overall academic and professional context. In this way, the learning process is a process of changing; of becoming, as much as it is a process of knowing. "The change will be in terms of increased knowledge, competence, skills, autonomy, self-empowerment and clarity about [their] role in society" (ibid. p.15).

The studio then, can be seen as a community, whereby a student's personal development is a process in which tutors and students participate in a 'community of practice'. Wenger (1998) suggests that theory and practice are interwoven in the context of the interactions and social norms that create (and are created by) active participation in a community. A process that is "inherently social and deeply individual" (Shaffer, 2003. p. 6).

Brandt et al. (2013) point out that "the academic design studio, in all its complexity, is situated in the contexts of an academic institution, as well as the larger professional community in which students are being prepared" (p. 330). They describe the design studio

as a bridge between the learning community and the professional community, which allows students to prepare for becoming practitioners through ‘legitimate peripheral participation’ (Lave and Wenger, 1991), and argue that “while the studio exists to prepare students for participation in a professional community of practice, it is distinct from, though a part of, the larger professional community” (Brandt et al., 2013. p. 337). See Figure 2. below. The design studio and design projects provide the space, resources and time in which an individual’s ideas can develop in relation to the context and knowledge of the discipline.

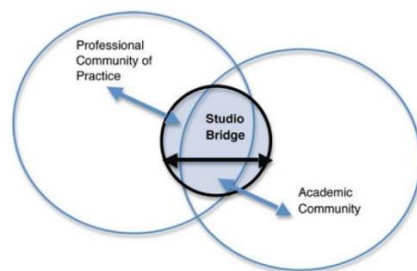


Figure 2. The studio as bridge between professional and academic communities of practice. (Brandt et al., 2013. p. 338)

The ‘larger professional community’ is represented in a number of ways within the process; through the exploration of precedent; embodied in the studio tutors and, probably most significantly, at DPRs, by the presence of practising architects, who provide a direct link between academia and practice. The DPR is the key event in which students, tutors and practitioners come together to critique the students’ work. There are tutorials and interim reviews, and there is a final review, at the culmination of the design project. These events bring together the shared endeavour and begin to draw to a close the various threads of conversation, enquiry and reflection that have arisen during the development of the work. In relation to notions of engagement with, and acculturation into the architectural profession, the DPR is a powerful event, in that it entails the formal presentation of individual design projects to tutors, peers and others, and allows for discussion about those projects (specifically) and about other themes and issues (more generally) that emerge. Design, and learning to design, are therefore social processes involving communication and negotiation.

The standard of judgment the crit imposes does not come from a tradition, master, or nature. Rather, it comes from a community, of which the student is part... (Newall, 2019. p.19)

The crit, in this context, becomes a powerful vehicle for the induction and enculturation of students into the dominant mores and beliefs of a programme and its discipline (Percy, 2004. p.152).

The design studio and the DPR in architecture provide what McClean (2009) refers to as “total cultural immersion” (p.65). This can be quite challenging for the novice architect because the processes of learning, initially are somewhat obscure. The actions and attitudes of architects often stem from their beliefs; their ethos, rather than from a specifically articulated theory. Indeed, the belief, or ethos is likely to be in the form of ‘tacit knowledge’ (Polanyi, 1966), which they cannot fully explain. The DPR is an event in which the language of architecture; the way in which architecture is talked about, is encountered and developed. The structure and form of the language, as much as its contents, inferences and inherent values shape, and are shaped by, the participants in the conversations. Architectural knowledge (tacit, or otherwise) is constructed and reconstructed by engaging in conversations about architecture. Arlene Oak (2000 and 2010) investigates assessment conversations using techniques drawn from ‘Conversation Analysis’ and ‘Symbolic Interactionism’ to reveal the relationship between the way in which design is articulated and the disciplinary context within which it is situated.

Designers talk with others about how objects should look and function, and adjust their work in-part, based on these exchanges of information. Further, the form and content of design related conversations contributes to delineating the behaviours that are acceptable in a design and consequently, these interactions help to define the wider world of professional activity in which designers participate (Oak, 2000. p.87).

Through her analysis, Oak highlights the conflicting assumptions held by students and tutors about design and design education and demonstrates how

...day-to-day conversations which occur in design education critiques focus on interactions which discuss concerns and tensions regarding the nature of expressions and function in objects, and the activities of experimentation and applied creativity in students. More than just presenting these issues however, the talk in a crit actually helps to ensure that these debates continue.... Thus, the explicit and implicit language of the crit helps to shape the students as, through talking and hearing talk about their objects, the students learn what to expect of design and what is expected of them, if they are to become professional designers. (ibid p.93)

What Oak highlights is the relationship between talking about design, learning to design and becoming a designer. Ongoing discussions about design in the studio are instances of the construction, or co-construction of design thinking (design knowledge), through conversation (Askew and Lodge, 2000; Pask, 1976). Furthermore, there is an argument that anticipation of conversations about the work is also a factor in motivating design thinking. Shaffer (2003) reflects upon the behaviour of architecture students in the build up to a final DPR.

In the last few days before the final review, Nigel repeatedly used the phrase “if I’m on the jury” when commenting on students’ work, suggesting that whatever point he was making was intended to help the student present the best possible project for review. Nigel suggested that Dan needed to “develop the concept” for his building -

not by making the criticism directly, but by pointing out that “a design is vulnerable to criticism when it doesn’t have a compelling idea.” Understanding... developed as supportive feedback from peers, and experts in the desk crits helped students incorporate the norms of the architectural community - personified by the critics - as part of the framework for their individual thinking (p.22).

Brown, Metz and Campione (1996) argue that “logical thought is enhanced by the need to defend one’s ideas to actual or imagined audiences” (p.146), and quote Piaget from his 1923 paper: *The language and thought of the child* (Piaget, 1923/1974, p.59):

The adult, even in his most personal and private occupation... thinks socially, has continually in his mind’s eye his collaborators or opponents, actual or eventual, at any rate members of his own profession to whom sooner or later he will announce the results of his labours. This mental picture pursues him throughout his task. The task itself is henceforth socialised at almost every stage of its development... the need for checking and demonstrating calls into being an inner speech addressed throughout to a hypothetical opponent whom the imagination often pictures as one of flesh and blood. When, therefore, the adult is brought face to face with his fellow beings, what he announces to them is something already socially elaborated and therefore roughly adapted to his audience. (Brown, Metz and Campione, 1996 p. 146).

The points within the process, for architecture students, where they are brought “face to face” with their “fellow beings” are both the studio based tutorials and, crucially, the DPRs, which are significant landmarks within the process for each design project, and provide significant landmarks on the educational journey of architecture students, primarily because, as Dannels (2005) suggests, it is the place where “students learn what it means to be a professional...” (p.140). In other words, the DPR is both a significant event for the student as they learn about their discipline, and significant as they learn about (and become embedded in) the culture of their discipline. What the literature highlights, in both studio and DPR, are the unspoken aspects of learning; the tacit knowledge about the subject and the tacit knowing about what are considered appropriate ways of communicating and discussing the subject (Polanyi, 1966), in a process of acculturation into the profession, which carries with it complex narratives of socialisation.

3.10 Bourdieu – Capital, field and habitus

In examining architectural education; the processes of educating architects and the processes of becoming an architect (and by inference the social, cultural and professional situation of architects), Pierre Bourdieu’s work on culture and cultural practice is particularly germane and provides a broader theoretical framework within which architecture, architectural education (and processes of engagement with each) can be situated. His principal interest is in how people act and interact in society and specifically in power and the

ways in which power relationships are constructed; how some groups are, or become, dominant and others dominated.

Becoming an architect involves the acquisition of knowledge and skills related to the design processes. It also encompasses the assimilation of attitudes and behaviours, values and beliefs, that are important to the professional community and form a set of attributes that, although they are not part of the formal curricula in architectural education, carry notions of the acquisition of 'taste' and 'distinction' (Bourdieu, 1984), which have underlying reverberations of the elitism of professional identity.

Bourdieu identifies physical capital (i.e. the use of force), economic capital (wealth and the control of economic power) and symbolic capital (the use of symbols, concepts, ideas and beliefs) in his analysis of social structures and the development of his general 'theory of practice' (Bourdieu & Passeron, 1977). It is this last aspect of symbolic capital, which is perhaps most significant in relation to understanding the cultural structures at play in an examination of the education of architects. He recognises that, in society, there are some cultural practices and behaviours that are considered to have greater cultural value than others (a night at the opera, for example, rather than a game of bingo, or a visit to an art gallery rather than a poster fair). Such symbolic practices confer a level of prestige on participants, such that the acquisition of symbolic cultural capital is on a par with the acquisition of economic capital, that is, as an emblem for positioning oneself within the social strata.

Furthermore, Bourdieu observes that society is constructed from a complex array of social spaces (including the professions), or 'fields', into which people fit (although not exclusively), each with its own subculture and inherent cultural values.

Bourdieu posited a social world (the field of Power) made up of multiple fields: large fields could be divided into subfields (e.g. art into literature, painting, photography etc.). Each subfield, while following the overall logic of its field, also had its own internal logics, rules and regularities (Thomson, 2014. p.70)

I speak of the "field of power" rather than the dominant class, the latter being a realist concept designating an actual population of holders of this tangible reality that we call power. By field of power, I mean the relations of force that obtain between the social positions which guarantee their occupants a quantum of social force... (Bourdieu, 1992. pp.229-230)

Some subfields embody higher cultural capital because they have the higher cultural values of society embedded within them. Just as groups and individuals strive to develop (or at least maintain) their economic capital, Bourdieu determines that they also endeavour to establish and develop their cultural capital, and hence their symbolic power (Bourdieu & Passeron, 1977). In order to understand how symbolic power works and how this is

important to the processes of architectural education it is worth considering how people automatically subscribe to symbolic power and the social order through “a practical anticipation of objective limits acquired by experience of objective limits, a ‘sense of one’s place’” within society (Bourdieu, 1984, p.473). Bourdieu establishes that symbolic power in any given society owes its existence to the fact that it is seen by all members of that society as being natural. It isn’t questioned. It isn’t challenged. It is the natural order of things. It is the way that things are, and is accepted as such by both the powerful and the powerless. In this way the powerless (or less powerful) are not excluded from events or situations that embody higher cultural capital, as such, but they exclude themselves, because they “tend to attribute to themselves what the... [social structure] attributes to them, refusing what they are refused (That’s not for the likes of us), adjusting their expectations to their chances, defining themselves as the established order defines them...” (Ibid, p.473).

This ‘natural’ order is, according to Bourdieu, a misrecognition. From within a given society, he argues, one cannot see beyond the symbolic power. The structure is hidden, or invisible, because it is based upon trends and tastes that are shared (constructed) by the society. These trends and tastes are not dictated but emerge and change over time. At the scale of society, this natural order of things; the way things are, is called ‘culture’. It is arbitrary, and therefore the power and/or power relationships that a culture allows are also arbitrary. Members of a society don’t question or challenge the ‘natural’ order because they are unable to see (from within) the underlying structures that give rise to the symbolic power (Bourdieu, 1984).

From a Bourdieuan perspective, education has a distinct purpose in relation to cultural capital and symbolic power. At its most fundamental level, it is required to transmit the knowledge and skills that apply to a specific subject, allowing a student to become proficient in the principles, elements and techniques that pertain to their chosen discipline. However, and arguably more importantly (overarchingly), education is a process of socialisation of students into the ethos, or culture to which they aspire; into their chosen field.

At face value, the transmission of subject knowledge is relatively straightforward and forms the basis for much of the written material that is produced to describe the learning requirements for a given discipline (although, inevitably this is never value free, being contingent on the cultural conditions of its production). In architectural education in the UK, for example, there are criteria set out by professional and statutory bodies that govern the content of architectural programmes (RIBA, 2012). Universities develop course structures that have discrete learning modules, which in turn contain learning outcomes that map against the professional criteria such that all the relevant aspects of the topic are covered.

Coursework briefs are aligned with module requirements and students demonstrate their knowledge, understanding and skills through the production of work in response to this. However, the deeper objectives of education; the process of socialisation into a culture, are far less explicit and, indeed, largely invisible within the descriptions of learning set out by institutions or the professional bodies. There is an implicit understanding on behalf of educators and professionals about the process of socialisation. “Students spend a long period of learning to ‘become’ architects through a gradual process of imbibing of the tacit knowledge, beliefs and values of the discipline” (Webster, 2011 p.2). It is an important part of the process, but it isn’t the curriculum. This is because the processes of socialisation run far deeper than specific discipline related knowledge. Being part of a group, or becoming part of a group (architects, for example) requires an affinity (or means that one develops an affinity) for those trends and tastes that are held to have higher cultural capital by that group. Such cultural capital can take different forms, such as the cultural capital that is provided by institutions (educational and professional): qualifications, recognition, levels of educational attainment, validation, certification and so on.

Thus, it is written in the tacit definition of the academic qualification *formally* guaranteeing a specific competence... that it *really* guarantees possession of a ‘general culture’ whose breadth is proportionate to the prestige of the qualification...” (Bourdieu, 1984, p.17)

Beyond the qualification as a symbol of one’s standing in the social space, cultural capital also exists in the form of social networks that underpin and reinforce, through support and friendship, the socio-cultural capital of like-minded others, with shared tastes and inclinations, penchants and appetites, desires and ambitions. Such social networks serve also to reinforce and dictate more objectified cultural capital assigned to items such as artworks, collectible things, style, choice of clothing etc., and other objects with symbolic capital (Bourdieu, 1986). The arbitrary nature of what constitutes symbolic or cultural capital to different groups or in different fields means that what may be excruciatingly important in some circles, is a matter of complete indifference in others.

An architect's network of business contacts constitutes considerable social capital to that person, but is quite worthless to a priest. Being an accomplished sailor is considerable cultural capital in the architectural circles of Sydney, with its annual Architects' Boat Race, but would count for naught in Vienna. A bow tie, small round glasses, a beret, a cape: unimpressive symbols to a carpenter, rather more potent to an architect, although had Le Corbusier or Frank Lloyd Wright worn a cravat, a monocle, a bowler hat, and a trench coat, these particular and equally arbitrary symbols would have carried the same potency.” (Stevens 1995)

Cultural capital then, the things that we value; attributes, fashions, tastes are particular to different groups within society; to different fields. Individuals can belong to different fields,

some quite exclusive, others overlapping. Architectural educators are academics (belonging to the education field) and also architects (members of a professional field). Architects belong to a wider field of architecture, as well as a field of construction and a field of the built environment. Architects may also belong to a field of art, for example, or a field of sculpture, or of journalism, or of legislation and the law (of building contracts and statutory regulations). The architectural field is only a part of the overarching field of culture, the field of society (as a whole), the field of power (Bourdieu & Passeron, 1977). Acknowledging that different aspects and objects of cultural capital are valued differently by different groups, by different fields, Bourdieu also shows that it is the value of cultural capital within the field of power, or society, that ultimately determines their overall hierarchical rankings. Society determines that some things have greater cultural capital than others. All members of society are complicit in this ranking. The poorest, least powerful, most disadvantaged people may very well have a distaste or even contempt for those things valued most by those more privileged, those in power, but they also recognise that 'society' ranks string quartets and French cuisine, for example, over, say, grunge bands and fast food. Consequently, different fields, which embody different aspects of cultural capital are also held to have greater or lesser cultural capital than other fields, because of the aspects of symbolic power that are integral to the field and their perceived value beyond the field.

Thus through the differentiated and differentiating conditions associated with the different conditions of existence, through the exclusions and inclusions, unions... and divisions... which govern the social structure and the structuring force that it exerts, through all the hierarchies and classifications inscribed in objects..., in institutions... or simply in language, and through all the judgements, verdicts, gradings and warnings imposed by the institutions specially designed for this purpose, such as family or the educational system, or constantly arising from the meetings and interactions of everyday life, the social order is progressively inscribed in people's minds. (Ibid, p.473).

Of course, tastes and fashions change. What has cultural capital now, what is tasteful and *de rigueur* today, is *passé*, outdated, old hat, tomorrow. Cultural capital is something that evolves as different ideas, different groups, attain authority over others (in society or within fields). It is the arbitrary nature of cultural symbols that allows groups to persuade others of the importance of their own cultural capital (compared to that of their competitors). Such is the nature of progressive, creative thinking, particularly within the arts, that cultural capital is a kind of battleground of ideas in which groups strive for dominance, in a state of (sometimes slow, but) permanent flux (Bourdieu, 1984).

An important aspect of Bourdieu's work is that he identifies that cultural capital is also 'embodied' in individuals. This embodied cultural capital includes attitudes and aspirations, tastes, preferences, and behaviours. How we talk, how we walk, how we hold ourselves,

even how we stifle a yawn, or blow our nose. It is also manifest in what we find entertaining, where we choose to holiday, what we wear, what car we drive, what music we listen to, the foods we eat, the friends we make, and so on; all of the myriad of tiny distinctions that indicate our cultural worth and mark us out as belonging to one social field or another (ibid).

Taste is a practical mastery of distributions which makes it possible to sense or intuit what is likely (or unlikely) to befall – and therefore benefit – an individual occupying a given position in social space. It functions as a sort of social orientation..., guiding the occupants of a given space towards the social positions adjusted to their properties and towards the practices or goods which benefit the occupants of that position (ibid, pp.468-469).

Bourdieu identifies two primary areas that serve to form embodied capital, family and schooling. And whilst the latter functions to broaden and develop an individual's capacity to assimilate those aspects of cultural capital that have greater value to them, given their educational trajectory, the former, the family, is the formative arena in which attitudes and tastes are nurtured and grow. The efficacy of this aspect of symbolic capital, the embodied capital, is a product of its seeming naturalness. Our bearing, our 'breeding' (conferred by heredity), appear to be intrinsic to our being: we are what we are. A person of taste and distinction will have greater cultural worth because they are able to articulate their embodied cultural capital. A person with money (and no taste) can buy things, can surround themselves with objects and goods that have cultural capital, but the cultural capital is separate to the person, residing merely in the objects purchased. One's embodied cultural capital cannot be bought. It must simply be embodied. It has to be what you are, not what you have. Embodied cultural capital is an important aspect of one's identity and 'natural' acceptance within a particular field. We make judgements about others and are judged in turn. At its most negative such judgements can be hostile and discriminatory, especially when connected to race, gender, ethnicity, sexual orientation and so on, but they are at play all of the time as we constantly adjust our judgement and perceptions of others and as we modify and check our own behaviours and interactions to suit the social fields we occupy.

"The construction worker who drinks fine wines rather than beer, attends classical concerts rather than the local rock group, and spends lunchtime reading French philosophers will find life on the building site difficult, for all the same reasons that these qualities would subtly enhance the prestige of an architect. To say one is an architect is not only to say that one has a certain sort of degree or that one can design buildings, it is to say that one has a certain set of attitudes, tastes, and dispositions- all of the embodied capital that distinguishes an architect from a mere builder" (Stevens, 1995. p.110).

The education of architects leads to certification and registration (the title is protected in the UK) and obtaining one's qualifications and entering one's name on the register is a significant aspect of one's cultural capital. It indicates not only one's competences and

abilities (to perform the role of architect), but also legitimises the cultural capital of being an architect.

In addition to the theoretical tools of 'capital' and 'field', Bourdieu's other major contribution to the study of culture and cultural practice is the notion of 'habitus'. That is to say the accumulation of adopted or embodied characteristics that predispose us to act/interact in particular ways. Habitus is the culmination of processes of socialisation (or acculturation). Our upbringing, our family, our early years, develop within us a way of looking at things; a way of doing things; a way of talking about things; a way of being in the world that is both natural (to us) and familial (from generation to generation). This is our social inheritance, deep-rooted, bred-in-the-bone, our social identity. Bourdieu defines habitus as a "structuring structure, which organizes practices and the perceptions of practices" (Bourdieu, 1984, p.166), and also as a 'structured structure' (ibid, p.166), by which he refers to the intrinsic and relational properties of social class conditions: "...a system of difference, [of] differential positions...; social identity is defined and asserted through difference" (ibid, p.167). Habitus is a product of our own personal history from birth and governs our relationship to others in our social space. Our education modifies this. As we grow and learn we adapt to new situations and our habitus adapts. Who we are, how we are, what we are, our identity, is not a fixed thing, but an ever-changing way of being, revised and adjusted in relation to the people and situations that we encounter. Our habitus is formed in response to circumstances, people and events within the social field(s) that we occupy.

One's practice results from relations between one's disposition (habitus) and one's position in a field (capital), within the current state of play of that social arena (field)... Simply put, *habitus* focuses on our ways of acting, feeling, thinking and being. It captures how we carry within us our history, how we bring this history into our present circumstances, and how we then make choices to act in certain ways and not others. (Maton, 2014. pp.50-51)

Habitus then, isn't a fixed thing, but a (current) condition of who we are at any point in time. The prospects for transformation are constrained by our own background, our social situation, our class, and the assumptions and expectations of the people and groups with whom we share an identity, with whom we identify.

Habitus affects how we perceive and understand situations and provides a set of tools for interaction. Our habitus is our embodied capital. It is expressed through the way we talk, how we walk, our body language, our posture, our expressions, attitudes, responses and gestures and all the subtleties of our way of being in the world. Habitus is not inert. It is not a fixed set of rules that we practice in order to apply them to different circumstances and situations. It is more alive than that: subconscious, intuitive, familial, habituated.

Habitus is the link not only between past, present and future, but also between the social and the individual, the objective and the subjective, and structure and agency. (Maton, 2014. p.52)

Habitus isn't a determinant of how we act, it is instinctive and therefore acts as a guide to behaviour. When we operate and interact with ease in a social situation our habitus is attuned to that context. We feel comfortable, natural, 'at home'. When we shift to a situation that is outside our comfort zone, we are less able to act and react with the same level of surety, we become the proverbial 'fish out of water', uneasy, cautious. Our habitus is not appropriately aligned with the situation that we find ourselves in. We feel that we don't belong. "The habitus as the feel for the game, is the social game embodied and turned into second nature" (Bourdieu, 1994. p.63).

Bourdieu and Passeron (1977) observe that students from a privileged background enter university with a variety of cultural characteristics and predispositions that are already attuned to the universities' pedagogies. Such students are already comfortable and familiar with the processes of higher education with which they engage and so are favoured by this system, whilst students from a lower social status, without the embodied cultural capital, the cultural tools to engage, are disadvantaged.

...it can be seen that modern societies furnish the educational system with vastly increased opportunities to exercise its power of transmuting academic advantages, themselves commutable into social advantages, because they allow it to present academic, hence implicitly social, requirements as technical prerequisites for the exercise of an occupation (ibid. pp.166-167)

In relation to architectural education Thomas Dutton (1991) discusses this as 'the hidden curriculum', by which he refers to the unspoken attitudes and customs that develop tacitly from the interactions within the architecture studio. The curriculum is 'hidden' because it is not readily expressed through any formal documentation (such as course descriptors or lists of learning outcomes). He explores the "ideology of knowledge, and the social practices which constitute the experiences of students and teachers" (Dutton, 1991. p.167).

Using the concept of the hidden curriculum as a theoretical tool, one can begin to recognise that schools are not neutral sites, and thus they are an integral part of the social, political, economic and cultural relations of society (ibid. p. 167).

The processes of learning in architecture within the studio system involve the testing and retesting of design ideas and both the formal and informal discussions about those ideas with peers and with experienced designers. This can be a difficult experience, being both a creative practice and a process of acculturation. Stevens (1998) argues that the processes of interaction and dialogue in the studio system in architecture favours a cultivated habitus:

One can succeed more easily if one is already halfway successful. The design studio, by relying so much on the presentation of the self to those who will assess the self, favors those who ... already [know]... some of the strategies of the game of culture. The natural grace, the feel of the game, which those from cultured... families possess, makes them far better prepared to cope with the peculiarities of the language of design... It is obvious that talent in design is necessary for success in design. It is less obvious that talent in talking about design is also required. (Stevens, 1998. pp.200-201)

The processes of architectural design are not straightforwardly codified or objectified. The acquisition (or evolution) of habitus requires the assimilation of ways of thinking, ways of 'doing' and ways of 'being' that are not transmitted through straightforward instruction, but are embedded within the interactions and conversations within architectural education and the architectural profession.

While tutor values ultimately determine student marks, these values will continue to determine 'quality' and appropriateness in architecture, the discipline. This is arguably inevitable in any professional/ disciplinary sphere. The tacit, or hidden agenda of the tutor-critic therefore defines the milestones to be achieved in the ritual passage towards becoming 'an architect' (Sara and Parnell, 2013. p. 123).

From a Bourdieuan perspective, apart from those who are already, at least partially, culturally attuned to the field, students starting a course in architecture can find some of the design processes confusing and hard to understand. Tutors can also find it challenging to explain design thinking or the development of design ideas, because the students don't yet know how to assimilate those thinking processes.

Such concepts can be confusing and intimidating for the novice student as the onus is firmly placed on the student to take risks, or play outside her/his comfort zone, to make appropriate inference and design choices that nevertheless need to show her/his understanding of discipline knowledge (Ardington and Drury, 2017. p. 164).

Even fairly basic issues might be difficult to explain through instruction and only begin to become familiar through the process of learning-by-doing (Gibbs, 1988). Within the context of the social milieu of the design studio an important relationship is that between the student and the tutor. The points of contact may be both informal and formal and may be somewhat sporadic, but nonetheless this relationship establishes the framework for learning, particularly at the start where a student has limited experience or subject knowledge, and begins to cultivate, not just knowledge and appreciation of the subject, but deeper professional values and behaviours (McClean, 2009).

By saturating students with the objects of architectural culture; by presenting them with role models... by displaying in all the slight ways of manner, dress, and taste that one is becoming what one wishes to be, students absorb cultural capital in the only possible way, by presenting to the studio master's gaze their whole social being... The student cannot present nor the teacher assess embodied cultural capital by the usual university means of lecture and written examination. Taste and

cultivation cannot possibly be determined by multiple-choice questions. Only face-to-face contact can do that” (Stevens, 1998. p.199)

The relationship between the student and the tutor underpins, and to a great extent determines, the modes of behaviour, attitudes and language of the studio and of the formal processes of review and assessment. Clearly this implies that there is a great deal of power in the tutor-student relationship as the tutor, being the representative of the profession (and already embodying the requisite cultural capital of the profession), is responsible for the judgement of the knowledge acquired by students, within what might be the acceptable parameters prescribed by the profession (Cuff, 1991). Students of architecture, over the course of their studies, are challenged to develop their own frames of reference to be able to fathom the relationship(s) between the various components, principles and ideologies surrounding their learning, which are both explicit (and written into the course documentation) and implicit (within the discourses relating to design development and critique).

Thinking as a designer is often very new to students starting on their course. “Design has its own distinct ‘things to know, ways of knowing them and ways of finding out about them’” (Cross, 2007. p.17). If the processes that the student is confronted with in the studio are learning-by-doing and reflection-in-action (Schön, 1985) then, at the beginning, the student does not always have any prior experience to support such reflection. Consequently, the tutor is in a powerful position (as the font of knowledge) and sets a pattern for the students’ engagement with the discipline, and their gradual embodiment of the appropriate cultural capital. The DPR has a critical function in this regard because the participants, the reviewers, including architecture tutors and others (such as practising architects as guest reviewers) embody the authority of approval as the representatives of the profession.

3.11 Articulating problems

With reference to a number of researchers (inter alia: Anthony, 1987, 1991; Bassindale, 2020; Blair, 2006a, 2006b; Doidge et al, 2000; Dutton, 1991; Flynn, 2018; McClean, 2009; McClean and Hourigan, 2013; Percy, 2004; Sara and Parnell, 2004, 2007, 2013; Smith, 2011; Webster, 2005, 2006, 2007; Vowles, 2000, 2013; Wilkin 2000) there is evidence to suggest that the deep learning that architectural education might be able to provide, in theory, is curtailed somewhat in practice. In particular, the issues that are perhaps most problematic are to do with high levels of anxiety.

This transition from receiver of knowledge to critic and constructor of knowledge is complex and hence difficult for many students to achieve. Students appear to be thrown in at the deep end and are expected to muddle their way through, learning

along the way. For some this can be liberating; for others it is very unsettling.
(Parnell, 2001. para 3)

There are a number of ways in which reviews can be structured, including panel discussions, peer critique, round table review, exhibition and debate, themed critique, student led reviews, closed jury, competition review, client led review, and so on. (El-Latif et al., 2020; Flynn, 2018; Sara and Parnell, 2004, 2013; Smith, 2020). However, the most common 'default' format for critique at a DPR involves a group of students formally displaying and presenting their work, in turn, to an audience consisting of project reviewers (the design tutors and other guests - such as practising architects) and their peers. Sara and Parnell (2013) refer to the widespread tendency to structure reviews in this traditional way as a "convergence of crit 'models' upon the dominant format" (p. 122). Smith (2020) suggests that "alternative approaches are infrequently - if ever – considered" (p. 71). Typically, in this scenario, the student will start with a verbal presentation describing the work on display, the key aspects of their designs and the thinking processes behind their design decisions. After this introduction the reviewers and other students will make observations, ask questions and offer feedback, before moving on to the next student whose turn it is to present. There are often two or more reviewers who tend to lead the conversation and engage in debate and discussions with each other and with the students present.

Blair (2006a) highlights the students' perception of 'self' and the underlying factors of (lack of) confidence, tacit knowledge and trust, that they bring with them into the DPR forum with its professional, real world scenario, critical analysis and feedback, as being an important factor that "can and does impact upon the quality and the validity of the formative assessment" (p.88). "The perception of self, even for students who are being given good constructive feedback from peers and teachers, can still get in the way of the students' ability to receive and absorb this information (p.94).

At the end of a huge crit in the summer, it was "crap" – I'd worked really hard but all she said was "fine" and I was gutted.' (Blair 2006b, p.1)

A number of problematic issues have already been touched upon above, if not drawn out specifically. However, design studio as a model, and the DPR as a specific event, have raised and continue to raise concerns. The DPR has been the subject of criticism for some of its inherent problems, notably the difficulties of power relationships, the negativity, insensitivity to students' needs and the high levels of stress involved. Kathryn Anthony (1991) looks at the paradigm of the design jury from the perspective of students, and seeks to explore ways in which the design studio might change. Central to Anthony's theme is the experience of student participants: the individual novice, or initiate, and the relationship between student and tutor, exemplified by the tradition of critique through 'juries'. Whilst the

experience of the DPR can be both benign and positive, in the experience of many students, it is not without its problems. There are a range of characteristics of the design studio and the DPR that have been found to inhibit learning and call into question the effectiveness of the context and the event.

3.11.1 Competition

Certainly, compared to typical classroom scenarios, studios are very active sites characterized by drawing, model making, conversation, and debate, activities which demand analytic, synthetic, and evaluative modes of thinking. These attributes attest to the specialness of the studio as a vehicle for student education... [However,] what is often experienced in studio culture is the legitimation of hierarchical social relations, the choking of dialogue, and the sanctioning of the individual consumption of acceptable knowledge in a competitive milieu" (Dutton, 1991. p.165).

One of the starkest contrasts with architectural practice in schools of architecture is the nature of the design project as an individual endeavour. In practice an architect has many collaborators in the design process, such as engineers, project managers, quantity surveyors, the client and so on. There are aspects of collaboration within schools of architecture, but in the main, in learning how to design, the individual student is expected to develop their own, individual ideas without the direct input or support, apart from dialogue, of others. In this way the notion of the architect as a pioneer, a lone hero/heroine is implanted and perpetuated. There are, of course, parallels in both architectural practice and education where, for example, architectural firms compete in competition to 'win' projects and compete for public approval via publication in the architectural press; and schools of architecture compete for students, and also compete for recognition, reputation, standing (in league tables, for example). In some schools of architecture competition is intensified through a pedagogic structure based upon design 'units' (or groups) of students, wedded to a particular design tutor, or tutors. In seeking legitimation of their own teaching practices tutors want the work of their unit to be recognised; valorised, and aim to entice the 'best' students. Students within such schools, with aspirations to succeed (to be at the top of their game), are drawn to the most successful units. Beyond the schools there are numerous student design competitions and travel scholarship awards for students to engage with, and pit themselves against each other for approval and recognition.

Competition creates a whole symbolic market whereby students can show their dedication to the game (Stevens, 1998. p.201).

The intensity of competition means that students will spend many hours working on design projects. Anthony (1991) has catalogued the problems associated with the harshness of this 'competitive milieu'; problems of stress and anxiety, of lack of sleep (inter alia McClean, 2009; Sara and Parnell 2013; Smith, 2011). Architecture studios can perpetuate poor time

management skills, by providing open access for 24 hours a day (in many institutions), which can contribute to a culture of 'all-nighters' as a form of self-legitimation (inter alia Doidge et al., 2000; Koch et al., 2002; McClean, 2009; Sara and Parnell 2013; Vowles et al., 2012)

Competition can also promote elitism and internal hierarchies (within the student body) that can be overbearing for students that are not as attuned to the processes as others. The notion of being in competition with classmates encourages a form of secrecy about design. Those students who see themselves as more advanced than others see their ideas as being unique and in need of protection from all but their closest colleagues, for fear of the ideas being stolen or poorly emulated. "Ideas are a personal matter, not meant to be shared, lest someone else gain a competitive edge" (Dutton, 1991. p.172)

It is clear that students would be better served by learning about the value of collaboration and the negative effects of competition (Koch et al., 2002. p.12).

3.11.2 Time constraints

The nature of design is one of refining and developing an idea. Students of architecture test ideas, create prototypes, explore possibilities and so on. The dialogue that takes place within design studios is a dialogue about processes and ideas. Designing is a continuous process of development and the evolution of a solution to a given problem. Moreover, architecture students, learning to design, are also testing and assimilating processes and techniques (of both design and communication) that are new to them. Their design methods are still fresh; one might say raw. As designers they are still 'finding their feet' and beginning to get a 'feel' for their vocation.

Design projects in architectural education are unavoidably time constrained to fit within an overall programme of study. Inevitably, and unsurprisingly then, students can find that their designs continue to evolve and improve right up to the point of submission or presentation at a DPR. As the deadline approaches students typically put in more and more hours and, towards the end of the project, can often become sleep deprived as they work longer and longer each day. The culture of the 'all-nighter' is not unusual in architectural education (inter alia: Anthony, 1991; Cuff, 1991; Doidge et al., 2000; Sara and Parnell, 2013; Webster, 2010; Wilkin, 2000). There are several problems that stem from this situation. Because design fills up the available time, project development takes priority and the time required for presentation of ideas, through drawings and models, in a format that is carefully considered and useful for a DPR, becomes limited, and the presentations can be unfinished or rushed. Coupled with tiredness due to lack of sleep, this can mean that the quality of the

presentation suffers as the work is not adequately prepared. Consequently, what a student presents can be confused and difficult to read (Sara and Parnell, 2004).

During the period of preparation for the reviews...students... reported that they had both physically and mentally withdrawn from the 'real' world and had lived for a week or so in a 'hermetically sealed' world of architecture that included sleepless nights, snack food, coffee and loud music. (Webster, 2005. p. 270)

Similarly, where a student runs short of time to finish the presentation of drawings and models etc., they also tend not to leave enough time to prepare what they are going to say about their work. This can lead to an unsatisfactory explanation of the work, which, when coupled with a disorganised display, can put the student very much on the back foot, so to speak. In this situation the student is unlikely to be as receptive to commentary and feedback about their work.

The lack of sleep, particularly where students have been awake for many hours immediately prior to the DPR means that they will be less able to participate fully with the process. Their ability to present their work and to engage in dialogue about their work is diminished. They are also less able to participate in the review of the work of other students, becoming less likely to make observations or engage with the dialogue about the work or about ideas and themes that emerge (Sara and Parnell, 2004, 2013; Webster, 2005).

Tiredness and lack of preparation can also lead to anxiety, which can in turn exacerbate the above issues where students can become emotional and in a poor state of mind to present themselves, engage in critique or receive feedback. (inter alia Anthony, 1991; Blair, 2006b; McClean, 2009; Wilkin, 2000; Webster, 2004, 2005). By not being well prepared to engage with the review process the students are not likely to respond well to critique, which in turn can exasperate the reviewers and other students who are trying to be more fully engaged. As Webster (2005) explains: "It appeared that all but the most acculturated students unwittingly set themselves up to fall prey to negative criticism from the reviewers" (p. 272).

3.11.3 Power dynamics

The power dynamics within the design studio and within the DPR are inevitably unequal. Students are subservient to tutors because they lack the experience and knowledge that they bring to the discussion.

Ever since Dutton's work in 1991, the existence and implications of 'power asymmetries' within the learning process has been widely acknowledged. Yet there remain many behaviours and phenomena in architecture education that result from the negative manifestations of power. (McClean and Hourigan, 2013. p.45)

The power asymmetries are more pronounced in the earlier years as students are acclimatising to the nature of design project work and the culture of the architecture studio (inter alia McClean, 2009; Webster, 2005). The dialogue in tutorials and the dialogue within DPRs differ in many ways, perhaps most significantly in that the tuition in the studio is a form of guidance, by expert to novice and so does not necessarily imply that the power differential is a negative aspect of the tutor student relationship (McClean and Hourigan, 2013). However, the asymmetry is more pronounced during the DPR as the tutors/reviewers have a more formal authority. This is further exacerbated because the reviewers, or at least some of the reviewers, hold the power of assessment, and the awarding of grades. In addition, DPRs tend to be led by one of the reviewers, who has the responsibility to manage the event, oversee the assessment of the work and provide feedback. This leadership role further enhances the power of the reviewers in the DPR as they are seen to exercise control of the process (McClean and Hourigan, 2013; Flynn, 2018; Sara and Parnell, 2004, 2013; Smith, 2020; Webster, 2005, 2007).

These power structures are cemented through the process of conducting the review. The lead reviewer will gather the students together, draw a halt to the process of pinning up the work, settle everybody down and formally begin the DPR. Typically, one of the first things to do is to introduce any guest reviewers and explain something about their background and/or expertise. Guest reviewers may very well be known to students by reputation. This serves to both set the scene for the control of the event by the lead reviewer and to place the guest reviewers in an elevated position, from the students' point of view (Webster, 2005). This can be problematic in a number of ways. Students approach the review with an understanding that there is a lot at stake; that their presentation and performance matters in establishing grades, and hence progression and attainment (and potentially the subsequent direction of their careers). Webster (2005) notes that "for weaker students this procedure heightens their fear of public humiliation" (p. 272). In turn, Percy (2004) finds that this "situation militated against the desire for an open, investigative and interrogative dialogue between students, their peers and staff" (p. 148).

Students are also reticent about contributing due to the student-tutor power dynamic, which they can perceive as adversarial, and may not wish to openly criticise a peer in the presence of tutors (Smith, 2020. p. 73)

Asymmetries can also be manifest in spatial organisation. Where participants are positioned within a DPR can serve to heighten the asymmetry of the power dynamic between reviewers and students. The seating arrangement within the DPR often sees the reviewers sitting in positions that mean that they are best placed to be fully focused on the work being presented, to be able to see the drawings, models and other items, to be able to hear what

the student presenter has to say and to be able to engage effectively in the dialogue. This means that the physical arrangement of people in the space of the review is such that the reviewers sit immediately in front of the work, with other participants arranged around and behind them. "The front row of chairs would be 'understood' as designated for the reviewers and the rows behind for the student's peers". (Webster 2005. p. 271).

The degree of involvement of the student audience in traditional reviews varies, but typically they passively observe from behind the tutors. In part this is due to the physical layout of the review, as tutors sitting in front of the work create an effective barrier making it difficult for peers to see the work being discussed let alone engage in the critique (Smith, 2020. p. 73).

The power relationships are thus reinforced spatially and can often mean that the student whose work is being critiqued feels that they are somehow on trial; that they are being scrutinised and judged. (Anthony, 1991; Doidge et al., 2000). In this scenario the student presenting their work becomes the defendant in the trial. The implications are that, whilst it is the design project that is under review, since they are there to present their project, they feel that they themselves are being tried. It becomes more about them (being judged) and less about their project (being critiqued and/or assessed). This can mean that the DPR becomes an adversarial forum with reviewers 'on the attack' and student presenters 'on the defence'. This asymmetrical power relationship is not conducive to an open discussion about ideas and possibilities and can discourage participation, leading to students contributing less to the conversations and, as Dutton (1991) points out, "if there's no dialogue, there's no learning" (p. 94).

Students stand in front of their work to present it to the reviewers and their peers. When one person's review ends there is normally some shuffling of chairs and realignment of people within the space (with reviewers taking the prime positions again) as the next person takes the floor, and all eyes are upon them. This little ritual in itself can serve to reinforce the symbolic notion of the reviewers as judges and increase students' anxiety and fears of public embarrassment. (Webster, 2005)

This adversarial situation, if poorly managed, can become aggravated by students and reviewers responding to each other in an increasingly confrontational way.

It is a framework that brings out the worst in both parties, where a defensive attitude tends to lead to further attack, which in turn leads to a deeper retreat into defence... It is unsurprising that the established review model is not as successful at developing communication skills in students as tutors would like to think. (Sara and Parnell, 2004. p. 2).

The crit places into a pressure cooker a combination of potentially explosive ingredients: students catatonic with tiredness and fear, tutors (mainly male) charged on power, and an adversarial arena in which actions are as much about showing off

as they are about education. Some students survive this, some are deeply scarred by the experience” (Till, 2013. p. 8).

[The DPR] requires careful and sensitive management in order to avoid the creation of an excessively confrontational assessment, as such an environment was found to stifle the effectiveness of the sessions (El-Latif, 2017. p. 43)

Within the context of the DPR, where there are typically a number of reviewers offering a range of opinions, students can become confused by what they feel is conflicting advice. In these circumstances the student is challenged to gauge the persuasiveness of the argument, the value of the advice or its importance in relation to assessment. Reviewers can also become engaged in debate with one another about a student’s project. When this happens it can, at best, become an interesting exchange, highlighting different ways of thinking about a problem, and potentially benefitting everyone present by opening up the discussion. However, it can be tricky for the student being reviewed to take on board the broader implications/lessons of the discussion, where they may be hoping for more direct instruction (feedback) about what they need to do in order to improve their designs. In discussing her own research at one school of architecture Webster (2005) notes that “in reality, the students took in very little of the reviewers’ comments, partly because of the complexity of the language used and partly because they were too anxious to understand let alone retain the comments (p. 273). The situation can become more confusing where reviewers feel obliged not only to offer their opinions, but also to defend them when questioned by other reviewers; what Percy (2004) refers to as an “hegemonic display of power relationships between the academic members of staff” (p. 150).

A further difficulty arises where reviewers are not able to convey what they mean adequately or precisely, or are unable to interpret a student’s needs, focusing on the work, rather than ways to support and engage the student, and relying on their own authority to transmit their meaning. Stevens (1995) notes that tutors can use “allusive, and elusive language ... which requires students to struggle to wring meaning, to worry about whether they have understood, to frantically hope they will please” (p.119). This is particularly noticeable with novice students in the first year of their architectural studies who may have “vague and confused understandings or complete misunderstandings of ambiguous or implied tutor feedback, coupled with the unfamiliarity with the expectations of the assessment task” (Ardington and Drury, 2017. p. 163).

The tutor student relationship can also be strained by the attitude of the reviewers who might use harsh or dismissive language where they feel a student hasn’t performed well, preferring to concentrate on the ‘good’ students who exhibit high levels of motivation and achievement (and appropriately acculturated habitus), rather than those who “don’t have a clue” (Webster

2005. p 275). “This attitude, perhaps a result of the lack of training of architectural tutors and reviewers, has the result of de-motivating the majority of students and leaving them without support for their learning” (ibid, p. 275).

Attitudes of reviewers to the students presenting their work can vary. When they have prior knowledge of the development of designs through regular engagement with students in the studio and at tutorials, they can be more focused and engaged. Where there has been little or no prior interaction, the conversation cannot access a shared history of dialogue between student and tutor. The critique is not framed within a shared knowledge of the student’s learning trajectory and is therefore more reliant upon direct judgement of the project outcome, and the assertion of the “pedagogical authority” of the reviewer “in defence of their opinions” (Percy, 2004. p. 149).

It is conceivable, perhaps even likely, that many of the problems identified in the DPR stem from the basic assumption that the event has always been like this, and that it is some kind of initiation that an architecture student has to go through (Wilkin, 2000; Sara and Parnell, 2013; Vowles, 2000). Blair (2006a) also presents evidence that “many teachers continue to teach in the tradition and ways that they were themselves taught without questioning the validity” (p. 96). In other words, it’s possible, even probable, that many of the problems associated with DPRs are primarily a matter of habit.

3.12 Alternative approaches

Since the publication of ‘Design Juries on Trial’ (Anthony, 1991), which drew attention to the American architecture review, there have been a number of publications (including those referenced above) that have explored the phenomenon of DPRs in architecture and in other art and design subjects; notably, ‘Changing Architectural Education’ (Nicol and Pilling, 2000), and ‘The Crit’ (Doidge et al., 2000), which led to a later publication in the Centre for Education in the Built Environment (CEBE) Briefing Guide Series: ‘The review process’ (Sara and Parnell, 2004) and subsequently ‘The assessment of design projects’ (Webster, 2007b).

The DPR is construed as a vehicle for learning (knowledge construction) and for assessment and feedback and (often tacitly) for acculturation (of habitus). But it has been shown that it is not always focused on the needs of the individual student and their development as an independent and autonomous learner (Blair, 2006a; McClean, 2009). The aim of these various investigations is to bring about changes which might improve architectural education. The DPR, as explicated above, tends to follow a typical format: placing the student in front of a ‘jury’ of experts to defend their work.

The learning benefits of a good crit should allow students to reflect upon their own learning in relation to their peers; learn from their peers; clarify ideas; practice presentation skills; develop their critical awareness; receive feedback from their tutors and peers and test ideas in a supportive environment without the pressures of the 'real world' ... [However,] it is questionable as to whether the learning, which does take place at the crit is always beneficial to the student (Blair 2006a. p. 95)

Doidge et al (2000) and Sara and Parnell (2004) suggest a number of different formats that might be considered, for example:

- Student led review: Organised by the students as a form of mutual support, to take place as and when the students feel the need, in parallel with formal reviews, and which may include input from a tutor - but do not need to (Doidge, et al. 2000. p.92)
- Role play: In which students assume the role of different people with an interest in the design and try to look at it from their perspective: client, developer, planner, engineer, and so on (ibid. p. 94).
- Selective review: In which specific issues are discussed and compared by tutors after examining the work that is displayed with reference to certain drawings and models to illustrate the points (ibid. p. 98).
- Shorter, smaller reviews: With less people and taking less time, so that the whole event is not as daunting (ibid. p. 104).
- Group reviews: Where several projects are presented without individual discussion, which is saved until all projects have been presented. Specific issues are discussed (ibid. p. 104).

The CEBE briefing Guide also includes a checklist for reviewers to help structure the review, which includes a range of organisational considerations including "what the principal purpose of the review is and what students get out of it" (ibid. p. 7).

These alternatives and points of advice are aimed at ensuring that students are able to engage with the evaluation of their project and to learn from this evaluation in ways that are effective. "The aging review, it seems, is in need of more than a facelift... The next step is to develop a whole range of skills to encourage creative interaction." (Doidge et al., 2000).

Chadwick and Crotch (2006) discuss the problems encountered at reviews, and propose a strategy for organising the events that aims to improve students' critical and analytical skills. In particular they aim to mitigate the problem of the 'all-nighter', or at least the 'all-nighter' immediately before the review, by asking for submission of the work a day or two before the event, which they report as having resulted in increased engagement with the event, including improved attendance (p.149). In addition, a range of other considerations are developed that do not remove the student from the central position of presentation and

scrutiny, but aim to improve the overall design of the event so that it is geared towards creating a comfortable environment where the student experience is a central concern in organising the event. These include locating reviews in more comfortable and conducive environments, clear timetabling and time management, encouraging peer reviews in advance of the formal DPR, tutors sitting amongst the students (rather than taking the front row positions), written feedback prepared by tutors and by peers, and making sure that the event is celebrated with a closing summation, aural feedback and (for end of session DPRs) a party (p.149). These measures, they report, have led to students becoming much more familiar with each other's work and hence increased dialogue at reviews and higher levels of critical engagement. They propose that the students have a heightened sense of self awareness in the process, which improves their learning and has led to sustained levels of attendance. The term they use to describe what is happening is 'critical distance', which they suggest has "implications for the design of studio projects and the theoretical regard for the design studio in schools of architecture" (p.150).

Since its inception in 2005, the National Student Survey has shown that the scores for assessment and feedback in the architecture subject area have been lower than might be anticipated (given its reliance on a dialogic pedagogy), and generally below the national average. (Sara and Parnell, 2013; Smith, 2011, 2020; McClean and Hourigan, 2013). A number of studies have taken this situation as a stimulus for further investigation and experimentation with alternative formats. In particular, looking at ways in which the tutor-student power imbalance might be explored such that students' agency may be enhanced and assessment and feedback processes can be made more positively co-constructive.

Flynn (2018) examines the traditional DPR format and "pilots new methods of formative and summative student-centred assessment without a 'crit'" (p. 1307). The study involved four stages of review: round table discussion, with students and tutors sharing in the design process for each student, submission of work followed by 'closed' juries (feedback prepared without the students present, for subsequent discussion with each student), review of the work in groups (more akin in spatial configuration to the traditional DPR event), and a selection (by students) of final work for discussion (although not including the requirement for individual students' verbal presentations). "The emphasis was on a celebration of the completed project with a conversation involving all the students on what was learned" (ibid. p. 1312). The findings indicate that student anxiety is significantly reduced in these carefully managed DPR arrangements and student engagement with the process enhanced.

Reducing stress surrounding assessments can have a positive impact on the rate of design progress. Peer learning and evaluation impacts on the student's overall ability to improve their critical judgement... In this alternative to the crit the student is

empowered to have an ability to adapt to uncertain roles. Judgement and reflection are key to this agility, the core of architectural education. (ibid. p. 1314)

McClellan and Hourigan (2013) examine 'feedback' more broadly through peer to peer interaction, which they identify as one of the "various kinds of dialogue that typify studio-based learning and which constitute forms of guidance, direction, and reflection". Of particular note they highlight the value of community and the shared learning that takes place in the studio.

... peer groups can be united thematically through common interest, inviting the exchange of certain ideas or concepts, and facilitating deeper learning through the sharing of materials, references, and perspectives (ibid. p. 40).

Dialogue within the studio was found to be wide ranging and would relate a number of things such as shared difficulties, benchmarking rates of progress, design processes, different approaches and opinions, validity of architectural ideas. "It also emerged that students rehearse the articulation of rationale and reasoning as these are regarded as central to the review process and one's ability to perform well" (ibid. p. 40). In respect of power dynamics, the study showed that these asymmetries are both expected and valued and that "tutor feedback was regarded as being more trustworthy and reliable, leading to an expectation that authority will, or should, be conveyed in the tutor-student relationship at points in the project" (ibid. p. 46).

... peer dialogue has the potential to mitigate against the negative consequences of power, [but] it is acknowledged that power relationships also contribute valuably, particularly with respect to setting the degree of challenge required for transformational learning (ibid. p.52).

However, the study also showed that guidance provided by tutors was often taken as instruction, "rather than suggestion aimed at provoking the student into taking a personal position, and making individual decisions about their work" (ibid. p. 48). The point being that, in the studio and in a DPR situation, students (and sometimes tutors) are unaware of the pedagogic principles underpinning their interactions.

Findings revealed a need to develop deeper student understanding of expectations regarding the adoption of individual positions, and the role of feedback in provoking or stimulating individual thinking (ibid. p. 48)

The role of the student voice in mutual support and feedback has also been examined by Smith (2020) through an evaluation of peer reviews with 3rd year undergraduate students. In the study the format of the peer reviews was similar to the 'traditional' DPR, but with only student participants (although a tutor was present – sitting "at the back... purely as a facilitator, refraining from giving any feedback" (ibid. p. 74)). One of the key findings was that students were much more relaxed and able to more comfortably articulate what they wanted

to say. Although it was also noted that whilst the discussions were open, wide ranging and supportive, the lack of tutor input meant that students felt a “lack of direction at the end of the sessions” (ibid. p. 76). One concern was whether students would feel able to be critical of each other’s work. Whilst it is noted that students were reticent in this regard at first, it wasn’t felt to be an issue as students relaxed into the sessions and appreciated that their colleagues valued their input. The study found that peer review in this format was useful in developing students’ skills of critical analysis. “The participants’ involvement clearly benefitted their critical thinking, where heightened awareness subsequently caused them to appraise and question their own work” (ibid. p. 83)

Peer review could be one strategy to diversify the design review experience, foreground student engagement and influence in their learning, and create a much more student-centred environment. (ibid. p. 85)

The research concludes peer review to be a valuable formative feedback process, but not a replacement for traditional reviews; that they are an effective means of augmenting students’ participation and agency within their learning; and offer significant value in developing critical analysis skills and self-reflection (ibid. p. 71)

Bassindale (2020) takes a different approach and examines instead the role of the feedback issued to students during a DPR. The central thrust of the enquiry is one that questions the nature (quality and consistency) of written feedback and its effectiveness in capturing the breadth of the content of the conversations engendered by each students’ work at a DPR. The research is centred on the development of a sophisticated digital tool for providing feedback, which includes the development of an assessment rubric along with other means of capturing tutor comments through written notes, photographs and voice recordings as well as providing additional functions such as options to choose pre-selected phrases, a traffic light system for recording completeness of (elements of) the work and options for grading. Additionally, each tutor’s feedback is saved to a central database, which is available as a digital archive to review students’ progress ahead of subsequent reviews and as part of any moderation processes. The feedback from participants in the study was very positive, with students appreciating the accessibility of this format for assessment and feedback and the way in which it encouraged them to study the feedback in greater detail. For tutors it was found that it brought some beneficial adjustments in the way that they approached the review and the process of providing more coherent and comprehensive feedback for students.

Most importantly there was agreement that the quality and consistency of feedback offered improved in terms of detail and individual relevance as a result of the behavioural changes that the tool engendered (ibid. p. 98)

The different approaches to DPRs and how they are recorded in the form of feedback go some way to alleviating some of the issues identified by Briggs and Tang (2011) as promoting a 'surface' approach to learning. In particular, they are likely to address issues of high anxiety associated with the competitive nature of the design studio and the 'typical' DPR events that can inhibit effective engagement.

In all of the above examples that reflect upon how we might think about the DPR as an effective learning vehicle, there is a keen sense of the importance of the student experience, and of developing processes that mitigate against the most negative aspects of asymmetric power dynamics.

If the subject of power is not central to analysis, what gets lost is the responsibility of teachers to develop pedagogies that facilitate students getting in touch with their own frames of reference. Failing this runs the risk of discounting students' experiences and subjectivities, of displacing what students find of value and meaning in their lives (Dutton, 1991. p.55).

Blair (2006a) focuses on the 'perception of self', but this is also implicit in the other literature highlighted above, and in the literature more generally. It goes without saying that, if knowledge is being constructed, then the person constructing the knowledge is crucial to its construction. In addition, the intention is to consider the review process as a way of developing "creative interaction" (Doidge et al., 2000).

One of the most crucial aspects, it seems, is that the DPR needs to be carefully organised and that the time taken to do this will have real benefits. Blair (2006a) indicates that there is some evidence that tutors pedagogical practices are related to the way that they were taught, rather than any thoughtful engagement with the learning processes. In other words, the DPR can often be organised the way that it is because that's how it's always been done.

3.13 Summary

Architectural education is a social process that involves the construction of knowledge through the experience of design exercises and conversations about design and about the work produced as it develops iteratively. Students are part of a learning community and share the experience of learning through interaction within the design studio and most intensely at DPRs. The students embark on a programme of study and are gradually acculturated into the wider community of practice that is the architectural profession.

The DPR itself is, on the face of it, a process of formative feedback. However, the literature shows that it is more than that, and requires students to engage in a 'deep', rather than 'surface', approach as they engage in conversations that support learning and personal development as a form of co-construction of knowledge.

The extent to which participants are aware of the processes isn't always clear and there is much evidence from the explication of problems in the DPR that would indicate that awareness of both the pedagogic processes, and the deeper narratives of socialisation (into becoming an architect), is reasonably shallow by both students and by those who are engaged in reviewing the work, both architectural educators and practising architects

The literature is largely focused on an analysis of the DPR that highlights those aspects that are problematic. (inter alia: Anthony, 1987, 1991; Blair, 2006b; Flynn, 2018; Healey, 2016; Oak, 2000; Percy, 2004; McClean, 2009; McClean and Hourigan, 2013; Sara and Parnell, 2004; 2013; Smith, 2011, 2020; Webster, 2005, 2006; Vowels, 2000, 2012). The gap that this study seeks to address is to understand the nature of the DPR through the experience of its participants and in doing so to analyse the components, organisation and underlying principles of the event in order to explicate its benefits.

It is with this sense that the DPR, as a key event in the students' experience of studying architecture, is both problematic and powerful, that provokes this enquiry.

Chapter 4 Research Method

The focus of this study is the Design Project Review (DPR) in architectural education. The overarching aim is to understand its contribution to students' development as architects. The research takes a naturalistic world view, informed by an interpretive epistemology that seeks to uncover what is happening in the DPR through an enquiry into how the participants in the situation (students under review, their peers in attendance, and their tutors) comprehend and interpret the occasion. By studying or working alongside others, or through routine interactions within a discipline or profession, some meanings; some mutual expectations and understandings come to be shared. "As the corpus of local knowledge and practices coalesces, what we call *local culture* emerges as an interpretive resource" (Gubrium & Holstein, 1997, p.172). My epistemological position is that people's attitudes and approaches to new situations are rooted in their previous experiences and interpretations of those experiences. Behaviour is socially and contextually informed and construed. The research therefore has a relational perspective and seeks to understand the functions of the DPR; the structures, organisation and outcomes of the event and how these are perceived and interpreted by its participants.

The DPR is a primary characteristic of architectural education and, whilst it is a distinct event in itself, the dialogue within the DPR is also part of a wider dialogue before and after the event, through lectures and tutorials, interaction with peers within the design studio, interim design project reviews, and other conversations. The event may be a key marker in the developmental process of projects and of individuals, but it is also part of a greater whole, and so cannot be placed wholly in parentheses (Brindley et al., 2000; McClean, 2009; McClean and Hourigan, 2013; Wilkin, 2000). It is a communal event, within a specific cultural context. It is a real-life, natural, messy, semi-structured group discussion that cannot straightforwardly be quantified.

Because the research is endeavouring to understand the nature of the experience of participants in the event, an interpretive research perspective is fitting, in that it entails a rich exploration of the interactions between people, objects and environment that allows for what Clifford Geertz (borrowing from Gilbert Ryle) refers to as a 'thick description' of the situation (Geertz, 1973. p6). The subjective nature of such experience is suited to a qualitative evaluation. I have therefore chosen research methods that focus on the DPR as a specific case study, and that allow me, as the researcher, to interact with both students of architecture and their tutors at three different institutions, through non-participant observations of DPRs, semi-structured student group interviews and through individual semi-structured interviews with tutors.

4.1 Positionality

...the task for all researchers is to recognise and come to terms with their/our partial and situated 'subjectivity' rather than aspire to an impossibly distanced 'objectivity'. Once this is done 'subjectivity' is much less a problem and much more a resource for deeper understanding. (Crang and Cook, 2007. p. 13).

It is acknowledged that within the qualitative research paradigm, the researcher is not separate from the research, but part of it. The contextual nature of qualitative research, which takes place in particular locations at specific times and encompasses a range of human interactions (between the researcher and participants in the research), means that the research cannot be wholly objective. Who the researcher is will inevitably make a difference. It is therefore appropriate, in order for others to judge the relevance of this research to their own experience and interests, to set out my "positionality in relation to what is being studied" (Dodgson, 2019 p.220).

Firstly, it is important to recognise that I am not approaching this field of study as an outsider. I am not a disinterested observer. I have a personal connection to the topic under scrutiny. I am an architect and I am an architectural educator. I qualified as an architect from an English school of architecture in 1990. I have practiced as an architect in the UK. I have worked for a variety of architectural practices of various sizes, with differing approaches to their work. I have been a partner, running my own practices on two occasions in the late 1990s and the early 2000s. I have also worked as a design studio tutor in three different universities, firstly as a part time tutor whilst working in practice in the 1990s and, since 2003, as a full-time senior lecturer (and later principal lecturer) in architecture. Schools of architecture in the UK are not all alike. Indeed, the procedures for validation of courses by the Royal Institute of British Architects (RIBA) specifically asks schools to define their "distinctive academic agendas" (RIBA, 2012, p.5). In relation to my personal approach to architectural design, and to teaching and learning in architecture, I should acknowledge that the institution in which I have worked for the last 20 years is also the institution at which I originally studied and from which I qualified as an architect. My relationship with this institution is intimately linked to my personal history in becoming an architect. I am inevitably informed by its ethos; its 'distinctive academic agenda'.

My most recent role has been as subject leader for architecture, with a responsibility for delivering the professionally validated architecture courses, developing and managing teaching and learning strategies and overseeing the deployment of academic staff. I also teach architectural design and technology at all levels.

In addition to my direct experience of working in different schools of architecture, I have also been a member of the RIBA validation group for over ten years. The validation process gives

(and renews) professional body recognition to courses in architecture in the UK and around the world. As a participant of the group I have been both an ordinary member and a chairperson of RIBA validation visiting boards to many different schools of architecture both at home and overseas, which has given me access to, and experience of, a broad range of institutions and their schools of architecture. As a member of the validation group I am also a member of the New Courses Group, which is a sub-committee that has the responsibility of scrutinising applications for new courses in architecture, or proposals to make changes to existing courses.

As an academic I have acted as an external advisor to four other universities on their 'internal' validation processes in relation to the development of architecture and architectural technology programmes. I have also been an external examiner on an undergraduate course in Interior Design and Architecture and on another professionally validated undergraduate architecture course, both of which are in England (and neither of which form part of this research).

It has been my experience, firstly as a student and later as an educator, that learning architectural design can be a struggle. It is a process of learning by doing (Dewey, 1998; Gibbs, 1988; Kolb, 1984), and learning through dialogue and reflection (Cuff, 1991; Schon, 1983, 1987; Shaffer, 2001). Something of the nature of the difficulties of learning to do architecture is highlighted in the literature (inter alia: Anthony, 1987, 1991; Blair, 2006b; Percy, 2004; McClean, 2009; McClean and Hourigan, 2013; Sara and Parnell, 2013; Smith, 2020; Webster, 2005, 2006). The DPR is a central feature of architectural education and a moment where the dialogue can become most intense (Oak, 2000; Webster, 2005, 2006; Vowels, 2000). As an architectural tutor I have experienced (attended; participated in; organised) DPRs in several schools of architecture. As a studio tutor I interact with students of architecture on a daily basis, both as a design tutor and more broadly in relation to the whole gamut of issues relating to pastoral support.

My journey to becoming an academic in architecture is rooted in the DPR. As a student I was regularly involved in reviews of my work, which I found daunting, even intimidating at times, but which I later came to enjoy. I would often join DPR events with other year groups, particularly as a senior student, reviewing the work of undergraduates. As a direct consequence of this, after qualification I was invited back to join reviews as a guest reviewer. Before too long an opportunity came my way to join in more regular teaching as a part time studio tutor, which I was keen to do. During this time, I participated in DPRs and part time studio tutoring in other institutions, eventually securing a fractional post (and later full-time post). The DPR then, is a central feature of architectural education, and has also been a

central feature of my experience both as a student and as an academic for the last thirty-five years.

I have taught at all levels and, whilst the nature and complexity of design projects varies across the academic programme, the pattern of engagement is broadly similar; each project culminating in some form of review and assessment. The constancy of tutorials, interim and final DPRs and celebratory exhibitions of student work have punctuated my experience of teaching in architecture with a compelling regularity. My position, then, relative to the research situation, is very much as an insider.

4.2 Reflexivity

Questions about reflexivity are part of a broader debate about ontological, epistemological and axiological components of the self, intersubjectivity and the colonization of knowledge... Researchers need to increasingly focus on self-knowledge and sensitivity... and maintain the balance between the personal and the universal (Berger, 2015, p.220)

As an architect and architectural educator, I am familiar with the cultural field in which I operate. Whilst this has many advantages in relation to my engagement with the field, I am keenly aware of the potential for my own tacit knowledge (of the situations that are encountered in architectural education) to limit my capacity to articulate what I see. There may be aspects of the research that others might find extraordinary that may seem ordinary in my life. For this reason I have strived, throughout, to be reflexive; to be aware of my own positionality and utilise what I learning about my own subjectivity as part of the research process.

I was aware from the outset that my own tacit assumptions and expectations could manifest as a tendency to see things in a particular way; to induce bias. In particular, it is possible that my familiarity with the processes and patterns of architectural education and the DPR event might engender an inclination towards preconceived ideas and potentially, what Buetow (2018) warns against as “information-processing shortcuts... [which] when used without sufficient attention... can also produce misjudgements, for example by prompting people to see and value highly what they expect or what fits their pre-existing beliefs” (p.10).

Unconscious bias may be manifest in attitudes towards others, or may be embedded through familiar practices. The difficulty in qualitative research is that such biases are unconscious. We are not aware of them, except perhaps through deep introspection. Even then, we are each likely still to have blind spots. My approach therefore has been to try to be as open and clear as possible with participants about my positionality and as open-minded and balanced as possible in relation to the collection and analysis of the data.

I am aware that I may carry certain attitudes to, and beliefs about, architectural education that remain unknown to me, or at least not consciously articulated. I am also aware that my perceptions (and the perceptions of other architectural tutors) about a given situation in architectural education may be very different to those of the students with which we interact, as this extract, written in the form of an email, from students of architecture to their tutor, exemplifies:

Experienced tutors and professors (in either academia or practice) are rightly esteemed by the school, but their very experience leaves a generational 'gap' between themselves and their students. Many have not been students themselves for a very long time and can potentially romanticise past experiences that really don't work as effective teaching tools in today's studio. (Dutton, Gaskin, & Telberg, 2015, p.82).

Throughout the research I have tried to maintain a degree of openness about what architectural educators do, and how they do it, in order to be able to 'stand back' from the situation and to "maintain the balance between the personal and the universal" (Berger, 2015. P.220). In many ways the research approach is one that tries "to make that which is tacit explicit" (Dodgson, 2019. p.221).

In relation to the structure of DPR events, I have tried to arrange these in different ways and have always been interested in exploring alternatives. I acknowledge however, that I have not always managed to draw other architectural educators (or architects) around me into doing this. There can be some reluctance, or at least some habituated inertia, on behalf of some tutors and guest reviewers that means that following a standard format (Anthony, 1991; Sara and Parnell, 2013; Vowels, 2000; Webster, 2005) is the default.

I would argue that, for me, an interpretive approach is a natural extension of my own professional practice as both an architect and as an architectural educator. As an architect it is necessary to understand the needs of a client and the likely behaviours and reactions/interactions of a building's users. This requires a facility to interpret and respond to a range of both qualitative and quantitative information. As an educator I am trying to understand how a student is thinking in order to be able to help them explore ways of thinking. Reflexivity is an essential (if often unconscious) aspect of this situation. Indeed, as an architectural educator my approach to teaching and learning is one that embraces open-mindedness. The talk in architecture tutorials in my experience is not generally talk that closes down ways of thinking about, and ways of 'doing', architecture, but is more exploratory and co-constructive (Askew and Lodge, 2000).

My approach to teaching and learning in architecture has been one that maintains a questioning stance and an openness to other ways of thinking. It is with this attitude that I

have tried to approach this research, recognising my own positionality situated within the discipline.

The participants in the research are architecture tutors and architecture students. I acknowledge that there are fundamental differences between the two and in my relationship with each group. Architecture tutors may well have had broadly similar experiences to my own (albeit in different circumstances) and so we will share a common (tacit) understanding of some of the issues/processes encountered in architectural education. These will relate to aspects of teaching and learning, research, institutional procedures, professional validation, architectural practice and so on, as well as to processes and patterns of interaction with colleagues and with students.

My relationship with the tutors who participated in the research was not close. In other words, in each case we were not friends, nor had we worked together before. However, during the process of designing and planning the research it was inevitable that I had to liaise with each and therefore formed something of a working relationship, if only in relation to this exercise. I was always clear that the research was something that should not be imposed upon them or their students and ought not compromise their normal working practices in any way. To this end, each of the participating tutors contributed to the planning of the data gathering activities at their own institutions.

The student participants were unknown to me before the commencement of the research tasks. However, the participating tutor at each school of architecture had consulted with the students beforehand about my attendance at their DPR and had sought volunteers for the group interviews. The student participants didn't know me, but they knew that I was an architect and architectural tutor at another institution. I was aware in advance that they were likely to have formed an impression of me before meeting me and would potentially see me as being 'like' their own tutors. In other words, besides the perceived difference in age (and therefore seniority), they may well have had their own tacit understandings of my position as an architectural educator and therefore my knowledge of the subject and (generically at least) of their experience. My relationship with the student participants was, inevitably then, not going to be equal.

4.3 Research design

Students in architectural education are part of a learning community, which is associated with (but somewhat peripheral to) the architectural profession. Members of the profession contribute to, and participate in, architectural education in a variety of ways. Each school of architecture has a network of connections with professional practice, some of which are formal, such as in relation to students undertaking periods of practical training, some of

which are informal, such as at social gatherings, exhibitions and other events held at the school and elsewhere. In the UK architects in practice contribute to design tuition through part-time teaching contracts, as visiting lecturers or as guests at DPRs. Within each school, intersect. (Brandt et al, 2013; Schaffer, 2003). The DPR is a specific type of event within design education, which frequently brings these two communities together in a focused, ritualistic way and contributes both to learning (to do architecture) on the one hand and professional acculturation on the other (Stevens, 1995, 1998; Vowels, 2000; Webster, 2005).

The research began with a much broader enquiry into architectural education and the various learning situations encountered within the design studio. It became apparent, from reflecting on studio practice at my own institution and elsewhere, and from the attention given to the situation in the literature surrounding architectural education, that the DPR was the nexus of the design studio experience and the event most likely to encapsulate and illuminate the whole (Anthony, 1987, 1991; Brindley et al, 2000; Sara and Parnell, 2013; Smith, 2011; Vowels, 2000; Webster 2005; Wilkin, 2000; Willenbrock, 1991). The research is therefore designed to allow me to engage with architecture students and their tutors, in order to determine the significance of their experience of the DPR, and what can be interpreted from their perceptions about the structures, organisational patterns, values and principles of the activity.

A naturalistic ethnographic approach was chosen as an appropriate methodology. Because the nature of the DPR is a real-life social, interactive, discursive event, I wanted the research methodology to be relatively adaptable, to be able to respond to the complexity of the situation and to allow for new or additional elements to be taken on board as the research progressed. The context of the architecture studio is something that I am very familiar with and therefore would feel 'at home' and, in many ways, in my natural environment. In order to minimise any presuppositions (Gubrium and Holstein, 1997) it was important to explore the situation in other locations and therefore important to observe DPRs in action, to 'be there'. The intention of this approach is to be as detailed and as natural as possible in data collection. Observations with detailed field notes made on the day, followed by semi-structured group interviews with students (also on the day) and subsequent individual interviews with tutors, were chosen as the most appropriate approach to data collection, as these methods allowed for me to be present in the DPR events, to be seen and engaged with by the participants and would allow the views and ideas of the participants to be heard; to give them a stronger voice and to facilitate a 'thick description' of the situation (Geertz, 1973; Lincoln and Guba, 1985).

In order to minimise any concerns in relation to asymmetry of power dynamics between researcher and participants, it was important that the observations were conducted in Schools of Architecture with which I had no immediate connection. My own workplace might have been useful within the research process in relation to my own reflexivity, but would be inappropriate as a source of data for the research exercises, because of my position in relation both to the institution (and its staff and students) and in relation to the research itself. I therefore contacted architectural tutors from several other schools of architecture in England during the process of research design. Through these negotiations I explored the situation in each school in order to determine what might be an appropriate process, to be able to provide a detailed and nuanced description of the real-life experience of the participants of a DPR.

With this in mind, there were several aspects to the situation that merited some careful consideration. These related to reflection on the differences between DPRs at different levels (and the appropriateness or otherwise of focusing on one or more type of DPR); the different characteristics of the educational ethos of different institutions (and the appropriateness, or otherwise, of choosing one or another institution for their similarities or differences); the number of institutions to include in the study for the data to be sufficiently rich, and other, more logistical aspects, such as timing, access to participants and awareness of, and sensitivity to, their needs.

In considering the educational level on which to focus I decided that, in order to minimise the variance in the samples, and to allow for a degree of consistency, it would be more appropriate to focus on DPRs in different institutions that involved students at the same level of study. The attitudes and experience of DPRs varies between individuals and between groups depending upon their level of experience of the events (inter alia: McClean, 2009; Sara and Parnell, 2013; Webster, 2006). The DPRs chosen, therefore, comprised student participants from the final year of their undergraduate study. In each case the DPRs were all the final reviews of the academic year. The reasons for this were twofold. Firstly, I wanted to capture the views of participants who were not novitiates (and so not completely fresh to the subject); who had become acculturated to a certain extent and were able to reflect upon their own experiences, but who had not yet spent a period of time in architectural practice and were not nearing the end of their period of formal education. Secondly, the decision was made to focus on the final DPRs of the academic year because that would be of greater significance to the students and so might embody, and indeed amplify, many of the characteristics of the event.

All of the tutors with whom I had been liaising in the development of the research were willing to try to facilitate and participate in the research tasks, and therefore access was not especially problematic. However, in planning to conduct the research, there was a relatively limited window of opportunity to do so. At the time of planning the observations it was clear that the organisation of the visits had to take place within a particular time period (as these were final DPRs of the academic year) and any delay would cause a year's delay if the research plan were to be followed through. Choice and number of schools to visit were therefore heavily influenced by the practicalities of getting things done.

Patton (1980, p.184) suggests that 'there are no rules for sample size in qualitative inquiry' with the size of the sample depending on what one wishes to know, the purpose of the research, what will be useful and credible and what can be done within the resources available, for example, time, money, people, support ..."
(Cohen et al, 2018)

It was determined that it would be appropriate to undertake the research at three schools of architecture, as this would provide a degree of spatial and sampling triangulation across the three data collection exercises. For the purposes of this research, where it may be pertinent to refer to one or other of the participating schools separately, they will be called Architecture School A (ASA), Architecture School B (ASB) and Architecture School C (ASC).

Not all schools of architecture are alike, having developed in different locations at different times. Whilst there might be a degree of similarity brought about by processes of validation by RIBA and prescription by the Architects Registration Board (ARB), as well as developments and trends within architecture and architectural education, there will also be differences that stem from the ethos of each school. With this in mind, and with the purpose of providing some sampling variation, the three schools of architecture were chosen because they were not similar, but had developed "distinctive academic agendas" (RIBA, 2012, p.5).

All three schools have professional recognition (validated by RIBA and prescribed by ARB). In each school the size of course, the complexity of the projects set, the level of expectation, and the general criteria are similar (RIBA, 2015). All three schools are in England, two in the north and one in the south. All three are based in universities, one of which is a Russell Group institution, the others are part of the 1992 group of former polytechnics. All of the schools are well established and were founded in the 20th Century.

The more distinctive differences between the schools are in the relationship of each school to its institution (each resides in a different type of faculty) and in the general ethos of each course. In no particular order, the following brief descriptions of the host faculties and other courses surrounding the architecture courses under observation should serve to provide a flavour of these differences:

A faculty of social sciences, with an overall ethos on social responsibility, tackling complex contemporary social challenges and bringing about changes in society. The architecture courses exhibit a strong social agenda, encourage thoughtful reflection, inclusivity and sustainability. There is an emphasis on 'live projects', which promote engagement with communities. The architecture courses are adjacent to other social science disciplines of economics, geography, education and sociology, as well as urban studies and planning.

A faculty of engineering, with courses particularly focused on critical aspects of place making, encompassing planning, urban design and environmental design. There are adjacent courses that carry professional recognition in planning and environmental engineering, taught alongside the degree in architecture. These courses also sit alongside courses in mathematics and engineering, computer science and creative technologies.

A faculty of the arts, with an emphasis on inspiring individuality and creativity. The architecture courses encourage an exploration of students' personal interests in relation to a range of complex contemporary design issues and through interaction with associated subjects. The undergraduate course is organised to allow students to choose different thematic design studios in second and final year. The architecture courses sit alongside courses such as fashion, film, art and design.

The case studies are each a specific instance of small DPR events in 3 different schools of architecture in England at a point in time. The data collected cannot therefore be thought to be generalisable by extrapolation to all schools or indeed to all DPRs. However, by focusing on the particular event (the final review of an undergraduate degree) in three different schools the data collection methods should yield enough information to allow for a sufficiently 'thick description' (Geertz, 1973) of the situation that enables comparison with similar events encountered by others for an informed judgement to be made as to the applicability of these findings in similar contexts and the wider generalisability of the findings.

4.4 Data Collection and Analysis

Data was collected from the three schools of architecture through observation of final DPRs for students on the final year of their undergraduate degree; through semi structured group interviews with student participants in each of the reviews; and through semi structured interviews with the lead tutor in each school, who had been responsible for setting and organising the student project.

It was important as a researcher to observe the DPRs, so that a comprehensive picture of the situation could be formed from first-hand experience. My own experience of DPRs over many years was useful in preparing to carry out the research, but was no substitute for

experiencing the real-life situations on the ground, so to speak. To be able to fully understand how the participants experienced the event, through subsequent interviews, it was important that I was familiar with the specific event that they had experienced so that discussions would be grounded in that situation. In this way, even if conversations were to develop more broadly, more generically, the specific DPR that had been observed would always be a shared point of reference. Additionally, observations of the DPRs would allow me to be able to refine my own understanding of the specific situations and allow for further development of the interview themes (Crang & Cook, 2007).

The student group interviews were conducted on the same day as, and immediately after, each DPR session being observed. The tutors who taught the group and organised the DPRs were interviewed individually on separate occasions shortly afterwards, between August and September 2015. In order to ensure that the requirements of the research itself did not impact upon the events or inconvenience participants' schedules, observations and interviews were kept flexible to suit participants' needs.

The data collected was subject to a thematic analysis following the principles described by Braun et al (2017). Initially a flexible, loose fit approach was taken to coding the data based upon reading of the observation notes and verbatim interview/focus-group transcripts to identify the elements, techniques and principles that broadly relate to the cases examined. These aspects didn't constitute a priori codes, as such, but informed the process of coding in search of an understanding of the structural components of the different cases under observation; the way(s) in which they were organised/conducted, and what they were trying to achieve. A wide range of meaningful statements were initially coded and collected into ten analytical categories. Statements in the initial coding were not always readily related to one category alone and could be placed in multiple categories. The transcripts were compared and systematically reviewed to develop a set of categories that were pertinent across the data set. Subsequently, the categories were subject to further review and carefully refined to develop just three key themes (see Chapter 6).

4.5 Ethical issues

The British Educational Research Association (BERA) (2011) ethical guidelines for educational research were adopted and used to inform the research design.

It should be acknowledged then that it is inevitable that there will be a certain amount of subjectivity and that, whilst this may be the case, I would argue that my broad experience of architectural education has been an important factor both in designing the study and in planning and conducting the research. An open mind has been maintained and the research

conducted with a broad outlook, to give voice to the research participants as much as possible and to minimise the effect of any personal familiarity with the situation.

In order to minimise any ethical concerns in relation to 'power' relations between researcher and participants it was important that the observations were conducted in Schools of Architecture with which I had no immediate connection. Through correspondence with the head of department at each of the schools, consent was given for me to work with one of the lead design project tutors to plan the processes for gathering data. At each location students and guest reviewers were informed of the observation and group interviews by the lead tutor prior to each DPR event taking place. Students were invited, by their tutor on my behalf, to participate in the group interviews and were informed that participation was free and voluntary and would have no relationship to their performance at the DPR or the subsequent assessment of their work.

On the day of each observation I was able to meet with all participants before the DPR commenced, and to provide a verbal and written description of the research. I was able to introduce myself and provide an overview of my professional background, my role in conducting the research and an explanation that the study is being carried out by me as a doctoral student at the School of Education and Professional Development at the University of Huddersfield.

The participants were informed that the purpose of the study is to find out about the experiences and views of students and academics involved in a final DPR for students in the final year of study on a RIBA recognised Part 1 undergraduate degree course in England. In order to do this, it was explained that I wanted to be able to observe their DPR in progress and undertake a group interview with participating students and, subsequently, individual interviews with design tutors/reviewers, in order to know about their experience and their understanding of the specific DPR observed, as well as other reviews more generally; their purposes, benefits and drawbacks.

It was explained that the student group interviews would take place on the day of the DPR, would last for about an hour and would be audio recorded. It was also explained that each interview is one component of the research to gather data about this type of event, and that the full study also comprises observations of similar events and interviews with equivalent participants at two other universities in England.

It was made clear that taking part in the study is entirely voluntary and that participants can decide to withdraw from the study at any time, including during the interview and up to 48 hours after the event, in which case the audio recording would be destroyed, and nothing said

during that interview would be included in the research and would no longer form part of the study.

Participants were made aware that any audio recording to which they contributed would be listened to by the me and may also be transcribed by another person, who would not be given any information that could identify the source of the recordings or individuals involved. It was also made clear that audio recordings would be securely stored in a password protected computer and deleted after 3 years.

In relation to the outputs associated with the study it was explained that the findings from the study would form part of my doctoral thesis, which may also be discussed in other publications to which I may subsequently contribute.

It was explained that information about the school of architecture and about the participants would remain confidential. Moreover, in writing up the research, or in any other published outputs, no information will be included that might identify participants. If what is said in the interviews is used in the study or other publications verbatim, contributions will be anonymised and pseudonyms used so that nobody can identify the participants or anybody that they may talk about during the interviews.

All participants involved in the observations, the student group interviews and, subsequently, the one to one academic tutor interviews were willing participants and gave their written agreement for the observation to take place.

4.6 Observation of design project reviews

Architectural education, as a studio based activity, involves various forms of continual developmental dialogue through interaction with others, informally (with peers and other students), semi-formally (in peer group discussions, and at other events, such as lectures and field study visits) and formally through design tutorial, seminars, interim and final DPRs, at which students present their design ideas to a group made up of their tutors, their peers and other guests. Architecture students are generally accustomed to other people observing their DPRs, either outside agents (e.g. a member of a local community or local authority with an interest in the output of the student body), their tutors, other members of academic staff who may not be directly involved, senior and junior students etc. Architecture students are familiar with external persons joining a DPR, such as a visiting critic/architect that they may not have met previously (which was in fact also the case in each of the DPRs observed within this study). From the perspective of students and tutors the presence of an observer would not be particularly unusual and would be unlikely to be uncomfortable for the participants, or for the observer. However, it was important that observations were made

without any other interaction, as this might have affected the relational dynamic between researcher and the participants both during the DPR and in subsequent interviews.

In each school of architecture the final DPRs of the final year of each undergraduate course were observed. Observing the DPR session was a very direct way of understanding the nature of the event in each institution and served to allow a degree of familiarity between participants and observer, which would allow for a level of relaxed informality both at the event and subsequently (Crang and Cook 2007)

The observations were made immediately before each group interview with students and before the interviews with tutors, as this was important to:

- Familiarise the students with me.
- Familiarise the tutors and other guests with me.
- Become familiar with the location.
- Become familiar with the processes at that institution.
- Allow for some fine tuning of the student and tutor interviews based upon the observations.
- Provide an immediate point of reference for the topic for students in the group interviews.
- Allow for students and tutors to reflect on that point of reference and earlier experiences.

Having explained my presence to the group, and explained that I would not be directly involved in the DPR process, I took up an unobtrusive position at the rear of the group so as not to be perceived as part of the academic team. In each of the DPRs observed there was no indication, once everyone had settled down and begun to engage with the process that anyone paid me much attention, indeed the tutors, guests and student participants appeared mostly to forget that I was present.

The DPR observations were an important component of the research. Information garnered from these events informed and framed the subsequent interviews. The observations also served to set a framework for me to understand the nature of the events and provide some insight into the specific processes at each School of Architecture. Each of the DPRs observed included around eight to ten students, a project tutor, who took the role of lead reviewer (LR) and who managed the event, and one or two additional guest reviewers (GRs), with whom the students were not familiar. Each review session lasted for a day and was split into two sessions of around 3 hours each.

Hand written notes were made of the DPRs being observed as a means of capturing as much as possible of the experience and behaviour of the participants. Within each DPR, the aim was to observe the ways in which the participants interacted, the ways in which they managed their conversations, the ways in which they constructed their environment and placed themselves within it, depending upon their perceived or actual roles.

Consideration was given to making a video recording of each event, which would have been useful in that it would have allowed for the event to be reviewed later. However, through discussion with the design tutor at each institution, it was decided that the presence of a video camera would probably feel too intrusive for the participants, both students and reviewers, and would therefore be problematic, both from the point of view of running the event itself and from the point of view of collecting reliable data.

The field notes were organised specifically to capture ...

- Environment – context, descriptions and drawings of the position of artefacts and participants within the designated space, relationship to adjacent spaces, external noise sources, adequacy of space etc.
- People – the personnel and their roles and apparent responsibilities, who did what and who said what; proximity, positions, movements, management of interactions, change of position etc.
- Other – language used, power relations, thoughts about process, how people behave, social interactions, attitudes, timing.

The observations of DPRs were important events in themselves in relation to the research and the gathering of data. However, they were also important in relation to the subsequent group interviews and interviews with staff in a number of ways:

- Students were familiar with me and the work I was doing because I had spoken to them about the research prior to the DPR and had sat in and observed the proceedings. The group interviews took place immediately after the reviews and the familiarity of being at a shared event meant that the participants were comfortable with my presence and ready and willing to talk. There was no need to ‘break the ice’ so to speak. All the participants joined the discussion voluntarily.
- The event was extremely fresh in the minds of the participants, as they joined the discussion group no more than 15 minutes after the DPR had concluded. Their observations and answers then were also fresh and very immediate.
- Whilst the discussion points had been considered in advance (with a fairly ‘broad brush’) the observation of the DPR itself allowed for a degree of fine tuning and

provided a shared contextual framework within which the discussions were grounded.

- The DPR events were also a touchstone in preparation for, and subsequent execution of, the interviews with design tutors. The meetings with tutors were designed to consider DPRs in architectural education in general. Nonetheless the observed events were always there as a specific shared reference to be explored.

4.7 Student group interviews

I decided to use group interviews with students for a number of reasons. Firstly, in order to be able to establish the link with the DPRs observed, and to be able to elicit observations and interpretations from the participants that were fresh, immediate, raw, it was expedient to undertake this part of the research on the same day as the observations. Individual interviews were considered, but would have not been practical to arrange in the same day and therefore would not have the same characteristic of immediacy. It was important to ensure that my intervention in the event was undertaken with as little disruption as possible. The group interview was expedient and also appropriate, in that the participants share a common purpose and so were able to engage with the discussions as a member of a group. The interview itself was not looking to elicit personal or sensitive information about the participants. In addition, the group interview would be likely to entail a more relaxed conversation in which participants would feel “comfortable, respected, and free to give their opinions without being judged” (Kreuger and Casey, 2015, p.4). The focus of the group interview was the common experience of the specific DPR observed and of DPRs more generally.

Frey and Fontana (1991) recognise that group interviews can have any number of participants from “two or more members of the population under study”. More formal techniques of group interview, such as the ‘focus group’ tend to have upwards of six participants. However, in the situation of the DPRs under review the membership of each group would need to draw on the participants in each DPR and so would be limited to those students who volunteered to take part in each school. The group interviews were semi-structured and semi-formal, in that they were arranged to take place on the day of the DPR in a convenient separate space near to the review space, and familiar to the participants. The participants needed no preparation for engaging in the interviews, apart from having attended the DPR under observation. “In this setting the researcher is freer to ask probing questions, to allow interpersonal dynamics to play out to their fullest extent, and to become an empathetic observer” (Frey and Fontana, 1991. p.175).

The student group interviews at each school of architecture were conducted immediately after the DPR being observed, between March and June 2015. The student participants were members of the group being reviewed and observed and joined the group interview voluntarily. The design tutor in each location had informed students in advance about the group interviews and had sought volunteers. In each location I was expecting five or six students to join in. In the event, the number of students in each location varied: four in ASA, two in ASB, five in ASC.

An audio recording was made of the group interview at each institution.

With reference to guidance by Frey and Fontana (1991) and Krueger and Casey (2015) the group interviews took the form of semi-structured interviews exploring a number of relatively loose, open ended and connected questions. The areas for discussion had not been disseminated to the student participants before the DPR or the group interview meetings.

The decision to do this was taken for the following reasons:

- So that they were not influenced in any way prior to the event and were therefore far less likely to modify their behaviour.
- It would not be helpful to the student to distract them in any way through preparation for the DPR or during the DPR by exploring the discussion points in advance.
- It was expected that it would allow for more immediacy in eliciting their thoughts about DPRs as they would not have had time to develop any answers in relation to the discussion points ahead of the group interview meetings.

The topics under discussion were deliberately broad to allow for the dialogue to be open and reflective. The technique employed for managing the discussion was to allow space for the students to articulate their own thoughts. As far as possible my intervention as the interviewer was kept to a minimum. However, the direction of the conversation was guided by the topics, which were refined by the observations of DPRs conducted.

The following topics were explored

- The purpose of the DPR
What is a DPR for, why is this method used?
This first area was intended as an 'opener' to get the participants thinking and to start 'the ball rolling' in conversation. The intention was to seek students' views on the one hand on pragmatic aspects such as feedback and assessment, but also to encourage them to think about what other values or purposes a DPR might embody.
- The nature of the DPR

What is special about the event? What are the organisational structures of the event? What relationship does the DPR have with other events within the project. The idea here was to explore the DPR within the landscape of the project itself, such that the analysis explores more than the event itself in isolation from the project but also what happens leading up to and around the event and then afterwards. I was also interested in other ways in which a DPR might be structured, how students learn how to conduct themselves in a DPR and to what extent they are 'prepared' for DPRs during their course.

- Student expectations

What do they anticipate about the event? What do they expect from reviewers? What do they expect from other students? How do they prepare themselves for a DPR? How do they record it? The methods of receiving feedback from staff and other students, both verbal and written. How do they make best use of the DPR?

- Environment

What are their observations on the space in which the DPR takes place? What are their thoughts on the arrangements of objects, technical kit, furniture and people within the space; how the environment and the various arrangements of people and things in the environment might have an effect. The appropriateness of the space for the event. To what extent the arrangement of spaces and pinning up is managed/choreographed. How they might use the drawings, models and the environment in their presentations? Their observations on the activities and movements of others in the area.

- Use of Language

To what extent they are aware of the (architectural) language being used by themselves, their peers and their tutors. Is it jargon? Is it part of becoming an architect? Are they expected to use language in a particular way or to talk about projects in a particular way? If so why? What is the purpose or value in this? How might this relate to what they may do when working as architects? When will they exercise the communication skills that they are learning in a review?

4.8 Interviews with Design Tutors

At each of the three Schools of Architecture the principal design tutor (i.e. the tutor leading the project and co-ordinating the DPRs) agreed to be interviewed as part of the research. Following guidance on conducting interviews set out by Rubin and Rubin (2015), the purpose of the interview, its relation to the observations and student group interviews and its role in the research was explained. Participants were also made aware that the full study also comprised observations of similar events and interviews with equivalent participants at

two other universities in England. The interviews were semi-structured. The same areas for discussion were used in each interview to allow for comparisons to be made. The semi-structured interview also allows participants the freedom to explore and explain their own views, expectations, observations and interpretations of the DPR.

It was impractical to try to arrange the interviews with design tutors on the same day as the DPRs (as their timetable for the day demanded their attentions elsewhere). It was also felt to be useful for the author to be able to reflect upon the DPR observations and subsequent group interview discussions, to inform the areas that the interviews would cover. The interviews were therefore arranged to take place between August and September 2015 at the host School and at times convenient to the participants. An audio recording of each interview was made. Unlike the students, design tutors had already been in discussion with the author for some time in order to organise the event, the observation and the student group interviews. This had inevitably involved discussion about the research and had, in itself, been important preparation for considering the methodology. The areas for discussion had therefore been outlined to the design tutors before the interviews took place.

As with the student group interviews, the themes were deliberately broad to allow for the dialogue to be open and reflective. At the start of each interview it was explained that the conversation would be guided by the themes but with relatively little input from the interviewer, as it was specifically the thoughts and opinions of the interviewee that were being explored.

The following topics were incorporated:

- The purpose of the DPR
Why do schools of architecture run DPRs? In a similar way to the group interviews with students, this first question was intended to ease the interviewee into talking about the topic. The intention was to allow them to elucidate their own thoughts, to explore the extent to which they had previously considered DPRs within their teaching practice and what they felt were the key purposes of the event.
- Student engagement
How do students engage with the DPR?
This second area of questioning was designed to encourage the interviewee to reflect upon the ways in which students engage with the event and to discuss how this informs the ways in which DPRs are structured and managed. The question also allowed for some discussion around the tutor's observations about how students are equipped to participate in DPRs.
- Relationship of DPR to other teaching and learning events

How does DPRs relate to the scheme of events (tutorials, site visits, conversations and dialogues etc.) that take place within architectural education?

This question was intended to explore the design tutor's perception of the DPR as an event and its value in relation to the other teaching and learning events that take place over the life of a design project. Issues of organisation and timing were also discussed.

- The environment

Where do DPRs take place? How do we utilise/arrange the space? What artefacts are included? How do we talk about these? How do we use them?

The aim here was to ask the design tutor to reflect upon the relationship between people, objects and the space in which the DPR takes place; the number of projects pinned up, the number of students involved, how much space each person requires, where they sit etc. To consider how the arrangements relate to the conversations and discuss the extent to which these are choreographed beforehand or handled on the day.

- Use of language, human interaction

Discussions revolved around how people present themselves and address themselves to each other and to the work. The intention was to explore the extent to which students and tutors are aware of how they present themselves, or are aware of how others behave during the review. If they have views on how the different participants in the DPR behave, or might be expected to behave.

Each Interview lasted around 40 minutes.

This form of research can be very time consuming, both in relation to organising and conducting the research tasks and in the analysis of the collected data. The sample size was selected in order to ensure that the in-depth qualitative nature of the study could be appropriately addressed.

In summary the data collected was through the following processes:

- Observation of three final Design Project Reviews in the final year of the undergraduate architecture degree programmes at three Schools of Architecture in England, ASA, ASB and ASC. Each review included five or six student participants, one project leader and two guest reviewers.

Coded in the research as OA, OB and OC

- Three student group interviews. One held at each of the three Schools of Architecture.

Coded in the research as GIA (4 participants), GIB (with 2 participants) and GIC (with 5 participants)

- Three Semi Structured Interviews with design tutors.
Coded in the research as IA, IB and IC

Chapter 5 Observations of the design project reviews

Design Project Reviews happen at various stages throughout an architecture student's education. Each one is something of an occasion, as students are asked to explain their work in front of their peers, their tutors and others. The final DPR of a project is more intense, as work is expected to be complete. The final DPR of an academic year brings additional pressures, with overtones of passing or failing, of progression, attainment and qualification. The final DPR of a degree course is typically seen (by students and academics) as something of a landmark moment in a student's educational experience.

Each of the observations made (OA, OB and OC) was at an event that was the final DPR of the academic year and, for each of these students; the final one of their undergraduate degree. Arrangements were made to visit each school of architecture in liaison with the subject director and the final year leader. The events were organised and managed by each institution in whatever format they chose to adopt. There were no additional requirements placed on each school apart from allowing me to observe, informing participants of the process and seeking volunteers to join a group interview to be held during a convenient break on the day. The format of each DPR, in the event, was relatively similar (although there were some significant differences, as described below). Each DPR lasted for a day (split between morning and afternoon sessions, each of around three hours in length) and included 8-10 student participants, one lead reviewer (LR), who was the academic responsible for leading the project, and additional guest reviewers (GRs). Whilst there may be a variety of ways of organising and managing DPRs, for these particular sessions (final DPR at end of final year of the undergraduate degree) the basic format did not vary greatly from one school to another. It should be noted that, whilst the DPRs observed were final DPRs, they did not represent the final point of assessment. In each case there was additional allowance of time following the DPR for work to be completed and submitted for assessment in portfolio format.

In preparation for the observations I had been in close contact with the LR for each event, I had visited the schools to see the arrangement of studio spaces and review spaces. I had discussed the overall structure of their academic programme and the patterns of engagement with the specific projects under review.

5.1 DPR Observation at ASA (OA)

Within the review at ASA there were nine students, who presented their work in turn to each other and to three reviewers. The LR was also the lead tutor on the project, and was therefore very familiar with each of the students and with their work. It was the role of the LR to manage the process of the DPR on the day. The other two GRs had not been directly

involved in tutoring the group. One of them was a design tutor at the school, who was primarily involved with a different cohort (GR1), the other was a local architect in practice who had been invited specifically to join this session (GR2). There were three other simultaneous DPRs taking place within the school involving other students from the same year group. These were held in different rooms and had no direct impact upon the DPR under observation. Each of the other DPRs had a LR who had been involved in tutoring the project, another GR from the school, who had not been directly involved, and an external GR who was a practising architect. Each small review team operated independently of the others. In each case the LR took the responsibility of briefing the GRs in the morning whilst the work was being pinned up

The projects presented were all different and had been developed following the study of a particular location. Students began the project at the beginning of the academic year (in week 1), with an interim review at the end of the first term (week 11). From the beginning of the second term they then had nine weeks to develop their individual design projects before the final DPR. During this time, they worked primarily within a studio environment (although I was informed that some students chose primarily to work away from the studio, at home). Not everyone worked within the same studio spaces, so the projects being presented were not necessarily especially familiar to each participant. During the design development period leading up to the DPR, students had had the opportunity to engage with their tutors in individual and group tutorials regularly each week. This DPR was being conducted two weeks before the portfolio submission for final assessment.

The review space was a semi-public area, designed for the purpose with pin board on which to fix prints and drawings. The nature of the space was quite open and anyone from any of the courses within the building (which includes architecture and other design disciplines) could freely enter the space and observe or pass through, relatively unobtrusively. At one end there was a large window providing ample natural light. At the other end the space opened out into an informal meeting area, which was occasionally a little noisy, but not to the point of distraction. The actual area utilised for the DPR was towards one end of the review space, which had entrances to other teaching spaces along it. It was not really a route to anywhere and, in the event, very few people actually passed by.

I was informed by the LR that these DPRs were taking place during a reading week and so, (apparently) unusually, there were no observers from other year groups. Those in lower years are normally actively encouraged to attend final year DPRs “to see what they were aiming at” (LR) and therefore there would normally be many more observers present.

A few days beforehand the group had been briefed about where to place their work and primed to be pinned up and ready on time. The work was pinned up on the day. Each person occupied pin-board space around 2.5m long and 2.5m high with a variety of plinths and tables on which to display models and other items. All students had pinned up their work and arranged their displays prior to starting the session (Figure 3).

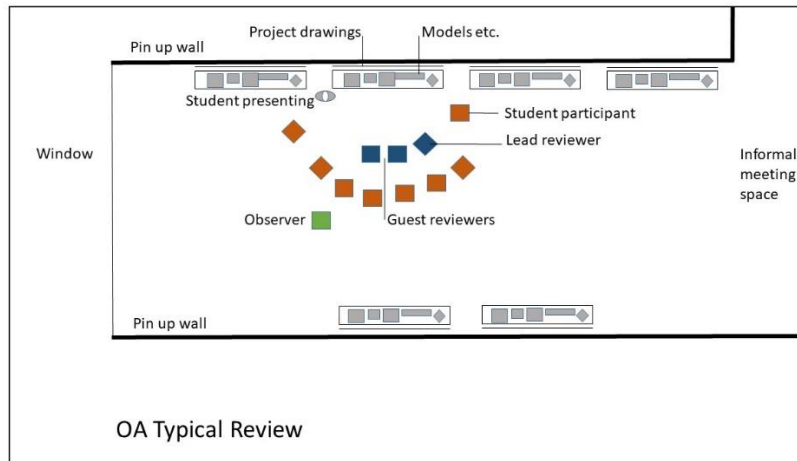


Figure 3. Layout of review space at OA including position of students and reviewers.

Whilst the students were arranging their work I was introduced to them by the LR, to explain the consent forms in detail and answer any questions. At the start of the DPR students were thanked by the LR for their attendance and for having their work ready on time. The reviewers were introduced and each said a few words about themselves by way of explanation of their architectural experience and background. I was formally introduced and it was explained that I would be present, but not involved in the DPR. There was a general outline given by the LR about how the DPR would proceed, as follows:

- Each student would be allowed to present their project for a short period of time (not specified) after which reviewers and others would ask questions and make observations.
- Everyone was asked to nominate a colleague to make notes during their review.
- The LR would also make notes, which would be given as individual feedback on the day. It was also explained that everyone would have the opportunity during the following week to meet with the LR to discuss their projects again and clarify any areas that they felt that they were unclear about at the review.
- It was expected that the conversation about each project would last for half an hour to forty minutes.

As each student positioned themselves to start talking about their work the reviewers and the other participants settled down to observe and engage. The three reviewers took up seats immediately in front of the work being presented, with the LR positioned slightly to one side and partially facing the other reviewers. The rest of the group positioned themselves in a rough semi-circle behind, and to either side, of the reviewers (in some instances with the nominated note taker sitting towards the front of the group). I took up a position to the rear (Figure 3).

The displayed work was neatly arranged on the wall showing 3D images and drawings, large plans, smaller plans, one large cross section (typically), a set of other diagrams to help explain the scheme and some detailed technical drawings. At the front of the display there were a range of models showing developmental 3D thinking at a number of different stages and scales. Other artefacts on the desk included booklets of research and project development. It was clear that the students had been given good briefing information prior to the DPR about what to produce and how best to discuss it. In the main, they were well prepared and articulate, and were able to talk about their projects logically and knowledgably. Research and precedent underpinned their presentations and there was, typically, a good description of the context (the site and its location/surroundings) for which the designs were proposed.

The presentation process largely followed the proposed format, although with some variation:

- The first couple of students to present were given some time (5 to 10 minutes) to explain their projects, while reviewers sat quietly and listened to the explanations, after which they began to ask questions, initially led by the LR. However, in later presentations the time allowed, before questions were asked by the GRs, became much less (just a couple of minutes), such that the presentation of each design and its interrogation by the group became somewhat blurred.
- Most of the discussion was conducted by the reviewers with very little intervention from the others present.
- Only a couple of people took notes on behalf of their colleagues. None of the students appeared to make any notes for themselves, either during others' presentations or after their own presentation.
- The LR made notes for each student and handed these notes to them at the end of their individual review. This seemed to work reasonably smoothly, although it was noticeable that at times the process of note making meant that the reviewer switched

off from engaging with the ongoing conversation and, conversely, full engagement with the DPR meant that the process of note making was more limited.

- Each project was discussed for around 20 - 25 minutes.

There are a number of more nuanced observations to be made about modes of presentation and interaction between participants:

The 'body language' of reviewers was very relaxed, they were not confrontational and they were very conversational. Even when questioning the validity of a certain approach or decision taken by a student the attitude was one of enjoying the intellectual engagement with the topic.

Projects were presented following a similar pattern; first discussing the context and the concept (or theoretical agenda), then explaining the spatial and formal arrangements of their designs, often with reference to precedent, and finally talking about more detailed aspects of specific activities/spaces or particular technologies.

Students were confident in using architectural language in relation to their ideas. They seemed comfortable using phrases that would not make a great deal of sense to the lay person, such as: 'fragmentation of this typology', 'an architecture of separation', 'an architecture of inclusion'. Most seemed confident in standing and presenting their work, sometimes looking at drawings as a way of directing the audience's attention, pointing to relevant drawings (not with their finger each time necessarily, but usually more vaguely with a wave of the hand), occasionally turning to the reviewers or the audience to emphasise a point. However, it was noticeable that quite a few of the students seemed very tired and, although they presented themselves well, they occasionally appeared rattled by reviewers' comments, questions or observations and at times became very defensive.

Those who were not actively presenting their work sat quietly observing. They were, on the whole, very attentive and one or another would make the occasional comment (typically in support of their colleagues). However, rather than the session being one of interaction between all participants, it seemed more like a series of viva voce examinations in the presence of a relatively placid audience.

The topic of the conversation was focused mostly on the work being presented, rather than broadening out the conversation to wider issues for the benefit of all, although this happened occasionally as a natural consequence of the enthusiasm of the reviewers. The conversation was not overtly critical. Most of the enquiry by the reviewers were around questions of design processes and the programme of the architecture (i.e. how it works, how people experience it). There were aspects of critique implicit in the questions asked and

occasionally explored further, but for the most part the discussions focused on what the student had to do next, to 'finish' the project for the portfolio submission. This was primarily driven by the LR, who was making feedback notes and therefore often bringing the conversation back to the essence of the feedback: i.e. instructions for completing the work.

Much of the discussion revolved around the graphics of the presentations, and how people 'read' drawings; how the author can 'express' certain aspects of their designs/ideas. The graphics were explored through conversations about how to draw or how to represent particular elements of the work. The discussion was often about 'reordering' of the drawings in order to make certain considerations more explicit. The authors' theoretical positions were not explored in any great depth but were largely accepted, and only discussed in relation to how intentions can be graphically expressed; how the students' ambition can best be fulfilled and demonstrated. Sometimes comments from reviewers were aimed at steering the student to use some specific drawing on the wall. Rarely, but occasionally reviewers would stand up and go to point specifically at certain drawings or models as a way of drawing them into the conversation.

It was a common theme that technical resolution of environmental aspects of projects had not been adequately explored or expressed. The LR made a point of talking to the whole group and explaining that they must be clear in their submissions about detail design and environmental design, and that this must be shown in their presentations.

There were two project presentations that stood out, for different reasons. One project in particular (which was design that brought together two unrelated and conflicting functions as a provocative fictional gesture) left the GRs somewhat perplexed. The premise of the project was questionable and the conversation inevitably revolved around 'meaning' and the more theoretical aspects of the design/concept. The programme of the building was questioned and the author was told that they needed to be more 'explicit' about exactly how the building worked; that, in order to make the project more than merely conceptual, the student should focus in detail on certain parts. This was an interesting project to observe, as the idea being presented was clearly unusual and required a certain amount of 'suspension of disbelief' from the reviewers and the other participants in order for it to be discussed as a work of architecture. This appeared to be quite challenging for invited practitioner GR2.

The second notable presentation was for a building design that was unfamiliar to the LR. It was noted, by the LR, that the student had 'turned up' (which was apparently unexpected). The student presented their work rather nervously as if expecting to be criticised, which was the case. The LR commented that the project didn't "explore the issues architecturally" and the student was mildly berated for not engaging with tuition previously and was told that this

“shows in the building’s strategy”, which is “not as full and comprehensive as it should be” (LR). The student was somewhat put off and didn’t really explain the project well or express themselves particularly clearly. At the end of the discussion the student was appeared dissatisfied and was somewhat withdrawn.

More broadly, the language used by the reviewers throughout the DPR was very supportive and positive, using phrases such as:

“It’s a lovely idea”, (GR1)

“An elegant set of plans”, (GR1)

“You’re letting elements express themselves”, (GR1)

“...really good job”, (LR)

“I congratulate you” (LR)

“lovely exquisite models” (GR2)

The discussion about projects generally focused on design and presentation skills, rather than more conceptual or theoretical ways of thinking. Indeed, in relation to the abattoir/restaurant project the GRs became noticeably curt as they tried to discuss the practicalities with the student who was quite defensive and resistant to their interventions. The LR took a lead in maintaining the general tone and content of the discussions and would often pick up on comments made by the others and reframe them so that they were made clear and so that the implications of the comments (in relation to what the student must now do) were also made clear, sometimes being specific on what might be ‘potent and profitable’ to ‘spend a little more time on’.

The DPR ended with a brief summary of the broad issues for the preparation of portfolios and an explanation of what happens next (timetable for feedback discussions and submission of portfolios etc.). The GRs and the participating students were thanked for their input.

5.2 DPR Observation at ASB (OB)

The DPR took place over a single day in two sessions, each around 2.5 / 3 hours long. There were eight students assigned to the group, all of whom had been working within the same studio unit overseen by the LR. The course structure is such that in second year and final year students join one of three studio units, which run in parallel and explore different themes. Each studio unit has around 15-20 members from each year group. This DPR was one of two taking place in the same studio space simultaneously. The final DPRs for the

other 2 units were timetabled to take place on different days. Students could move freely between the two DPRs and observe/participate as they wished. Second year students from the same unit, and any students from the other two units, were also able to attend. Although, in the event it seemed that few did attend, because they were working towards their own separate deadlines for project submission. For each DPR there were four reviewers: the LR, two other tutors (GR1 and GR2), who had taught (part time) on the course in adjacent studio units, and one architect (GR3) from a local practice. The DPR was autonomous of the others and the LR was responsible for briefing the GRs in advance of the event. The LR and the other students were familiar with all of the work being presented. The GRs were being introduced to this work for the first time.

The studio unit had been based on a field study to an historical district of a large British city, which had established the cultural and theoretical contexts for the projects. Some aspects of the field study analysis were carried out in groups, but subsequent design projects had been developed individually following each person's own interpretation and interests. The unit had explored the theme over two semesters, a total period of around 28 weeks. The particular projects being presented had been begun in earnest around 8 weeks prior to the DPR. Students had been working alongside each other (and alongside the second-year cohort) within the large studio spaces, which included model making areas and computers, as well as drawing boards and large work desks. Not everyone worked in the studio all of the time, but there were regular meetings with tutors and peers to produce and complete work and discuss progress. The projects were expected to be (all but) finished.

The final portfolio submission of work for assessment was to take place 2 days later, to allow time for minor adjustments to be made following feedback. I was informed that this was unusual, as there is normally a longer period of about 2 weeks before a final portfolio submission, but scheduling of other events and projects during the year had had an impact upon the organisation and timings of this project.

The DPRs were situated within the large open studios, on a series of free-standing screens. The space was double or treble height and the screens were around 2.5m tall. The DPR under observation had a pin up area with an 8m horizontal run of screens. The surrounding studio space was large and quite noisy. Sound carried from the far end of the space, which had mostly hard surfaces and, as there were other DPRs happening at the same time the sound of people moving around, pinning up work, moving furniture and talking was quite loud.

The display screens, which usually occupy the studio space for more informal use, had been reoriented and prepared for the event by clearing away furniture and other items, such as

models and other work in progress, to make a suitable space for the DPR. This hadn't been done particularly efficiently, which meant that, quite close to the review space, there was a fairly random collection of furniture, and models piled on models, as well as coats and bags, casually left on chairs and tables (Figure 4).

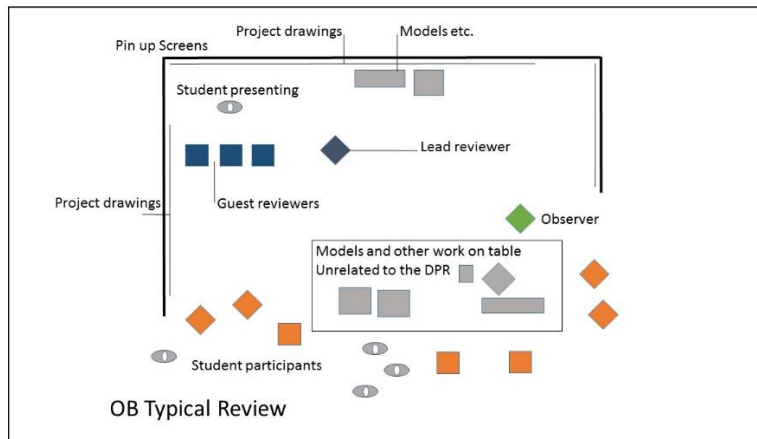


Figure 4. Layout of review space at OB including position of students and reviewers.

There was a brief introduction to the whole group, which included a discussion about preparation for the subsequent end of year show (which is set up as a series of displays by each studio unit, with each taking responsibility for curating and assembling their own work as a group). I was introduced to the cohort and was able to talk to individuals to explain the process in more detail, answer any questions they had and allow them to sign consent forms for the observation and the subsequent student group interviews. There were no specific additional instructions for the group, as they had received a briefing about the DPR format prior to the event taking place.

The students had been given a running order and were not expected to all be pinned up at the start of the session. It was explained to me that the format of the DPR followed a similar pattern to DPR events that students had previously experienced.

For each presentation the student stood in front of the work, to one side slightly, and the four reviewers sat side by side immediately in front of the display, with the LR sitting to one end. I took up a position to the rear of the reviewers and to the right-hand side. Immediately behind the reviewers was a large table, with lots of unrelated models and other items such as bags and coats. This was not part of the review area. No one else sat down to join in the conversation, but three or four people stood around to the rear of the table, or just to one side, observing. (Figure 4).

The amount of work pinned up by most of the students was quite extensive. A lot of information had been produced. Much of the work presented was graphic and diagrammatic

and in the form of research findings in support of design intentions, rather than design drawings. Some of the participants had more research to show than design work. Presentations mainly consisted of drawn material, although some students also had models. Some had several models, including developmental, contextual and final models.

The first person to present had filled the longest wall of the display area with drawings. There were very few models. Because of pin-up space restrictions (and the large amount of information being displayed) only a couple of people could display their work at any one time, which meant that during the session others were pinning up and unpinning work as the DPR progressed. Once the first two projects were pinned up and the session had started other students in the cohort drifted away, sometimes talking within earshot of the review, occasionally returning to observe for a short while.

The format of each individual student's review followed a similar pattern:

- Each person presenting their work spoke for ten to fifteen minutes during which time the four reviewers sat quietly listening and taking notes.
- The content of the spoken presentation for each person included an explanation of the conceptual framework that underpinned the design development. This was common to all, and clearly reflected the enthusiasm and level of engagement of everyone within the studio unit. A number of interesting themes were explored, including for example projects based upon shipping and trade, the history of the measurement of 'latitude' and the development of maps, recycling and re-use, marketplaces – wholesale and retail.
- The discussions that followed lasted for around thirty minutes and were quite wide ranging and engaged with enthusiastically by the three GRs.
- The LR, who was familiar with all of the work, managed the process and joined in the conversation, but often allowed the GRs to take the lead.
- The LR prepared feedback notes, which were given out after each individual review.

There are a number of additional observations that might help to illuminate the nature of this particular DPR:

The DPR was conducted very much as a panel of reviewers interrogating each project in turn. There were other students present; some of whom were observers not involved in any of the DPRs; some were from the adjacent DPR being reviewed that day; some were awaiting their turn to pin up or watching others after they had been reviewed. These other 'participants' were not fully attentive, and at times they talked to each other, or wandered in

and out of the space, occasionally going to watch the other DPR happening nearby. There was no actual interaction with the DPR itself.

The whole process was a little stilted as each person about to present began pinning up work before the previous presentation had quite finished. When the focus shifted to the next project, the author of the previous project began removing their work, so that the next one could pin up, immediately adjacent to the student presenting. Whilst this was somewhat distracting it seemed that participants and reviewers were largely unaffected and stayed focused on the conversation

Much of the discussion about the projects took place between the reviewers. This was often centred around the theoretical agenda of each project, rather than specifically about the design output, exploring and offering advice about the 'narrative'. When considering the architectural designs, the reviewers did so by exploring the link between research and the strategic decisions, the spatial organisation and techniques of representation that would situate the programme, function etc. within the project's narrative. The interaction between reviewers and students was not confrontational but mainly discursive. The advice given was more about how to present the idea and how to convey meanings, rather than questioning the thesis, or the resolution. Advice given by the reviewers tended to be about what was missing from the information provided.

Most students had quite a rich set of drawings, both analytical and architectural. Some made very good use of models and used drawings and models together to great effect. In a few instances the students did not bring any models to the DPR. Some were sent (somewhat reluctantly) to fetch models from elsewhere in the studio and to put them on display before they began presenting their work. The reviewers made a point of talking about models, often asking questions by referring to the models, or asking how the models were to be used to explain the project, or how best to read the models in relation to the drawings.

Most students were good at explaining their ideas and designs, but seemed less able to concentrate on the subsequent broader discussions about their projects, which focused mainly on how architectural ideas and design processes are 'stripped back' and articulated. Comments made by the GRs were sometimes managed by the LR, but would move from one aspect to another as the conversation meandered and skipped between discussion about (for example) function, meaning, programme, landscape, history, precedent, artefacts, views, materials, lighting, processes of making, multi-layered thinking, context, content, place making, the user, commodification, public and private space, fundamental ideas, design strategies and so on. Only one of the students made any notes (afterwards).

The GRs were quite animated and would often stand up to look more closely at drawings or models. Sometimes 2 or 3 reviewers (GRs and/or LR) stood up at the same time and discussed different aspects of the project. These were sometimes with the student, together with the other reviewers, and sometimes as a one-to-one aside with the student. It wasn't always possible for the person being reviewed, or any others observing, to follow all of the conversations, as they would happen simultaneously. This was particularly noticeable as one person's review finished and another's was about to begin. The whole thing became a series of smaller aside conversations, before everyone settled down again to listen to the next presentation. Occasionally the next person would begin talking before all the reviewers had re-engaged.

Overall, the reviewers were very enthusiastic and animated and maintained their energy for the DPR throughout the day. Mostly they were positive about ideas and how these might be explored, expanded and communicated. However, their language was not always positive and would sometimes be directed at the student as a criticism, with phrases such as:

"You have not made connections between...." (GR1)

"Your drawings are not as exciting as your models" (GR2)

"There are fundamentally things missing" (LR)

"The architecture's paper thin" (LR)

"What's missing?" (GR2)

"You're not showing us any..." (GR3)

"I can't see..." (GR3)

The discussion about each project was very much about architectural ideas and techniques of representing these. Amongst the GRs the conversation was friendly and upbeat. There was a sense that they wanted to convey the enjoyment of thinking and talking architecturally. However, the conversation was very much amongst themselves and not typically inclusive of the students. It was notable that, although the reviewers were very engaged in the discussion, the students often seemed tired and distracted and were not as focused, sometimes withdrawing a little from the conversation. For example, where a project exhibited a strong theoretical agenda it provoked a great deal of discussion between the reviewers, which included ways in which the project might be developed much further. They were not critical of the work presented, but were increasingly enthusiastic about it. In more than one instance it could be seen that the student presenting the work (perhaps interpreting the

reviewers enthusiasm for the possibilities engendered by the theme as indicating how much more work might still be left to do) became more and more subdued and reflective.

The DPR ended without any overall summing up, as many participants had already departed. After the final presentation had finished the reviewers continued having conversations between themselves and with any students who came back for additional discussions or seeking clarifications about earlier comments and conversations. The whole event more or less petered out over a period of about 30 minutes.

5.3 DPR Observation at ASC (OC)

Ten students were presenting their work. Initially there were two reviewers. The LR was one of the tutors involved in running the project. The guest reviewer (GR1) was a practising architect who had been invited to join this DPR. In the afternoon another tutor from the school (GR2) joined the session. The LR knew all of the students well and had a fairly detailed knowledge of most projects having been closely involved in tuition with many of the students over the preceding weeks. GR1 had no knowledge of the projects before the event. GR2 was familiar with the work of a couple of the students presenting. There were five other simultaneous DPRs taking place, involving other students from the same year group, in other nearby spaces within the studios and within adjacent rooms. Each of the other DPRs had around ten student participants and was led by one of the project tutors alongside an invited practising architect.

Prior to the start of the DPRs, whilst students were pinning up their work, there was a briefing session for all of the reviewers present. The main project leader (the year leader) held a meeting with the project tutors (the LRs) and the GRs, which outlined the nature of the projects set, what might be expected from the presentations (i.e. level of completeness), how the DPRs would run during the day and what would happen subsequently. There was some discussion with LRs in relation to a few individuals who had special circumstances to consider. GRs had an opportunity to ask questions in order to understand what was expected of them and to be clear about the process.

Individual design projects had been developed over a period of ten weeks in response to an analysis of one of two particular urban districts, which contained a mixture of housing, shops and commercial premises as well as nearby open parkland. The analysis of the place had been undertaken by small groups with subsequent individual preparation of a design brief and identification and analysis of a specific location/site. The building types explored and developed were all related in some way to the community, whether they were educational, health related, sports and leisure facilities or for other community or specialist groups, depending upon the individual's analysis of needs.

Most students worked within the studios, which were quite large, open plan and split between 2 main levels. Different year groups shared the studio spaces and so the students benefited from some vertical integration, although this was not formally structured into any specific teaching units. Mostly, students were reasonably familiar with the work of others within their project group. Regular tutorials took place in small tutor groups twice a week during the design development stage.

Around ten days before the DPR I was informed that there had been a cohort meeting specifically to discuss the format of the DPR and what would be expected of participants. All of the work was formally submitted two days before the DPR to a central administration office near the studios. On the day of the DPR students collected their work and pinned up as directed within one of the review spaces. The final submission of the project in portfolio format was to be ten days after the DPR.

Projects were presented over two three-hour sessions. Within the space available only three or four people were able to pin up at any one time. I was introduced to the students and was allowed a few minutes to discuss what I was doing to the whole group. GR1 was formally introduced to the group and spent a few minutes outlining their architectural credentials and explaining their long-standing relationship with the school and their pleasure at being invited to contribute. The format for the day was explained, which included specific mid-session breaks for work to be removed and for other work to be pinned up.

The review space was at one end/corner of the larger design studio (Figure 5). It was an area that was sectioned off from the body of the studio by pin-up/display screens, which formed an L shape with sides around 6m in length. To one side of the review area was the end wall of the studio and adjacent to that was a large window. Most of the normal studio furniture had been cleared away and just a row of desks was left in front of the window, on which there were a number of architectural models and other items of work, and on which people placed bags and coats etc. There was some noise that carried into the review space from the rest of the studio, including a radio playing from time to time, but this was not particularly disruptive.

The work being presented included presentation drawings, development models and 'final' design models (at various scales), sketchbooks and development work. Most of the work was 'finished', perhaps with one or two key drawings still to follow or to finish/refine. Models were placed on small plinths immediately in front of the presentation board. In most instances the work pinned up was carefully co-ordinated and included contextual information, plans and sections at various scales, 3d drawings, including perspective views in context and technical information concerning materials, environmental and structural

design. Some of the work presented was computer generated (CAD), but not exclusively, with a notable range of hand drawn images and diagrams, both developmental and resolved.

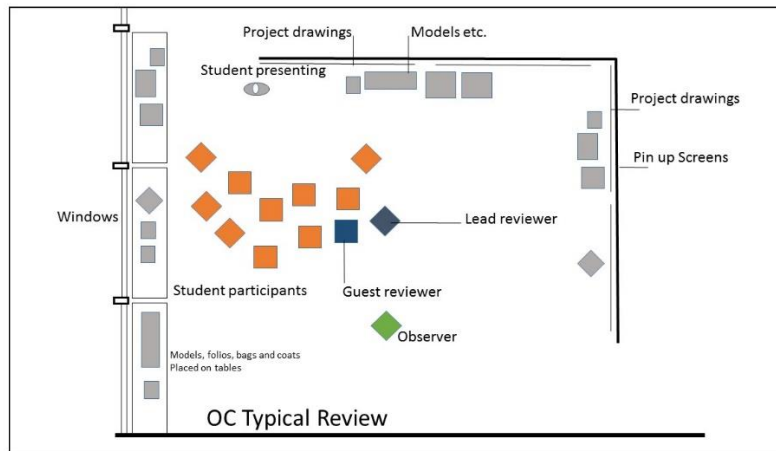


Figure 5. Layout of review space at OC including position of students and reviewers.

Each person presenting their work stood in front of the 'audience'. All student participants were present for all of the presentations and sat as a group facing the work. The reviewers were present for all of the presentations and sat as a group facing the work. The reviewers sat within this group (initially, not at the front). I sat to the rear (see Figure 5). As the presentations got underway the LR explained that the DPR was an open forum and that all participants were invited to engage in the conversations about the work.

The DPR ran as follows:

- To begin with, three students pinned up their work for presentation to the whole group.
- Those presenting their work were asked to do so in no more than seven minutes. One of the other participants was designated as a time keeper.
- When the seven minutes were up the student presenting was allowed to briefly finish off their spoken presentation and the discussion was opened up to the floor.
- The LR chaired the discussion and always had a number of observations to make for each person, but allowed the other student participants and GR1 to speak first. After each presentation the discussion that followed lasted around half an hour or so
- Student participants readily engaged in the conversation
- For each person presenting there was one other who took notes on that person's behalf during the review.
- The LR also made notes for feedback, which were to be made available to collect and discuss the following day.
- After all of the projects pinned up had been discussed there was a 15-minute recess to allow the work to come down and the next set of work to be pinned up. This

allowed a little time for informal relaxed chatter between students and with the reviewers.

- Upon re-commencement of the DPR everyone was asked to take their place and focus on the work being presented.
- After lunch the DPR continued in a similar format.
- The additional guest reviewer GR2 joined the group shortly after the afternoon sessions had begun.
- At the end of the session there was a summing up discussion with all participants.

There are several characteristics to this DPR that warrant further commentary:

The whole session was well managed. All participants were alert and engaged. Those presenting their work joined in the conversation in an open and objective way. The DPR seemed to be a familiar process, as there was little hesitation in engaging in conversation by any of the students, who were thoughtful and critical in their observations and asked pertinent questions. Discussions covered a number of topics including exploration of the architectural ideas (the theoretical agenda(s) that underpinned (or generated) each project), context (including cultural/social context). Participants did not seem overly defensive about their projects. The session was entered into in a positive and inquisitive way by both students and reviewers. Students did not need to be prompted to ask questions. There was a sense that they were fairly well practiced at DPRs and treated the event as a broader learning opportunity. There was a high level of criticality within the student comments, whereby the discussion often went beyond the merely objective analysis of the architecture but also explored ideas about architecture, about the students' presentations, and how the 'narrative' of the project could be explored and explained through drawings.

The LR or the GR1 would occasionally stand up to make a point to all of the participants and would occasionally approach the work to engage in conversation about some specific aspect. This tended to take the form of a one-to-one conversation with the student who was presenting their work, but conducted in such a way that the conversation was observable by the others. There was a degree of performance involved. By taking the floor, the reviewer was able, temporarily, to dominate the conversation. The audience watched. The student who had been presenting his/her work, was now part of an observed conversation and had to listen and respond to the reviewer 'in front of' the audience, rather than to the audience. The performative nature of these interventions seemed quite deliberate. The conversation, it seemed, was for the benefit of all. Indeed, it was noticeable that the conversational forum shifted between different modes: from formal presentation to question and answer with the audience; to group discussion; to question and answer as one-to-one in front of an

audience; to anecdote and advice; to reflective summary; and back (and forth). The LR managed the conversation and often paraphrased contributions from others as a way of clarifying the issues under discussion, particularly where the observations and comments might inform what additional work might need to be done to complete the project.

GR2 (another tutor from the school) joined the DPR in the afternoon, part way through the discussion about the first project being presented. GR2 did not have a formal GR role in the DPR, but had come along to see the presentation that involved one or two of the students with whom they had had previously had direct contact. The introduction of a third person changed the dynamic of the DPR somewhat. GR2 had not been present at briefing at the start of the day, nor at the DPR introduction, wherein the student participants were encouraged to take a lead in the discussion, and tended not to hold back to allow others to comment first. The shift in the dialogue was such that the discussion between the reviewers came more to the fore, and discussion with and between student participants diminished. Additionally, as people shifted to face a different person's work the reviewers found themselves at the front of the audience and so became the focus of attention for the author of work being presented (Figure 6).

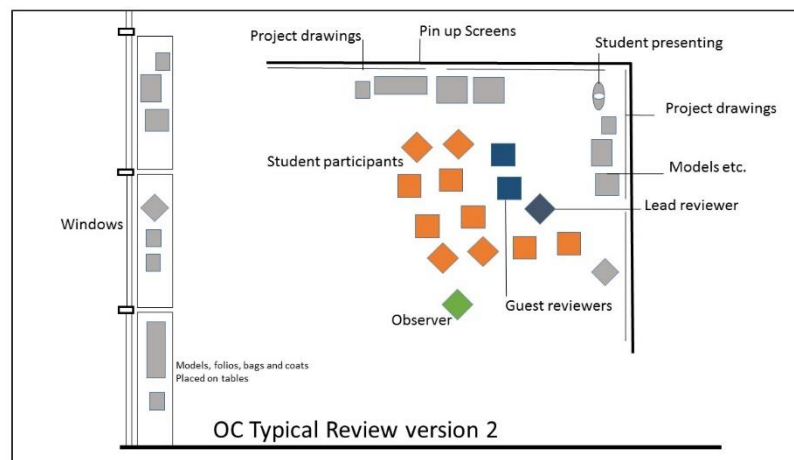


Figure 6. Second configuration of review space at OC

Throughout the DPR the focus of conversation was on the 'narrative' of/in the work presented, and how the 'story' of the architecture might be explained through drawings. There was a strong drive to understand why the work is like it is. This line of enquiry also led to an exploration of how people might experience the architecture and how the narrative becomes manifest both at a strategic level and in (technical) detail. For example, one student was told: "Don't change what you are doing, just make it more explicit" (LR).

The dialogue often explored how ideas might be expressed through drawings. The students' descriptions of their projects were primarily experiential, outlining both spatial organisation,

activities, function and programme, as well as technological resolution, and the manipulation of materials, views, light and shade and so on, as a way of explaining how the architecture is made.

The language used (by LR and GRs) was, in the main, objective and positive:

“This project has a lot going for it” (GR1)

“The architectural language is used to celebrate the ideas” (LR)

“There is a clarity of organisation. There is a strategy” (LR)

When comments were directed at the person they were mostly complementary:

“you’re doing all the right things” (GR1)

“Really lovely” (GR2)

“Really sensitive scheme” (LR)

“This is lovely” “Gives a really lovely feel” (GR1)

Where student participants raised questions or explored certain aspects the LR was always positive in praising the views of others:

“These comments make really strong points” (LR)

Where there was criticism of the work, it tended to be delivered to the room, rather than at and individual, and tended to be forward looking:

“You really need to ‘draw’ and ‘know’ the context much better”. (LR)

“There is a need to be much more explicit” (GR1)

It was notable that, although the conduct of the DPR had been fairly relaxed and generally very positive and supportive, the reviewers and the student participants were engaged in a serious critique of the projects presented.

Whilst the students seemed mostly to be at ease and engaged there was still a sense that emotions were running quite high. One or two seemed upset after their presentations and were quietly consoled by their colleagues. The LR and GRs did not become involved in these situations, which were discreet but noticeable.

During the final summing up the LR formally praised everyone’s endeavour, outlined, and reflected upon, some of the main issues that had come up during the day and clarified the process for finishing off the projects, engaging with pre-submission, portfolio tutorials and

feedback, and finally the process for submitting portfolios for assessment. The GRs were invited to contribute with closing comments, which were positive and encouraging.

Following the end of the DPR there was a final meeting held with all students and reviewers from all of the DPRs that had been running that day in parallel, which served as a final 'year meeting' at which everyone was thanked for their hard work over the whole year. Comments were invited from LRs and GRs, all of which were full of praise and were supportive. There was a general buzz of excitement (amongst reviewers and students) about reaching the end of the year (the end of the undergraduate degree) and having had the final design project review.

After this meeting had finished there was a de-briefing meeting with the main project leader and all the participating LRs and GRs, in order to capture any specific observations or address any queries. Everyone was thanked again for their contributions.

5.4 Comparisons

In each of the schools I was informed that there are occasions when different formats for DPRs are used, including on-screen digital presentations and exhibitions of work without formal verbal presentation, for example. However, the format of the DPR event used in all three schools being observed, was one that is fairly standard across schools of architecture, in which several projects were 'pinned up' on purpose-made screens or pin board-clad walls, such that more than one project can be viewed at the same time and students presented their work one by one to a panel of tutors, guests and other students. In this respect, the DPRs at ASA, ASB and ASC were fairly similar.

The similarities are quite straightforward and are these:

- The events took place in a prepared review space.
- The review space was semi-public and open to other students and tutors in each school.
- Each student was expected to display a finalised design project.
- The events were all final DPRs, of the final year of the undergraduate course in architecture.
- In each case the DPRs were not a point of assessment but served to offer a final overview of the project and provide advice ahead of final submission a short time later.
- Each event lasted for a day, over 2 sessions either side of a lunch break.
- Each event had a small number of student participants (8-10).
- Students presented their own work, in turn.
- Each person being reviewed had a similar length of time (40 minutes) to present and discuss their project.
- Each DPR was managed by the LR who was a tutor involved in the design project and who chaired the event and provided written feedback

- Each DPR included an external GR, who was a practising architect who had no prior knowledge of the design project.

However, between the three events, there were a number of significant structural and operational differences that might provide deeper insights through comparison:

The review spaces

The work on display

Timings

The participants

The conversations

Patterns of engagement

5.4.1 The review spaces

Fundamental to the operation of a DPR is an environment conducive to the presentations and conversations that the event entails. The space can vary in size, depending upon how many projects are being reviewed and how many participants there are in the gathering. The number of projects that can be discussed in a day can vary, but the DPRs under observation allowed around 40 minutes per person, meaning that over a 6-hour session 8 - 10 projects might be able to be discussed.

Several projects are pinned up at the same time. They are presented in turn by each student, and form a visual field of design work around the space and amongst which the conversation takes place. From time to time the talk at the DPR might refer back to a project elsewhere in the space that has already been discussed, to draw comparisons, or make a particular point. It was only ASA that had arranged to have all of the work pinned up at the same time. At ASB there were normally only 2 projects pinned up at any given moment. At ASC there were 3 or 4 projects at a time.

The 'wall' on which the work is 'pinned', figures prominently and is clearly a key component of the event. It is the physical device that allows the arrangement of design work in the space in such a way that it can be scrutinised by others, both formally (during the DPR) and informally (at the beginning and at the end and at moments in-between). Getting the work 'up on the wall' is an act of completion. Once the work is pinned up the author is declaring their readiness to engage in the review. Because of the nature of the discipline there are many drawings and models, at different scales, and showing different aspects of the design project, which need to be displayed together in order to be able to appreciate the work holistically. The person presenting the project indicates different aspects of the work in order to explain it fully. The other participants; students and reviewers, are able to look at the work and 'read' between the drawings and models, in order to construct their own understanding

of the design project whilst it is being presented. For this reason, a reasonably large amount of wall space is required for each person's project to be displayed. In all three DPRs observed, each design project normally occupied a wall area of around 6m².

The work displayed included a variety of 2d and 3d work. Models and other items were placed in front of the work that was pinned up, sometimes on desks or plinths, sometimes at ground level, depending upon the space/furniture available. The configuration of the space needs to allow the author of a piece of work to be able to stand in front of the work in order to be able to talk about it. The relationship between the wall and the student presenting the work means that the work was primarily pinned up at around eye level, and stretched upwards to about 2m or so and down to plinth/desk or ground (Figure 7).

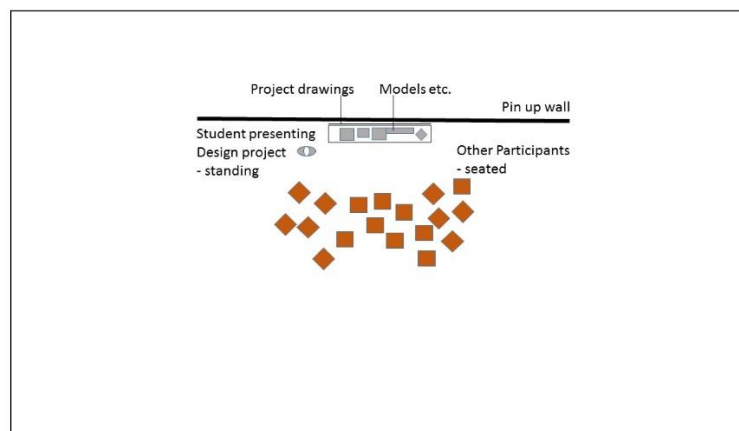


Figure 7. Typical spatial configuration of DPR

The student presenting the work was able to take a couple of paces from one side to the other during their presentation. The others involved in the DPRs were able to sit on loose, movable furniture, a short distance away, so that they could view the whole project, and any others that were pinned up in the same space. This then is the space of the review: A wall on which the work is pinned; space in front of the wall for display of other items; a zone for the student to stand in front of the work and talk about it; a seated audience arranged to be able to see the work being presented.

Within each school the DPR space itself was an area set aside, or rearranged for the event, within the design studio or nearby. At ASA the space was an area specially designated for reviews in a wide open area (figure 3). It was an uncluttered space, separate from the design studios, which were relatively nearby in the same building. The DPR at ASB (figure 4) and ASC (figure 5) were both situated within each school's studio space, which had been rearranged to create review spaces specifically for the event. ASB was rather more cluttered and noisy, being in a larger studio space, whilst ASC was tucked away at one end of the

studio and was able to operate in a way that was relatively undisturbed. In each school the DPRs observed were only one of several that were happening contiguously on that day (as larger cohorts had been split into smaller groups for the events) and so the spaces occupied by the parallel DPRs were varied, and utilised other spaces that were available in each school. One thing that all the DPRs had in common (those observed and their parallel sessions), was that they were open forums. Other students from the same cohort, or from other year groups could attend, observe and participate. This was seen by both students and tutors to be a normal aspect of the arrangements (even though some students expressed a degree of anxiety about this).

5.4.2 The work on display

In each of the DPRs the students had worked together in the first instance to analyse a particular place, set by the project tutor, and to devise ideas for architectural design projects based upon that analysis. At ASA and ASB the districts studied were common to all students in the cohort, but the project type was something that was negotiated with the tutors following the analysis of the place. At ASC there were two places studied by members of the group. In both cases the precise location had been determined by the group at the analysis stage, but the project types were developed independently. The 'flavour' of the work presented at each of the DPRs was different and, whilst the projects chosen and developed by students were not dictated by the school or project tutor (and were, in fact, very wide ranging), the general nature of projects reflected the ethos of each school.

At ASA the focus of investigation, prior to project development, was very much on understanding the broader issues of urban morphology, environment and landscape, and consequent patterns of human settlement and infrastructure in a particular district. At ASB the design drivers for each project came from a study of place that emphasised the historical associations of the location and related to thematic investigations of human endeavour in the arts and the sciences. The nature of the work at ASC was focused on community and the relationships between groups and individuals, grounded in an understanding of the social character of particular urban locations. The design projects, whilst being quite diverse (both between schools and also within each school), displayed comparable methods of design development driven by exploration of a specific location, and individual response to those investigations by each student.

The primary purpose of the work that is pinned up at a DPR is to be able to explain a design project in its entirety. In each school aspects of the work had been discussed at tutorials and interim reviews over a period of time prior to the events, but at the DPRs the whole project was displayed and explained. Architectural design work covers quite a range of formats and

scales. Drawings and models (both digitally and manually produced) included conceptual ideas, design development, contextual studies (often at a large scale), site analysis, studies of precedent, plans, sections, elevations, 3d renders, exploration of environmental issues, structural resolution, detail design and a variety of other images, objects and writings, depending upon the project and upon the student's approach. Some drawings, reports and models were quite conventional, others didn't follow convention and were occasionally quite idiosyncratic.

The arrangement of drawings and other items in the space is understood, by both tutors and students, to be an important part of the presentation, both as a first impression and in relation to the project narrative and method of verbal presentation. Preparation for the review will have included contemplation of, and planning for, the act of pinning up. The wall and the space of the DPR, perhaps in an abstract sense, are, in this way, imagined or envisaged prior to the event. The process of pinning the work up is, in itself, part of the process of preparing to discuss the work. During the pinning up process and once the work is in place it becomes publicly displayed and serves the additional purpose of being an installation in a small exhibition. Students were aware of others observing their work, prior to and during the review and they, in turn, spent time observing the work of others in the same space. Being able to stand back and look at the work as a whole allows space to reflect upon it and make final arrangements of format/ordering. The 'wall' has potential to become a location for a review, but is without character until the work is displayed. The work, then, once in place, allows the event to take shape.

In the three DPRs observed there were distinct differences in the process of pinning up and format of the work.

At ASA each student had a set display size (2.5m x 2.5m) and a set plinth size for display. The space for the event was set up prior to students pinning up and the students knew how much space they were allowed, and prepared their work accordingly. All nine of the students (attending for the whole day's event) were given a time by which the work must be displayed. All of the work was pinned up at the same time, so students and tutors could see it all on display before the event started.

At ASB the format was radically different. Students had not been given a set display size, with the consequence that some students pinned up enormous amounts of work (often more research/analysis, rather than design/synthesis), filling the space available, while others had just two or three sheets and very few models. Furthermore, the students had been given a timetable for their review and were expected to be ready by the time their turn came along. The display space was fairly limited (it would not have been possible to pin up all eight

projects simultaneously), and students utilised differing amounts of space to each other. Therefore, there tended to be a rolling activity of pinning up, with the next student getting ready, just before the previous one had finished and then, once the reviewers had shifted their attention to the next student, the previous person unpinned their work, making room for someone else. It wasn't possible in this format to see all of the work by all of the students at the same time.

At ASC the space also didn't allow for all students to pin up at the same time. The event was split into three sessions, with 3 students in each of the first 2 sessions before lunch, and 4 students afterwards. For each session all of the students presenting in that session displayed their work together. Once the session finished the work could come down, the students in the next session pinned up together and the next session began. Only the work of three or four students could be viewed together each time.

The extent to which projects were presented as finished/final displays varied in the DPRs observed, with the work of students at ASA being the most determinedly finalised and carefully arranged for the review. The work of students at ASB being the least complete, in terms of a curated display.

5.4.3 Timings

There are several temporal issues surrounding the DPR. Firstly, the DPRs observed were all final DPRs at the end of the final year of the undergraduate degree in architecture (part 1). The design projects had all been developed during the academic year, initially with a field study and minor design exercises and then latterly, over a period of between nine to twelve weeks as a final design exercise. In all cases the projects had had several stages of development and students had engaged in a series of tutorials and interim DPRs. The final DPR did not constitute the final assessment of the project. In all cases the work was to be submitted in a portfolio some time after the DPR. The length of time following the DPR before portfolio submission varied from two days at ASB to two weeks at ASA and ASC.

At ASC the work was submitted to the school admin' office the day before the DPR and collected on the day for the event. At ASA and ASB the work arrived on the day of the event. At ASA and ASC the work displayed was generally complete and presentable. The group at ASA all had a standard display size to work to and so the work appeared to be better curated. This may also have been due to the fact that the work was all assembled in the review space at the same time. At ASB the presentations were less finalised.

The process of preparing work to pin up; formatting, printing and so on, takes time and this was accounted for at ASA and ASC. Although in the case of ASA the students were doing

their final preparations early in the morning, before the DPR started. Nonetheless at ASA and ASC the pinning up of the work happened collectively. At ASA all work was pinned up at once, at ASC the work was prepared the day before and was ready to pin up at the appropriate time slot. At ASA and ASC there was an expectation that all students were present at the start of the review and that work was in place, ready to go. In the case of ASA this was all of the work, whilst for ASC the space only allowed for some of the projects to be 'on the wall'. Nonetheless the events included a period of time immediately prior to starting, where students busied themselves, as a group preparing and assembling their displays. ASB, on the other hand was much more ad hoc, as students came and went during the reviews, pinning up and unpinning one at a time. Some students didn't turn up until it was their turn. Some turned up late because they had had delays in printing. A few stayed to watch other projects being reviewed, but there was generally less engagement in the DPR itself by the group. There was no expectation that students would be there, except for when they were being reviewed.

The three DPRs observed had very different ways of organising submission for the DPR.

At ASA the work of all the students being reviewed was to be in place by 10am on the day of the DPR. This allowed some time for sorting out printing and final preparations first thing in the morning. Some students had largely prepared their work the day before, but others had been awake for most of the night 'finishing off'. Because the work was to be 'up' by a certain time, it meant that there was a period of slightly chaotic activity immediately prior to the event. A period of time which, in itself, was a slightly informal, social occasion and allowed for some final moments of contemplation and discussion; to see the work as a whole, in place, before the review began, and to be able to look at the work of all the other students.

At ASB each student arrived and set up at different times throughout the day. The whole process appeared fairly chaotic. There wasn't a shared process of pinning up and preparing for the event, as at ASA. Consequently there was little time for students to stand back and look at their full display before their review began. The way that the work was pinned up seemed in many cases to be rushed and fairly random. Sometimes drawings or models were missing (and were retrieved on demand from the studio). The presentations didn't seem as coherent as at ASA or ASC, although this may have also been because of the review process itself (described below). Some students appeared tired and distracted and seemed to struggle to engage fully in the DPR.

At ASC students submitted their work the day before the DPR, which meant that they had been able to get a night's sleep; were able to socialise the evening before and discuss the project and the upcoming review with friends, and were able to give some thought to their

verbal presentation. This practice meant that students remained far more alert and focused during the event. On the day of the review, rather than finding themselves pushed for time, making last minute adjustments, they simply had to pick up their work and pin it up in the review space. This was not an unfamiliar exercise as it was reported that it had happened on previous occasions during their course.

In all the DPRs, the time taken for each project to be reviewed was similar, at around thirty to forty minutes. In each case the student would spend a few minutes talking about their project, before the LR, GRs and other students began to ask questions and make observations. The student presenting the work would engage in the conversation, and occasionally return to presenting the work until the conversation came to a relatively natural end. The LR, typically, acting as the timekeeper and winding up/summing up the discussion, before moving on, as the whole group shuffled their chairs into a new position and the next student was invited to begin.

In each DPR the LR prepared written feedback, a copy of which was given to the student. At ASC the feedback was not given to students until the following day, allowing the LR time to reflect upon it and finalise it. At ASA the LR would summarise the written feedback verbally, before moving on to the next person. At ASB the LR handed the feedback to students, and sometimes had a conversation as an aside with the student as the next student began to present. The portfolio submission, where work was to be assessed, happened subsequently. For ASB the portfolio submission being only two days later, meant that any students who wanted to discuss their feedback needed to do it straight away. At the end of the session the LR made time for this. The short timescale to finalise projects after the DPR at ASB gave the event something of a sense of urgency and clearly, in some cases, students seemed quite anxious. For ASA and ASC the portfolio submission, being two weeks later, allowed time for students to arrange to meet their tutor on another day for a discussion about the feedback, prior to finalising the work.

5.4.4 The participants

The DPR is an event that brings together students, academics and practising architects. This was the case in all three of the schools observed. The gatherings consisted of a lead reviewer (LR), guest reviewers (GRs) and students. In ASA there was a LR, two GRs and eight students. In ASB there was a LR, three GRs and nine students. In ASC there was a LR a GR and ten students (joined by a second GR in the afternoon).

In all three cases the students had had access to several other design tutors during the course of the projects, both at tutorials and at interim reviews. The students in each DPR were familiar with each other and largely familiar with each others' work. Only in ASC were

some of the students less familiar with the work of others and were, in some cases, seeing it for the first time.

Of some significance in the process of the event is the role of the LR. The task is complex and important to the smooth running of the event. In each of the DPRs observed the LR was familiar with the project brief and closely involved with the cohort. In each case it was the LR's task to plan and co-ordinate the event, to decide on timings and running order and so on, to organise the GRs, to arrange the review space and the process of pin up. On the day, the LR directed activity, explained what was required, kept things running on time, dealt with unforeseen circumstances etc. The LR also managed the conversations, both in preparation and briefing of GRs and participants, and 'on the ground' as projects were presented and discussed. At all three DPRs the LR had some authority, both as the co-ordinator of the event and as the person providing feedback and ultimately assessing the work. The GRs did not carry out any assessment, so the students were often more attentive to what the LR had to say.

Each DPR had a GR who was external to the school and who was a practising architect. The students were all familiar with their LR, but were not familiar with the GRs (except perhaps by reputation).

At ASA the LR was a very experienced tutor and was the main design project tutor, who had been running the project and had had close personal contact with all of the students over the course of the year. One of the GRs was another tutor from the school, also with a number of years teaching experience, but who had had less contact with the students. The second GR was an architect in practice in the same city as the school, who had joined DPRs and other events in the past, but who had had no contact with the students prior to the DPR. The two GRs seemed to be very comfortable with each other and relaxed in their attitude to the work and to the students. Their focus was on the work in front of them and how they might advise the students on what to do next. The GRs carried less authority than the LR. The students clearly appreciated their contribution and were respectful of their expertise, but were also aware that they would not be marking the work. The two GRs were able to discuss ideas whilst the LR wrote feedback notes. Their focus was generally upon the architecture, rather than on the students' learning, which was where the LR had a role in drawing out pertinent 'lessons' from their observations. Students at ASA were not easily drawn in to the conversation but were, nonetheless, present and attentive and occasionally talkative.

In ASB the LR was an experienced tutor who was responsible for running the design project and who knew the students. Two of the GRs were junior, part time tutors, one of whom had had some contact with the students, the other had not. The third GR was a young architect

in practice who was a recent graduate of the school. Very few students stayed to watch each other's presentations, which meant that the GRs had power in numbers. Each student had four reviewers to present their work to and to converse with, which seemed quite daunting, and which may have been the reason that students typically said very little. The three GRs discussed the projects and discussed possibilities and ideas more widely. They were quite exercised by the narrative of each student's project and were keen to discuss techniques of representation that expressed those narratives. The GRs dominated the conversation. The students who were not being reviewed were generally not engaged in any of the discussions. The GRs were enthusiastic and positive, but for some students this meant that they were confronted with many new ideas and options, which did not always seem to be enthusiastically received.

At ASC the LR was an experienced tutor who had been involved with tutoring on the project, but was not the tutor who set the project and did not know all of the student's work intimately. The GR was a senior architect from a large architectural practice who had attended DPRs in the school on a number of previous occasions. The LR allowed the GR and the students to take the lead in any conversations, which were focused and measured. The second (internal) GR who joined the group later in the day was a tutor from elsewhere in the school who the students knew. The external GR came across as having some authority as a representative of the profession, focusing on the students projects as works of architecture and bringing a professional critique to each project. Students at ASC were more alert generally and were encouraged to engage.

In ASA and ASC the external GRs were very focused on the production of work (models, drawings, prototypes, film/animation) and the way in which the work was presented (as a visual and spoken narrative). Their contributions were often to try to coach the student in how to present themselves. There was a sense that their contributions helped to ground the work and the event in the 'real world' and so provide a connection between academia and practice. This was less clear at ASB where the external GR tended to be more drawn into the academic/theoretical discussions with the two other (internal) GRs and the LR.

5.4.5 The conversations

In the DPRs observed there was a distinct sense of the event being an important moment; a sense that this is what becoming an architect entails. This was reinforced by the fact that this was the 'final' review of their course, the depth and breadth of the projects (and the broader debate about architecture to which the discussions relate), and the engagement with the profession through the invited practitioner as a GR. There were a few students who

presented rather nervously in each observed DPR, but in the main, in discussion, students were engaged and assured in their use of architectural language.

For each presentation at the DPRs observed the discourse can more or less be broken into seven conversational components:

- presentation
- questions and observations
- design critique
- presentation critique
- emergent themes
- architectural ideas
- advice/feedback

These are not mutually exclusive and tend to be quite fluid. Although, in the main, they all began with 'presentation' and ended with 'advice', most of what was discussed in-between could be quite deeply intertwined.

To elaborate:

The presentation of the work is the most formal aspect of the discussion, whereby the student stands in front of the work to explain it to the assembled audience, consisting of other students the LR and GRs. This typically took five to ten minutes. The student has a range of things to put across, including their analysis of the design problem (the location, the building type, relevant precedent), their approach to developing a solution, an explanation of how the architecture works, an exposition of the significant spaces and the primary user experiences, and a description of environmental and material choices and how these are integrated into the overall scheme. In practice, the verbal explanation didn't always cover the relevant issues in a logical order, and where there was a mismatch between the spoken word and the graphical communication in some way then the LR and GRs, or the other students present, would raise questions before the presentation stage was finished. In actuality, in the DPRs at ASA and ASB, the students who presented earlier in the day and, immediately after lunch, were given more time to present their work. As the day wore on the LR and GR would interject more often before the presentation was complete. In some instances, at ASB, the presentations more or less petered out after a couple of minutes and quickly became question and answer sessions. At ASC each student had seven minutes to talk about their work, and in each session there was a timekeeper (another student) to ensure that the presentation time was consistent and equitable throughout the day.

Questions and observations were the usual way to begin the subsequent discussion and tended to be reasonably simple points of clarification at first, to make sure that the designs presented were understood by everyone. Questions and observations usually quickly

segued into broader discussions about the work. The design itself was critiqued, in which a range of things were generally addressed: design concepts and narratives were examined; design decisions were questioned and alternative ideas probed; urban, spatial, formal, structural, material and environmental strategies were interrogated; resolution in detail was explored; and integrated design thinking was tested. Interspersed with discussions about design critique were discussions about techniques of graphic and modelled representations. The appropriateness of the work on display, for conveying the meaning that it's author means to convey, was also explored.

Over and above specific scrutiny of the design under review, the DPRs also served to highlight themes that emerged in relation to the projects set, or in relation more generally to broader architectural theories and practices. In this way the students' designs were situated within greater bodies of work; as part of the overall output of the particular design studio, within the context of the work of each school and, through association with existing architecture, as part of the external, professional environment.

The final part of discussions with each individual student tended to be about giving some advice for completing the work for subsequent portfolio submission. This might typically be advice about the designs, but in each of the three observations, it was normally about what drawings, images, models or other information should be worked on, improved or produced. In each case the LR wrote feedback both during the review and in the last few minutes, when final verbal advice was being given.

All of the above provides a rich and complex layering of ideas, concepts and opinions. There is no simple order in which things can be discussed, because the conversations are dependent upon the projects being reviewed and the way in which they are presented and engaged with. The range of topics that might be discussed can be bewildering and some students in each school seemed to find the process to be quite demanding.

At ASA and ASB the students appeared less accomplished at presenting themselves and presenting their projects. That's not to say that they weren't especially articulate; they were, but they were noticeably less open to discussion during their own presentations, being generally either more defensive or more submissive. This might be to do with tiredness in both cases or, at ASB, because the time available to finalise projects afterwards was very tight. Having to stand up in front of one's peers and tutors can be a daunting task and requires preparation. It can also be difficult to remain focused on other people's presentations immediately before and immediately after your 'turn'. At ASA and ASC students mostly sat quietly immediately afterwards, sometimes engaging in quiet conversation with a friend before refocusing on the next person being reviewed after a while.

At ASB students tended to simply leave the room when they had finished their review and taken their work down.

At ASA and ASB the LR was very familiar with all of the projects and was able to discuss issues relating to each with reference to earlier conversations and developments (or in relation to an absence of earlier conversations where a student might not have been in attendance as much as they could have been). At ASC the LR was more closely associated with some of the student's design development than others. This didn't seem to make much of a difference as the LR had been closely associated with the group and was familiar to all students, if not directly with each project. The extent to which the students knew each other's projects varied. In all cases students were familiar with some and not with others. The students at ASC seemed to know each other's projects most intimately.

A key aspect of the DPRs observed was the very practical requirement by students to receive instructions on what they must do to finalise their projects. There was a tendency in all of the DPRs observed for students to want to summarise comments on their work as self-contained instructions. The LRs at all three schools were quite adept at doing this. At ASB the LR spoke with several students, immediately following the event, who wanted some additional commentary to satisfy their need for more explicit direction.

5.4.6 Patterns of engagement - Variations on a theme

ASA

At ASA the spatial configuration of the event had the student presenter standing in front of their work, with the rest of the participants sitting in a rough arc of chairs, with the LR and the two GRs occupying the front seats and the other students arranged loosely around them. The GRs sat facing the work. The LR was partially turned to the whole gathering. From this position the LR managed the event, inviting students to present their work, keeping the reviews on time, chairing the conversation and writing feedback notes (Figure 8).

The LR had the responsibility of managing the event, but also carried the authority during the event to guide the conversation, pick up on specific points, direct attention at certain aspects and so on. The GRs would respond to this authority accordingly. The LR made a specific point of summing up for each student, particularly in relation to instructions to complete the work. Where there were themes that were common, or pertinent to others, the LR would highlight these. At the end of the session the LR provided general praise and advice. The LR was the design project leader and, as such, was responsible for managing the subsequent assessment of the projects at the portfolio submission. The GRs were not subsequently to be involved in assessment and, not having the responsibility of managing the event, were

more able to focus on the work of the students and discuss the issues between themselves, and with the LR as they arose.

The GRs tended not to address their comments to the whole group very often and it fell to the LR to try and draw other students into the conversation. The students seemed engaged (notwithstanding the fact that some of them were clearly tired and reported having not had much sleep), but were, largely, quite quiet. Few students actually participated in conversation, even though the LR actively tried to engage them. The GRs did not know the projects and did not know each other. There was a tendency for them to dominate the conversation. The LR was quite adept at bringing the conversations back to the specifics of the projects and trying to summarise key points for feedback.

The LR would address the whole group occasionally and some conversation would develop, but the focus was mostly on the person presenting the work. Where students did join in the conversation it was often in defense of the person presenting, rather than by way of developing a critique. Feedback notes were written by the LR and used to summarise each review before being handed to the student. Students were aware that they could take their time to read and reflect upon the feedback and arrange to meet the LR to discuss it further during the following few days.

The diagram below (Figure 8) is a representation of the format of ASA. The arrows indicate the pattern of conversational interactions, as described above.

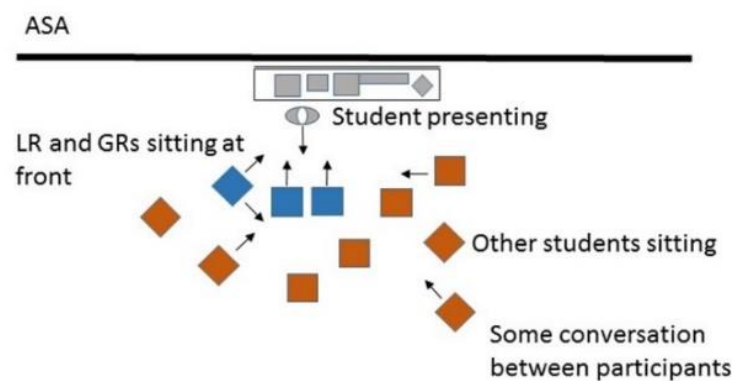


Figure 8. Representation of DPR at ASA

ASB

At ASB the event started with one student ready to present and two or three others waiting their turn to present. The LR and the three GRs sat at the front, immediately in front of the student presenter and their work. LR and GRs were intently focused on the student and the work being presented. Other students in the review space sat behind the reviewers, slightly remotely, and were not engaged in the conversation at all. Although, those that were there did pay attention. In addition, there were other students who would wander in for a while and stand watching, but without any real focus on proceedings (Figure 9). Occasionally, these students would quietly talk to each other in seemingly unconnected conversations. There was something of a hubbub of chatter the whole time, making the event feel very much like it was set in a public place. Very few of the student participants seemed inclined to stay for very much longer than their own review.

The LR had the responsibility of managing the event, which included developing the critique and providing feedback. The LR wrote fairly lengthy notes for each student whilst the critique developed, primarily as a conversation between the GRs. These conversations tended to be very wide ranging and jumped around quite a lot; from discussions about concepts and narratives, to urban strategies, spatial arrangements, materials and details, presentation techniques and so on. The GRs were very enthusiastic about the work presented, where they could be. These conversations did not appear to be managed by the LR and seemed quite difficult at times for students to follow. The conversations took longer for each student presenting at the beginning, as they were less controlled, initially, than in later presentations. It's likely that this was because there were three GRs, as well as the LR, each feeling it necessary to have their say at any given moment, and hence prolonging the conversations. As the day progressed there was a sense that things needed to speed up.

Student participation at ASB was practically zero. Students came and went at will, and tended to sit or stand much further back than the reviewers, conducting separate conversations among themselves. The three GRs were quite animated and enthusiastic about the projects and ideas being presented and tended to discuss projects at length. The LR allowed these conversations to unfold (which became problematic in terms of time management) because they were quite philosophical, usually in relation to each student's theoretical position, and provided much food for thought. Where the discussions related more specifically to advice for finalising the project, they tended to be about how one might represent or express ideas through drawings and digital or physical models. They were less focused on the students' immediate needs (for advice on what to do next) than they were on ideas about architecture. The fact that there were three GRs meant that the topics of

conversation rambled, or jumped from one thing to another, as each would identify additional aspects that could be discussed. The difficulty for students seemed to be keeping up with the flow of the conversation, which covered many topics and went off at (not uninteresting) tangents, in relation to each project. The LR was often not engaged in the conversation but spent time making feedback notes.

The LR spent a short amount of time at the end of each presentation briefly discussing the feedback with the student, whilst the next student was getting ready. The LR was the design project leader with responsibility for assessment of the work and took the opportunity to summarise the feedback verbally. There was little scope for the LR to try to interpret the discussions for the benefit of the whole group, or to open out questions/issues to the students, because the students were not as engaged, or even present. Similarly, at the end of the event, there was no summing up as such, because there were very few other participants, besides the GRs, to whom summing up could be addressed. The LR and GRs had a final discussion about the work amongst themselves and the LR then spent some time with a few of the students who had stayed behind to discuss their individual feedback. At ASB the portfolio submission was only a couple of days after the review and there was therefore something of an urgency, for some students, who felt the immediate need to talk about their feedback.

The diagram below (Figure 9) is a representation of the format of ASB. The arrows indicate the conversational interactions, as described above.

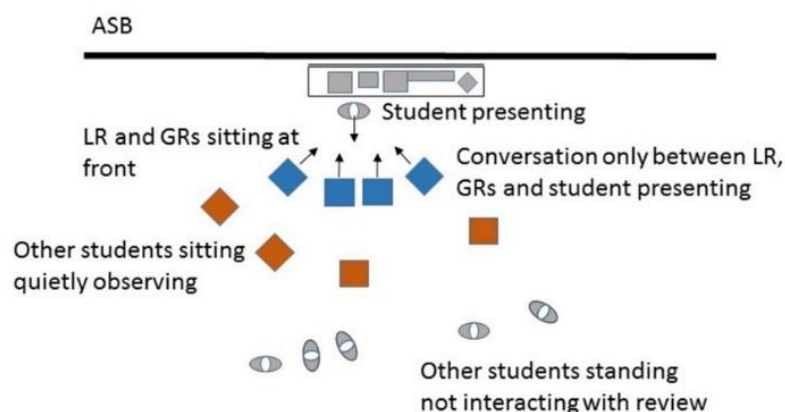


Figure 9. Representation of DPR at ASB

ASC

At ASC there were only two reviewers, the LR and one GR. Both had been at a meeting with other LRs and GRs, who were involved in adjacent DPRs on the same day, for a briefing about the format and an overview of the expectations for the project, from the main design project leader.

The LR chaired the DPR event and managed the conversation. The members of the group were arranged in a configuration that was noticeably different to the DPRs at ASA and ASB, in that the students were encouraged to sit at the front and were expected to contribute to, if not lead, the conversation (Figure 10). The students had not been working through the previous night and were therefore fresh and focused. They had been briefed about the format and knew that they should be fully involved in the conversation. The LR was able to articulate themes and issues that were useful to discuss and would recruit the student participants to help provide advice to individuals, where needed. The LR had the responsibility to manage the event, which they were able to do without dominating the conversation. The GR was invested with some authority, by virtue of the introduction made at the start of the event, and because of their professional reputation. It was an authority that seemed to be respected for the experience and expertise that they were able to bring in support of the conversations. The LR allowed the GR to speak and encouraged interaction with the group.

The LR wrote feedback notes and provided verbal summaries for each student and for the whole group. Each student had nominated another student to make notes during their review, which they were able to discuss afterwards. Whilst the LR was one of the design project tutors, they did not have the responsibility for leading the assessment of the work subsequently, but would share this task with others. The students were aware of this. The GR had no further input into assessment following the DPR. The conversations that took place between the students and the reviewers were rich and complex. The students were generally very supportive of each other, although the critique was quite in depth and, at times, quite intense. Engagement in conversation and level of critical reflection by the student participants was very high. Throughout the day students were focused on each other's project and were generally willing to offer their thoughts and were very articulate in expressing them. One or two students were more vocal than others, but this was no bad thing as the discussion provoked thoughtful interaction. The LR managed the discussion well and was able to highlight connotations and draw conclusions in anticipation of the written feedback.

From time to time the GR would stand to address the work of a particular student, an act that had the air of performance about it. The other students would tend to switch from being participants in a conversation to being a member of a quiet, receptive audience. On some occasions, if the GR became too focused on a specific issue, when standing with the student presenting their work, the others participants tended to become less engaged. This didn't happen often and was managed by the LR.

The dynamic changed in the afternoon when an additional tutor from the school joined the group. This didn't seem to be pre-planned and tended to skew the conversation slightly, as the voices of the original GR and the new GR appeared to compete, a little, for the attention of the others. The configuration of seating also shifted, seemingly inadvertently, as LR, GRs and students shuffled round to another presentation and the LR and GRs ended up in the front row. This also changed the flow of the conversation.

All students were present for the whole session. At the end there was a summing up by the LR before all students gathered in a larger studio space nearby with students from parallel DPRs and there was a final conversation with the whole group, which was very much a celebration of reaching this point and encouragement for the final push to finish projects for the portfolio submission

The diagram below (Figure 10) is a representation of the format of ASC. The arrows indicate the conversational interactions, as described above.

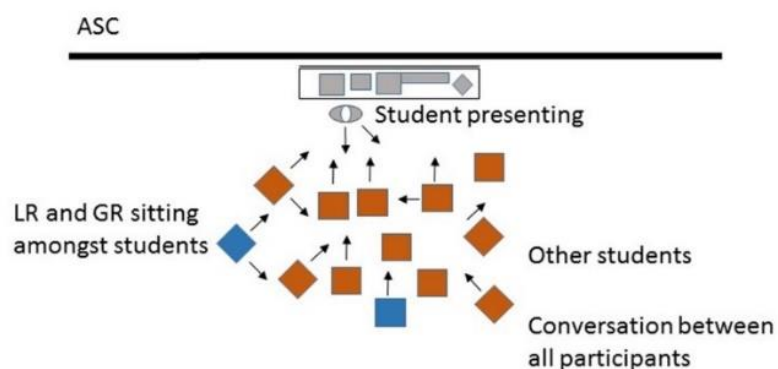


Figure 10. Representation of DPR at ASC

The table below outlines the key similarities and differences between the DPRs observed:

	ASA	ASB	ASC
Timing of DPR in relation to portfolio submission	10 days beforehand	2 days beforehand	14 days beforehand
Space provided for review	Public Away from studio in separate space	Public Within larger open studio space	Public Within studio space, arranged at one end
Timing of submission	Pin up by 10am on the day of DPR	Pin up at different times throughout the day of DPR	Submit the day before DPR. Retrieve for pin up on the day
Work displayed	Full project including drawings, models and reports	Full project including drawings, models and reports	Full project including drawings, models and reports
Number of participants	8	9	10
Time allowed for each review	30 – 40 minutes	30 – 40 minutes	30 – 40 minutes
Lead Reviewer	Lead design project tutor and organiser of DPR	Lead design project tutor and organiser of DPR	Design project tutor and organiser of DPR
Guest reviewers	One visiting practitioner One tutor from elsewhere in the school	One visiting practitioner Two tutors from the school, one of whom works with the cohort	One visiting practitioner One tutor from elsewhere in the school for the afternoon session only
Written Feedback provided	Yes, on the day by LR	Yes, on the day by LR	Yes, the following day by LR and on the day by nominated other student
Opportunity to discuss feedback	Yes, within a few days	Yes, briefly on the day	Yes, within a few days
Interaction	GRs discuss project. Offer advice LR manages conversation Students occasionally join in	GRs and LR discuss projects and discuss ideas more broadly Offer advice Students do not join in	Students, GR and LR engage in wide ranging conversation Offer advice
End of session	Everyone thanked by LR, praise and encouragement offered	Event peters out in series of conversations with individual students seeking feedback	Everyone thanked by LR, praise and encouragement offered Debriefing for LR and GR after event with others from adjacent DPR s

Figure 11. Table showing similarities and differences between the three DPR event.

Chapter 6 The interviews

The format of the DPR, on face value, is relatively straightforward, involving several students, who will display, explain and discuss each of their design projects with an audience consisting of their design tutor, or group of tutors, and their peers. The observations in chapter five, outlined the similarities and differences of the DPRs at ASA, ASB and ASC. Analysis of the student group interviews and design tutor interviews reveal further complexities and nuances in these situations.

The following investigation of the DPR then, is drawn from a thematic analysis of the three semi-structured student group interviews GIA, GIB and GIC and the three semi-structured interviews with design tutors IA, IB and IC (held at each of the three Schools of Architecture ASA, ASB and ASC respectively), based upon the topics described previously at sections 4.7 and 4.8. The data collected was transcribed verbatim, and the six sets of transcription notes (three student group interviews and three interviews with design tutors) provided a rich resource for evaluation of the situation, which was coded in accordance with the guidance of Braun et al (2017). The identified themes are also cross referenced in the text with the analysis of observations previously outlined, where appropriate.

A reading of the texts identified a wide range of meaningful statements that were initially coded and subsequently collected into the following ten analytical categories.

The nature and purpose of the review

Student behaviour and interaction

Reviewer behaviour and interaction

The work presented

The portfolio

Assessment and feedback

The environment within which the DPR is situated

Relationship of the DPR to other events and processes

Preparation, training for DPR/Experience of other DPRs or similar

Student expectations

Statements in the initial coding were not treated exclusively and could be placed in several categories. Each of the transcripts were handled in parallel and were systematically reviewed and cross referenced to ensure that the data sets of statements in each analytical category were comprehensive. Subsequently, the categories were reviewed and refined, and cross referenced with the observational data to develop the following three key themes:

Architectural expression

Individual expression

Acculturation

6.1 Architectural Expression

The (superficial) remit of the DPR is to review the design project. The DPR is, therefore, inevitably focused on the work produced. The work produced is an expression of the design process and the design resolution. It is an expression of architecture. In the final DPR scenario (e.g. as observed at each of the schools) the work is (all but) complete. Subsequent portfolio submission of the finished work (following discussion and feedback from the DPR) is assessed by the design tutors. The DPR then, forms part of the assessment process through which the work is judged. Beyond the specific discussions about each project, the DPR also serves as a forum in which architectural ideas are discussed, and against which the student work (and any feedback or advice) is framed. Crucially, the DPR is the culmination of design activity and the final point at which the whole project; the final output of the student, is (publicly) expressed.

6.1.1 Techniques of representation - “I need to have something... to pin on that wall and show to everyone”

The work produced for a DPR is the vehicle by which the projects are graphically and physically articulated. A range of drawings and models are presented in order to explain certain key aspects of the projects, normally including: design strategies, concept development, meaning and narrative, relationship to context, spatial organisation and technical resolution. The list isn't exhaustive or normally very prescriptive, although certain drawings/images and objects are often suggested as minimal requirements; plans, sections, elevations, axonometric, model in context... Students have been developing their ideas and developing these artefacts with the final DPR in mind during the preceding weeks and months.

The aim is for the student to mediate graphically and verbally the project process: its origins and its development, to discuss the quality and appropriateness of the design within the wider context, as well as the student's particular position within it. (IC)

In practice, the work presented typically provides more than the basics. The essential mechanics of an architectural proposition can be articulated through standard drawing techniques, but often the development of deeper architectural narratives or theoretical enquiries that underpin design proposals require more expressive representations. There is an understanding by tutors and students that the representational techniques do not only

explain an idea but express something beyond the technicalities of a project and serve to provoke broader conversations about architecture.

I think for the more exciting students, the more exciting projects, there are other ways of doing it, there are the larger scale installations, there are people working with film, people doing printmaking, people making large-scale interventions, photographing them in an environment, bringing in the record of the thing that's happened. (IB)

And then you're having quite interesting discussions about the architecture not just being this, this record in black and white, stuck on a wall, so there's a, an investigation, of space and ambition that comes through different media. (IB)

Students and tutors were keenly aware that the relationship between the work displayed and the spoken presentation is important. The major difference between a DPR and an ordinary tutorial is that the work is 'pinned up'. The act of putting the work on display, standing back to look at it, standing up to present it, discussing it, defending it, sitting down to reflect upon it, and so on, are all physical acts in material space that relate to the body of work being displayed. There are many different ways that the work is engaged with at a DPR, but the physical reality of the work in the space, as a representation (an expression) of architecture is an important factor in the process.

I need to have something that communicates my project to pin on that wall and show to everyone (GIB)

The wall, on which things are 'pinned' then, becomes significant. The students' designs, in the form of models and drawings (digital or manual) become the focus of attention, and have an existence in the space of the review for a period of time. They are discussed in depth, they are seen and contemplated/anticipated prior to the discussions, they are thought about after discussion and possibly returned to during later conversations as a comparison, or to highlight an approach or a technique. This aspect of the work being physically present in the space of the review (of being 'on the wall') looms large in the minds of students and tutors. The DPR is envisaged beforehand, and the work being produced to 'pin on that wall' is constructed and curated with the review space and the 'wall' in mind.

When I pin it up on the wall, and I talk through it.... (GIB)

... instead of just throwing it up on the wall. (GIA)

... looking at the work on the wall... (GIA)

... judge it by what's on the wall... (GIA)

... half-baked things put up on the wall. (IB)

I wouldn't put something on the wall that was... (GIA)

... and what we see on the wall is what we're gonna mark... (IA)

...to have all the work on the wall; to reflect on the whole... (IC)

...then to see all the work on the wall at one time... (IA)

And you can see that right away when it's on the wall... (IA)

...when it comes to pinning it up on that wall (GIB)

... confident about what you put on the wall (GIA)

And so on...

In all of the schools visited, the sessions under observation were each conducted in parallel with sessions that were happening on the same day in other parts of the school. In each case the review spaces chosen were open for anyone to attend. At ASB and ASC they were within a larger studio space, at ASA the review was in a dedicated review area in a review space in a 'semi-public' corridor near the studios. This aspect of the pin up environment (i.e. presenting one's work and discussing the work of others in a semi-public forum) seems to be very important, both as an event to experience from within and as an event to observe or engage with as a non-participant (i.e. as a student from a different year group, or even a different course)

I'm a believer that it should be... as public as... can be, because I want everybody to see what everybody's doing so that it 'ups' everybody's game, really, to see good work, maybe bad work as well, but certainly the good work should be on show. I think it's very important. (IA)

It effects the way the students think about it as well when they know it's public and anyone can walk past. There's more pride to what they're doing. It's on public show. (IA)

The process then becomes somewhat ritualistic, with students and tutors and guest reviewers arranging themselves (and the work), taking their positions, enacting their roles. (See chapter 5). The way that this activity is handled by the students; the way in which they present themselves, is not formally judged. The students' ability to design is assessed by a critique of the design, but the successful representation of the design through work presented and verbally articulated (and the conversations about that work) in the formal semi-public setting of the DPR, demands a degree of confidence and conviction in what is being presented.

To believe in their work, and to talk about it - to articulate a sense of ownership - is really important. They develop strong skills, at the end, to present themselves and present their work. (IC)

Critically, the presentation at the DPR requires the work to be on display. The spoken presentation and the discussion all revolve around the work that is on show. The students take various positions in relation to the work, as author, as craftsperson, as thinker, as curator, as provocateur, as salesperson. Ultimately, there is a powerful relationship between the student and their work that is made manifest in the event itself.

If I was to just put it in a portfolio and stuff and not get up there and defend it, I wouldn't have to believe in it... I think you have to get up there. Where you believe in your project. (GIA)

The work produced consists of drawings, models etc. in a variety of media, arranged to facilitate a discussion and to communicate both practical aspects of the design (spatial arrangement, physical relationship to context, form, structure, technology etc.) and to express the more theoretical ideas that are embodied within the work. The physical manifestation of the work is engaged with in many ways: in thinking about the work required prior to the event; throughout the process of 'pinning up'; in looking at the work once pinned up and in looking at the work of other students; in having other students look at the work; in discussing the work and the work of others informally; in the formal presentation of the work (in a semi public forum); in discussing the work with the assembled group; in thinking about the work presented after the (individual) presentation; in talking about the other work being presented with reviewers and other students; in drawing comparisons between all the work on display; in discussing the work presented after the event with others; in thinking about the presentation after it has been taken down, and in contemplating subsequent refinements. The techniques of representation within the DPR are expressive, multifaceted and multi-functional.

6.1.2 The final presentation - *"This is what my project's about"*

The design tutors emphasised that the DPR presents an opportunity to assess the design projects on a number of levels. Firstly, the exercise allows each individual project to be seen as a whole, to be able to ascertain if there are any aspects that need further exploration or resolution. Tutorials in the preceding weeks may or may not, at certain stages, have looked at the broader design strategies, but were more often focused on smaller aspects or details of design thinking. The DPR is the presentation of the whole project and represents the totality of the work of each student. Secondly, it allows for an evaluation of work (grading and relative ordering). It becomes the touchstone against which projects are subsequently assessed, upon completion and submission in a portfolio.

I get a chance then to see all the work on the wall at one time. So, I get a chance to rank the projects... (IA)

When it comes to a final crit, the way that we tend to do it here is that, the project should be finished. You are getting across your key design interests... things should be finished. (IB)

In each of the observations the nature of the work produced was slightly different. At ASA students were expected to have (almost) complete design projects, but not necessarily completed presentations. At ASB there was an emphasis on the narrative of the project and

how this might then influence representation. At ASC the work was generally finished and well presented, but the emphasis of the DPR was on the shared discourse, and the learning journey of the cohort, as much as it was about individual advice to advance the design projects. Nonetheless, in each school, the final DPR presentation was the final chance to see each project prior to assessment in the portfolio, and allowed the tutors to have an overview of the work; to understand the design as a whole, to see any “huge wobblers” (IA) and to make recommendations for completion and portfolio presentation. Without the DPR it was felt that it would be much more difficult for a project to be adequately assessed simply through a portfolio submission.

And you can see that right away when it's on the wall... it forces them to say, "This is what my project's about". Then you say "ok, well why do you have these less relevant drawings?" and "why don't you have that drawing, surely that's what you need?" And, even if it's not a big wobbly it's like a last chance to say: 'Well, when I look at the scheme in its entirety is my focus in the right place?'. (IA)

The event is seen by students as a point at which to stop designing and pull all of their ideas together and arrange them as a single presentation. It allows the student to stand back; to see their design projects in their entirety and to take stock.

With tutorials, you can kind of spin around... over a couple of sheets and talk around things, whereas when it comes to pinning it up on that wall it gives you that finite date, doesn't it, of pinning it up to communicate it? (GIB)

Because the whole design process, as a student, is very internal. Your project, your ideas, everything you've looked at, I think you can get really obsessive. I think it makes it more real, and it brings you out of your head. (GIB)

The tutors reflected upon the nature of the final DPR, as being the final opportunity for feedback, rather than the final assessment of the students' projects. The DPR is seen as an important target to aim for, without which it would be more difficult to achieve the same output from the students. Although the tutors expressed a belief that the DPR had less potency than it might, if it really was the final point of assessment.

It's not like a jury at all. (IB)

The portfolio is the final currency. This de-powers the final review, because they all know that it's not the final review. It's an interim review really. (IA)

Looking back twenty years, the crit used to be 'The Crit'. That was it. Your work was finished. (IB)

There was also some concern expressed that, because the DPR isn't a point of assessment, some projects were not really being appropriately finalised and presented for the review.

We did get to a point where students were treating it a little bit like an interim review. (IC)

You get half-baked things put up on the wall. I don't know whether we've taken it too far with the feedback and a discussion. (IB)

The way in which students and tutors interacted was also felt, by the tutors, to be less intense than it might be if projects were to be assessed on the day.

The review itself probably became a little bit limp. (IC)

However, this was welcomed as being less onerous by the students. There was an appreciation that it changed things.

It'd be so much more stressful if it was all on today's crit. But it is a bit like, it doesn't really matter, we can just sort it out with the portfolio. Not that it doesn't matter, like we worked hard on it. But it wasn't the same stress. (GIA)

This is the last chance you get to talk about the project. I suppose that's what it's about. It's about translating it from the wall into the portfolio. (GIA)

Nonetheless, students acknowledged that the DPR plays a major role in motivating them to ensure that their design project work is complete and presentable. Because the event is an open forum for all students, design tutors and others, there is a heightened sense of occasion. The fact that each student's work is on display, for all to see, and that each student has to talk about their work, in front of (and to) everyone else involved, means that it becomes important for each student to try to have something that is resolved and finished.

It gives you an actual finite date of, you know, 'what have I been doing'? I need to have something that communicates my project to pin on that wall and show to everyone, you know, by that point. (GIB)

It's a massive stepping stone, I mean the fact that you... work on such big projects... unlike any other course... like, we're putting in so many more hours than anyone else, and if we just suddenly got told we were going to do a final portfolio and that was it, it'd be seriously hard to motivate yourself to put in, like, the weeks, the months of this kind of intensity (GIA)

Students also recognised that, although their projects were not being formally assessed at the DPR, it was necessary for the tutors to see this presentation and hear their explanation and to be able to make observations to which the students could respond. The final assessment of the project would undoubtedly be influenced by the work presented and the student's ability to explain their project at the review.

Based on this crit [the tutor] has got an idea in his mind, so when he's marking the portfolio he's not going to just mark it based on what he sees. He'll be like. 'oh, I remember this and I remember I didn't like that, but look what he's done now and it's awesome'... you know, so that's not just based on the portfolio (GIA)

The DPR gives an opportunity for tutors and students to metaphorically draw breath; to see the whole thing and to reflect upon what has been achieved. It serves as a forum for discussion about the major issues that the whole group might be dealing with, from the

theoretical to the practical; from concepts to technical resolution and representation. In this respect, it provides an opportunity for students to see and understand their own output in the context of the whole cohort. It also allows the design tutors to reflect upon and evaluate the effectiveness of the project through the work produced, to see what has worked well, and what has not worked so well, and to address this collectively.

I believe it's incredibly helpful for both the student and members of staff, to periodically actually have all the work on the wall; to reflect on the whole. (IC)

The final presentation at the DPR is the final point at which the student is able to fully explain their designs and express their architectural ideas. It typically isn't the end of the process, as work is subsequently developed and finalised for portfolio submission, but it is the landmark moment of the design project; the final culmination of *"the weeks, the months of this kind of intensity."* (GIA)

... it forces them to say, "This is what my project's about". (IA)

6.1.3 Ongoing conversations – *"it's hard to know what to do, because there's so many different opinions"*

The DPR is seen by both tutors and students as a forum in which students are able to openly present and reflect upon their work, and thereby develop their design and communication skills. Central to this process are the dialogues that take place with each student and between the whole review group about the project and about broader issues pertinent to the projects presented. The dialogue itself can be very wide ranging and can fluctuate between direct advice, exploration of possible alternatives, philosophical meanderings (about the subject and tangential topics), anecdotal offerings, technical know-how, reference to precedent (theoretical or practical), questioning of ideas, praising achievement, comparing progress, setting goals... and so on.

The tutors consider this forum to be illuminating for the students in a number of ways. Students present their own work and have specific commentary and feedback in relation to it. They also are able to listen to, and engage in conversation with, others about all of the work and about all of the topics that are drawn out from talking about the work. In this way it is seen as an important learning exercise in relation to students developing their wider awareness of architectural ideas.

We expect students to turn up and participate and to engage not only in presentation of their own work but join the conversation. We encourage all the students to participate and comment, as a way of becoming conversant with talking about architecture. (IC)

However, within the DPR the conversations can in fact cover a very wide range of topics some of which are specific, some of which are generic and some of which are tutors “just floating ideas” (GIB). This can be quite bewildering to the student being reviewed, whilst trying to keep track of the conversation in order to take away something useful.

That’s going to give anyone a heart attack isn’t it? I think it’s too much information... You edit and you hear the things you want to hear, don’t you? (GIB)

So, it’ll either be, say, something really terrible, that kind of really gets your back up or it’ll be something kind of really practical that you think ‘yeah, I know where you’re coming from. (GIB)

Conversations can swing between very focused, specific scrutiny to very broad discourses about themes and ideas. Students emphasised that this was an important aspect of the DPR but also reported that this situation can be very demanding.

Sometimes they speculate a lot, on lots of different things, so it’s hard to know what to do, because there’s so many different opinions, and it adds to those opinions you have in your own head. (GIA)

Sometimes it does stop you from progressing..., because one person will be telling you one thing and... all the possibilities, and you’re a bit like... I don’t know...(GIA)

It’s hard. I’ve sat through a full day of them. It is really hard to sit and listen to every crit. It’s difficult. It must be tough for the tutors. Your brain hurts afterwards (GIB)

In addition to the dialogue within the DPR written feedback is also prepared. This serves several functions. It acts as guidance for further refinement before final submission and assessment; it becomes a focus for students to contemplate and discuss with their colleagues; and it forms the basis for subsequent design discussions with tutors.

In the DPRs observed, the students at ASA and ASC were asked to prepare feedback notes for each other. At ASB some students did this too. The note takers tried to capture as much of the conversation as possible on behalf of the person being reviewed. The students in GIC thought that this worked well because it meant that they didn’t have to take everything in that was being discussed and could interact more naturally with the group. It also meant that the conversations were recorded and mediated by another student, which was felt to be very useful, as aspects of the discussion are not always taken in, or understood, by others in the same way.

They [the note takers] sort of focus on the now, if you know what I mean. So instead of starting to worry about juggling all these things at once, you just forget about that - until you get your feedback sheet. (GIB)

I also find that sometimes you’ve understood something different. From what the tutor said I’ve understood something, but when I get my feedback sheet, I’ll see it in a

different way. It's quite useful, getting it interpreted by someone else; to look at it in a different way. (GIB)

In all the DPRs observed the LR prepared feedback notes for each student. This can be a particularly difficult task as the conversations meander and switch focus and the LR is trying to simultaneously manage the conversation and provide a written record or summary. However, students were keen to point out that, whilst having key points written down is welcome, even required, it's also useful to have time to reflect upon those notes and follow them up with additional discussions before the final portfolio submission.

That's why it's written down, for the fact that you can take away something for discussion afterwards, for when it's all settled down... (GIA)

The feedback (from tutors or from fellow students) isn't simply reflected upon, but is also something that is discussed between students after their review prior to further conversations with tutors. The written feedback from tutors is taken as the official feedback and the notes from other students is used more as a memory jogger for the points covered in the review. Having both sets of notes is appreciated by students and tutors as a useful way to compare different interpretations of the commentary.

[We] will take formal notes... If they're savvy, their friends will take notes for them. It's quite interesting, when you see them discussing it amongst themselves afterwards; what we've written and we think is very, very clear, and what their friends have written... and the conversations between the two are different. (IB)

Design tutors appreciated that students valued the written feedback, but also noted that they (the tutors) consider all forms of conversation about students' projects to be a form of feedback and that they see the whole DPR event as a formalised version of studio conversations and tutorials. In other words, the dialogue at a DPR is an intensification and enlargement of dialogues that have taken place (albeit in a more fragmented way) throughout the development of the students' projects and will continue through both formal and informal conversations to follow, attached, to some extent, to the words written down as feedback. In this respect, the written feedback is treated by the tutors as less relevant than the whole review, because it can only ever be a condensed version of the much broader DPR discussion and earlier dialogues.

Students, on the other hand put a great deal of stock in the written notes as a useful summary of the conversations (to jog the memory), as a record of what was said (which may have been missed) and as instructions on how to proceed.

When your tutors are talking to you, you, kind of, lose half of it anyway. You always come away from it feeling that, 'oh I need to, like, redo everything' (GIB)

Conversations about design and about architecture more generally will have begun within the studio during design development and at key tutorials and interim reviews. The DPR is a key moment for individual students to draw together all that they have been doing to be able to express their architectural ideas. It is also a forum for more extensive discussions about architecture. The specific commentary and written feedback are thus contextualised within ongoing reflective dialogues with which the students have engaged.

6.2 Individual expression

The work in the DPR is not simply exhibited, but is presented, by the author, to the gathered audience. It is, therefore, not only an expression of architectural design, but also, an expression of the author's ability to design; of their ability to 'do' architecture and of their ability to express this. The graphic representation and a verbal articulation of a design project is also a presentation of the author of that design project. At the point of presentation, the person presenting the work is presenting themselves. It becomes an expression of the whole person.

6.2.1 Thinking expressively – “*I just try to make sure I know my project inside out*”

The DPRs observed followed a similar format, and included a short time for each student to verbally describe their project. The student group interviews explored the relationship between the images and models displayed, the spoken presentation and subsequent dialogue. There were a number of ways in which students prepared for the presentation ranging from almost no preparation (and relying on simply knowing the project well enough to discuss it) through to preparation of scripted notes, to be used on the day. In all cases there was an acknowledgment that there is a close relationship between the drawings, diagrams and models that are generated for the event and the use of these as vehicles for explanation. In other words, the images prepared for the DPR were generally not prepared without having the event in mind and without a sense of the presentation narrative, both graphical and verbal.

The minute I stand up there the pressure instantly gets to me and then everything falls out of my head. So, without notes I'm essentially stood there mumbling, just forgetting things. (GIA)

All my preparation was done before the actual work. I didn't prepare, I didn't prepare at all what I was going to say. I was like that'll just come, I'm talking about what I'm working on, so... (GIA)

It was acknowledged that there is no singular method to prepare for a review and that people do it in a wide range of ways. In all of the group interviews the students were aware that, although they were preparing to present their work, they were also preparing to take on

board any commentary or feedback about their work and to learn from the experience. The students didn't see the event as an assessment exercise, but more broadly, as a learning exercise and an important opportunity for personal development. It was observed that, however well prepared one might be there will always be things that seem obvious, but which are perceived differently by reviewers and lead to questions and comments that make it possible to think about the project differently.

I try not to over-script it. I just try to make sure that I know my project inside out, so I know everything that I'm talking about, because I know that they're going to follow it up with a question, or they would want me to go into more detail. (GIB)

One student discussed how they recorded themselves talking about their project and then listened to the recording whilst preparing their work, so that they are then fully prepared to talk about their work at the DPR and respond to questions, rather than following a script. Another student talked about how they would prepare their work almost as a kind of story board, so that they know what to say about each piece and so that their spoken presentation would follow the layout of their drawings.

I kind of lay it out in terms of what I want to talk about, you know, boboboom, boboboom, instead of just throwing it up on the wall. So, I can just look at the work, and I know it inside out I find it easier to just talk about it, because I know it so well. (GIA)

The key aspect seemed to be that students felt that they needed to be well prepared and that the best way to do this (not knowing what might be asked or discussed) would be to have a thorough knowledge of their own projects and their own design development.

One of the most difficult aspects discussed by the students was about knowing what to focus on in the review. The projects have been worked upon and developed over a long period of time, often several months, and it can be tempting, but daunting, to try and explain everything that they have been thinking about in just a few minutes at the DPR.

There's a real skill about not just what to say, but what not to say isn't there? (GIB)

At ASC students submitted their work two days prior to the review and arrived in the morning to collect it and pin it up as directed. The tutor at ASC explained that this was primarily a student welfare issue, to ensure that they were rested and mentally prepared, less stressed and able to engage with and synthesise the DPR conversations more readily.

It's also a sort of cut off. It actually means they can find the time the night before..., if they haven't actually really articulated what they're going to say, which we encourage them to do beforehand, there's a little bit of space just to take a moment and get themselves a little bit more prepared. (IC)

Students in GIC appreciated that they were asked to present work two days after submission. They agreed that this was a really useful part of the preparation because it gave them time to think about what they had prepared and submitted, to work on what they wanted to say about it, and to talk to each other about the upcoming review, in preparation for the event. They were also very appreciative of the fact that they had been able to get 'a good night's sleep' and were therefore mentally rested and more readily able to articulate their thoughts.

That's a really good thing they do, because it's quite nice to wake up, like this morning, and go in just knowing it's all there at Uni. You don't have to think 'oh have I forgotten anything?' (GIC)

The DPR event comes into focus in students' minds as they bring their design projects to a state of completion, and it informs the way that the drawings and models are developed, finalised and used. Students begin to think how the work displayed will need to work in conjunction with their spoken presentation. In this way preparation for the spoken presentation at the DPR informs the way in which the students express their design thinking through their graphic presentation.

6.2.2 Talking about architecture – “...*the way you present it has a massive impact*”

Individual verbal presentations are an important part of the process by which students are able to participate in a wider discussion about architecture, engendered by their projects. In ASA and ASC the students were most engaged in the general discussions that ensued. In ASC, in particular, the students were actively drawn into the conversation and expected to participate. In all of the interviews, tutors indicated that this is seen as a desirable and important part of the experience.

Critically it is about the student getting input to their project; and that might be about design; it might be about presentation, both their verbal presentation and their graphical presentation. But it's also a learning exercise for other students to engage in a review. (IC)

The group interviews highlighted the presentational aspect of the DPR and the students' awareness of being under scrutiny; of being judged when presenting their projects. They talked about being “on show” (GIA), and of having to “stand up there and defend” their work (GIB). In other words, the DPR is as much an expression of the individual presenting the work, as it is about the work itself, which brings a special intensity to the situation. Students feel that they are not only being assessed for their abilities as designers, but also for their ability to articulate their ideas and explain their design thinking. The DPR then, is a vehicle for practising and developing professional presentational skills. Such skills are developed

through the act of making a presentation. Presenting the work is therefore seen as being a crucial part of the process of the DPR and (subsequently) of assessment.

I think, whilst it is about your work, the way in which you present it has a massive impact on how well it goes down. (GIB)

Tutors believed that the spoken presentation was an opportunity to convey passion and conviction about the work; 'a sense of ownership' (IC). The work displayed, the verbal articulation of that work and the subsequent conversations with the individual student being reviewed are equally important facets of the whole presentation. The presentation is also a presentation of the person presenting the work

It's about building up their confidence. So, there is a sense that we're actually empowering our students in the review process, that we're actually developing really strong skills to present themselves and present their work. (IC)

The students are also aware that there is more to their presentation technique than simply explaining the design. The dialogue that takes place is partly about explaining, partly listening to (and understanding) critique, partly responding to critique, partly about simultaneous self-critique and reflection and partly (perhaps primarily) an expression of themselves. They are aware that they have to convince their audience that what they have done is worthwhile. They understand that part of the process is about persuading others that their ideas are good; that their ideas have value.

The thing is, you know, by doing a crit you're almost, you're trying to sell your project. But people kind of, people don't really buy products, they buy into you. (GIB)

Design tutors echoed the notion that the presentation is partially about the work but also partially about the students, as the subject of scrutiny. The work on display is a representation of a student's personal development. Evaluation of that development is inevitably linked to the ability of the student to articulate their design thinking; to explain the decisions that they have made, with reference to the images and models that they have produced; to express their architectural ideas; to express themselves

Architects should be able to present their work verbally. It's important because it's a verbal presentation of what they will ultimately be marked on... They have to physically pin it up, and then they have to verbally present themselves. (IA)

The DPR then is a forum in which both the success of a design project and the performance of the individual designer is under review, if not directly, or explicitly, at least in relation to the success or otherwise of the presentation to be able to express the design ideas with conviction.

6.2.3 Developing critical skills – “...and then they do get deeper into it. They love that. And then there’s more problems, and it’s bigger.”

Students are aware that the DPR is a form of preparation for architectural practice, and that there is a relationship between their ability to explain their projects and engage in critique. They recognised that engagement in DPRs is really a very important part of the process in developing critical thinking skills in architecture.

I think it’s been so beneficial in a way that it’ll prepare me for pretty much anything... It also, I think, gives you conviction, you know? (GIA)

It’s something that people won’t understand. Unless they’ve actually done this course, or something very similar. (GIB)

In particular the students expressed a sense that they are still learning the right kind of (architectural) language with which to articulate ideas and engage in critical discussions.

I think there are words that you use, you know, there are words that you can use to make it sound better, or you do pick up on certain words. (GIA)

If I had to write about my project I could make it a lot more archi-speak or whatever, than when I’m just talking. (GIA)

Students have been developing their architectural language skills through various formats of interaction with other students and tutors, including the more formal discussions at a DPR, and are aware of the processes of adopting certain ways of speaking in order to best put across their ideas within an architectural education environment.

It’s got its own language, I think. There’re things that, you know, if you say to some everyday person they wouldn’t really fully understand it. (GIB)

I think sometimes it’s kind of using words almost for the sake of it, to make you sound more educated. And it’s kind of learning that language and how you interpret it. (GIB)

The use of language also relates to the use of language by other students (on the same developmental journey) and the use of language by the tutors/reviewers in the DPR. Whilst students are aware of what sort of spoken language is convincing, it’s clear from the student group interviews that this is an area that they feel that they are developing and often lack the experience to fully engage in with confidence.

I find it really difficult to just stand up there and sell a project, with loads of, like, big words and stuff, because that’s not how my brain works. I really struggle. I think that’s kind of a massive flaw, the fact that I’m not going to be coming out with stuff that sounds awesome. (GIA)

Students also indicated that there is a relationship between the project under discussion and the way in which the project is discussed, i.e. the language used by the student.

If you speak really fluently and it sounds amazing and you've got a good project, it will make your project ten times better than if you spoke crap. (GIA)

The formality of the situation, with external guests in attendance, heightens the expectations of all participants and contributes to the intensity of the occasion. The student group interviews all highlighted the fact that DPRs are not easy. Students are daunted by them and find them to be extremely demanding. It was generally agreed that this was something that they found very difficult.

Well, it's not a particularly nice experience. No-one enjoys it. It is hard, because they're not inside your head they don't see what you see, if that makes sense. (GIA)

It's hard, I find it really hard, to try, like today you can talk about your ideas and, like, explain and they don't understand it... the way they're reading it or the way they think. So, it's quite difficult. (GIC)

Part of this process is not just becoming familiar with the language used, but also practising the skills required to develop critical arguments in what can be a very demanding forum. The student is placed centre stage and is expected to explain their project; to 'sell' their scheme on the one hand, and to take on board a broad range of critical comments about many different aspects of architecture, design and representation on the other. The projects developed by the students require a great deal of personal investment. The successful presentation of the projects demands a certain level of belief in the project by the author, which means that any critique of the project is also (felt to be) a critique of the person. This makes it especially difficult to actually engage in the critique.

But it's hard to get that balance because you're just thinking about how you have to detach yourself from the work to be able to practically take what they're saying and not be defensive. (GIB)

For the student the experience is very intense. They reported needing to 'know their project inside out' (GIA) when the tutors 'start throwing questions at you' (GIA). The language used in the group interviews to portray the character of these encounters is often quite severe.

...that was pretty brutal..., they were brutal to us last year (GIA)

...they're tough... (GIC)

...[you have to be] mentally tough enough... (GIB)

...I don't want him ripping me down. (GIA)

...they'll just rip apart your project... (GIA)

... very, very critical and very harsh. (GIB)

... you do get pulled apart. (GIA)

Even without reflecting on the DPR as being 'harsh' or 'brutal', the intense nature of the critical scrutiny is demanding and something that students expect. There is an expectation that, in the DPR, their project will be very closely examined and every aspect will be explored and tested.

If you don't know your project well enough or you haven't resolved your project, they're going to realise that through the crit. (GIA)

If you have a really well-designed project they try and test that bit, 'okay, I mean I did this because of that', 'okay, come back', 'I'll try and test this bit, I did this because of that', 'okay...', whereas it could be 'oh what's that?' 'aaaah...' and then they do get deeper into it. They love that. And then there's more problems, and it's bigger. (GIA)

The group interviews highlighted this aspect of the DPR being 'intense' and 'tough' as being one of the things that they feel helps them to progress. They recognise and even desire that their projects are robustly critiqued in order to be able to improve.

I understand that bits of my project aren't successful. It's useful to hear... how to take that forward, what to change. (GIC)

Actually, I quite crave areas to work on (rather than positive bits). It's always quite harsh and over the top, so that bit really helps because it gives me areas to work on. (GIB)

It's never nice, hearing 'that's not good enough' or 'that's not great' or 'why have you done that?'. I think it's a lot better and you get more from it than a pat on the back and a gold star. (GIA)

Students are expected to participate, which means that the whole event is a much more productive exercise for everyone. Students benefit from seeing other students present their work and present themselves. There is great potential to explore areas of commonality; for students to learn lessons from what other students do and how they do it. Through listening to and contributing to the critical discourse students are able to find and articulate 'their own position' (IC) in relation to that discourse.

6.3 Acculturation

Architecture students do not enter architectural education with prior experience of studio culture or the working methods of architecture schools. They become habituated to these processes through engagement with them. In addition to patterns of teaching and learning in architecture, students also become accustomed to the ethos and identity of each particular school, through interaction, within the studio space and beyond, with students, academic and other staff and through broader connections to the professional environment of architecture. For the student there are many layers of influence and acculturation that surround their personal development as architecture students and (hence) as architects. The DPR, as a mode of learning, personal development and assessment, is largely unfamiliar to

most students starting out. However, it is one of the most intense aspects of their learning experience, in that it provides the context that connects the individual and their work to wider audiences; to their peer group; to the larger student body; to the school; to academic and professional architectural communities.

6.3.1 Doing the DPR – “*The first one you do is terrifying. The first five you do are probably terrifying...*”

The group interviews with students were held on the same day as the observations, so the observed DPRs were uppermost in the participants' minds. However, the conversation also encompassed other DPRs that they had experienced, including occasions when there were a lot more students present (either participating or observing) and other events that were structured differently for other reasons. It was a common experience that participating in architectural education at every level involved presentation of work in some format at DPR events on the one hand, and observing DPR events (of both senior and junior student groups) on the other. This aspect of co-learning both horizontally and vertically was reported by students as being part of their experience, but only discussed as a learning exercise through personal reflection, rather than through any notion of training or coaching.

The design tutors were aware that the DPR is not normally something that will have been experienced before joining an architecture course. However, there was little sense that learning to engage with a DPR was carefully planned or co-ordinated, except perhaps at ASC, where the tutor discussed a strategy for deliberate progression of DPRs throughout the years.

We have a culture that starts in first year that runs through second year that arrives at third year. So, that's not to say that our students don't worry about the review, some might get a little bit stressed by it.....I think that's an inevitable thing.....but I think on the whole we try pretty hard to make it a positive experience for the students... and I think, on the whole the students see it as that. (IC)

I think it's something that you learn as you're doing it. You can get very, very upset about things very quickly. The first one you do is terrifying. The first five you do are probably terrifying but it becomes a vehicle in which, actually, you're not intimidated by an audience. It's about finding the confidence and finding a voice. (IB)

I think it takes probably the first year for them to become comfortable. There are always nerves. By second year it gets a little bit better. I don't think students are ever not nervous from what I can see (IB)

Besides participating in their own DPR events at different stages, students at all three schools were encouraged to attend other events with different year groups and observe or participate, as a way of becoming used to the culture of the DPR and developing their own personal approach.

Usually most other years will come and watch. They don't sit there, but they'll all stand. They're encouraged to. They'll stand around and watch. (GIA)

In first year, you'd come in for a crit and every single person would sit there and listen. Sometimes people would shout out. And people would join in. (GIB)

Students at GIC discussed the way in which they are encouraged to join in the discussions. The events are organised such that student participation is actively encouraged. It was also acknowledged that how one behaves in a DPR develops between one year and the next.

There have been times where it was, in first year, it was, like, silent... Whereas in the second year everybody starts to talk a lot more. I think because we know each other as well and we know it's like helpful, it's not personal. But now, I don't think anyone's really that bothered by it (GIC)

This aspect of learning how to receive and respond to the criticism at a DPR is something that students at the group interviews reflected upon, both in relation to its value in developing critical thinking skills, but also in terms of it being one of the most difficult things for students to handle. It was seen as being one of the most important things to learn in the process of becoming an architect, and felt to be one of the main reasons that students drop out of the course. Students acknowledged that being able to present (and defend) a project, and to accept and reflect upon the observations and critique of others, is an important aspect of becoming an architect.

I think it's a profession where you have to be quite thick-skinned to do it and you have to have a real mental toughness about you and a very, very strong work ethic, and I think all those are things are indicated in your crit. (GIB)

Architecture has a huge dropout rate and that's probably for a good reason. I think you have to take criticism, because it's quite an important thing that you do. A building ...has an impact on a lot of people. (GIA)

There're so many ingredients that kind of come together in a crit. I know a lot of people drop out, we've seen people break down and I think the crits play a big part in that for some people... (GIB)

The group interviews with students highlighted the fact that the group of students knew each other and had been engaged with the course for a period of time together. This included the process of learning how to conduct themselves in a DPR and also learning how each other conducted themselves. It was also observed that students had developed their own social learning dynamics. The dialogue at a DPR is not an interaction between strangers, but between students with a shared interest and purpose and a shared history.

... any time you want you could just pitch in, and if you saw someone's drawing that you wanted to talk about you were encouraged to speak up about it. I think that's really good, because, well one person might see something that two tutors can't see in that time. (GIA)

But I think that depends on your year group. I think, as our year as a whole has developed, I think there's an expectation that yeah, you're not going to stab me in the back... I think that completely depends on your year group and how much you all get on (GIA).

The DPR can be a highly charged event in which the individual participants bring to the event pre-existing relationships and social interactions, which underpin and impact upon the lived experience of the situation.

6.3.2 Interactions – “...and the review panel - in the grasp of a confrontational mode”

The DPRs involved students, academics and visiting practitioners. The format of each of the reviews observed, whilst displaying a number of differences (discussed in the previous chapter) had a relatively similar structure, and a similar group of participants, with lead design tutor as LR, one or more GRs and students. There is a fairly complex mix of human relationships that create the dynamics of the situation.

Just as students work and learn alongside each other in a social group, they have also developed certain working relationships with their tutors over long periods of time. There is a particularly close relationship between the design tutor(s) and the students. Over a period of time they get to know each other and have numerous conversations and other interactions that serve to create the different power dynamics. The LR in the DPR is often the lead design tutor, in charge of developing the project, planning the timetable and various activities and interactions, organising the review, giving feedback, managing the assessment of the work and so on. In relation to the role of LR there was an acknowledgement in the tutor interviews that the relationship between the LR and individual students prior to the DPR made a difference, both in relation to general attitudes and interaction, and in relation to the presentation and discussion at the DPR.

Sometimes I'm really fed up and I'll be short with them [students], but that's only because they never come in for a tutorial, and they're showing me complete rubbish, (IA)

Students get to know their tutors well and develop their own patterns of interaction over time. Tutors' personalities and behaviour were discussed in the group interviews, in relation to how the students anticipated or planned for their own presentation and also, more reflectively, on the impact that tutor behaviour can have on the way that each student presents and interacts.

But I think, in our group in particular, YYY kind of encourages you to make up your own mind, you know, and be really confident in your own thoughts and your own ability. I quite like that. I've seen different kinds of tutors do it differently. But I think, at times, you learn when to listen and when not to listen and go your own way. (GIB)

These relationships are a dynamic part of the situation and can affect the way that students interact with the reviewers, both in terms of preparation for the DPR, and in the lived experience of the event. Students recognised that the progress and direction of a DPR would be dependent upon the people and the particular interests and predilections of the personalities involved. In GIA the group were very conscious of who they were presenting their work to and how this might affect them.

It comes down to the kind of subjective opinion of who's critting you. If they're a programmatic architect or if they're conceptual. We've known for a few weeks and I think you do tailor it slightly, as to what kind of angle you choose to take. (GIA)

In relation to the LR this is especially complex, because the LR has normally seen the projects evolve over time, so any interaction with the LR is inextricably linked to earlier interactions throughout the year. Additionally, the students are aware that the LR and other reviewers talk to each other about the students and their work, which can influence the way the work is critiqued.

YYY will come in and he won't know us, or anything, and he's just looking at the work on the wall, and so maybe that's more beneficial because it's purely 'that doesn't work' and 'I like that' and 'you should be doing that', whereas XXX has got like, you know, six months of history in his head. (GIA)

I've seen a few instances where you do get a sense that they're not a massive fan because of something that's happened. (GIA)

Only XXX knows our work. The other two have never seen it before. But you never know what XXX has said to them. (GIA)

Students reported adjusting what they would say, or how they would answer questions to suit the reviewer. This was most consciously done in relation to the LR, who usually provided written feedback and who was perceived by students as having greater influence on the outcome of subsequent portfolio assessment.

You always have to be respectful, I think. I'm going to argue to a point, but XXX is going to come to my portfolio and be like 'this little bastard', you know? And so, you do take it sometimes.... And so, I think, you know, XXX still holds the power. (GIA)

You don't want to piss them off. (GIA)

Within each of the schools observed the students developed their own communities. Communities of learning and social groupings (beyond the studio), which include students within the specific cohort or year group, as well as students at a more advanced level and those who are less experienced. In addition, these learning communities include the architectural educators and others (technicians, admin support and so on), which together create the academic context within which the students are situated. Beyond this semi-

enclosed environment, the architecture schools have a relationship with the profession that often involves architects from practice within the studios and at DPRs.

The review then, is a complex arrangement of people that interact in a variety of different ways. In chapter five, the format of the DPRs observed, including the persons involved and the spatial arrangements were compared and discussed. Whilst there were a number of similarities, there were also some significant differences. At ASC for example, the DPR was set up differently to the others, with the LR taking on the role of chairperson, rather than interrogator, and inviting the whole group to contribute to the discussion. The students in this situation were clear what was expected of them and endeavoured to contribute.

We're encouraged to get close to the front. We just get as close to the front as possible. There are times that the tutors are sitting at the back. The tutors have deliberately done that. So, they kind of push us to ask questions first and comment on other people's projects, instead of being silent. (GIC)

The design tutor at ASC explained that the situation was carefully organised, in that the LR took on the responsibility of managing the discussions, allowing the guest reviewer to express opinions and make observations without dominating the conversation, drawing students in to comment at key points, bringing the discussion back to specific issues, where necessary, and generally directing and summarising the content of the DPR. In these DPRs student presence is mandatory for the whole session and the LR let students know that participation is expected and that their contributions are valued. It was acknowledged that some students were less involved in the conversations than others, but that this didn't mean that they were any less engaged.

In ASA and ASB the arrangements were a little different. In both cases the LR and GRs sat at the front of the grouping with students arranged behind. In ASA the students were required to be in attendance and were focused on the conversations but with little actual interaction by students when they were not themselves being reviewed. In ASB very few students actually stayed in the space of the review for the more general discussions as attendance requirements seemed more fluid. In ASA the LR managed the discussion with the group and the two GRs. In ASB the LR had the same role, but the dialogue was between three GRs and also rather less structured.

The design tutor at IB, when discussing the general arrangement of the review, acknowledged that the relative positioning of reviewers and students within the space can be quite intimidating and questioned the effectiveness of their 'traditional' arrangements.

We normally have the critique with the 'critters' in a small semi-circle around [the work] and then there are tiers of students, going from the more confident to the less

confident. But are we doing this out of habit? Is this the best way that we can be engaging our students? (IB)

The spatial and temporal arrangements of the DPR focuses the discussions amongst the participants on the work being presented. The architectural dialogue here is at its most formalised. It engages many people; the tutors that have been involved in discussing the projects as they have developed; the close colleagues, who may be quite familiar with the work; the invited guests from elsewhere in the school and from architectural practice and typically, other students, either from the same cohort or from other year groups/studios. Students value the different opinions and observations on their work, on the one hand because there may be aspects of their work that are unresolved and need addressing, and on the other hand because they may be challenged to think about things differently; to take a different approach, or to acknowledge that there are different approaches.

It's so beneficial in the way that you do learn quite a lot more. It can't not be beneficial, especially in architecture, to have everyone's opinion. It's like, you're not deciding something on your own. (GIA)

It is recognised that other opinions can be quite subjective, but that this is always part of the complex nature of architectural design; that other opinions are an important consideration, and that the opportunity to hear them and discuss them can be of great value.

It's constructive criticism... It's a thing that you only get in this education process, and it allows you to kind of pull such a broad subject together. (GIA)

At the same time, it is hard, because they're not inside your head they don't see what you see, if that makes sense. So, I think that it is good, but it is such a contentious thing because it's their point of view. (GIA)

The design tutor interviews alluded to the different dynamics that can occur with DPRs, which can develop because of the interaction of individuals; reviewers and students. The event can arouse passions and create patterns of behaviour that can be quite intense for those involved. LRs and GRs can become motivated by good ideas, well presented; turned off by a lack of conviction (by students); and infuriated for a variety of reasons where projects are not presented clearly or points being made are not taken on board.

Someone who'd be very nervous and scatty about their presentation would be all over the place and others who are confident and know what they're talking about will look you in the eye and look directly at a very particular drawing to make sure that you're seeing what they want you to see. (IA)

...and the review panel they might be in the grasp of a confrontational mode, and you can see their noses are forward and they're, y'know, glaringly mad. And at other times are not interested at all and they're looking different ways; looking at a watch or looking at an ipad or something. (IA)

Students also recognised that tutors and guest reviewers bring to a review their own particular professional focus.

Last year our tutor was more planning-based, so if he was critting me I wouldn't put something on the wall that was super theoretical. I think you do try and, like, think, 'okay: ZZZ's doing it, you know, make it look nice', or if, you know, XXX is doing it then... Finding out is definitely key. You don't want to go in blind. (GIA)

The students also expressed a sense that professional subjectivity (which might relate to ways of thinking, designing, producing imagery and so on) was not easy to disentangle from a more personal subjectivity; whether or not a student and tutor got on well with each other, either generally, or within the DPR situation. In other words, although the discussion in the DPR might be about the work produced, it was also felt that the success of a review might also come down to personalities.

...but it can be very subjective and the fact that people, their opinions, come through in the crit; like if they like you or not. I think that it also can work like that, I think that it could be potentially a really good process, but that is essentially its massive flaw. (GIA)

Whilst the observations by the students generally indicated a great deal of respect for the tutors there was also some dissatisfaction expressed in certain behaviours on occasions, particularly where the students felt that the tutors, in a position of power, act in ways that are meant to provoke a reaction.

Our tutor XXX, normally, if you annoy him, he'll butt in while you're talking, and I really dislike that personally. It's really off-putting when you're talking about a particular sheet or something and he's kind of wandered off and stood down the other end, kind of, you know..., and I find it really off-putting. (GIB)

They try and do psychological things, some of them. It's a bit weird. Just, like, body language. Like, I'm stood there and I know, because certain tutors will act bored if, if you're boring them, like, on purpose to try and, I don't know, spark something. (GIB)

Design tutor interview IA referred to the interaction between tutors and students and reflected upon the different way that reviewers behaved.

There are tutors... will come in fresh and they don't hold any punches, and some students... will have trouble with that, but that's life isn't it? I mean, I think it is part of it. We could all be a little bit more careful but once in a while it doesn't hurt to have somebody come from left field and say 'ah... the King's not wearing any trousers...'. (IA)

Students recognised that the DPR is representative of the broader profession and part of the nature of being an architect and observed that students who are not comfortable, or do not learn to be comfortable with the process, will likely struggle within the professional field.

It teaches you that you need to not let everyone's opinions affect you. Because then you wouldn't do anything would you? That's what you have to learn though I think, it's not an attack on you. It's an attack on something you've created, which is not you, it's just something you've done. (GIB)

So, whether or not they need a bit of an arm around them at times and patience to develop over time, or whether you need to weed those people out straight away, I don't know. It's difficult because I think if you don't enjoy it then there's no point really is there? (GIB)

The chance to hear other voices in relation to design project work is also recognised as being quite realistic in relation to architectural practice. Design projects in reality will always depend upon the opinions and specialisms of others and, in this way, it is understood as important for architects to be able to listen to, and consider, other points of view. The DPR is therefore seen, not only as being about the design project itself, but also as a kind of practice for professional life. Verbal presentation skills are seen as an important area to develop because they are understood to be a necessary aspect of architectural practice.

I think that it's good to hear a different person's perspective. You're not working on your own [in architectural practice], so you're constantly having to deal with people not wanting to go with your idea, or trying to find a common ground. (GIA)

One of the big things I've learnt, and I guess it's one of the massive things in practice, is selling that project and selling your work. (GIB)

6.3.3 A celebration of architecture – “the final crit, you're aware of it from the get-go”

The complex interactions that take place within the DPR are, in many ways, a continuation of (and an intensified version of) the day to day interactions that take place within the studio and elsewhere. Through these interactions the student experiences and contributes to the cultural life of the school and, by extension, the profession.

The students and the design tutors all spoke about the review as being a significant cultural event. It is the moment where the students, the academy and the profession come together both to discuss the student projects and also to engage in discussion about architecture in broader more discursive ways. The interaction with practising architects situates the DPR within the professional arena.

We put more emphasis on the final review. There is an expectation for a student to have a completed project on the wall. It is about upping their game a little bit, so we were very keen on getting key practitioners in and we would have a strong range of reviewers from practice. (IC)

All of the DPRs observed included practising architects as GRs and who were, in the student's minds, the wild card; the person who was not known to them and did not know anything about their projects. The external guest reviewers contribute to the sense of the

importance of the event, being representative of professional practice within the DPR forum and providing an air of authority.

In the review you've got, like, really high-profile architects and tutors and stuff. They know what they're talking about. (GIC)

Thus, the DPR, involving GRs from practice, serves to expand the context of the event beyond the perceived academic setting, to become situated within the professional field.

I'll set it up so there'll be at least one of us [design tutors] and someone architecturally minded that will support them, like a graduate student who's nice and fresh or other design tutors from the school who understand the agenda of the crit. And some [external] guests [who will] really big-up the event. (IA)

In this forum, practising architects and the architecture schools come together to jointly evaluate the students and their learning. Architects may not be trained teachers, but they are able to contribute because they are experts in the subject, and hence able to critique the work, as a work of architecture. They are also graduates of architecture schools, and are thus veterans of the DPR process themselves. They bring to the situation their own professional judgements and learning experiences.

In all three schools observed the architect from practice was known to the school and had been involved with DPRs previously. The GRs do not only represent the external profession within the school, but create a direct link to the profession for the school. The school is thus situated within the professional field through its visiting GRs as representatives of the particular school and its approach to architectural education.

But we're also fairly careful about who we pick to come in to reviews. We're keen to ensure that there's a kind of continuity in terms of the way in which we talk about the project. They are generally people who have taught and who are engaged in the school and understand this kind of school's ethos. So, we don't have someone who kind of gets in from outside, who then just sort of takes over. We're keen to ensure that there aren't people coming in who are then just throwing curve balls, which is not helpful to students at that stage. (IC)

The DPR is significant to each student in that it represents the final output of the current design project and is also a declaration of each students' capabilities at that moment in time. The event under observation (final DPR of the final year of the degree) is something that has been both eagerly and anxiously anticipated for some time.

It is a very specific event, you know, the crit, the final crit, you're aware of it from the get-go ... I think it's definitely a special event. (GIA)

Design tutors saw the DPR as being distinctive for similar reasons, but they also commented on the importance of the event as a celebration of achievement; not just for individual students but for the whole cohort participating in the review. This is an occasion in which

students are involved as a group. It is an event that is anticipated, experienced and reflected upon by the group. It has a social, communal significance.

[The DPR] is for them to reach a certain point in terms of the project. For it to be a celebration of what they've done to date. If they've approached it in the right way, there should be a wonderful sense of achievement. (IB)

It's the end of their undergraduate degree, a kind of nice finale for them...and for us - that they can publicly present their work. I think that's quite important. It's a line you can draw under their public experience at university. (IA)

For us it's an opportunity... to promote a kind of positive experience. I also think it's a major contributor to the collective culture of the course, that the students experience together. (IC)

The DPR is an event in which the school itself is able to celebrate the collective achievement of its students. The nature of the DPR, as an open event that involves the students and tutors of the school, as well as part time tutors and visiting practitioners, transforms the occasion from one that is merely project review, feedback and advice, to one that contributes to, and is embedded in, the whole culture and ethos of the school, and hence contributes to the wider cultural life of their school and, by extension, the profession. The profession is represented at the DPR by visiting architects. In turn the DPR embodies the ethos of the school and of its students and presents this, through the visiting architects, to the profession.

Chapter 7 Analysis and theoretical considerations

The data collection method was conceived as a means of understanding the participant experience of the DPR by examining the components and organisation of the different cases under observation and their underlying purposes/principles. Chapter five presents each case study observation and analyses comparisons. Chapter six presents a thematic analysis of the student group interviews and design tutor interviews at each of the schools of architecture ASA, ASB and ASC. Using Pierre Bourdieu's theoretical framework as an interpretive tool to examine the data, particularly the concepts of 'field' and 'habitus', we are able to bring into focus the dynamics and underlying structures of the situation to explicate deeper meanings and implications.

'Habitus' is a complex concept. It refers to the embodied dispositions of each person to act, behave, interact and respond in any given social circumstance. It is embodied in the individual and formed by experience. It is not a fixed entity, but a current state, shaped by the social and cultural situations that we encounter. Habitus is a product of our particular journey from birth, and influences our relationships and interactions in our social space. Bourdieu defines it as a "structuring structure, which organizes practices and the perceptions of practices" (Bourdieu, 1984, p.166), and also as a 'structured structure' (ibid, p.166), by which he refers to the intrinsic and relational properties of social class conditions: "...a system of difference, [of] differential positions...; social identity is defined and asserted through difference" (ibid, p.167). Identity, in this sense, is not a fixed thing but an ever-evolving way of being in relation to the people and situations that we encounter, manifest in our personal dispositions and in our tendencies to act in certain ways.

The habitus is thus both structured by material conditions of existence and generates practices, beliefs, perceptions, feelings and so forth in accordance with its own structure (Maton, 2012. p.50).

Habitus is the link not only between past, present and future, but also between the social and the individual, the objective and the subjective, and structure and agency. (Maton, 2012. p.52)

'Field' is the term used by Bourdieu to define any one of a complex array of social spaces. Our habitus is formed in response to circumstances, people and events within the field(s) that we occupy. We each fit into different fields (although not exclusively); each field with its own subculture and inherent cultural values.

Bourdieu posited a social world (the field of Power) made up of multiple fields: large fields could be divided into subfields (e.g. art into literature, painting, photography etc.). Each subfield, while following the overall logic of its field, also had its own internal logics, rules and regularities (Thomson, 2014. p.70)

A student of architecture would fit into several fields, depending upon their background and personal history, including the field of education, or higher education. More specifically they would fit into the field of architectural education, which in itself is a subfield of the field of architecture. The social fields occupy different layers within society as a whole in a hierarchical relationship of 'symbolic power' (Bourdieu and Passeron, 1977). Membership of certain fields would endow the individual with greater prestige or 'cultural capital' (Bourdieu, 1984) than other fields. Individuals aspiring to gain entry to certain social fields (including professional fields) are, through their actions and education, transforming their habitus and in so doing developing their cultural capital. The role of education, on the face of it, is to transmit the knowledge and skills that apply to a specific subject. From a Bourdieuan perspective education is also a process of socialisation into the ethos or culture to which they aspire (Bourdieu and Passeron, 1977).

7.1 Components and organisation of the DPR

7.1.1 The environment

The studio in architectural education is a place for many different forms of interaction; between students within the same cohort; with more senior or more junior students; in tutorials with academic tutors; and with external visitors. It is typically a place in which work is created, stored, discarded, reused. Students spend a great deal of time there developing their projects alongside others in "physical, temporal and cultural immersion" (Corazzo, 2018. p.1250). Architecture students work in a wide variety of media and in many locations; but the studio, with its hierarchy of students (and academics) at different educational levels; with its patterns of informal, semi-formal and formal interactions; with its objects and drawings, of work in progress and work cast aside, embodies the field of architectural education. The studio is the physical manifestation of the social space that the architecture student occupies.

The space of the DPR is distinct from (at least temporarily), but embedded within, the studio and studio culture. It is a semi-public forum in which students from all levels are typically able to engage. The physical arrangement of people and project work within the space, coupled with the openness to observation and engagement by others, makes it particularly intense for students to present their work under the gaze of the various participants assembled.

I want everybody to see what everybody's doing so that it 'ups' everybody's game, really, to see good work, maybe bad work as well, but certainly the good work should be on show. I think it's very important. (IA)

It effects the way the students think about it as well when they know it's public and anyone can walk past. There's more pride to what they're doing. It's on public show. (IA)

Within the space of the DPR there are only very few components. There is enough space for the participants to sit in a fairly compact group, close enough to view the work. There is the wall on which the work is 'pinned up,' and in front of which models and other items are arranged, and there is space for the person presenting their work to stand and move around in front of the gathered audience. The wall on which the work is pinned normally contains several projects at once, which can be viewed and compared during the time of the review. Within the interviews with students and academics the 'wall' figured quite prominently, indicating that the spatial configuration of the DPR, including the wall on which work is displayed, is a key aspect of the participants' engagement with, and approach to, the event. This aligns with the observations of Dannels (2005), who suggests that "the 'wall' and the content placed on the wall were key players in the performance of... reviews" (p.155).

All three DPRs were situated within a review space that had been set up and arranged for the purpose. ASA and ASC had a similar arrangement with LRs, GRs and students in attendance for the whole time of the review. ASB was slightly different in that students tended to move in and out of the review space when they were not actively involved in being reviewed. The typical spatial configuration of the DPR space is shown in Figure 12. Work is pinned to the wall in the review space. The person presenting the work stands in front of it and talks about it. The reviewers sit immediately in front of the presenter and other students are configured in a rough arc around and behind them. In all three schools observed this configuration was evident. In ASA and ASB the whole space was laid out in this way. At ASC the reviewers sat amongst the students to begin with, but had, by mid-way through the session, reverted to this arrangement.

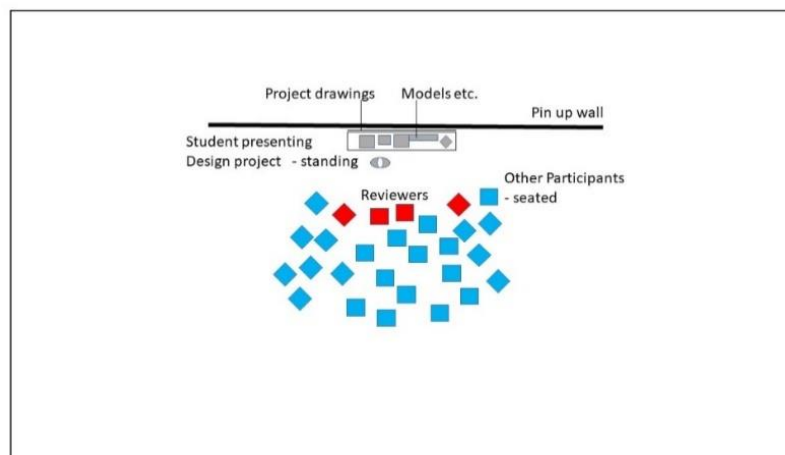


Figure 12. Spatial configuration of DPR

The material space of the DPR is a kind of formalised crystallisation of the studio itself and has a number of actors and components that are drawn together to form an event that celebrates the culmination of the studio design processes. It is the forum in which ongoing conversations about design and architecture are brought to a head and developed collectively. The spatial arrangements of the review and the disposition of participants is architectural education in microcosm. As an offshoot of the studio it is a further manifestation of the social field. It contains the objects under scrutiny, the individual student presenting their work and the other members of the social field of the architecture studio and of the field of professional practice in architecture. The stage is set for each student to participate in a process of interacting with members of the social field to which they aspire, under whose gaze the work is presented. They bring their personal habitus and engage within this forum with others who, by virtue of being more experienced, more qualified, have greater cultural capital and hence greater symbolic power. The student, in this way is exposed to the field and is able to engage with the field. The spatial and social arrangements imply a set of rules of engagement that make the event formal and ritualistic.

7.1.2 The work

The work that has been produced has been created over a long period of time and brought together within the review space in a final creative act of communication. The work pinned up at a DPR is a presentation, physically and graphically, of the students' design processes and design resolution. The physical objects (drawings, models etc.) are arranged in the space ('pinned up') in such a way that they can help the student to express ideas about concept and design strategy; analysis and synthesis of contextual factors; general arrangement of spaces, forms and structures; explanation of technical development in relation to material and environmental thinking; and deeper meanings relating to (for example) atmosphere, narrative and each student's own theoretical position.

The aim is for the student to mediate graphically and verbally the project process: its origins and its development, to discuss the quality and appropriateness of the design within the wider context. (IC)

In other words the work expresses the individual architectural proposition by each student and demonstrates their skills in techniques of representation.

In relation to design projects generally, students indicated that they normally worked in small friendship groups where the members of the group would get to know each other's projects quite well, but would be less familiar with the work of others, even those that might work in the same studio. Some students preferred to work from home, or kept themselves to themselves. Students reported different approaches to DPRs. The majority of students

would have had some interaction with others beforehand and, even though the DPR may be the first time that the whole project had come together to be displayed and explained, it was, nonetheless, partly familiar to others. Some students, having not spent a great deal of time interacting with others in the studio, might turn up to a DPR to unveil a project that was wholly unfamiliar to other students, and even to some tutors. It wasn't reported that this would necessarily mean that the project was not good, but that this did affect the discussion at a DPR, which was often reflectively connected to earlier conversations in the studio or earlier interim reviews, both specifically, in relation to an individual's design project, and generally, in relation to architectural ideas and themes. In other words the DPR event isn't something that sits in isolation, merely as a forum for display and judgement (as one might find at a competitive event) but is inextricably tied to earlier processes of conversation and interaction within the studio.

Bourdieu argues that each social field can be thought of as a game, in which "actors strategically improvise in their quest to maximize their positions" (Maton, 2012. p.53). Actors in the field develop a 'feel for the game', "one that is never perfect and which takes prolonged immersion within a field to develop" (ibid, p.53). In this way there develops a relationship between engagement in the architecture studio, the development of a 'feel for the game' (habitus) and performance at the DPR. The ability to present and discuss work at the DPR is developed over a prolonged period of time, not only in attendance at previous DPR events, but also in engaging in ongoing conversations and activities within the social field.

7.1.3 Time

Architecture students experience DPRs regularly throughout their studies. These are initially quite unfamiliar events but, in time, students become accustomed to them and develop their own techniques of engagement with them. The design project in architecture has a finite time scale and is formed from a series of closely aligned events such as tutorials and interim reviews, bounded by a project introduction and a DPR. The duration of a project can vary and may contain several sub-components (with sub-DPRs), but the regularity of these events provides a tempo of activities, which establish an inevitable periodicity. In this way the project introduction contains and implies the 'eventual denouement' (Till, 2004. p.167) of the DPR.

It is a very specific event, you know, the crit, the final crit, you're aware of it from the get-go. (GIA)

The DPR acts as a marker for students to be able to see where they stand; to assess if they are on the right track; to reflect upon their own development and progress, through

comparison with their peers; and to gauge their relative position and trajectory. It is an event that asks students to concentrate on finishing. In order to be ready, decisions must be made, models and images produced, curated and arranged. It is an occasion that focuses the mind and requires design activity to be brought to a close.

Prior to the DPR students prepare their work for the event. This entails careful consideration of which drawings and models to present, and focuses attention on finalising particular images, or crafting particular models, to best express what the project is about. This can be quite an intense exercise, in that the work produced is a physical representation of the student's design thinking and therefore needs to be suitably impressive.

The level of scrutiny within the DPR means that the project really needs to be as resolved as possible. In the immediate period of time before the DPR this anticipation of the event drives the preparatory activity such that students report putting in very long hours ('all-nighters') in the days leading up to a DPR. Even before this point students reported that anticipation of the DPR is a powerful motivating factor.

It's a massive stepping stone, I mean... if we just suddenly got told we were going to do a final portfolio and that was it, it'd be seriously hard to motivate yourself to put in, like, the weeks, the months of this kind of intensity (GIA)

The process of designing, which is a particular aspect of the architecture student's practice, starts to take on additional aspects as the DPR comes into view and work begins to shift from design mode to representation mode. The DPR as an event is imagined, anticipated, planned for. Students are aware that it is more than their designs that they are presenting, but that it is also a presentation of themselves.

The thing is, you know, by doing a crit you're almost, you're trying to sell your project. But people kind of, people don't really buy products, they buy into you. (GIB)

During this period students think about what they will have to say about the project. In other words there is an intimate relationship between the architectural ideas and the physical representation and verbal articulation of those ideas. Students reported different ways of preparing for this, but were intensely aware that they would be 'selling' their projects. Moreover, because the projects represented each student's abilities as a designer, they were also aware that any evaluation of their project entailed more than simply judging how well it worked as a work of architecture, but also became an evaluation of the individual student's abilities; an evaluation of their readiness to progress. As the student approaches the DPR there is a shift from design thinking to thinking expressively.

The work then, is a physical expression of the student's habitus. What they present, how they create it, or craft it and how they arrange it in the space are all gestures that imply a

particular level of practical mastery of their 'game'. They are expressing, through the work presented, their 'feel for the game' and their readiness for acceptance into the field.

7.1.4 The participants

The DPR is an opportunity for students to learn from each other: to see what their peers produce and to hear what they have to say; to hear what tutors and guest reviewers have to say; and to contemplate what works and what doesn't work; what is successful and what is not; and what is held up as exemplary and what isn't. It's a dynamic social learning event that (at any given stage) can broaden the students' appreciation of the context within which their ideas are developing; within the field of architectural education and hence the field of architecture.

Within the DPR there are particular participants that have different roles. The LR and GRs have a role to play in evaluating the project and discussing each project with the students from the vantage point of being experienced architects. In this way they all represent the architectural profession. The LR and some GRs (who may be other tutors) bring something of the ethos of the particular school to the DPR and will develop arguments and conversational trajectories within this context. Where the GR is an external guest, they have a distinctive role as a member of the profession who has been invited into the school to engage with a particular event. The external GR is typically unknown to students and thus brings to the event an outsider's viewpoint and in this way situates conversations in the wider professional field.

The GRs do not (typically) carry out any assessment, so the students are often more attentive to what the LR had to say, at least in relation to receiving direct instructions. The LR has some authority, both as the co-ordinator of the event and as the person providing feedback and ultimately assessing the work. In the schools observed, students are aware of this and spoke of approaching the review in a particular way because they knew the LR, and had formed their own perceptions about what the LR might expect and how the LR would behave/react. LRs and GRs collectively may represent the social field to which the students aspire and so engagement with DPRs is a process of developing one's habitus, of enhancing one's cultural capital, through practice. Crucially, within the educational setting, the students also have a keen focus on assessment and hence gaining the qualification and the symbolic power that it encapsulates, for it is only in finally achieving their qualification that they establish their arrival (or partial arrival) in the field.

Thus, it is written in the tacit definition of the academic qualification *formally* guaranteeing a specific competence... that it *really* guarantees possession of a

‘general culture’ whose breadth is proportionate to the prestige of the qualification...”
(Bourdieu, 1984, p.17)

Gaining the qualification is linked to the students’ ability to think and act as an architect, and so is linked to the development of the habitus of the ever improving ‘feel for the game’. However, these aspects are not foremost in the students’ minds. Gaining a qualification is directly linked to assessment in a measurable, quantifiable way. Assessment is linked to feedback; less directly quantifiable, but at least in relation to being able to demonstrate response to instructions, which can be less esoteric than exploring and expressing architectural ideas within the DPR forum. From a Bourdieuan point of view the link between feedback, response to feedback, assessment and eventual qualification is powerful, as the qualification implies attainment of and possession of the requisite cultural capital.

The GRs are an important element in the DPR because they are able to lead and develop the discussion for each project. GRs who are also architecture tutors have a role within the review as architects and as educators, providing academic judgement, bringing some balance and moderation to the occasion. Individuals in any social field, Bourdieu points out, have developed a habitus that aligns with the principles, values and standards of the field. When one’s habitus is appropriately aligned one embodies and reveals those values in all manner of ways and particularly through one’s outward depiction of distinction and taste. The external GRs, (practising architects in the cases observed, but can be co-professionals or other specialists), have a slightly different role in that they are less focused on the personal development of the students (as budding architects) and more attentive to the quality of the architecture, thus bringing a discerning eye and a professional critique to each project. They represent the value judgements of the profession.

Taste is a practical mastery of distributions which makes it possible to sense or intuit what is likely (or unlikely) to befall – and therefore benefit – an individual occupying a given position in social space. It functions as a sort of social orientation..., guiding the occupants of a given space towards the social positions adjusted to their properties and towards the practices or goods which benefit the occupants of that position (Bourdieu 1984, pp.468-469).

This aspect of showing architectural taste is deeply entwined with developing the ‘feel for the game’. Being able to discuss works of architecture (created by students) through conversations about architecture and architectural ideas, as a connoisseur of the genre, is partly a display of the habitus (the cultural capital) of the reviewer and partly a manifestation of their enjoyment of the game.

Just as the space of the DPR is envisaged by students prior to the review, in preparation for their presentation, the envisaged space also includes the imagined reviewers. The students may be familiar with the LR, but are not familiar with the GRs, except perhaps by reputation.

Students may have a particular reviewer in mind when considering how to pitch their project. However, because the external GR represents the profession, the imagined encounter allows the student to locate their design within a professional setting. Because it will be judged as a work of architecture by a practising architect, the student begins to anticipate notions of architectural distinction, such that the work that they produce is prepared with this in mind. The student, in 'selling themselves', begins to develop and express their own (tacit) tastes and preferences.

Within the DPR the reviewers (LR and GRs) take the lead in developing the conversations. When there are several reviewers, for students to present their work to, and to converse with, it can be quite daunting, which can mean that some students presenting actually say very little. The reviewers dominate the conversation. The LR will generally manage the conversation and, where possible, focus on each student's particular issues. GRs can be less focused on the students' needs than on ideas about architecture. With several GRs the topics of conversation can jump from one thing to another, as each might identify additional aspects that could be discussed. The range of topics covered can be bewildering for students trying to navigate their own particular architectural journey. The reviewers bring to the occasion a sense of their delight in the discipline and their enjoyment of the conversations; their 'feel for the game'. This can serve to set the scene for how architecture can be engaged with, but can also manifest as an "hegemonic display of power relationships" (Percy, 2004. p.150), which can unwittingly stifle engagement with the conversation by those less confident in doing so; those who have not yet developed their 'feel for the game' (i.e. the students). The interactions of LRs and GRs can become quite energised, even heated at times. Reviewers who, as architects, have developed a practical mastery of their profession, and have suitably developed notions of what is tasteful and what isn't, can become exasperated by a student that is not recognising or taking on board their opinions and advice.

...and the review panel they might be in the grasp of a confrontational mode, and you can see their noses are forward and they're, y'know, glaringly mad. (IA)

The language used within the DPR is an architectural language (*archi-speak – GIA*). Students recognise that in the DPR they are learning how to speak about architecture (as an architect) through interaction with architects (tutors and practitioners).

I think there are words that you use, you know, there are words that you can use to make it sound better, or you do pick up on certain words. GIA)

The conversations are framed by professionals (the reviewers) through the language they use, the choice of topics that they cover and the way in which they talk about them. In this way students develop ways of thinking and discussing architecture as a professional. The

language used when speaking to students can be inclusive or exclusive. Where students have produced good work and have articulated it in a way that meets with approval, they may be praised in such a way that draws them in to the field:

It's a lovely idea, ... an elegant set of plans... You're letting elements express themselves" (GR1 at ASA)

Where students have not demonstrated an appropriate level of engagement or maturity the language can be quite different:

You have not made connections between... (GR1 at ASA)

There are fundamentally things missing... The architecture's paper thin (LR at ASB)

In either case the language serves to create a sense that someone is becoming accepted or not (yet) and sets up some tacit boundaries for acceptance into the field.

GRs are often familiar with the school and its ethos (they may even be graduates of the school) and are chosen to attend for this reason. Not only do they bring a professional viewpoint to the situation, but they also validate the ethos of the school in doing so.

From a Bourdieuan perspective this can be seen as an example of how education reproduces the 'norms' of a field or a profession. The school has a particular ethos; a particular approach to architectural education and embodies its own set of cultural and social values and beliefs. Each school is itself a sub-field of the field of higher education and a sub-field of the field of architectural education, as well as of the fields of architecture (as an academic subject) and architecture (as practice). Developing a certain habitus, a certain 'feel for the game' is something which happens within the school and so the ethos of the school is embodied within the ethos of those who develop an appropriate set of values and tastes, who's habitus is aligned with the ethos of the school. Architects in practice do not all volunteer to return to schools of architecture to join in teaching and reviews. Those who do so will be those who enjoy the nature of the particular modes of engagement with the field that the school has to offer. In other words, the architects who are most attuned to joining a DPR will self-select to do so when the opportunity arises. In addition, those that join in a DPR event and do not perform in accordance with the accepted patterns within each school are not likely to be invited back again.

But we're also fairly careful about who we pick to come in to reviews. We're keen to ensure that there's a kind of continuity in terms of the way in which we talk about the project. They are generally people who have taught and who are engaged in the school and understand this kind of school's ethos. (IC)

A DPR does not have a specific set of rules, but through the process of self-selection and school-selection of the reviewers who participate, the patterns of engagement in a DPR can become embedded and reinforced. Thus, the educational setting reproduces architects that are most attuned to the ethos and values and modes of interaction of the participants. If the reviewers demonstrate a certain habitus, a certain way of interacting; of being, it is this habitus that, in turn, informs the habitus of the students.

DPRs are typically open events. Students from other year groups or study units are able, and welcome, to join in. This serves to further enhance the perception of the event as something more than simply assessment and feedback and locates it as part of the wider cultural landscape of the school. In many ways this contributes to the sense of importance of the event, as students in first and second year observe the final DPRs of third year and anticipate their own engagement with the same event in due course. The DPR is a significant event in each school and within the field of architectural education. Through the engagement of professional architects from the field of architectural practice it is also a significant event that links the fields of education and practice. Students are aware of the event as something that all architecture students experience and so also understand it as part of the cultural landscape of the profession, and a rite of passage into the profession.

Looking at the structural elements of the DPR, we can see that the primary components of a DPR are fundamentally interconnected. The essential relationships are shown in Figure 13, which envisions the relationship between the production of work in the architecture studio and the presentation of the work to others in the review space and associated discussion about the work. The lines indicate connections between the relational features that are mutually enabling.

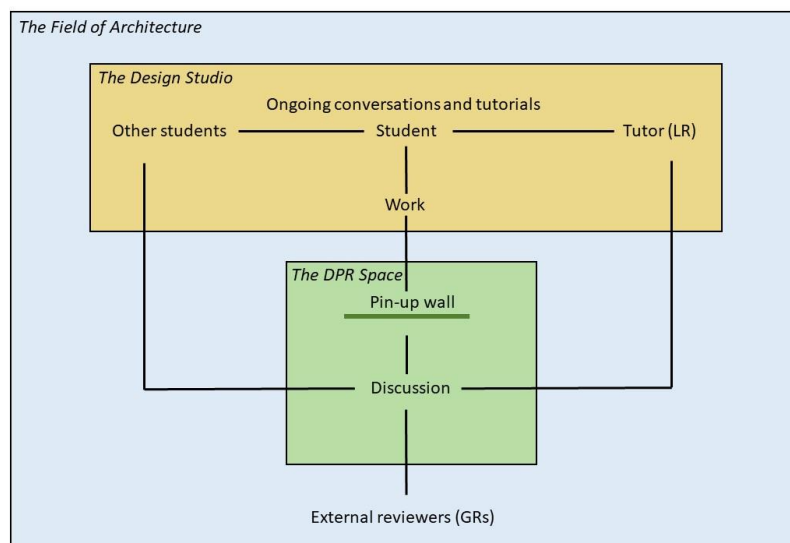


Figure 13. Conceptual relationship of structural elements in DPR

7.2 Underlying principles

Habitus is a concept that encapsulates all aspects of behaviour of individuals in relation to the social fields they occupy. It relates to ways of acting, feeling, thinking and being (Maton, 2008. p.51). The DPR is an event that entails the careful organisation of the relationships between the components described above. The architect's habitus entails the twin activities of 'doing' architecture and 'talking' about architecture, which are drawn together as the focus of the DPR to underpin learning. The research recognises four epistemological strands that underpin the architectural DPR:

- Architectural ideas
- Design processes
- Representation techniques
- Acculturation

7.2.1 Architectural Ideas

Architectural ideas can encompass a broad range of design scenarios at various scales, ranging from anthropometrics and the psychology of personal space to the design of cities and public spaces, and all of the spatial, formal and environmental challenges in-between. Such ideas are not necessarily straightforward, rational or measurable propositions, but are embedded within social, historical and cultural contexts that give rise to many theoretical and philosophical positions that might inform the intentions of the designer and the scenarios and narratives embodied in their work. Discussion about such ideas is common in the literature (see, for example: Jencks and Baird, 1970; Crysler et al., 2013).

At the DPRs observed, the discussion about architectural ideas fluctuated between issues of spatial organisation and pragmatic design thinking, and the ideas and meanings inherent in the architecture. For example, the tutor at ASB remarked that they had been having "quite an interesting discussion about the architecture... an investigation of space and ambition" (IB). Another talked of "the quality and appropriateness of the design within the wider context, as well as the student's particular position within it..." (IC).

And when they've had five minutes' chance to speak about it you say: "what is the big idea here?" and it forces them to say, "This is what my project's about". (IA)

Architectural ideas, in other words, are not simply matters of resolution of a problem in a reductionist, mechanical way, but are open to interpretation and re-interpretation, and in this way the expression of those ideas becomes crucial to understanding. The epistemology embodies the notion that design is a personal interpretation of the issues/problems being explored and an expression of the designer's 'particular position'.

7.2.2 Design processes

For the architect, understanding architecture is also about understanding how to ‘do’ architecture. There are numerous ways of thinking about design and a vast body of literature that covers design processes and techniques (see, for example: Baker, 1996; Lawson 2005; Unwin, 2009; von Miess, 2013). However, whatever the literature has to offer in relation to design guidance, the process of learning to design is essentially a process of learning-by-doing (Dewey, 1998; Gibbs, 1988; Kolb, 1984; Schön, 1985). What the student brings to the DPR is the product of the design process; what they themselves have created, and represents the culmination of many stages of design development that is both iterative and reflective:

The final review is about accepting where the design is, given that there have been iterative discussions, interim reviews, multiple tutorials (IC).

I want everybody to see what everybody’s doing so that it ‘ups’ everybody’s game (IA).

...what have I been doing? I need to have something that communicates my project to pin on that wall (GIB).

I’ve just spent a year doing something, I want to tell everyone everything that I’ve done. (GIB)

Of course, the design process does not happen in isolation, and so there is a close relationship between the act of designing and the ‘iterative discussions’ that take place; what Schön (1983) referred to as reflection-in-action. The DPR event itself is another stage in this process. Whilst the tutor interviewed at ASC felt that “the final review is about accepting where the design is”, the tutor at ASA declared: “I’m much more interested in the design process and I’d want to squeeze out the last little bit of designing I can get from them” (IA).

The student learning to design is not simply learning how to design, in relation to some external set of systems and techniques, but learning how ‘they’ design. The process is an instantiation of Polanyi’s (1967) tacit learning. The iterative discussions and the DPR provide opportunities for students to try to articulate what is happening tacitly. For example, one student, at the student group interview at ASC, when discussing the purpose of the DPR, reflected:

... the whole design process, as a student, is very internal. Your project, your ideas, everything you’ve looked at, I think you can get really obsessive. I think it [the DPR] makes it more real, and it brings you out of your head. (GIB)

Just as the epistemology of architectural ideas is one of personal interpretation and expression, so too processes of design thinking are aspects of individual, tacit interpretation.

7.2.3 Representation techniques

The architectural ideas under scrutiny are an expression of an individual's interpretation, and simultaneously an expression of the individual's evolving, tacit understanding of how to design. The means by which the student's epistemological position is tested is through the work that is presented at the DPR. The expression of the architectural thinking is dependent upon the techniques of representation of that thinking. In other words, the work produced for the DPR is both a culmination of the design process and an expression of a theoretical position. The relationship between architectural ideas, design processes and techniques of representation is common in design literature (see, for example: Farrelly and Crowson, 2014; Hewitt, 1985; Perez-Gomez and Pelletier, 2000; Porter, 1993). The DPR is the point at which the work comes together for final presentation. Students work on models and drawings in a variety of physical and digital formats, which are used to both express ideas and explore options during the design process. The process changes somewhat for the production of work for the DPR, because of the special purpose of the event, requiring the whole design to be expressed; the whole story to be told. This process represents another level of learning-by-doing, in that what the student is doing is preparing a presentation of their architectural ideas and design thinking. The drawings and models and digital images that will have been produced previously, as part of the design process, now need to be re-assessed; repurposed and augmented in order to communicate the author's ideas to others.

...it is all about how they can kind of capitalise best upon the work that they've done and develop it to the next level; do that extra drawing and curate the project in a way that tells the story of the project; so that it reads as a legible process... (IC)

You are getting across your key design interests. (IB)

There is an expectation for a student to have a completed project on the wall. It is about upping their game. (IC)

The relationship, epistemologically, with architectural ideas and design processes is fundamentally one of expression. Shaffer (2003) describes it thus: "*Expression* is the process through which thoughts, emotions, or sensations are instantiated in words, gestures, or physical creations in a way that reflects (and helps create) identity" (p. 24)

7.2.4 Acculturation

Architecture students belong to the field of architectural education, with shared goals and shared experiences. They also belong to the broader field of the architectural profession, as the studio-based design processes are inherently social and provide an environment in which students can participate in the cultural practices of the profession in preparation for the complexities of professional life (inter alia: Bourdieu, 1977; Brandt et al., 2013, Lave and

Wenger, 1991; Schön, 1983, 1985, 1987; Stevens, 1995, 1998; Wenger 1998). Within the DPRs observed students and tutors were acutely aware of this aspect of their learning.

The final review is an opportunity for the students to stand up and present their body of work. We were very keen on getting key practitioners in and we would have a strong range of reviewers from practice. (IC)

One of the big things I've learnt, and I guess it's one of the massive things in practice, is selling that project... (GIB)

It's good to hear a different person's perspective... especially if you're about to go into a professional world where you're working for others. You've got to have everyone else's opinion around you to make something work. (GIA)

Whilst the studio can be seen as a bridge between the academic and professional communities (Brandt et al. 2013), the DPR represents something more than simply the coming together of practice and academia, because it is a forum where the product of the studio activity is effectively legitimised by the professional community. The work presented at a DPR has been developed with the specific audience in mind. This is true of the preparation for the review, when drawings and models are being worked on specifically for presentation and discussion at the event, but it is also true of the development of design work at an earlier stage:

It is a very specific event, you know, the crit, the final crit, you're aware of it from the get-go (GIA)

With tutorials, you can kind of spin around... over a couple of sheets and talk around things, whereas when it comes to pinning it up on that wall... (GIB)

In this way the DPR, which includes members of the professional field and the academic field, represents in the student's "mind's eye... members of his own profession to whom... he will announce the results of his labours" (Piaget, 1923/1974, p. 59 quoted in Brown, Metz and Campione, 1996. p. 146).

Whatever one's labours are, there is an idea of an audience at the end to whom the work will be presented in some format. The DPR, as an event that draws together and draws to a close the design project, is something that is present in the minds of students and tutors from the beginning and throughout the process and represents the cultural context with which the students identify.

For us it's an opportunity... to promote a kind of positive experience, an opportunity for the students to build up confidence in... presenting and articulating their own work. I also think it's a major contributor to the collective culture of the course, that the students experience together. (IC)

The DPR, as an event that embodies both the cultural values and traditions; the ethos of an architecture school and of the wider architecture profession, represents the most intense

moment where these fields coincide. The epistemology of the situation, when considered in this way, is still one of 'expression' "that reflects (and helps create) identity" (Shaffer 2003, p. 24), but it is also, more deeply, an expression of identity; an expression of acculturation. The work produced, mediated through the student's presentation of that work, is an expression of the student's habitus; their 'feel for the game'. In this way the sense of 'self', that Blair (2006a) highlights, is indivisible from the work. Critique of the work is a critique of the student's level of acculturation into the field; the extent to which they are able to identify themselves on the journey to becoming an architect. It is difficult for students not to take it personally:

I find it really hard..., you can talk about your ideas and, like, explain and they don't understand it... the way they're reading it or the way they think. So it's quite difficult. (GIC)

You're really investing a lot of time and energy in something to, to pin it up and kind of, you know, have it torn to pieces is really tough (GIB).

They can be really harsh (GIB).

It's never nice, hearing 'that's not good enough' or 'that's not great' or 'why have you done that?' (GIA).

It's not a particularly nice experience. No one enjoys it. It is hard, because they're not inside your head they don't see what you see (GIA).

You have to be quite thick-skinned to do it and you have to have a real mental toughness about you (GIB)

Students don't join a course with any prior knowledge of the way that DPRs work; what they entail; how they are engaged with; what is expected of participants. The schools of architecture visited all ran DPR events for design projects from first year and in all of them students felt that they were very difficult to begin with.

I think it's something that you learn as you're doing it. You can get very, very upset about things very quickly. The first one you do is terrifying. The first five you do are probably terrifying but it becomes a vehicle in which, actually, you're not intimidated by an audience. (IB)

Epistemologically then architecture is fundamentally an expressive discipline. Within the DPR situation, from a Bourdieuan viewpoint, what is being expressed is habitus. However, habitus in architecture is a complex set of interrelations in itself and can be considered under the four strands outlined above, as follows:

- Architectural ideas – as an expression of personal interpretation and imagination
- Design processes – as an expression of tacit knowing
- Representation techniques – as an expression of practical skills
- Acculturation – as an expression of identity

7.2.5 Conversations

The conversations that took place in all of the DPRs observed covered a very wide range of topics. Students were asked to articulate their architectural ideas and design thinking, and the conversations then explored further aspects of design, both in detail, specific to particular projects, and more generically in relation to more theoretical ideas and approaches. In this way the conversations in the DPR can be seen as being closely aligned with Pask's (1976) Conversation Theory, in that they included both 'local level' discussions about the specifics and 'global level' discussions around theoretical frameworks (Laurillard, 1984).

In relation to the four strands identified above, the following parallels can be made:

Local level =	Design processes
	Representation techniques
Global level =	Architectural ideas
	Acculturation

The mode of the conversations allowed for both 'comprehension learning' as they explored ideas, meanings, connections and alignments at each level and 'operational learning' as connections were made between levels to develop hypotheses and situate specific processes or techniques within theoretical or cultural narratives.

The aim is for the student to mediate graphically and verbally the project process: its origins and its development, to discuss the quality and appropriateness of the design within the wider context, as well as the student's particular position within it... (IC)

...you say: "what is the big idea here?" and it forces them to say, "This is what my project's about". Then you say "ok, well why do you have these less relevant drawings?" and "why don't you have that drawing, surely that's what you need?" (IA)

In order for the DPR conversations to be most effective in relation to these aspects of learning, students need to have a 'deep', rather than a 'surface' approach (Marton and Saljo, 1976). Within the DPRs observed students at ASC were more involved in the conversation than students at ASA and ASB. Within the group interviews with students at ASC there was little talk about the DPRs being particularly tough, or ineffective, apart from the discussions about their experiences in earlier years. Conversely, through observation and through the many comments made by students at ASA and ASB, it was clear that students were not always engaging as deeply:

Sometimes they speculate a lot on lots of different things, so it's hard to know what to do, because there's so many different opinions, and it adds to those opinions you have in your own head. (GIA)

Sometimes it does stop you from progressing..., because one person will be telling you one thing and... all the possibilities, and you're a bit like... I don't know. I normally feel quite deflated afterwards. (GIA)

In many ways, although there is an intensity at a DPR where many strands are drawn together, the conversations are continuations of conversations that have been developing within the studio; between students and tutors, across year groups and over time, as a student progresses from year to year. They are also conversations that belong both to the culture and ethos of each school and to the wider professional field.

The DPR is an example of what Shaffer and Resnick (1999) describe as a “thickly authentic environment” (p. 6), because it embodies “goals that are personally meaningful to the student..., ways of thinking within an established discipline..., goals that matter to the community outside the classroom [or studio] ..., and the means of assessment” (ibid, p. 6). “Personally meaningful projects are produced and assessed according to the epistemological and procedural norms of an external community” (ibid. p.6).

7.2.6 Individual Expression

The DPRs observed were arranged to allow students to express their development as novice architects. The space within which the DPRs took place, being open to others, situated the events, (semi) publicly, within the cultural community of each school. Design work produced in the studios (or elsewhere), and subject to iterative tutorials, supported the development of expressive ideas, and culminated in the work being pinned up as a holistic representation of the individual designs. These graphic and modelled displays formed the basis for conversations that allowed students to articulate and further develop and refine their knowledge and understanding through critique and feedback. Central to the process is the individual learner and their development as young architects. “I think it’s good to see students presenting their work with passion, conviction and belief and with a sense of ownership. It’s about building up their confidence” (IC). The work itself is unique for each student and the process is undertaken to explore that uniqueness. In other words, the students are being asked to express their individuality and personal development in the presentation of their design projects. “So, there is a sense that we’re actually empowering our students in the review process, that we’re actually developing really strong skills to present themselves and present their work” (IC). In addition to ‘strong skills’ of presentation, the effective DPR equips students with deeper critical skills that contribute to their knowledge about the subject and, by being able to put ideas into practice, subsequently to develop their design skills. “On the whole I think the students come out with a strong ability to synthesise and reflect upon their own work and I think the reflection is a really important aspect” (IC).

The structural elements of the DPR include the relatively stable provision of the design studio and associated space for the review, and several variable elements, including the participants and issues of timing, which together make the pedagogic aspects of design development, iterative tutorials, pin up and review possible. These are the elements and techniques that, if carefully orchestrated, support development through active engagement with the modes of expression that constitute the epistemology of architecture. The diagram below, Figure 14, with reference to Shaffer (2003), is a schematic representation highlighting the nested relationship of epistemic principles, pedagogic techniques and structural elements in support of the principal purpose of the DPR as a vehicle to nurture individual expression of architectural ideas, design processes, representational techniques and acculturation into the profession.

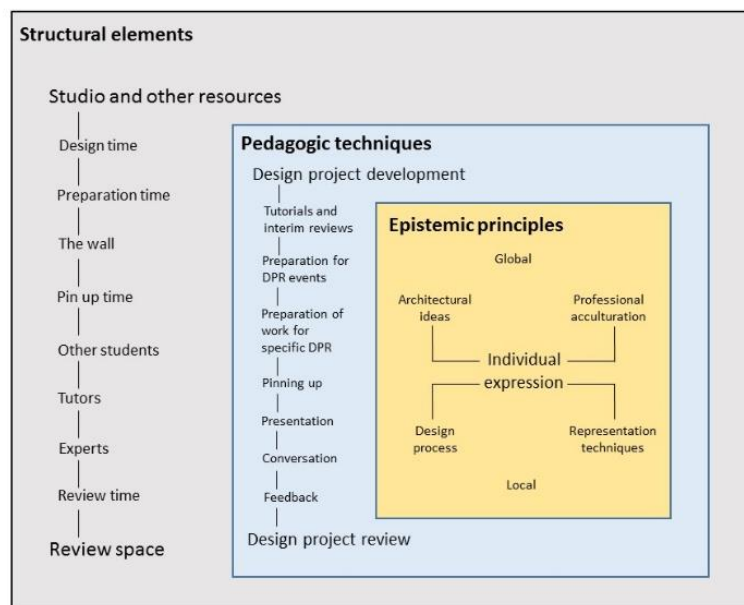


Figure 14. Structural elements, pedagogic techniques, and epistemic principles

The epistemology, which places the architecture student as central to the process and the individual expression of their development as the primary outcome, is common to all of the schools. The relationship of the Bourdieuan concepts of habitus and field is at its most intense within the DPR. The individual student is expressing themselves; their habitus, in an open forum constituted of other actors in the architectural field

Chapter 8 Conclusions and discussion

Through an analysis of the participant experience of the format and delivery of DPRs, an examination of how they are assembled and the variety of modes of dialogue and interaction that take place in relation to design projects, this study has presented a critical appraisal of their role in contemporary processes of learning architecture.

This study contributes to an understanding of the epistemology of architectural design by placing the individual architecture student at the centre of the process, and shows that it is their awareness of their own particular position, in relation to their own work and in relation to the broader field of architecture, that underpins their learning and personal development. Aspects of their development as architects at a local level, in relation to an understanding of design processes and representational techniques, and at a global level, in relation to the realm of architectural ideas and acculturation, are deeply personal and inextricably linked.

The study makes an original contribution to knowledge by showing that the learning experience in architectural education is fundamentally one of individual expression and self-constitution. The relationship of the individual (*habitus*) to the collective (*field*) is found to be at its most intense within the DPR, where the individual student and their work is held up for examination by professionals in the field. In this way the event serves to act as a powerful 'staging post' on the journey to becoming an architect, which motivates students to develop their work expressively.

This study has the following objectives:

- 1) To better understand the design project review in architectural education and how it is experienced by students and academic staff
- 2) To examine and critique the nature and conduct of design project reviews to explicate their purposes, learning benefits and problems, in relation to both the academic programme and broader professional acculturation
- 3) To critically analyse the elements, techniques and principles that underpin design project reviews; how they are assembled; the variety of modes of dialogue and interaction that take place, both in and around this forum, in relation to studio design projects in contemporary processes of learning architecture
- 4) To articulate the benefits and shortcomings of the current situation in order to inform curriculum design and development and pedagogic practice in architectural education

The first three of these objectives are addressed in the previous chapters (6 and 7).

The following section discusses the findings in relation to the fourth objective:

The DPR has come under some scrutiny since the publication of Katheryn Anthony's 'Design Juries on Trial' (1991) (inter alia: Blair, 2006a, 2006b; Dutton, 1991; McClean, 2009; Percy, 2004; Sara and Parnell, 2004, 2013; Webster, 2005, 2006, 2007; Vowles, 2000, 2013; Wilkin 2000). Many of these investigations have explored the problems encountered in the situation, especially in relation to the confrontational nature of the events and the resultant levels of anxiety and even fear experienced by students, and the negative impact that this can have on student learning. More recent explorations have been more directly related to the National Student Survey (NSS) in England and, in particular, the relatively low scores reported for courses in architecture in relation to assessment and feedback, in which the DPR plays an important role (inter alia: Bassindale, 2020; Flynn, 2020; McClean and Hourigan, 2013; Smith, 2011, 2020; see also The Guardian, 2019).

Students learn by doing, but what they are doing, through the realisation of their own design ideas, is expressing their knowledge; their personal development, in the form of architectural propositions. The symbolic power (Bourdieu, 1984) of the DPR for exploring those propositions lies in the fact that they are fundamentally expressions of each student's (evolving) individual habitus, exposed (and evaluated) within the cultural field. In other words, the DPR represents the cultural field in which the individual habitus is becoming acculturated. Architectural educators and students of architecture recognise that power, and are motivated by it, because of its potency. This combination of acculturation into, and affirmation by, the field to which the student aspires intensifies the experience such that involvement in a DPR can be deeply empowering.

If I was to just put it in a portfolio and stuff and not get up there and defend it, I wouldn't have to believe in it... I think you have to get up there. Where you believe in your project (GIA).

Conversely a DPR, if not handled well, can be ineffective (at best) and potentially hugely destructive, and certainly a source of dissatisfaction and even disillusionment.

I know a lot of people drop out, we've seen people break down and I think the crits play a big part in that for some people... (GIB).

The DPR then, has real benefits to students on their journey to becoming architects. It also has significant shortcomings, which indicate that there is scope for architectural educators to engage more carefully with the design and development of their pedagogic practices.

When considered in this way a number of characteristics are worthy of further exploration:

- Expression, as an underlying principle of becoming an architect
- DPR as the central feature of the process
- Learning to engage

8.1 Expression, as an underlying principle of becoming an architect

In each of the aspects of learning identified, individual 'expression' is essential

- Architectural ideas – as an expression of personal interpretation and imagination
- Design processes – as an expression of tacit knowing
- Representation techniques – as an expression of practical skills
- Acculturation – as an expression of identity

The individual design produced by each student is a unique expression of their abilities, tacit knowledge and position in the field and therefore a unique expression of themselves. Consequently, any evaluation of the output (the design) is an evaluation of the individual (the designer). The processes of development in becoming an architect are focused on the output, the design; what one does, but the output cannot be separated from the individual, the designer; who one is. This is important in relation to understanding the student's relationship with the DPR event and how their perception of themselves can impact upon their engagement with the event. It is also important in understanding the student's relationship with their working processes prior to, and following, the DPR.

The process of learning to design is, in essence, learning-by-doing (Gibbs, 1988; Kolb, 1984). However, it is more than simply 'doing'. What the student is doing is personal. It is not just a process of learning (what they are able) to do, but more a process of learning (how/who they are able) to be. Reflection-in-action (Schön, 1983) is also reflection-on-identity. The actions that a student takes are an expression of who they are. What one reflects upon is a representation of oneself.

The conversations in a DPR are, therefore, (deep down) conversations about oneself. The talk in a DPR is an instantiation of Askew and Lodge's (2000) co-construction, where knowledge is created jointly between the participants. Because the conversations are generated by, and refer to, the individual output of the students, then the talk is also contributing to the social construction of their identity.

From the point of view of Pask's (1976) Conversation Theory, the DPR, as a lived experience, is a real conversation (as opposed to inner speech) through which concepts are articulated and formed. The 'operational learning' in Pask's framework, that connects local actions to global ideas, is also operating upon the individual; connecting what the student is doing and what the student knows, to who the student is, or who they are becoming. In this context, the processes of learning about oneself, are contiguous with the processes of learning to design. Doing architecture and being an architect are indivisible.

8.2 DPR as a central feature of the process

Design projects in architectural education include any exercises that involve design, for whatever purpose, whether that be a small sculptural exercise or design of a piece of furniture or some anthropometric study engaged with individually or as a group, or whether it would be a proposal for new public space through a process of community engagement or a much more hands on 'design and build' 'live' project. In all of these instances, and others, the DPR can be considered as a central feature of the process and should be designed and organised to make the most of the event.

What came across very powerfully, in the group interviews, was the importance that students placed upon the DPR.

If we didn't have it and we just did the portfolio, like, I wouldn't be as far as I am now. It helps you push on; you know. (GIA).

It's a massive stepping stone...if we just suddenly got told we were going to do a final portfolio and that was it, it'd be seriously hard to motivate yourself to put in, like, the weeks, the months of this kind of intensity (GIC).

The reason that the DPR is seen as important, and generates such an intensity of focus, is precisely because the students feel that it is more than simply an evaluation of work, but that it is also a validation of themselves as individuals (and hence their degree of acculturation).

It's about building up their confidence. So, there is a sense that we're actually empowering our students in the review process, that we're actually developing really strong skills to present themselves and present their work (IC).

So, I think, whilst it is about your work, the way in which you present it has a massive impact... (GIB).

But people don't really buy products, they buy into you (GIB).

The DPR is also the forum where the conversational threads, that have informed the process in the preceding weeks, come together to form a greater tapestry of meaning than any individual project is likely to be able to construct.

...a chance then to see all the work on the wall at one time (IA).

Students will encounter practising architects in the studio setting and other events, but it is only really in the DPR that the role of the external architect becomes one of professional evaluation, and hence validation for the students. The DPR, therefore, takes on the greater identity of the professional field, which contributes to the students' sense of inclusion.

There are two aspects to this. Firstly, the student presenting their work subjects themselves to scrutiny by the group (students, academics and professionals) and, in this way, is most clearly exposed to the judgement and evaluation of the group. In relation to becoming

accepted as an architect the student in this situation is seeking to demonstrate that their work, their ideas, have value (or embody values that are deemed acceptable). Newall (2019) discusses this in relation to DPRs in art schools reaching a 'consensus' about a piece of work.

These are the distinctive pedagogical values of the crit: they are not, at least not effectively and reliably, achieved by other means. Consider a scenario where a teacher could give a student precisely the same feedback in the context of an individual tutorial... From an individual teacher, it is only ever a single point of view, reflecting their individual interests and commitments, which the student may not, and may not want, to share. Where the group reaches a consensus, it cannot be dismissed in this way - the agreement of the group carries a special kind of legitimacy—and indicates the potential for a reliable transpersonal significance (Newall, 2019, pp 17-18).

At each stage of development if a student feels that their output is valued, then they are likely to have a sense of themselves (as budding architects) being valued (by the profession; the cultural field). Of course, the opposite is also true. Where a student feels that their output is not valued then they are likely to feel that they are not becoming accepted by the profession to which they aspire, which can be emotionally difficult.

If a work genuinely presents a student's interests and it attracts criticism, this can be painful. So far as one's art is tied up with one's identity, it can occasion genuine anguish. Moreover, this process occurs in what is effectively a public forum, witnessed, and enacted by teachers and peers (Newall, 2019, p 20).

...[you have to be] mentally tough enough... (GIB).

... very, very critical and very harsh (GIB).

... you do get pulled apart (GIA).

This process, whilst being difficult, is what makes the DPR a distinctive learning environment and not necessarily something to be wholly avoided merely because it is difficult.

Actually, I quite crave areas to work on (rather than positive bits). It's always quite harsh and over the top, so that bit really helps because it gives me areas to work on. (GIB)

It's never nice, hearing 'that's not good enough' or 'that's not great' or 'why have you done that?'. I think it's a lot better and you get more from it than a pat on the back and a gold star (GIA).

The second aspect of engagement with DPRs that reinforces the processes of acculturation is the opportunity to be part of the group scrutinising the work. For students, being able to voice their opinions, more or less on a level playing field with other more experienced participants, can be empowering. Being able to engage in the discussion is also a means by which students can express their ideas and views and, in this way, contribute to the co-

construction of knowledge and gain tacit approval from others present. Being part of the conversation is also part of the process of acceptance and has symbolic value.

Since the crit is the principal place in which critical design thinking is made visible and explicitly valued, it has the potential to both facilitate learning a fundamental architectural skill and act as a liminal stage in the passage to becoming an architect (Sara and Parnell, 2013. p.102).

We expect students to turn up and participate and to engage not only in presentation of their own work but join the conversation. We encourage all the students to participate and comment, as a way of becoming conversant with talking about architecture (IC).

The DPR represents the wider academic and professional community. When a student's work is under review, they become the focus of the event. They become, for a short while, the object of scrutiny, the centre of attention. In turn, as a member of the DPR group, they also become part of the community, contributing to the event through their presence, scrutinising others.

The final DPR of any project is also a celebration of achievement. It is the finishing line to be crossed. It is a place where students come together to mark a certain important moment in their journey. This is inevitably ritualistic and is seen by students, academics and professionals as a rite of passage.

It's a celebration of what they've done to date. If they've approached it in the right way, there should be a wonderful sense of achievement (IB).

[The DPR] is the principal place in which critical design thinking is made... undertaken regularly in a ritual that can be seen to mark a student's progress from one status... to another (Sara and Parnell, 2013, p 102).

The DPR is also an event that sits in a wider cultural context. Not only does it represent the profession in relation to the students, but it also represents the coming together of members of the profession with each school of architecture. In this sense the DPR also places the school of architecture within the professional landscape and legitimises its status as both an academic and a professional context.

It's a major contributor to the collective culture of the course, that the students experience together (IC).

The DPR, then, is central to architectural education. It is the relationship between the design project, as an expression of self, and the DPR as a social representation of the wider professional community, that makes the event so powerful; and why it can be so difficult, and in many ways potentially destructive, if not done well. And yet, for all of the negative aspects discussed previously and covered extensively in the literature (inter alia: Doidge, et al, 2000; Mewburn, 2011; Oak, 2000, Percy, 2004; Webster, 2005, 2006, 2007) and for all of the negative associations with processes of acculturation (inter alia: Newall, 2019; Sara and

Parnell, 2013; Stevens, 1995, 1998; Vowles, 2000; Wilkins, 2000), it endures as a potent learning vehicle.

In considering the pedagogical techniques encountered in architectural education the DPR is the central focus of the process. In this regard it is therefore incumbent upon architectural educators to carefully consider DPRs and how they are embedded within individual architectural design projects and across architectural courses. Whilst there is evidence from the literature that there are many architectural educators engaged in considering the purpose, function and value of DPRs, and how they can be developed/designed (inter alia: Bassindale, 2020; Cennamo and Brandt, 2012; Chadwick and Crotch, 2006; Flynn, 2018; McClean and Hourigan, 2013; Newall, 2019; Sara and Parnell, 2004, 2013; Webster, 2005, 2006, 2007; Smith, 2011, 2020; Vowles, 2000; Vowles et al 2011), it is equally evident (from the same authors, and from the findings of this study) that DPRs can often be undertaken without a great deal of forethought or planning. They are not always engaged with by architectural educators, or professional guests, as carefully as they might be. Their very ubiquity implies a habitual acceptance and hence “a convergence of crit ‘models’ upon the dominant format” (Sara and Parnell, 2013 p 122).

We normally have the critique with the ‘critters’ in a small semi-circle around [the work] and then there are tiers of students, going from the more confident to the less confident... (IB).

Consideration of the design project as a vehicle for learning should logically include (and even potentially start with) consideration of the purpose and format of the DPR. There are many different ways that a DPR might be configured (Brindley et al, 2000; Chadwick and Crotch, 2006; Doidge et al 2000, Flynn 2018; Sara and Parnell, 2004, 2013; Smith 2020) See section 3:12 Alternative Approaches. Often these alternatives have been developed because of a dissatisfaction with traditional DPR format.

Although tutors might believe that the traditional review develops students’ critical thinking, it is questionable how effectively it does so (Smith, 2020).

The aging review, it seems, is in need of more than a facelift... The next step is to develop a whole range of skills to encourage creative interaction (Doidge et al., 2000).

The format of the DPRs observed at ASA, ASB and ASC were all very similar (See fig.13). The literature indicates that this has been, and still is, the ‘default’ structure of the DPR (inter alia Bassindale, 2020; Flynn, 2018; Sara and Parnell, 2004, 2013; Smith 2020; Webster 2005, 2006, 2007). This format comes in for some criticism, in particular the way in which the arrangement of participants reinforces the hierarchical distribution of symbolic capital, with those who have the highest levels of acculturation dominating the focus: “the ‘critters’ in a

small semi-circle,... tiers of students, going from the more confident to the less confident” (IB).

The degree of involvement of the student audience in traditional reviews varies, but typically they passively observe from behind the tutors. In part this is due to the physical layout of the review, as tutors sitting in front of the work create an effective barrier making it difficult for peers to see the work being discussed let alone engage in the critique (Smith, 2020. p.73).

This is far from the ideal of the student being at the centre of a shared learning experience. It places the tutor as the person who knows 'the' correct solution to every difficulty in the 'crit' process with the crit seen to endorse 'acceptable knowledge' (Flynn, 2018. p.1309).

In the DPRs observed there was a tendency for the format to favour this default mode. ASC was structured in such a way that the student participants were given a stronger voice, and allowed for co-learning and peer interaction.

We're encouraged to get close to the front. We just get as close to the front as possible. There are times that the tutors are sitting at the back. The tutors have deliberately done that. So, they kind of push us to ask questions first and comment on other people's projects, instead of being silent (GIC).

However, where students are not readily drawn into the conversation, such as at ASB (where students tended not to speak, and often chose to leave the room during other students' reviews), this group dynamic is lost. The DPR, in this instance, relies upon the enthusiasm of tutors and guests, as representatives of the profession, exploring architectural ideas, commenting upon students' designs and passing judgement. The concern here is that students, daunted by the occasion, have a tendency to value the instructional feedback from a DPR (and perhaps more specifically the written feedback) above engagement with the conversation, and therefore do not effectively experience the dialogic nature of the critique as a form of co-learning. By default, the DPR loses the value of the dialogue (for both the individual and for the group) and becomes more of a transmissional mode of teaching and learning, reinforcing the power asymmetries.

So instead of starting to worry about juggling all these things at once, you just forget about that - until you get your feedback sheet (GIB).

Often students only show up for the discussion of their own project and do not hear or see anyone else's work being discussed... Student-centred learning clearly does not happen when the student sees the tutor/student relationship as that of master/apprentice (Flynn, 2018. p.1309).

There has been some interesting and detailed work relating to feedback as a formative process in teaching and learning over the last 30 years or so (inter alia: Askew and Lodge, 2000; Bassindale 2020; Black and Wiliam, 1998, 2009; Blair, 2006a; Crooks, 1988, 2001; Dannels and Martin, 2008; Gibbs, 1999; Hattie and Timperley, 2007; Kingston & Nash, 2011;

Kluger & DeNisi, 1996; McClean and Hourigan, 2013; Sadler, 1989, 2005, 2010; Torrance, 1993; Wiliam and Black, 1996). In architectural education feedback is closely aligned both with dialogue in the studio setting and in the DPR, and can be a “complex and often subtle area whose efficacy is contingent on personality and ability as well as carefully defined procedures” (Mclean and Hourigan, 2013. p.51).

Sadler (2010) notes, in relation to feedback:

The general picture is that the relationship between its form, timing and effectiveness is complex and variable, with no magic formulas. (p.536)

It is difficult for feedback (after a DPR) to fully capture the breadth and depth of the dialogue. Bassindale (2020) explores processes of improving feedback, by tutors being able to capture more of the content a DPR through carefully developed digital assessment rubrics and associated notes, diagrams and voice recordings. Although the development of capturing the student voice in this process is not as fully explored. Smith (2020), on the other hand, explores the process of peer reviews where the dialog and feedback is generated only by students, without the “tutor-student power dynamic that clearly impacts upon learning in traditional reviews” (p.76), and concludes that peer reviews “are an effective means of augmenting students’ participation and agency within their learning; and offer significant value in developing critical analysis skills and self-reflection” (p. 71) However, he also finds the “peer review to be a valuable formative feedback process, but not a replacement for traditional reviews” (p. 71).

Limitations in the use of peer learning were... identified with respect to its potential to constrain academic ambition, and because of the perceived importance of authoritative tutor guidance in developing student confidence in their work (McClean and Hourigan, 2013. p.52).

In the observations at ASA, ASB and ASC written feedback was provided, but the processes in each school were different (see section 6.1.3 above). The feedback from tutors was generally taken as an aide memoire for the discussion in reviews, as well as providing useful direction and guidance. This seemed to be most effective when coupled with notes taken by one of the reviewee’s peers, which mediated the conversations from a student perspective.

That’s why it’s written down, for the fact that you can take away something for discussion afterwards, for when it’s all settled down... (GIA).

[We] will take formal notes... their friends will take notes... It’s quite interesting, when you see them discussing it amongst themselves afterwards; what we’ve written... and what their friends have written... and the conversations between the two are different (IB).

I also find that sometimes you’ve understood something different. From what the tutor said I’ve understood something, but when I get my feedback sheet [from

another student], I'll see it in a different way. It's quite useful, getting it interpreted by someone else; to look at it in a different way (GIB).

Much of the literature casts the DPR in a negative light in relation to power dynamics (that may suppress learning), tutor/guest reviewer behaviour (confrontational, insensitive) and the student experience (fear rather than learning). Whilst there is inevitably a power dynamic between tutors (responsible for feedback and assessment) and students that must have an impact upon the process, the talk in a DPR is not (typically) instructional, but discursive and multi-faceted.

The crit is undoubtedly sometimes a positive learning experience for many students. The notion of dialogue as a basis for learning is attractive because of its potential to challenge and move forward existing hegemonic knowledge (Sara and Parnell, 2013. p.122).

The DPR then, is an opportunity to bring all of the players together (students, tutors, other guests), and for all voices to be heard. It is an opportunity for guided peer interaction in a forum that values the contribution of all the participants. It is a nexus between each individual student's design development and formal presentation of design resolution; between the studio (design processes, learning community) and assessment (conversation, evaluation, feedback). It is also a nexus between architectural education and the profession. Conversations are partial continuations of previous interactions, which combine and re-form during the DPR and emerge, mediated by tutors, guests and peers (written down, or otherwise recorded, as feedback) providing direction, and stimulating further discussion beyond the event, in ways that can resonate for each student with implications for their individual expression and professional acculturation.

There're so many ingredients that kind of come together in a crit (GIB).

I think it's been so beneficial in a way that it'll prepare me for pretty much anything... It also, I think, gives you conviction, you know? (GIA).

It seems unnecessary to suggest that the experience of learning, through engagement with a DPR, ought to be designed to enhance learning; of course it should. However, the evidence in the literature, and from this study, indicates that, despite the attention paid to the situation, there is still a tendency to slip into the 'default mode' as described above, with relatively little additional thought about the pedagogical implications and opportunities.

This research suggests that the DPR can be a powerful vehicle for learning and development. It is a complex event and, much as Sadler (2010) points out in relation to feedback generally, it is likely that there is no 'magic formula' (p.536). However, for a DPR to engage students most effectively in the process, then careful consideration of the structural elements, pedagogic techniques and epistemic principles that underpin the event (outlined

above, see figure 14) would be logical in order to avoid the problems that can occur without adequate forethought and planning, and the tendency to revert to the 'default mode'. By envisioning DPRs as central to the student experience, and by coordinating their alignment with the academic community and wider professional practice, the development of new and innovative DPRs are likely to emerge.

Each school, year group or study unit will no doubt have different restrictions and opportunities in relation to space, time and other resources, as well as a different pedagogic emphasis for each DPR at different stages of a project or course. Ensuring that the DPR is designed to enhance student learning and personal development requires architectural educators to determine clear DPR strategies for the benefit of all of the participants. These would include: clarity on the purpose/focus of a particular DPR; cognisance of the underlying principles of individual expression (design processes, representation techniques, architectural ideas and professional acculturation) embodied in the work and in the dialogue; adequate preparation time preceding the DPR; effective processes for submitting and pinning up work; mechanisms for reducing student stress levels (and tiredness) and for promoting engagement that engenders deep (as opposed to surface) learning; awareness of the students' sense of self (of being under scrutiny/in the spotlight), and respect for the natural anxiety about the event that this entails; processes for capturing and valuing the student voice in the DPR; careful consideration of the nature of formal/formative feedback and the processes/formats for providing this; and arrangements for post-DPR conversations and guidance prior to the final submission and assessment.

8.3 Learning to engage

Because the students' sense of themselves (their developing cultural identity) is such an important aspect of the DPR, and because the DPR is such an important milestone in a project; a year; a course, then discussion with students about the process and its purposes/values/problems would be logical, in order to set the scene for each DPR and for DPRs in general.

What was apparent, from the interviews with academics and students at each of the schools visited as part of this research, was that there was only limited engagement (by students and tutors) in conversations about how students develop their personal approach to studio practices such as the DPR.

I think it's something that you learn as you're doing it. You can get very, very upset about things very quickly. The first one you do is terrifying. The first five you do are probably terrifying... (IB).

If we take the quotation above at face value, that it is “something that you learn as you’re doing it”, then, in the same way that learning architecture by ‘doing it’ requires tuition, guidance and reflection-in-action, the DPR (and by extension all other related pedagogic practices) ought rationally to be subject to the same level of reflective analysis and critique. If tutors and students were engaged in discussion about the learning processes, it would encourage a greater degree of ownership of, and engagement with, those processes.

...the idea that one develops these skills only by ‘having a go’ and then reflecting on how well it went, appears to be rather a blunt learning tool (Sara and Parnell, 2013. p.120).

Sara and Parnell are specifically referring to ‘visual and verbal presentation skills’ here. Their research indicates that they found little evidence that these ‘supplementary’ (ibid) skills are widely supported. The implication though, is that the deeper engagement of students with the pedagogy and practices of DPRs, that might spring from such support, is similarly under-supported. As McClean and Hourigan (2013) note:

Transformative realisations... are borne out of a developing understanding of the learning process as well as a level of self-confidence and trust invested in the tutors involved... Academics [interviewed as part of the study] agreed that [there is a] need for greater student understanding of the core pedagogic principles.... a need to develop deeper student understanding of expectations regarding the adoption of individual positions, and the role of feedback [in DPR and other situations] in provoking or stimulating individual thinking (p.48).

At the schools observed at ASA, ASB and ASC, students indicated that they were aware that they had been asked to engage with DPRs in first year and second year differently, but did not consider that this might have been deliberate. It was also apparent, from the engagement with the three schools, that neither the tutors nor the students spoke of the DPR as a developmental experience. It was generally viewed as a chance to see all of the work of all of the students (to make comparisons and learn from others) and an opportunity to receive feedback. At ASC the tutor remarked:

I think most of the learning... comes through regular tutorials. (IC)

It’s clear that some discussion took place at each school on the format and process of the DPRs, but this was not necessarily part of discussions that were shared with the students.

Because of the intensity of the way that students learn architecture, and the importance of their sense of themselves within the process, educational programmes should logically be arranged such that the student experience is central to the process. If learning architecture is essentially an experiential mode of learning, then understanding and responding to the student experience should, therefore, be at the heart of planning any programme of learning. The literature suggests that this is not often the case (inter alia: Blair, 2006a; Flynn, 2018;

McClellan and Hourigan, 2013; Sara and Parnell, 2013; Smith 2011, 2020; Webster, 2005, 2006, 2007). It was evident from the schools visited as part of this study that whilst there was some engagement with planning for the student experience of DPRs, in relation to the specific DPRs observed, it did not appear to be widespread practice, either across the sample or in relation to other DPRs previously experienced by participants. An architecture student entering first year and the architecture student leaving at the end of third year are very different. The initiates are often just expected to get on with it and pick it up as they go along (McClellan, 2009). If the DPR is something that one learns to do, then a structured programme of engagement with DPRs to ensure that students get the most out of them would be appropriate. In order to do this, it would be important for architecture tutors to be fully engaged in the process. The interviews conducted indicated that this happens to some extent, but perhaps not in as much depth as might be possible.

Without broader discussion of the issues identified in the literature and in this study, there might well be a tendency for tutors and guest reviewers to revert to the 'default mode'; doing things in a particular way, because that is the way that they are used to doing them (or that was the way that things were done when they were a student) (inter alia: Webster, 2006; Sara and Parnell, 2013). For tutors to be able to design DPRs with intentionality of purpose and an understanding of the principles, elements and techniques involved, then a greater awareness of their pedagogic practices and an understanding of the student experience is crucial.

But are we doing this out of habit? Is this the best way that we can be engaging our students? (IB)

Reflective practice of architecture students tends to be reflection on what they are learning. With an adjustment of emphasis students could also be engaged in reflecting upon 'how' they are learning. In this way students can be drawn into the wider discussion with their schools about design projects (and their alternatives), student led processes, the impact of pedagogic practices upon individuals, and upon learning. We know that the student voice in architectural education has in the past brought about change (see Crinson and Lubbock, 1994; Broadbent, 1995; Powers, 2014). We also know that students continue to be interested in bringing about change (inter alia contributions to Nicol and Pilling, 2000; Froud and Harris, 2014), but the research undertaken in this study (and others, for example Blair, 2006a, McClellan, 2009, 2013; Vowles, 2012) indicates that students are often fairly passive recipients of the education they 'receive'. Deeper engagement of students in the process would have great potency.

In relation to the development of clear DPR strategies that support engagement with the processes and enhance the student experience, it would be logical for architecture schools to develop appropriate supportive training and development for all participants. These would include: a scaffolded approach to engagement that supports students in learning how to participate in DPRs; specific supportive training in verbal presentation skills; specific supportive training in critical thinking and conversational techniques; clear communication of purpose of each DPR and expectations for student engagement; clarity of content of DPR (what work to produce, what to communicate); post-DPR discussions about the event (capturing student views); creating opportunities for academic staff development in DPR and related pedagogic processes and techniques; clear briefing information for academic staff and guests on each DPR event; and post-DPR discussions/analysis with academics and guests. If students' 'learning by doing' can be enhanced through tuition, guidance, conversation and critique then learning to engage with the DPR can be similarly augmented. If the DPR is a distinctive learning event, then learning to engage with the event is part of the process of learning to learn, and has the potential to resonate with other learning and development processes beyond the immediate experience of a specific event.

8.4 Limitations of the methodology

It is recognised that research has limitations because aspects of the research design can limit the process in ways that can have a potential impact upon the quality of the findings, or the extent to which the research questions can be fully addressed.

The DPR is an event that brings together students, architectural tutors and practitioners in a forum that, whilst being structured in a number of specific ways, can nonetheless be a rather chaotic, emotive, social, cultural experience for its various participants. The subjective nature of such experience arguably lends itself most practically to a qualitative evaluation. The research design (see section 4.3) allowed me to focus on the final DPR of the final year of an undergraduate degree in architecture as a specific case study, and to interact with DPR participants at three different institutions, through observation and semi-structured interviews with students (in groups) and with tutors (individually). Undertaking research is also a pragmatic endeavour that is constrained by limits on resources, time and access to the 'field'. In the event, the three observations at ASA, ASB and ASC, coupled with the student group interviews and tutor interviews in each location, provided a rich source of data for analysis and discussion, which contribute to a broader understanding of the epistemology of architectural design and the processes of acculturation; of individual expression and self-constitution in the cultural landscape of the discipline. However, there are a number of limitations to the methodology that warrant attention because of their potential implications

for further research into architectural pedagogies that might augment the findings of this study and contribute further to our understanding of the situation:

The research focused on students at only one level of architectural education: final year of the undergraduate degree. A broader sample might include students from each level of the five academic years of study. Drawing on the experiences of students with different levels of experience would capture a wider range of views, from 'initiates' to 'experts', and might highlight, in a more nuanced way, other aspects of students' relationships with the DPR event; with potential implications for the design of DPRs at each level of study.

Similarly, the case study of the final DPR of the final year of the degree was a snapshot in time, rather than a longitudinal study of student experiences as they passed through a school of architecture. This would, of course, be far more demanding of time and resources as data would need to be collected over a number of years. Nonetheless, such an approach may yield additional information about students' changing perceptions and evolving positions in relation to the DPR, other architectural pedagogies and personal development.

Additionally, a longitudinal research design would allow more opportunity for researchers to be reflective, during the research, such that improvements to the research design could be developed in real-time as the research progressed, allowing the data gathering exercises and the research focus to become more refined.

By default, rather than by design, the DPRs observed were all rather similar in format. Whilst this tells us a great deal about this particular format (albeit developed in different ways in each school) and its widespread use (and therefore its popularity, if not its efficacy) as a pedagogic technique, it doesn't tell us very much about the similarities and differences of the participant experience of differing modes of DPR. Again, this is something that might be undertaken most effectively through a longitudinal study that allows the participants to reflect upon their own experiences of different DPR modes.

Observations of the DPRs at each school were undertaken by me as the researcher. As an architectural educator myself, it is possible that I might view these somewhat familiar occasions with a degree of tacit understanding, and overlook certain aspects that I might not consider to be particularly worthy of note. Having another researcher (a non-architect, for example) carry out similar, or even the same, observations would provide a different perspective and bring an additional degree of triangulation to inform and enrich the findings.

The one-to-one semi-structured interviews were carried out with the lead reviewer at each school. Partly this was a question of expediency; of access. The LRs had invested in the research, through negotiation of my engagement with each school. The format and procedure for each review was orchestrated and managed by them. It was important

therefore to try to capture their views on their experience of their own event. All of the LRs were senior academics who had many years' experience of running DPR events. They were not novices. There may well be aspects of their understanding of these events that have become habitual and therefore not easily communicable. Interviews with less experienced academics would provide additional texture to our understanding.

The students who joined the group interviews were self-selecting. The process was voluntary and so it was not possible to capture the views and observations of those who were not inclined to participate. The students who joined the group were those who attended the review. There may have been others who did not attend for a variety of reasons, whose voices remain unheard. It is difficult to capture the views of those who are unable or unwilling to participate, but doing so could potentially provide additional information to enrich the research in this area.

Because the students who joined the group interviews were self-selecting, and because overall numbers were relatively small, the study did not investigate specific issues relating to gender or ethnicity. A larger sample of student interviewees would enable research to explicate differences in the experiences of diverse groups, which may further illuminate our understanding of the situation.

The students who joined the group interviews were, by virtue of being in the final year of the degree, already partially acculturated and beginning to frame their world views as budding architects. Interviews, as a data collection method, may be a useful way to capture the experiences of participants, but there are limitations to the process in that participants are only able to tell you what they are able to articulate. Moreover, because they are partially acculturated and talking to me, as an architect and architectural educator, there may be (tacit) aspects to their knowledge and understanding that they assume to be mutually understood and unnecessary to express.

8.5 Endpiece - Reflexivity

Throughout the research I have tried to maintain a reflexive approach, through a continued awareness and criticality of my own positionality, and recognition that this affects the research process. My subjective position is, in effect, an aspect of the research. As an insider (to the architectural profession and to architectural education) there are aspects of the research that are formed through recognition of common experiences, as well as an awareness of differences.

Being reflexive during the research process and during the 'writing up' of the research has required an examination of some of the beliefs, judgments and assumptions that I hold in

relation to what I know and what I am learning, and how these may have influenced the research. In this sense reflexivity has helped to illuminate characteristics of the situation under investigation that I may have previously taken for granted, and has helped, through the research process, to reveal aspects that I may have considered ordinary and which others, outside the field, may find quite extraordinary. Explicitly, for me, I recognise that my own position in relation to architectural education is grounded in a sense of community, belonging, collaboration, mutual support, nurturing and so on. The research agenda itself emerged from a (tacit) conviction that the DPR, whilst being problematic in many ways has endured as a pedagogic model because of its power as a form of cultural immersion, rather than merely a forum for assessment and feedback. This position has imbued the research design (collaborative with each of the schools), the data gathering process (the desire to give voice to the participants), the nature of the interview questions (open ended, searching), the analysis of the data (explorations of habitus and field) and the explication of findings.

I originally trained as an architect in the 1980s and 90s and, from the mid-1990s onwards, I have been closely involved in educating architects; firstly, as a part time lecturer and later as a full-time principal lecturer. During this time, I have also practised architecture although, as a senior academic, my time in recent years has been almost wholly spent on education rather than practice. As an architect, I am aware that I carry with me a whole set of attitudes, tastes, dispositions and ways of seeing the world that will inevitably mark me out as a member of that profession and will, no doubt, have had a bearing on my own practice as an architect, and as an academic and researcher. As an architectural educator I am aware, through observation and interaction with students, of the pains and the pleasures of learning to design; the struggles and achievements; the confusions and illuminations; the fog of uncertainty that obscures the way at times; and the moments of epiphany when the 'penny drops'. Students develop at different rates and with very different trajectories. My approach to teaching and learning in architecture is one that supports individual personal development, rather than one that tries to offer specific instructions.

Professionals, educationalists, artists and craftspeople in many fields, including architecture and associated arts and sciences, know more than they are readily able to articulate; as practitioners of their craft, they "exhibit a kind of knowing in practice, most of which is tacit" (Schön, 1983. p.8) and which "relies on improvisation learned in practice rather than formulas learned in graduate school" (Bourdieu and Wacquant, 1992. footnote p.223.). The culture of the architecture studio, for me (and by extension, the DPR and other events) is one of nurturing, coaching and guiding. I am aware, from my own experience, of the complexity of the situation. My approach to this research into architectural education has therefore been driven by a desire to present a narrative interpretation and analysis of the

situation that is simple, unpretentious and straightforward. From the outset it has been my intention to try to approach the situation with an open mind; to illuminate (for myself as much as for others); to try “to make that which is tacit explicit” (Dodgson, 2019. p.221).

In many ways, the architect in me approaches the research as one might approach an architectural design project. That is to say, not necessarily as one might approach a design project in say, engineering, where there might be a problem identified that needs a solution, but a more open approach where one seeks to understand the contexts, principles, elements and techniques of a given situation in order to inform strategies for action that might address/resolve a complex range of issues. The research therefore did not set out solely to problematise the DPR (although as the literature, and this research shows, there are a range of problems to be addressed), but also to explicate its purposes and benefits in relation to both its academic content and professional acculturation. As an architectural academic I am motivated (in order to help others to learn to do architecture) to understand this complex pedagogy.

In developing this research study, it seemed appropriate to me that (along with Brindley et al, 2000; and Webster 2005, for example) the event under scrutiny should be referred to as the ‘design project review’. In itself this is indicative of a position that I have taken in relation to the event. I am aware that in the literature (and in my experience) the terms ‘crit’ and ‘jury’ have become somewhat pejorative (Anthony, 1987, 1991; Vowels, 2000; Wilkin, 2000). I have also maintained an approach to my own methods of organising DPRs, and my conduct within these events, that has been student-focused and co-constructural, for which the word ‘review’ seems more suited. I try to avoid using the term ‘crit’ (although it is still fairly common parlance) for its connotations of critique, which might imply a focus on the architectural design, rather than the learning and development of the designer. I don’t use the term ‘jury’, partly because this is less common in the UK (compared to USA) and partly because it has overtones of judgement (of the individual) and connotations of exclusion.

The use of Bourdieu’s conceptual apparatus of ‘habitus’ and ‘field’ in the analysis of the DPR, stemmed initially from the excellent work of Garry Stevens and his book ‘The Favoured Circle: The Social Foundations of Architectural Distinction’ (1998), which is an analysis of architectural education undertaken at the Department of Architectural and Design Science at The University of Sydney. The period of time that Stevens undertook the work was only relatively shortly after my own passage through an English school of architecture, and the situations that Stevens describes very much aligned with my own experience; in particular, his Bourdieuan explanation that certain students have an advantage in architecture schools because their already acculturated habitus (formed within their family

and earlier schooling) is partially attuned to interaction within the architectural academic and professional communities (especially for those students with architect family members and/or parents with architects as friends). My own upbringing was within a working-class family in North Wales. I was the first of my immediate family to enter higher education and I experienced, first-hand, the struggle (that Stevens eloquently describes) of learning to become an architect. I had never met an architect prior to embarking on my studies and only had a fairly romanticised idea of what architects do. At the time I was unaware of notions of symbolic and cultural capital, or field and habitus, at least not by name; but the experience of my own awkwardly developing architectural identity and the clumsy processes of self-constitution that I experienced in becoming an architect, were not always, and not altogether, pleasant or easy.

I recognise that, although not conscious of the work of Bourdieu, I felt intuitively (and tangibly) something of the truth of the concepts he describes (of capital, habitus and field), and it is almost certainly because of my experience that I was drawn to help others with similar difficulties adjusting to a new, very specific, cultural context; at first in the studio, in conversation with my peers, and later (as a more senior student) as an observer and participant in DPR events and other cultural activities within the school (as chairperson and an active member of the architecture student society, for example). Later I was invited, as a graduate, to take on some part-time studio teaching, which subsequently became a full-time post and set the direction for my career in architectural education.

As an insider to the field (an architect) I have my own 'feel for the game', of designing buildings and places, of dealing with clients, communities, co-professionals, statutory bodies, contractors and users. As an architectural educator my habitus shifts to that of coach, co-learner, supervisor, tutor, and a different game is engaged with; a game of conversations, interactions, gestures and debates aimed at nurturing, enthusing and inspiring. In both of these roles the topics under discussion are often the same, and many of the skills that one develops are interchangeable between situations; skills of analysis, critique, interpretation, communication and persuasion.

The complexity of the situations encountered in architectural education, and the way that the content of these situations (the subject of architecture) interact with, intersect, map onto and otherwise confront and collide with 'doing' architecture and 'being' an architect, means that an analysis of the situation would, essentially, need to be relational. For this reason, utilising the work of Bourdieu in this research (and in particular the use of 'field' and 'habitus') seemed a natural and rational choice. The research method, using a combination of observations of DPR events and interviews with participants to generate the research data,

also seemed to be both natural and rational, in that the process was akin to those processes extant within the DPR event itself (and in the wider culture of a school of architecture), whereby conversation and narrative are the mediums through which explicit actions are unpacked to reveal otherwise tacit practices and relationships.

As with any research the focus and structure of this study did not spring into being fully formed, but emerged over a period of time as I began to look, in more and more detail, at the various facets of my own teaching practice. In its early stages the aim was to explore the whole gamut of techniques of dialogue and guided reflection found within architectural education. As an architectural educator, I have become acquainted with others within this field through my association with the Royal Institute of British Architects' education group, as a member and chair of course validation boards and member of the new courses group, and through the Association of Architectural Educators and other forums. There have been many individuals that have had an influence on the direction of this research, which would have been more difficult without being able to access and draw upon their generous support and advice. It was through a series of interviews and more casual discussions with several architectural educators that the locus of the study came more clearly into view.

Being an 'insider' to architectural education was also a great advantage when it came to developing the process. Once I had established that the research should focus on the DPR event, because of its prominence within the landscape of architectural education, it was not an insignificant exercise to establish and coordinate the research tasks. The event, for any course, year group or study unit, is complex enough to plan, organise and execute, without the additional complication of the event becoming a case study for a research exercise. At each institution that I was able to access, the academic programme leader was involved from an early stage in helping to plan the research activity; to agree the process by which I was able to join each event, to discuss how to access and interact with participants, how best to present myself to them to describe the aims of my research and so on. Through all of this process it was important to think reflexively. My approach to teaching and learning in architecture has been one that maintains a questioning stance and an openness to other ways of thinking. It is with this attitude that I have tried to approach this research and tried to recognise my own positionality situated within the discipline. From my own teaching practice and my own involvement in DPRs (prior to and during the research) I was able to bring a degree of tacit knowing to negotiations with others that made the process of organisation relatively smooth and unproblematic.

Thinking reflexively, the process of conducting this research has been extremely interesting. At the beginning of the research my interest in architectural education was very practical

and, in many ways, very much about what I do from day to day; how I interact with others. I was interested in my own teaching practice and ways in which I might improve this. In other words, the focus was more personal than social; more local than global. That's not to say that I have not previously taken a broader, cultural interest in architectural education, but the motivation for conducting this research was driven to a large extent by personal development. I have always taken great delight in experimenting with different ways of approaching architectural design projects as a learning exercise; in exploring different methods of tuition and interaction, feedback, review and assessment, but my drive to do this was, in the main, a kind of reflection-in-action as a form of self-constitution, rather than as focused research that might have a wider impact.

This study has allowed me to take a step back and to view teaching practice and processes of learning in architectural education from a broader perspective than the daily tasks of being an architectural design tutor might normally allow. I have been able to concentrate on a small part of architectural education, the DPR, which although small is arguably the nexus of the architecture student's experience. It has received critical attention by others over the last thirty years or so, and its problems have been identified, criticised and discussed at great length, and yet it is an enduring feature of architectural education. Its longevity as a mode of learning is surely testament to its value. However, the scrutiny of the DPR and the analysis of its sometimes-problematic nature have not led (yet, and in the main) to new enlightened versions. Just as the DPR persists, so too (as outlined in the research) the problems associated with it persist. Although the event has transformed over time, perhaps no longer as brutal as the legendary 'juries' of the past, it is still an occasion that can cause great anxiety. The value in this research then lies not only in its contribution to understanding the nature of the event and how this is experienced by its participants, but also in stimulating further thinking; further action that might alleviate the more problematic aspects of the DPR and recognise, and build upon, its strengths.

Whilst this thesis is in itself intended as a rounded whole, a piece of work that explicates meaning and draws conclusions, I do not see it as an end in itself. It might underpin the future direction of my own research and teaching practice; however, it will not do so as concluded fact or as a piece of evidence, set in stone, but more as a building block for further enquiry, both for myself and for others. Having completed this research program as an encapsulated piece of work (for the purposes of undertaking a doctoral study), for me the essence of the work (whilst being grounded in many ways in the qualification itself) is more important for the way that it might influence my future practice as a researcher, as an educator and as an architect. There are greater benefits to students, I would suggest, when architecture tutors examine their own pedagogic practices and the practices of their

colleagues, their schools and their institutions and develop their teaching practices reflexively. Habitus is embodied in (the writing of) a thesis; in its language and structure. It is also embodied in (one's) practice and can be discovered and apprehended through exploring personal histories and experiences. Research itself is a powerful instrument capable of revealing individual habitus through acts of reflexivity.

In a very real way, this research project, permeated by my own (tacit and explicit) reflexivity, has been an effective instrument for revealing to me how I perceive and act in the world. I recognise that having conducted the research it has an impact upon my own embodied (and evolving) schemata of habitus; my own 'feel for the game', which is now a more focused game of enquiry (both reflexive and social) into architectural education, as much as it is a game of 'doing' architectural education or 'being' an architectural educator. In other words, I cannot stop at this point. It is my intention as an architectural educator to continue to develop my own teaching practices by recognising the centrality of the student experience and the ways in which they engage with pedagogic processes in learning to design. It is also my intention to engage with others, wherever possible, to explore ideas and practices around architectural education, and in particular the DPR; and specifically, to promote good practices in teaching and learning, that support and develop individual students within a caring learning community in the process of becoming an architect.

References

- Addison, B. (2009) A feel for the game - a Bourdieuan analysis of principal leadership: a study of Queensland secondary school principals. *Journal of Educational Administration and History*, 41(4), 327-341. DOI: 10.1080/00220620903211554
- Anthony, K. H. (1987). Private reactions to public criticism: Students, faculty and practising architects state their views on design juries in architectural education. *Journal of Architectural Education*, 40(3), 2-11.
- Anthony, K.H. (1991). *Design juries on trial: The renaissance of the design studio*. New York, NY: Van Nostrand Reinhold.
- Ardington, A., & Drury, H. (2017). Design studio discourse in architecture in Australia: The role of formative feedback in assessment. *Art, Design & Communication in Higher Education* 16 (2). Intellect Ltd Article. English language.
doi: 10.1386/adch.16.2.157_1
- Argyris, C., & Schön, D. A. (1974) *Theory in Practice: Increasing professional effectiveness*. London, United Kingdom: Jossey-Bass.
- Askew, S., Lodge, C (2000). Gifts, ping pong and loops – Linking feedback and learning. In. Askew, S. (Ed.) *Feedback for learning*, 1-18. London, United Kingdom: Routledge Falmer. Taylor and Francis Group.
- Baker, G. H. (1996). *Design strategies in architecture: An approach to the analysis of form*. London, United Kingdom: Taylor and Francis Group.
- Bassindale, J. (2020) Learning through Successful Feedback: Digital Opportunities for Effective Feedback in Project-Based Architectural Education. *International Journal of Construction Education and Research*, 16(2), 84-101.
DOI:10.1080/15578771.2020.1717681
- BERA. (2011) Ethical Guidelines for ethical research. Available at <https://www.bera.ac.uk>
- Berger, R. (2015) Now I see it, now I don't: researcher's position and reflexivity in qualitative research. In *Qualitative Research*. Vol. 15(2) 219–234. Adelphi University, USA
DOI: 10.1177/1468794112468475
- Buetow, S. (2019) Apophenia, unconscious bias and reflexivity in nursing qualitative research. In *International Journal of Nursing Studies*. Vol 89. 8-13. Elsevier. Edinburgh, Scotland, United Kingdom
- Biggs, J. (1996). Enhancing Teaching through Constructive Alignment. *Higher Education*, (32)3, 347-364.
- Biggs, J., Tang, C. (2011) *Teaching for quality learning at university: What the student does. 4th Edition*. Maidenhead, United Kingdom: Open University Press.
- Black, P., & Wiliam, D. (1998). Assessment and classroom learning. *Assessment in Education: Principles, Policy & Practice* 5(1), 7-74. doi: 10.1080/0969595980050102
- Black, P., & Wiliam, D. (2009). Developing the theory of formative assessment. *Educational Assessment, Evaluation and Accountability* 21(5), 5-31. doi: 10.1007/s11092-008-9068-5

- Blair, B. (2006a). *Perception, Interpretation, Impact – An examination of the learning value of formative feedback to students through the design studio critique* (Unpublished doctoral thesis), London University, London.
- Blair, B. (2006b). 'At the end of a huge crit in the summer, it was "crap" – I'd worked really hard but all she said was "fine" and I was gutted.' *Art, Design & Communication in Higher Education* 5(2), 83-95. doi: 10.1386/adch.5.2.83/1.
- Bloom, B. S., Hastings, J. T., & Madaus, G. F. (1971). *Handbook on the formative and summative evaluation of student learning*. New York, NY: McGraw-Hill.
- Borden, I., Crawford, C., Farren-Bradley, J., Heron, K., Low, J., Parnaby, R., Porter, D., Roberts, A., & Saxon, R. (2010). *Subject benchmark statement: Architecture*. Gloucester, UK: The Quality Assurance Agency for Higher Education. ISBN 978 1 84979 201 1 website www.qaa.ac.uk
- Boud, D. (1990) Assessment and the promotion of academic values. *Studies in Higher Education* 15(1), 101-111, doi: 10.1080/03075079012331377621
- Bourdieu, P., & Passeron, J-C. (1977). *Reproduction in education, society and culture*. London, United Kingdom: Sage.
- Bourdieu, P. (1984). *Distinction: A social critique of the judgement of taste*. London, England: Routledge
- Bourdieu, P. (1986). The forms of capital. In: John G. Richardson (Ed.). *Handbook of Theory and Research for the Sociology of Education*. New York: Greenwood Press. 241-258.
- Bourdieu, P. (1992). The Practice of Reflexive Sociology. In: Bourdieu, P & Wacquant, L. J. D. *An Invitation to Reflexive Sociology*. Cambridge, UK and Maldan, MA: Polity Press. 217-260.
- Bourdieu, P & Wacquant, L. J. D. (1992). *An Invitation to Reflexive Sociology*. Cambridge, United Kingdom and Maldan, MA: Polity Press.
- Bourdieu, P. (1994). *In Other Words: Essays Towards a Reflexive Sociology*. Cambridge. Polity Press.
- Brandt, C. B., Cennamo, K., Douglas, S., Vernon, M., McGrath, M., & Reimer, Y. (2013). A theoretical framework for the studio as a learning environment. *International Journal of Technology and Design Education* 23(2), 329–348. doi: 10.1007/s10798-011-9181-5
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative research in psychology*,
- Braun, V., Clarke, V., Hayfield, N. & Terry, G. (2017). Thematic Analysis. In: Stainton Rogers, W. & Willig, C (Eds). *The Sage Handbook of Qualitative Research in Psychology*. 17-37. London, United Kingdom: Sage.
- Brindley, T., Doidge, C., & Willmott, R. (2000). Introducing alternative formats for the design project review: a case study. In Nicol, D., & Pilling, S. (Eds.). *Changing Architectural Education: Towards a new professionalism*, 108-115. London, United Kingdom: E and F.N. Spon

- Broadbent, G. (1995). Architectural education. In Pearce, M., & Toy, M. (Eds.). *Educating Architects*. London, United Kingdom: Academy Editions.
- Brown, A. L., Metz, K. E., & Campione, J.C. (1996). Social Interaction and individual understanding in a community of learners: The influence of Piaget and Vygotsky. In Tryphon, A., & Vonèche, J. (Eds). *Piaget-Vygotsky: The social genesis of thought* (p. 145-170). Hove, United Kingdom: Psychology Press. Taylor and Francis.
- Brown, J. S. (2008 October 23 – 25) *Tinkering as a Mode of Knowledge Production*. Interview for Carnegie Foundation for the Advancement of Teaching [Video file]. Retrieved from <http://www.johnseelybrown.com/>
- Burton, R. (Chair.). (1992) *Report of the Steering Group on Architectural Education*. London, United Kingdom: RIBA
- Chadwick, S. and Crotch, J. (2006). Mutual respect: Working towards a modern review model. *Art, Design & Communication in Higher Education* 5(2), 145–151. doi: 10.1386/adch.5.2.145/6
- Cennamo, K. and Brandt, C. (2012) The “right kind of telling”: knowledge building in the academic design studio. In *Education Tech Research Dev.* 60:839–858. Association for Educational Communications and Technology. Published online: 26 April 2012. DOI 10.1007/s11423-012-9254-5
- Cohen, L. Manion, L., & Morrison, K. (2018). *Research Methods in Education*. London. Routledge
- Corazzo, J. (2019) Materialising the Studio. A systematic review of the role of the material space of the studio in Art, Design and Architecture Education, *The Design Journal*, 22:sup1, 1249-1265, DOI: 10.1080/14606925.2019.1594953
- Crang, M., & Cook, I. (2007). *Doing Ethnographies*. London, United Kingdom: Sage Publications.
- Crinson, M., & Lubbock, J. (1994). *Architecture, art or profession: Three hundred years of architectural education in Britain*. Manchester, United Kingdom: Manchester University Press.
- Crooks, T. J. (1988) The impact of classroom evaluation practices on students. *Review of Educational Research* 58(4), 438-481.
- Crooks, T. J. (2001) The validity of formative assessments. *Annual Meeting of the British Educational Research Association (BERA)*. Leeds, United Kingdom. Retrieved from <http://www.leeds.ac.uk/educol/documents/00001862.doc>
- Cross, N. (2007) *Designerly ways of knowing*. Basel, Germany: Birkhauser
- Crysler, G., Cairns, S., & Heynen, H. (Eds.). (2013). *The Sage handbook of architectural theory*. London, United Kingdom: Sage.
- Cuff, D. (1991). *Architecture: The story of practice*. London, United Kingdom, Cambridge, MA: MIT Press.
- Cunningham, A. (1979). The genesis of architectural education. *Studies in Higher Education* 4(2), 131-142, doi: 10.1080/03075077912331376917

- Cuschieri, T. (2017) A critical evaluation of the crit: Effective formative assessment in art and design. *Blended learning in practice. Autumn 2017*. 38-46. University of Hertfordshire. Retrieved from:
https://www.herts.ac.uk/_data/assets/pdf_file/0007/181753/BLiP_Autumn2017_Final.pdf
- Dannels, D. P. (2005) Performing tribal rituals: A genre analysis of “crits” in design studios. *Communication Education*. 54(2), 136-160.
 doi: 10.1080/03634520500213165
- Dannels, D. P., & Martin, K. N. (2008). Critiquing critiques: A genre analysis of feedback across novice to expert design studios. *Journal of Business and Technical Communication*. 22(2), 135-159. doi: 10.1177/1050651907311923
- Danvers, J. (2003) Towards a radical pedagogy: Provisional notes on learning and teaching in art and design. *Journal of Art and Design Education*. 22(1), 47-51. doi: 10.1111/1468-5949.00338
- Dewey, J. (1998). *Experience and education: 60th anniversary edition*. West Lafayette, In: Kappa Delta Pi.
- Dodgson, J. E. (2019). Reflexivity in Qualitative Research. In *Journal of Human Lactation*. Vol. 35(2) 220–222. London Sage. DOI: 10.1177/0890334419830990
- Doidge, C., Parnell, R., Parsons, M., & Sara, R. (2000). *The Crit: An Architecture Student's Handbook*. Oxford, United Kingdom: Architectural Press.
- Dutton, R., Gaskin, M., & Telberg, D. (2015). A constructive conversation. In Froud, D., & Harris, H. (Eds.). *Radical Pedagogies. Architectural education and the British Tradition*. 81-86. London, United Kingdom: RIBA Publishing.
- Dutton, T. A. (1987). Design and studio pedagogy. *Journal of Architectural Education* 41(1) 16-25. doi: 10.2307/1424904
- Dutton, T. A., & Willenbrock, L. L. (1989). Review The Design Studio: An Exploration of Its Traditions and Potential by Donald Schön. In *Journal of Architectural Education* (43)1, 53- 55.
- Dutton, T. A. (Ed.). (1991). *Voices in Architectural Education: Cultural Politics and Pedagogy*. New York, NY: Bergin and Garvey.
- Elkins, J. (2001). Critiques. In *Why Art cannot be Taught*, 111-167. Urbana, Chicago, IL: University of Illinois Press.
- El-Latif, M. A., Al-Hagla, K. S., & Hasan, A. (2020) Overview on the criticism process in architecture pedagogy. *Alexandria University: Alexandria Engineering Journal*. Hosted by Elsevier.
- Estrada, S. M. D. (2002). *Environmental Design and Sustainability: Strategies for Teaching and Learning in UK Schools of Architecture* (Unpublished doctoral thesis), Sheffield University, United Kingdom.
- Farrelly, L., & Crowson, N. (2014) *Representational techniques for architecture*. London, United Kingdom: Bloomsbury

- Flynn, P. (2018). Critting the Crit: New pedagogy in architectural education. *4th International Conference on Higher Education Advances (HEAd'18)* Universitat Politècnica de València, Valencia. DOI: <http://dx.doi.org/10.4995/HEAd18.2018.8195>
- Fosnot, C. T. (Ed.). (2005). *Constructivism: Theory, perspectives, and practice, 2nd edition*. New York, NY: Teachers College Press.
- Fosnot, C. T., & Perry, R. S. (2005). Constructivism: A psychological theory of learning. In Fosnot, C. T. (Ed.). *Constructivism: Theory, perspectives, and practice, 2nd edition*. 9-38. New York, NY: Teachers College Press.
- Frey, J. H. & Fontana, A. (1991). The Group Interview in Social Research. In *Social Science Journal Vol 28 Issue 2*. p.175.
- Froud, D., & Harris, H. (Eds.) (2015). *Radical Pedagogies. Architectural education and the British Tradition*. London, United Kingdom: RIBA Publishing.
- Geertz, C. (1973). *The interpretation of cultures: Selected essays*. New York: Basic Books.
- Gibbs, G. (1988). *Learning by doing: A guide to teaching and learning methods*. Oxford, United Kingdom: FEU Oxford University Press.
- Gibbs, G. (1999). Using assessment strategically to change the way students learn. In: Brown, S., & Glasner, A. (Eds). *Assessment Matters in Higher Education*. Buckingham, United Kingdom: Open University Press.
- Gloster, D. (2015). Preface. In Froud, D., & Harris, H. (Eds.). *Radical Pedagogies. Architectural education and the British Tradition*. viii-xi. London, United Kingdom: RIBA Publishing.
- Grenfell, M. (Ed.). (2014). *Pierre Bourdieu: Key Concepts, Second Edition*. London and New York. Routledge
- Griffin, A. (2008). *The Academie Royale d'Architecture and the French Architectural Academic Tradition*. (Unpublished doctoral thesis), Sheffield University, Sheffield, United Kingdom.
- Griffin, A. (2019). *The Rise of Academic Architectural Education: The origins and enduring influence of the Académie d'Architecture*. London. Routledge. ISBN-10:1138562270
- Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research* 77(1), 88–112. doi: 10.3102/003465430298487
- Healey, J. (2016). The Components of the “Crit” in Art and Design Education. In *Irish Journal of Academic Practice*. Volume 5 Issue 1. Article 7. Dublin. Technology University
- Hewitt, M. (1985). Representational forms and modes of conception: An approach to the history of architectural drawing. *Journal of Architectural Education*, 39(2), 2–9.
- Imrie, R., & Street, E. (2014). Autonomy and the socialisation of architects. *The Journal of Architecture* 19(5), 723-739. doi: 10.1080/13602365.2014.967271
- Jencks, C., & Baird, G. (Eds.). (1970) *Meaning in architecture*. London, United Kingdom: Barrie and Jenkins.

- Kluger, A. N., & Denisi, A. (1996). The effects of feedback interventions on performance: A historical review, a meta-analysis, and a preliminary feedback intervention theory. *Psychological Bulletin* 119(2), 254-284.
- Koch, A., Schwennsen, K., Dutton, T. A. & Smith, D. (2002). *The redesign of studio culture: A report of the AIAS studio culture task force*. Washington D.C.: American Institute of Architecture Students.
- Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Upper Saddle River, NJ: Prentice Hall
- Kostof, S. (Ed.). (1977). *Architect. Chapters in the History of the Profession*. Berkeley, Ca: University of California Press.
- Krueger, R. A., & Casey, M.A. (2015). *Focus groups: A practical guide for applied research. 5th edition*. London, United Kingdom: Sage.
- Laurillard, D. (1984). Learning from problem solving. In Marton, F., Hounsell, D., & Entwistle, N. (Eds.), *The experience of learning*. 124-143. Edinburgh, United Kingdom: Scottish Academic Press.
- Lave, J., & Wenger, E. (1991). *Situated learning: legitimate peripheral participation*. New York, NY: Cambridge University Press.
- Lawson, B. (2005). *How designers think: The design process demystified 4th edition*. London, United Kingdom: Routledge
- MacEwan, M. (1983). The Cambridge Conference 1970. In Trombley, S. (Ed.). *Architectural education 1. Architectural education after the Beaux-Arts, 99-104*. London, United Kingdom: RIBA Magazines Ltd.
- Martin, L. (1983). The Oxford Conference: A report. In Trombley, S. (Ed.). *Architectural education 1. Architectural education after the Beaux-Arts, 81-88*. London, United Kingdom: RIBA Magazines Ltd.
- Marton, F., & Saljo, R. (1976). On qualitative differences in learning: I – Outcome and process. *British Journal of Educational Psychology* 46(1), 4-11. doi:10.1111/j.2044-8279.1976.tb02980.x
- Marton, F., & Saljo, R. (1984). Approaches to learning. In Marton, F., Hounsell, D., & Entwistle, N. (Eds.), *The experience of learning*, 36-55. Edinburgh, United Kingdom: Scottish Academic Press.
- Marton, F. (1988). Phenomenography: A Research Approach to Investigating Different Understandings of Reality. In Sherman, R. R., & Webb, R.B. (Eds.), *Qualitative Research in Education: Focus and Methods*, 141-161. London, United Kingdom: Routledge Falmer. Taylor and Francis Group.
- Maton, K. (2014). Habitus, in Grenfell, M. (Ed.). (2014). *Pierre Bourdieu: Key Concepts, Second Edition*, 48-64. London and New York. Routledge.
- McClellan, D. (2009). *Embedding learner independence in architecture education: Reconsidering design studio pedagogy* (Unpublished doctoral thesis), Robert Gordon University, Aberdeen, United Kingdom.

- McClean, D., Hourigan, N. (2013) *Critical Dialogue in Architecture Studio: Peer Interaction and Feedback*. Journal for Education in the Built Environment Vol 8 Issue 1 December 2013, 35 -54.
- Mewburn, I. (2011). Lost in translation: Reconsidering reflective practice and design studio pedagogy. *Arts and Humanities in Higher Education* 11(4), 363 -379. doi: 10.1177/147022210393912
- Morton, J., & O'Brien, D. (2005) Selling Your Design: Oral Communication Pedagogy in Design Education. *Communication Education* 54(1), 6-19, doi: 10.1080/03634520500076885
- Musgrove, J. (1983). Architectural education: The growth of a discipline. In Trombley, S. (Ed.). *Architectural education 1. Architectural education after the Beaux-Arts*, 105-112. London, United Kingdom: RIBA Magazines Ltd.
- Newall, M. (2019) Crits, Consensus and Criticality: Making Artists in the Contemporary Art School, in: Brisbin, C., & Thiessen, M. (eds). *The Routledge Companion to Criticality in Art, Architecture and Design*. 14-31. New York: Routledge.
- Nicol, D., & Pilling, S. (Eds.) (2000). *Changing Architectural Education*. London, United Kingdom: E and F.N. Spon
- Oak, A. (2000). It's a nice idea, but it's not actually real: Assessing the objects and activities of design. *Journal of Art and Design Education*. 19(1), 86-95.
doi: 10.1111/1468-5949.00205
- Oak, A. (2010). What can talk tell us about design?: Analyzing conversation to understand Practice. *Material Culture & Design Studies* 32(3), 211-234
doi: 10.1016/j.destud.2010.11.003 211
- Oxman, R. (1999). Educating the designerly thinker. *Design Studies*, 20(2), 105-122
- Parnell, R. (2001). *It's good to talk: Managing disjunction through peer discussion*. Architectural Education Exchange (AEE) Conference at Cardiff University, Cardiff, United Kingdom
- Pask, G. (1976). Styles and strategies of learning. *British Journal of Educational Psychology*, 46(2), 128-148. doi:10.1111/j.2044-8297.1976.tb02305.x
- Perez-Gomez, A., & Pelletier, L. (2000). *Architectural Representation and the perspective hinge*. London, United Kingdom, Cambridge, MA: MIT Press.
- Percy, C. (2004). Critical absence versus critical engagement: Problematics of the crit in design learning and teaching. *Art, Design & Communication in Higher Education*, 2(3), 143-154
- Polanyi, M. (1966). *The tacit dimension*. Gloucester, Ma: Peter Smith
- Porter, T. (1993). *Architectural drawing masterclass*. Upper Saddle River, NJ: Prentice Hall & IBD
- Powers, A. (2015). The fiction of architectural education. In Froud, D., & Harris, H. (Eds.). *Radical Pedagogies. Architectural education and the British Tradition*, 4-17. London, United Kingdom: RIBA Publishing.

- Rasmussen, S. E. (1962). *Experiencing Architecture*. London, United Kingdom, Cambridge, MA: MIT Press.
- RIBA. (2015) Visiting Board Reports. Available at: www.architecture.com/RIBA/Becomeanarchitect/Qualifications/Visitingboardreports.aspx. Accessed December 3rd 2016.
- RIBA. (2017). *RIBA Education Review (RER)*. Retrieved June 21, 2018, from <https://www.architecture.com/knowledge-and-resources/resources-landing-page/riba-education-review#available-resources>
- RIBA (2012). RIBA procedures for validation and validation criteria for UK and international courses and examinations in architecture. London. RIBA Publishing
- Richardson, J. G. (Ed.) (1986) *Handbook of Theory and Research for the Sociology of Education*. New York: Greenwood
- Roos, B., & Hamilton, D. (2005) Formative assessment: A cybernetic viewpoint, *Assessment in Education: Principles, Policy & Practice* 12(1), 7-20, doi: 10.1080/0969594042000333887
- Rowland, D., & Howe, T. N. (1999) *Vitruvius: Ten books on Architecture*. New York, NY: Cambridge University Press.
- Rubin, H.J., & Rubin, I.S. (2012). *Qualitative interviewing: The art of hearing data*. London, United Kingdom: Sage.
- Sadler, D. R. (1989) Formative assessment and the design of instructional systems. *Instructional Science* 18(2), 119-144.
- Sadler, D. R. (2005) Interpretations of criteria-based assessment and grading in higher education. *Assessment & Evaluation in Higher Education* 30(2), 175-194, doi: 10.1080/0260293042000264262
- Sadler, D. R. (2010) Beyond feedback: developing student capability in complex appraisal. *Assessment & Evaluation in Higher Education* 35(5), 535-550. doi: 10.1080/02602930903541015.
- Sara, R., & Parnell, R. (2004). The Review Process. *CEBE Briefing Guide Series*. No 3. ISSN 1744-9839
- Sara, R., & Parnell, R. (2013). Fear and learning in the architectural crit. *Field Journal*, 5. Retrieved from. [http://www.field-journal.org/uploads/file/2013%20Volume%205/Field%205\(1\)%20Sara%20&%20Parnell.pdf](http://www.field-journal.org/uploads/file/2013%20Volume%205/Field%205(1)%20Sara%20&%20Parnell.pdf)
- Schön, D., (1983). *The reflective practitioner: How professionals think in action* London, United Kingdom: Maurice Temple Smith Ltd.
- Schön, D. (1985). *The design studio and exploration of its traditions and its potential* London, United Kingdom: RIBA Publications.
- Schön, D. (1987). *Educating the Reflective Practitioner. Toward a New design for Teaching and Learning in the Professions*. San Francisco, Ca: Jossey-Bass

- Schwandt, T. A. (1998). Constructivist Interpretivist Approaches to Human Enquiry. In Denzin, K. and Lincoln Y. S. *The Landscape of Qualitative Research: Theories and Issues* London. Thousand Oaks. Sage
- Shaffer, D. W. (2003). *Portrait of the Oxford Design Studio: An Ethnography of Design Pedagogy*. WCER Working Paper No. 2003-11. Retrieved from University of Wisconsin <https://wcer.wisc.edu/publications/year/2003>
- Shaffer, D. W., & Resnick, M. (1999). Thick authenticity: New media and authentic learning. *Journal of Interactive Learning Research*, 10(2), 195–215.
- Sherman, R. R., & Webb, R.B. (Eds.) (1988). *Qualitative Research in Education: Focus and Methods*. London, United Kingdom: Routledge Falmer. Taylor and Francis Group.
- Shumack, K. (2010). The conversational self: Structured reflection using journal writings. *Journal of Research Practice*, 6(2), Article M17. Retrieved July 8th 2018 from <http://jrp.icaap.org/index.php/jrp/article/view/195/192>
- Smith, C. (2011). Understanding students' views of the crit assessment. *Journal for Education in the Built Environment*, 6(1), 44–67. doi:10.11120/jebe.2011.06010044
- Smith, C. (2020). When Students Become Critics: Reviewing peer reviews in theory and practice. *Charrette 6(1) Spring 2020*. Association of Architectural Educators. Retrieved from <http://researchonline.ljmu.ac.uk/id/eprint/12873/1/When%20Students%20Become%20Critics.pdf>
- Stainton Rogers, W. & Willig, C (Eds). (2017). *The Sage Handbook of Qualitative Research in Psychology*. London, United Kingdom: Sage.
- Stevens, G. (1998). *The Favored Circle: The Social Foundations of Architectural Distinction*. Cambridge MA. The MIT Press.
- Stevens, G. (1995). Struggle in the studio: A Bourdovian look at architectural pedagogy. *Journal of Architectural Education* 49(2), 105-122.
- Teymur, N, (1992). *Architectural Education. Issues in educational Practice and Policy*. London ?uestion Press
- The Guardian. (2019). University guide 2019: League table for architecture. Retrieved <https://www.theguardian.com/education/ng-interactive/2019/jun/07/university-guide-2020-league-table-for-architecture>
- Thomson, P. (2014). Field, in Grenfell, M. (Ed.). (2014). *Pierre Bourdieu: Key Concepts, Second Edition*. London and New York. Routledge, 65-80.
- Till, J. (2013). *Architecture depends*. London, United Kingdom: MIT Press.
- Torrance, H. (1993). Formative assessment: Some theoretical problems and empirical questions. *Cambridge Journal of Education* 23(3), 333-343.
doi: 10.1080/0305764930230310
- Trombley, S. (1983) The Oxford Conference and after: An interview with Elizabeth Layton. In Trombley, S. (Ed.). *Architectural education 1. Architectural education after the Beaux-Arts*, 89-97. London, United Kingdom: RIBA Magazines Ltd.

- Tryphon, A., & Vonèche, J. (1996). *Introduction*. In Tryphon, A., & Vonèche, J. (Eds). *Piaget-Vygotsky: The social genesis of thought* (p. 1-10). Hove, United Kingdom: Psychology Press. Taylor and Francis.
- Turckes, S., & Kahl, M. (2011). *Be a teen design hero: 4 lessons the classroom can learn from the design studio*. Retrieved on March, 16, 2017 from <http://www.fastcodesign.com/1665654/4-lessons-the-classroomcan-learn-from-the-design-studio>
- Usher, R., Bryant, I., & Johnston, R. (1997). *Adult education and the postmodern challenge: Learning beyond the limits*. London, United Kingdom: Routledge.
- von Glaserfeld, E. (1994) *Introduction: Aspects of Constructivism*. In Fosnot, C. T. (Ed.). *Constructivism: Theory, perspectives, and practice, 2nd edition*, 3-7. New York, NY: Teachers College Press.
- von Meiss, P. (2013). *Elements of architecture: From form to place*. London, United Kingdom: Routledge.
- Vowles, H. (2000). The crit as a ritualised legitimisation procedure in architectural education. In Nicol, D., & Pilling, S. (Eds.) *Changing Architectural Education: Towards a new professionalism*, 259-264. London, United Kingdom: E and F.N. Spon
- Vowles, H., Low, J., & Doron, H. R. (2012). Investigating architecture studio culture in the UK: A progress report. *Journal for Education in the Built Environment* 7(2), 26-49. doi: 10.11120/jebe.2012.07020026
- Webb, G. (1997) Deconstructing deep and surface: Towards a critique of phenomenography. *Higher Education* 33(2). 195-212. doi:10.1023/A:1002905027633
- 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. (2005). The Architectural Review: A study of ritual, acculturation and reproduction in architectural education. *Arts & Humanities in Higher Education* 4(3), 265–282 doi: 10.1177/1474022205056169
- Webster, H. (2006), A 'Foucauldian look at the Design Jury', *Art, Design & Communication in Higher Education*. 5(1), 5-19. doi: 10.1386/adch.5.1.5_1
- Webster, H. (2007a). The Analytics of Power: Re-presenting the Design Jury. *Journal of Architectural Education* 60(3), 21-27.
- Webster, H. (2007b). The assessment of design project work (CEBE Briefing Guide No.9). Retrieved from: <https://www.advance-he.ac.uk/knowledge-hub/assessment-design-project-work-summative-assessment-briefing-guide-no-09>
- Webster, H. (2008) Architectural Education after Schön: Cracks, Blurs, Boundaries and Beyond. *Journal for Education in the Built Environment* 3(2), 63-74. doi: 10.11120/jebe.2008.03020063
- Wenger, E. (1998) *Communities of Practice: Learning, Meaning and Identity*. New York, NY: Cambridge University Press.

- White, R. (2000). The student-led 'crit' as a learning device. In Nicol, D., & Pilling, S. (Eds.). *Changing Architectural Education: Towards a new professionalism*, 211-219. New York: E & FN Spon.
- Wilkin, M. (2000). Reviewing the Review: An account of research investigation of the 'crit'. In Nicol, D., & Pilling, S. (Eds.). *Changing Architectural Education: Towards a new professionalism*, 100-107. London, United Kingdom: E and F.N. Spon
- William, D., & Black, P. (1996). Meanings and Consequences: A basis for distinguishing formative and summative functions of assessment. *British Educational Research Journal*. 22(5), 537-548.
- Willenbrock, L. L. (1991). An Undergraduate Voice in Architectural Education, in T.A. Dutton (ed.), *Voices in Architectural Education: Cultural Politics and Pedagogy*. New York, NY: Bergin and Garvey, 97-119.
- Wright, A. (2013). *Pathways and Gateways: Structure and regulation of architectural education*. Retrieved from <http://www.schosa.org.uk>