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Assessment for Learning in Architectural Design Programmes

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ABSTRACT

This paper compares the learning and teaching strategies practised in the programmes of the Architectural Subject Group at the University of Northumbria with best practices of assessment ('Assessment for Learning') as promoted by the Centre for Excellence in Learning in the same University. These best practices are grouped under the umbrella concepts of 'Assessment for Learning' and comprise six key criteria which can be paraphrased as; authenticity and complexity in methods of assessment; use of summative assessment as the main driver for learning; extensive opportunities to develop and demonstrate learning; rich in formal feedback; rich in informal feedback; developing students' abilities to direct their own learning, evaluate their own progress, and support the learning of others. Keywords: architecture, assessment, learning.

Keywords: Assessment in Architecture, teaching and learning, best practice.

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1.0 INTRODUCTION: TEACHING AND LEARNING IN ARCHITECTURE

'...architecture is a throwback to an epistemology older than the one around which the modern university was formed.' (Schön D, 1985).

The writings of Donald Schön remain the seminal analyses of design studio teaching; his concepts of 'reflection in action' and the notion of the teacher as 'coach' remain the basis of much of the ensuing research of design teaching strategies (Webster H, 2001). Schön refers here to the 'bimodality' of the subject, in that architecture cannot be satisfactorily categorised as either science or art. Historically, architecture developed from environments closer in spirit to apprenticeships than to the modern university setting. The '*Ecole des Beaux-Arts*' of C 19th Paris sought to embed the 'learning by doing' teaching strategy in an educational establishment; this remains the default model of architectural educational practice to this day; champions of the studio learning environment have however been countered by less favourable commentary;

'Here you have the seeds of our own studio culture; the long hours, the intense competition, the schematic design focus, the absence of users, the relative disregard for how things get built, and the emphasis on the development of prototypical solutions.' (Fisher T, 2004).

Following the precedent of the Beaux-Arts school, the teaching design studio evolved into the central learning environment for the profession. At the University of Northumberland, the provision of studio space and the development of a 'studio culture' have been viewed as key criteria in the success of the Architecture programme. Despite many universities closing down studio spaces – often by reason of the space-rich requirements and the relative expense of the teaching methods – the architecture department of Northumbria continues its provision of studio space in the Architecture programmes for the following reasons;

a) Authenticity of experience: The 'Atelier' remains the predominant typology for architectural offices, often using the '*burolandschaft*' format of an open-plan space facilitating quick transferral of information and ideas between architects, apprentices and technologists. In the higher education studio, the same principle applies to tutors, students and peers. When coupled with authentic problem based learning (in the form of briefs for particular building types on real sites and locations) the studio experience reflects authentic architectural practice.

b) Student Experience: Constant occupation of the studios encourages both educational and social interaction between the students. By combining the three years of the undergraduate programme, valuable experience can be passed on to the newer students. Identity within (and belonging to) the programme cohort is strengthened by the provision of space which can be personalised as the territory of the subject group. This contrasts with the experience of other programmes where student groups may have no fixed base.

c) Collaborative and Group Exercises: The educational studio (in common with professional offices) provides an ideal environment ideal for production of collaborative outputs. The relative generosity of studio space also allows for a variety of activities and events – reviews, displays, fabrication and exhibition – which enrich teaching and learning on the course.

Webster's analysis of educational theory after Schön reinforces studio teaching's allegiance to the principles of Constructivism; "*the notion that meaning could not be imposed ... but that knowledge had to be created by the learner through the transformation of personal experience*" (Fisher T 2004, p5). Problem Based Learning, in the form of authentic design studio briefs, provides the opportunities for teaching, learning and reflection essential to the quality and success of studio teaching.

2.0 CONSTRUCTIVE ALIGNMENT WITHIN ARCHITECTURE PROGRAMMES

'Everyone designs who devises courses of action aimed at changing existing situations into preferred ones... Design, so construed, is the core of all professional training... schools of engineering, as well as schools of architecture, business, education, law and medicine are all centrally concerned with the process of design' (Simon H 1996).

Critical to the validity of both the undergraduate and diploma courses is compliance with the learning criteria prescribed by the Architects Registration Board. Broadly, these criteria are grouped under one or more of the following five subject headings; *Design* ; *Cultural Context* ; *Technologies and Environment* ; *Practice and Management* ; *Communications*. Modules within Northumbria's architecture programmes explicitly incorporate these criteria, with 'Design' – in the form of studio based projects – at the core of the subject's teaching and learning strategies.

The Design modules of both the Architecture and Professional Diploma programmes are heavily weighted in comparison with modules covering with the other four subject headings cited above. The outputs of these design modules – generally in the form of architectural plans, sections, elevations, perspectives, models, diagrams and text describing the students' proposals – provide opportunities for the explicit integration of learning from the other four subject headings. For example, ideas and learning from *Cultural Context* modules can be demonstrated in a design which references historical building precedents; the syllabus of *Technology and Environment* may become apparent in the constructional methods employed in Student designs; *Practice and Management* can be evidenced in compliance with building guidance and regulations; Finally, the curriculum of *Communications* modules concerns the successful description of the students' intents by means of graphical, electronic, oral and written media.

3.0 ASSESSMENT FOR LEARNING STRATEGIES

'Assessment defines what students regard as important, how they spend their time and how they come to see themselves as students and graduates' (Brown S and Knight P, 1994)

The Centre for Excellence in Teaching and Learning (CETL) at the University of Northumbria promotes best academic practice in the various schools and subject groups of the institution. A key principle of CETL is the widespread promotion and application of 'Assessment for Learning' strategies in teaching delivery. Six conditions have been identified as key to the successful implementation of 'Assessment for Learning' in learning environments;

emphasises authenticity and complexity in the content and methods of assessment rather than reproduction of knowledge and reductive measurement

uses high-stakes summative assessment rigorously but sparingly rather than as the main driver for learning offers students extensive opportunities to engage in the kinds of tasks that develop and demonstrate their learning, thus building their confidence and capabilities before they are summatively assessed

is rich in feedback derived from formal mechanisms e.g. tutor comments on assignments, student self-review logs

is rich in informal feedback e.g. peer review of draft writing, collaborative project work, which provides students with a continuous flow of feedback on 'how they are doing'

develops students' abilities to direct their own learning, evaluate their own progress and attainments and support the learning of others (UNN_1, no date)

These criteria have been successfully applied to a range of programmes and modules in the various Schools within the University, and have clear applications to many more; some traditionally run lecture based modules may have been knowingly or unwittingly constrained by an adherence to the prescribed delivery methods and student workloads of the University's module descriptor templates.

4.0 AUTHENTICITY AND COMPLEXITY IN PROBLEM BASED LEARNING

'Problem Based Learning reflects the way people learn in real life; they simply get on with solving the problems life puts before them with whatever resources are to hand... Young people are taught the sorts of things they are likely to need to know... before they are let loose on the world' (Biggs J, 2007).

Authenticity and complexity are inherent in the design project briefs issued to the students of architecture, and reflect true professional practice. In this respect, design assignments are delivered to promote 'Problem Based Learning'. An architectural brief is provided for a building with a prescribed programme, and students are set the task of providing a design solution of *'commodity, firmness and delight.'* This reflects authentic architectural practice, not least in the requirement to deliver proposals within a tight programme. However, in the learning environment of the University design studio, more time can be devoted to the *process* by which the design is developed rather than expediting the final outputs.

accommodation schedule + design considerations

Your proposal should contain the following spaces...

ground floor:

entrance/ reception
office 1
office 2
toilets (m/f/accessible)
community multi-use space / IT suite
crèche
baby change
separate entrance/reception for offices
stairs/lifts to upper floor areas
comms room
plant area

upper floors:

toilets (m/f/accessible)
community multi-use space / IT suite
separate entrance/reception for offices
flexible office space
stairs/lifts to other floors
comms room
plant area
managers flat

And consider issues of.....

massing, proportion, materiality, composition, skin, context, acoustics, access/ deliveries, circulation (horizontal & vertical), fire safety, security, spatial organisation, lighting, store, details of furniture/ fit out, ergonomics, signage/ visibility/ name/ branding



Fig. 1.0 3rd Year 'One Stop Shop' schedule of accommodation (author; Ben Elliott)

This drive to authenticity is supported by tutor-directed and self-directed research, examples being visits to the chosen site and buildings of relevant typologies, presentations and tutorials by architects and consultants experienced in the building type, and discussions with relevant clients and end-users.

5.0 USE OF HIGH RISK SUMMATIVE ASSESSMENT

'If any failing was to be done, it was a privilege reserved to the in-house staff, with no more comprehensible reasons being offered than 'Well...he just can't design, can he?', which overrode any suggestions by us outsiders that the design might fulfil the functional criteria of the brief' (Banham R, 1975)

Summative assessment is used sparingly – at the end of the design process – and the assessment criteria are made explicit to the students throughout the extensive opportunities for formative assessment during the course of the design project. In many Schools of Architecture, the traditional culmination of the project would be marked by the final 'crit'; an open review of the student's proposals before a group of tutors

and peers. This adopted format of 'standing before the jury' often resulted in a negative, intimidating and adversarial atmosphere. At undergraduate level, the University of Northumbria seeks actively to avoid confrontational and negative criticism, particularly where this could be misconstrued as a personal attack; the staff members take great care in the use of language to ensure that any criticism is explicitly concerned with the output, and not with the student. Consideration is being given however to the benefits of the 'crit' scenario in the Professional Diploma programme, where the self-directed student should be familiar with the comparable format of client presentations, and the cultural '*terms of engagement*' of such potentially adversarial situations, after a year's experience in practice.

Reviews within the formative assessment strategy require the students to orally explain their proposals. As part of the summative assessment – a final review - the students are again afforded this opportunity; this benefits any students who otherwise may not adequately describe their proposals simply by means of drawing or other media. A condensed '*narrative*' of the scheme proposals are provided in the final display boards which comprise the synoptic presentation of the design.

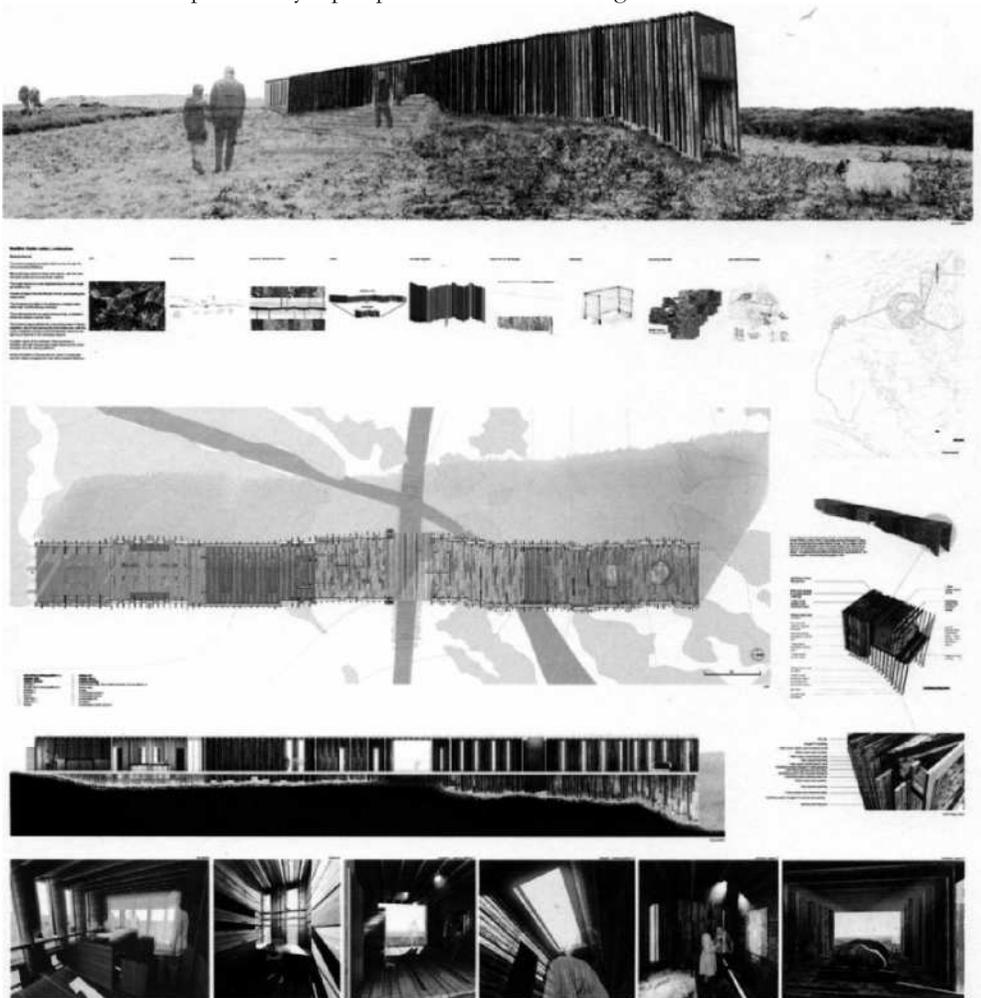


Fig. 2.0 Synoptic Display Presentation (Credit; Richard Almond)

5.1 Summative / Portfolio Assessment

A portfolio is a structured collection comprising evidence and critical reflection on that evidence' (Baume D, 2001).

Summative assessment is based upon the cumulative output of the preceding weeks of formative assessment and feedback. A portfolio submission is required which, together with the final proposals, collects and demonstrates all the iterative developmental work by the student – sketch models, diagrams, initial and scheme designs in a variety of media – thus providing clear evidence of the student's learning journey from the project's inception to completion. The extent and success of the project's (and the student's) development is embedded into the summative marking criteria.

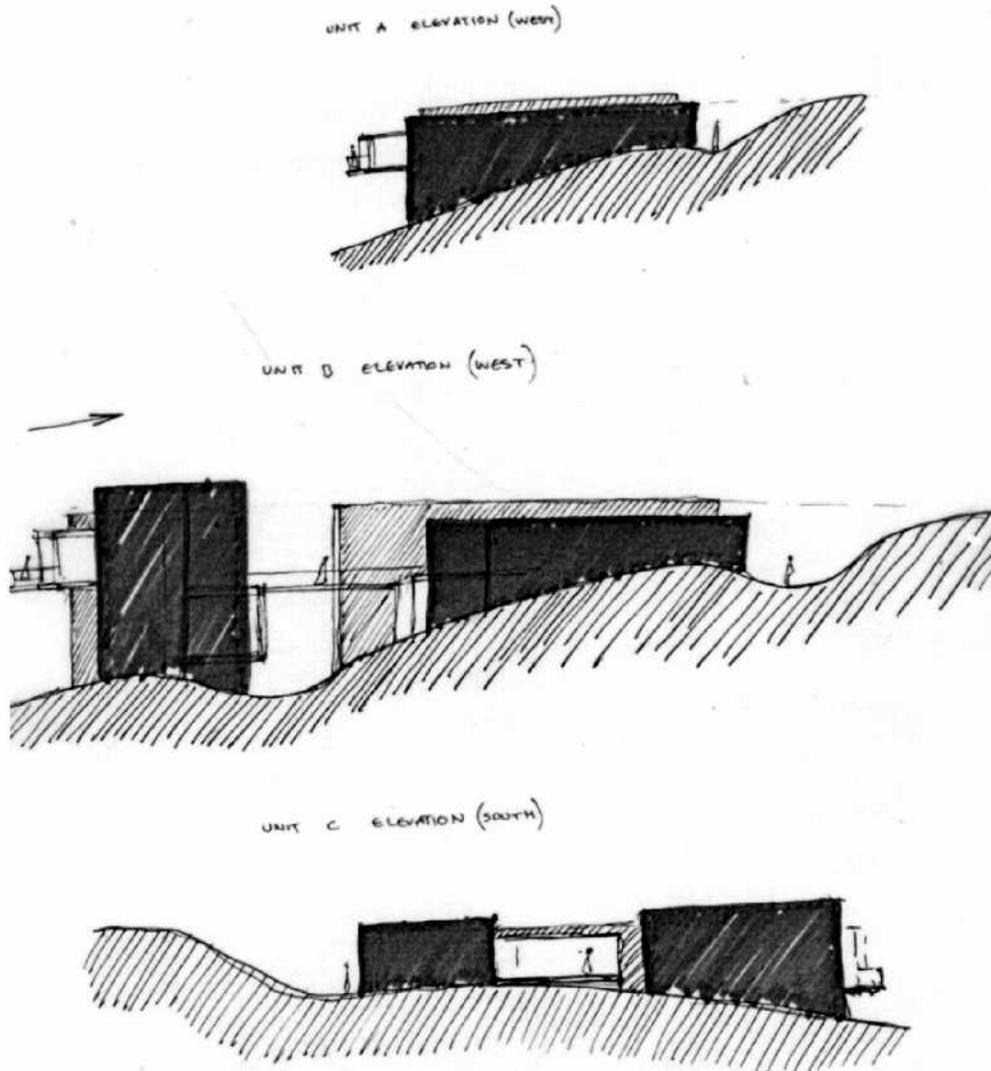


Fig. 3.0 Example of sketchbook development in a portfolio assessment (credit; David Hood)

6.0 OPPORTUNITIES TO DEVELOP AND DEMONSTRATE LEARNING

Students are afforded the opportunities on a weekly basis to develop and demonstrate the skills and learning that will be required to complete the summative assessment. A useful and authentic technique used to evidence the development of the students' learning is a digital presentation of the scheme, which describes the development of the proposals leading up to the tutorial or review at that time.



Fig. 4.0 PowerPoint slide of formative scheme (credit; Lisa Hanking)

Interim reviews are programmed into the curriculum to consolidate the formative assessment protocols; these also provide the opportunity for alternative or guest tutors to provide feedback to the students at key points in the development of the project. The digital presentation (PowerPoint, PDF or similar) provides a structured and current portfolio of the student's proposals; content may include photographs and sketches of the site, materials found *in situ*, initial sketches, diagrams of sun-paths, prevailing wind directions, site conditions, images of architectural precedents, photographs of scale models, as well as the graphic conventions of architectural communications – plans, sections, and elevations. The benefits of these interim presentations are manifold; the individual student is encouraged to consider a *narrative* for the project – structuring the diverse factors and influences at hand by means of 'telling a story', describing the genesis, development and aims of the particular project; hence, 'reflection' is embedded into the teaching and learning process – the student benefiting from 'self-reflection' in analysing their own work; 'reflection in action' also arises through the student's subsequent engagement with the tutors.

This presentation technique is augmented with the student's oral commentary, thereby engaging the tutors in a dialogue of feedback and guidance; the entire exercise provides an authentic experience, replicating

the professional format of architectural presentations in practice, albeit in the gentler, nurturing context of the design studio; the student presentation and the response of the tutors also provides a rehearsal for future formative and summative presentations; group projects allow the individual team members to play to their strengths and extend the collaborative dialogue and interpersonal skills within the team, again, to the practical benefit of students entering the professional realm. Tutors use the interim reviews as an opportunity to formalise the student feedback in written form, providing review sheets which comment on the progress of the individual student with respect to the marking criteria issued at the commencement of the project; interim grades are provided to let the students know specific areas of strengths and weaknesses. From time to time, tutorials and reviews are structured with pairs of students, allowing one student to note the key points of the other's review – this can be used to supplement the staff comments; the recording student also benefits from the potential for application of these comments to aspects of their own personal project.

7.0 FORMAL FEEDBACK PROVISION

'Coaching artistry flourishes in a setting like the architectural studio with its physical arrangements for doing and making things, its patterns of organization, and its cultural traditions. (Schön D, 1985).

Following the introduction the brief, the student is tasked with the production of initial concepts for discussion the following week. This format for teaching and learning commences in the first year of the Architectural Degree programme, and continues through to the final year of study (resuming in the Professional Diploma programme.) By the third year of the undergraduate programme, the students and tutors should be well-versed in these 'rules of engagement' and the methods employed to 'frame' and 'reframe' the design problem (Schön D, 1985). Tutors provide weekly sheets for the students which stipulate the tasks that the students should address in the week ahead, and benchmark the expected level of progress of students within the cohort.

The iterative process of the studio tutorial allows the tutor to monitor the student progress effectively; any misunderstandings in communications or expectations can be attended to at the following session; in the best cases, the student feels comfortable being allowed to 'make mistakes' and learn from these, without the threat of heavy penalty in the summative assessment; weekly contact with the tutors allows for immediate retrieval when problems occur. The formative assessment and learning strategies are therefore inextricably interlinked, the feedback actively influencing the course of action.

Formal feedback, from a variety of tutors and practitioners, is provided at intermediate reviews in written form. The upkeep of a reflective logbook is encouraged, this practice being stipulated as part of the students' portfolio submissions. Studio design projects conclude with a final review which will assign relevant feedback to the project learning outcomes as a final summation of the work which needs to be addressed.

8.0 INFORMAL PROGRESS FEEDBACK

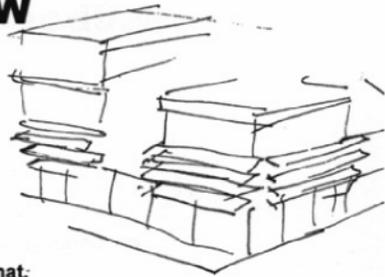
'In the past design tutors have used their professional judgement alone to judge student performance – the 'connoisseur' model. However, the use of hidden criteria may not be particularly beneficial to student learning.' (Webster H, 2007)

Essentially, Webster (2007) and Sara and Parnell (2004) highlight two factors critical to the success or otherwise of continual formative assessment; Firstly, the ability of tutors to communicate *implicit* assessment criteria *explicitly*. Typical examples of such criteria in Architectural Design may include the use of standard graphic representations (eg. the use of arrows to denote an entrance on plan); care in graphical communications (ensuring plans and elevations are centrally located in drawings, horizontally aligned etc.); clarity of design intent; student ability to communicate a narrative; care and attention (binding

ASSESSMENT YR3 ADM 14/11/2006

One Stop Shop Int. REVIEW

name XXXXXXXXXX



Learning outcomes

- 1 To research and record context and place
- 2 To develop a solution that is contextually derived
- 3 To commit thematic and contextual ideas into model format;
- 4 To explore the nature of internal and external space their interaction
- 5 To investigate primary technology, and materiality.
- 6 To record the process in sketchbook and A3 workbook

1	2	3	4	5	6
D+	C+	B-	C+	C	C- (?)

GENERAL COMMENTS

CONSIDERING ARRIVING: PREVALENT OF FOREIGN OFFICE:
 IDEA OF DRAWING PEOPLE IN.
 GOOD ORGANISATIONAL DIAGRAMS: SOME CLIMATE GRID ORGANISATION
 TRANSPARENTNESS OF GRAND PLANS:
 BAGOUT FOR NOISY ACTIVITIES → DIAGRAM NOISE → QUIET AND SILENT
 NEEDS TO BE SET WITHIN THE LOCAL CONTEXT - PRESENT IMAGES
 OF LOCAL MATERIALS AND FORMS TO INDICATE PRECEDENTS.
 SET FLOOR LEVELS, BUILDING HEIGHTS ETC. TO RESPECT NEIGHBOURING
 FABRIC.
 LOOK HARD AT TECHNOLOGY TO MAKE THIS EFFECTIVE, PARTICULARLY
 GRAND PLAN SECURITY ISSUES.
 SOME GOOD ENVIRONMENTAL WORK - MUST BE DEVELOPED - SPEAK WITH
 PE

Fig. 5.0 Anonymised Review Sheet

drawings together chronologically to show the development of a scheme.) The requirement for clarity is now entrenched in the guidance of the Quality Assurance Agency, which states that assessors must make their assessment criteria and practices explicit. In design, this requires that the writing of learning outcomes must accurately reflect the tutors' true criteria.

Secondly, the authors highlight a requirement for tutorial care in the use of language; *"Since the tutors, visiting critics and even students are already (to a greater or lesser degree) inculcated into the profession, the review can be seen to sanction the consumption of 'hegemonic knowledge'"* (Sara R and Parnell R, 2004). Architecture, as with many other subjects, has established a jargon of acronyms, similes, and figures of speech which are familiar to the practitioner, but may be unfamiliar to newcomers to the subject area. The tutor must be aware of the unfamiliarity of such language to new students, and endeavour to either explain the principles clearly, or communicate without reliance on specialist terminology. In either case, this will benefit the student, not least in future dealings in the professional arena.

8.1 Emotive Aspects of Assessment

'Teachers should be aware of the impact that comments, marks and grades can have on learners' confidence and enthusiasm and should be as constructive as possible in the feedback that they give. Comments that focus on the work rather than the person are more constructive for both learning and motivation the experience of being assessed is interpreted as both positive and negative in its impact. In some cases the interaction between the learner and the assessment event is so negative that it has an emotional impact that lasts many years... Assessment appeared to be intimately connected to identity. Experiences were taken personally' (Boud D and Falchikov N, 2007).

It is a truism that in Architecture there is always another drawing to be done; the more details, sections and images that are produced, the more complete and thorough a scheme will appear. The emotional wellbeing of the student in review or tutorial situations is often compromised by the dynamics of this process of 'learning by doing'; in the desire to achieve some degree of 'perfection' in design the student will often forego socialising, relaxation, and especially sleep (Sara R and Parnell R, 2004). When coupled with the potential for an adversarial debate in lieu of constructive dialogue, this imbalance can lead the student to assume a defensive position, thus limiting the actual learning taking place. The staff members of the Architectural programmes of Northumbria University are aware of the potential for tutorial criticism to be misconstrued as personal criticism, and staff members use a mixture of strategies - in particular by the use of language - to separate the student outputs from the students themselves. In order to establish a semblance of work/life balance, students are also encouraged to use the studio as a work base; this is underpinned by presentations and informal advice from the staff members with regards to effective time management.

9.0 PROVISION FOR SELF DIRECTED AND PEER LEARNING

'While it may be argued that many activities, such as the many forms of group and teamwork found in higher education today, have the power to encourage co-operation, two stand out as particularly beneficial and influential: peer tutoring and student involvement in assessment' (Boud D and Falchikov N, 2007).

The teaching of Architecture has tremendous potential for the inclusion of peer assessment. Peer tutoring is seen as *'particularly relevant when one seeks to maximise the student's responsibility for his own learning'* (Boud D and Falchikov N, 2007). The extensive formative feedback provided through a design project allows students to direct their own learning; reviews, tutorials and studio attendance and practice allows students rich opportunities for peer learning and self-assessment

However, in peer reviews there is the potential for excessively negative or positive criticism, and uninformed or partisan opinion, which can arise without the moderating presence of the tutor. Informal peer assessment - and peer assistance - is however encouraged by the development of a studio culture.

Cohorts are grouped together, allowing the possibility for comparison of progress and the provision of support mechanisms of the peer groups and individuals. Formal peer assessment has now been introduced into first year studio reviews, with the intention to review the potential benefits and apply these to the upper year groups.

9.1 The Learning Environment of the Design Studio

The Design Studio serves many functions in the teaching of architecture; it forms an authentic mirror of a professional design atelier; it provides a location specifically dedicated to the cohort, and thus strengthens the identity of the group. With respect to student retention this is an invaluable asset in coupling a learning environment with a social space, a community facility which can be personalised by the students over the course of an academic year. Thirdly, the design studio provides an automatic learning environment for peer and self directed learning.

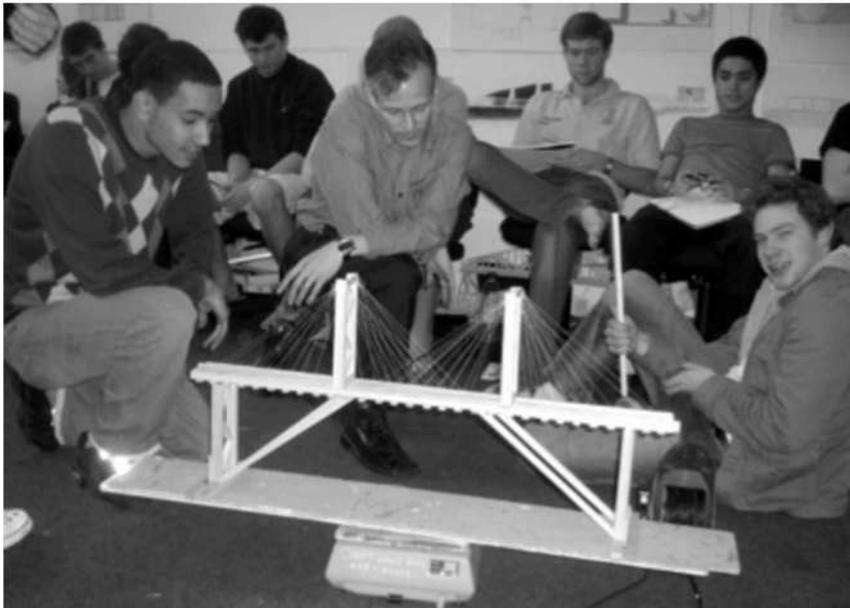


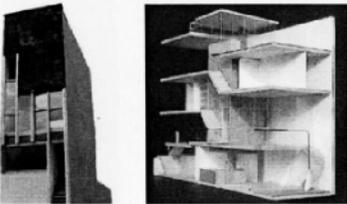
Fig. 6.0 First year structures group project in the Design Studio (PhotoCredit: Lewis Preston)

The individual student is exposed to the skills, concepts and abilities of his or her peers; an automatic self-audit of such factors can be attained. Dialogue between students working for similar purposes and goals can be instigated by means of proximity and opportunity. Finally, as aforementioned, structured use of the studio can provide a key component in the enhancement of the student experience by clearly separating ‘work’ from ‘leisure’, again reflecting authentic work experience.

10.0 SELF-EVALUATION OF PROGRESS

The learning environment of the design studio provides a constant source of current information for student self-evaluation. The progress of peers is evidenced on the display walls and drawing boards of the studio – as aforementioned, allowing a student to identify any shortfalls and learn from peers. This self-evaluation is reinforced by the staff provision of weekly progress sheets to students of the lower years which clarifies the output expectations of the week ahead. This sheet also provides a checklist of what the student should have achieved to date;

Week 4
borneo




tatami kyoto machiya

objective
Progress your sketch proposals and begin to confirm your scheme.

brief
You should by now have a sketch scheme at 1:100 which begins to interpret your client, narrative and volumetric considerations. This will be at a preliminary stage and the intention is for you to begin the process of confirmation.

1. Produce a series of sketch plans and sections at 1:50.

There should be a relationship between this increase in scale and an increase in detail. Begin to communication materiality, variations in material 'thicknesses' / layering / stratification, interior fixture and fittings within your drawings. Look at examples of drawings of architects and designers you have come to know and emulate the level of detail required.

2. Produce a 1:50 sketch model.

This module should correlate with the sketch plans and sections and contain references to material articulation and elevation condition.

To be completed for your next tutorial, after the Easter break, on Friday 25 / 04 / 2008.

Remain up-to-date with the project by reviewing the previous weekly sheets. Cover any ground that you have missed and ensure your development work is comprehensive and as directed.

Week 1	explore and record site Borneo island precedence studies Research occupant needs Develop a narrative (occupant) Accommodation schedule and diagrams
Week 2	Spatial investigations Explore volumetric options 1:100 study models Sketchbook development
Week 3	1:100 sketch plans and sketch models Materiality

25/04/2008 tutorials
See noticeboard for times.
Bring all work to date for discussion.

Fig. 6.0 Weekly progress sheet for 1st Year design project (Credit; Paul Ring)

11.0 CONCLUSIONS: LIMITATIONS AND CHALLENGES

'I have become convinced that universities are not devoted to the production and distribution of fundamental knowledge in general. They are institutions committed, for the most part, to a particular epistemology, a view of knowledge that fosters selective inattention to practical competence and professional artistry' -The Reflective Practitioner: How Professionals Think in Action (Schön D, 1983)

Module marks in recent years have supported the thesis that the richness of formative assessment in studio teaching benefits the student enormously. The interlinked teaching and assessment strategies employed in the architectural design studio practice of Northumbria University embed most, if not all, of the six key conditions identified as supporting 'Assessment for Learning' (McDowell et al, 2006). However, there are clearly limitations and challenges inherent in applying these conditions successfully;

11.1 Staff Resources

'How can assessors write assessment criteria that are clear and explicit for both students and assessors when assessment tasks are complex and multi-faceted?' (Dunn L M, et al, 2005)

The quality of teaching provision is currently maintained by intensive staff to student ratios (effectively one to one teaching at Level 6.) However, with increased student numbers and financial pressures for increased efficiencies, consideration must be made of maintaining the quality of the teaching and learning strategies while remaining a profitable programme. The relatively small size of the teaching team allows for flexibility and good communications between the staff members, and the rapid identification and

solution of potential problems. If and when staff numbers increase, greater management skills will be required to maintain consistent standards in assessment and teaching from all staff members.

Roberts recommends tutors determine the explicit description of the expected quality of student performance at top, bottom and middle achievement levels (Roberts A, 2006). This approach demands considerable preparation on the part of the tutor, and is reliant upon consistency of approaches and values among the teaching staff. At the same time, assessment criteria which are overly prescriptive may well inhibit the creativity at the core of the subject. Student outputs must also deal with this dilemma, and there are no easy solutions to hand. Each year, the teaching staff members deliberate extensively on how to achieve a 'best fit' and extensive moderation is undertaken to ensure parity of assessment between students.

architecture + interior design year 1

borneo tutorials

Friday 28 / 03 / 2008

site / research / narrative / accomodation diagrams / spatial investigations / 1:100 models / sketchbook development

	Kelly MacKinnon	Peter Beacock	Stephen Roberts	Paul Ring	Ceri Green	Lewis Proston	Tony Watson
09:30	Jake Boardman	Niaomi R Howells	Ray C Paulson	Charlotte Lundstrom	Megan Andrews	Khway Yang (Michelle)	Fiona D'Anyers Williams
	Tom C Bowley	Chris J Howson	Lisa M Robinson	Chris Marsden	Susannah Cooke	James Seabridge-Cooper	Ryan Mulholland
	Chris Brown	Harinder Kaur	Bethany Roebuck	Lee Whitefield	Laura Monaghan	Dan Seymour	Sophie Shields
	Silkie K Chan	Alvin Cheung	Kathryn Mason	Helena Gill		Mark P Rostron	
10:30	Seb Cunningham	Jason Kemp	Lisa Rogan	Gaby Andersson	Robert McCartney	Aman Saundh	Learne S Stamp
	Adam J Dalby	Carl A Ling	Emily Scullion	Guang Y Bao (Elaine)	Tom McKendrick	Niall V McDermott	David Stones
	Jon A Dennis	Daniel Leover	Jonny G Simpson	Constantinos Kounnis	Lucy Milbourne	Jake McDonald	Jamie S Speak
	Hannah Douglas	James McCarthy	Johnathan Spain	Andy Lee		Sean Hall	
11:30	Steven J Duquemin	Gina J Parisella	Rowan Yassin	Darren P Hancock	Jamie Nicholson	Nikki B Hoggarth	Amy Williams
	Stevie P Hood	Vicky E McQueen	Olivia St-Amour	Chloe Ophelia Gorbulew	Gavin Nixon	Adam J Eckworth	Rob Woodhouse
	Sollia Tran	Tom Twist	Angela Crosby	Kelly Morris	Roisin O'Conner	James Finnane	Philip Wight
	Judith Forester	Carl Harper	Kabee Hilo	Guy Moulson		Hannah Fletcher	
L U N C H							
13:30	Inger Burud	Lin Wang	Kirsty Nichols	Stephany Christodoulou		Josh Stone	
	Sarah Boyle	Fiona Forster	Jessica Pan	Silke Maret		Sarah-Jane Stinson	
	Sara-Jane Bacon	Rexanne Gascoyne	Lauren Kate Spellman	Dean Lamb		Adele Paterson	
	Elizabeth Trail	Lucy Fining	Georgina Williams-Hodgson	Charlotte Hubbard		Alex Proctor	
	Harry Biddle		Richard Haigh				

Interior Design at CEST 11:00 - 13:00

Fig. 7.0 Tutorial Schedule for combined Architecture and Interiors Design Project (credit; Paul Ring)

11.2 Space Resources

Adequate studio provision is key to the success of the teaching and assessment strategies, and the full potential of peer learning and assessment should be exploited within this invaluable learning arena. However, the quantity of space afforded to studios is extensive (and expensive); many schools of Architecture in the UK have been forced to closed down studio spaces, breaking the spatial link between the production and critique of student work. Fortunately, the School of the Built Environment at Northumbria has been consistently supportive of studio based teaching as part of its variety of teaching and assessment strategies.

11.3 Entry Level

'Spiralling' describes the process by which the learner constantly returns to 'previous' learning and understandings in the light of new learning and new experience. Just as this new learning and experience compel us to reconsider and reconfigure previously held concepts and understandings, so those previously-held concepts and understandings help us to make sense of new experiences and conceptualisations as they occur" (Moore A, 2000).

Jerome Bruner's concept of 'spiralling' echoes the path of the student's learning experience through architectural education; the key concepts of 'shelter', 'enclosure', 'place' etc. will be common to all projects throughout the programme. However, the student will constantly return to such concepts with new understandings or knowledge which re-frame the student's approach to a particular design. Experience suggests that the Assessment for Learning methods embedded in studio teaching are a step change from the teaching and learning strategies of the high school environment. Students who have historically achieved much higher grades at A-Level are consistently surprised by receipt of much lower grades for assignments in the undergraduate programme. The cultures of returning to 'previous learning' or of making mistakes – and learning from these – are foreign to many of the students who have been conspicuously successful in the secondary education environment of rote learning and summative examinations. Staff members of the Architecture group are charged therefore with the successful management of expectations of the students, while they learn to cope with new learning strategies; *Learners should become as aware of the 'how' of their learning as they are of the 'what'* (QCA, no date).

11.4 Studio Culture

'learning communities with a collaborative pedagogy can help 'validate' a student's presence on campus and encourage persistence and retention' (Tinto, 2007).

Tinto's statement has a particular resonance with first year students with regards to transition, identity and retention (SSD, 2005). This is reinforced in the findings of a recent working paper commissioned by the Centre for Education in the Built Environment;

'The studio seems to be particularly important for first year students in forging a sense of belonging and identity, less so for upper year students where the focus seems to shift towards greater mobility, with identity being achieved through continuous connectivity and regular events.' (Duggan F, 2004)

Peer learning in particular is embedded within the best practice of studio culture, and may prove to be a key tool in teaching, learning and assessment strategies which will deal with the increasing student population of the architectural programmes.

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