DEVELOPING A CURRICULUM FOR ENGAGEMENT: ARCHITECTURAL EDUCATION AT NORTHUMBRIA UNIVERSITY

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DEVELOPING A CURRICULUM FOR ENGAGEMENT: ARCHITECTURAL EDUCATION AT NORTHUMBRIA UNIVERSITY

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INTRODUCTION TO PORTFOLIO

This document collates examples of the author's practice, initiatives, inquiries, and scholarship in the five year period from 2010 to 2015. In conjunction with the critical commentary, 'Developing a Curriculum for Engagement for Architectural Education at Northumbria University' it serves to satisfy the requirements of Northumbria University's regulations for the submission of a Professional Doctorate by Portfolio. The individual components within this portfolio seek to underpin the author's claim towards developing a 'curriculum for engagement' in support of the student's holistic educational experience of architectural education at Northumbria.

The majority of the components have resulted from collaborations with colleagues in the course of the author's practice. These have included fellow academics, academic managers, colleagues from other institutions and disciplines, as well as students of the programmes of architecture. In support of developing a 'curriculum for engagement', these collaborative works embody the notion of 'communicative action' (Habermas, 1981) in seeking consensual, iterative and beneficial initiatives for the benefit of student learning and experience. All inquiries have been supported by ethical permissions from relevant schools and faculties in the institution. All components have also been made available in the public domain, through a variety of outlets relevant to the particular output and audience. Permissions have been sought and granted for their reproduction in this portfolio.

The individual components have been re-formatted for the purpose of this portfolio in order to comply with Northumbria University regulations for doctoral submissions. Font sizes and type, line-spaces and layouts have been standardised, and Harvard Northumbria has been used throughout for the purposes of citations and in-text referencing. References have been collated alphabetically. Word counts have omitted references.

DECLARATION

I declare that no outputs submitted for this degree have been submitted for a research degree of any other institution. I also confirm that this work fully acknowledges opinions, ideas and contributions from the work of others.

Any ethical clearance for the research presented in this portfolio of outputs has been approved. Approval has been sought and granted by the relevant School or Faculty ethical committee in place at the time of conducting the individual inquiry.

I declare that the word count of this portfolio is 35,436 words.

Name: Peter Holgate

Signature:

Date:

INTRODUCTION TO COMPONENT 1: '*Northumbria University Assessment Policy and Practice'* (2012-13)

Reference: Northumbria University (2013) 'Northumbria University Assessment Policy and Practice (June 2013)'. Available at: https://www.northumbria.ac.uk/static/5007/arpdf/aq/afpolicy.pdf (Accessed: 28 July 2015)

Background: As part of a selected group of academics from across all four faculties of Northumbria University, the author collaborated in the definition and establishment of the set of assessment and feedback principles in support of effective learning across all four faculties of the institution.

Output: A set of eight principles have been established in support of best practice in Learning, Teaching and Curricular Design at Northumbria University. This policy has subsequently been disseminated to all Faculties and all Departments for implementation, and builds upon the principles of Assessment for Learning (AfL) which were developed at NU's former Centre for Excellence in Teaching and Learning (CeTL)

Impact: The Northumbria University Assessment Policy has now been embedded in the institutional Programme Framework for Northumbria Awards (PFNA) which will be utilized as the template for all future programme design, as well as the redesign of all programmes across the institution.

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COMPONENT 1: NORTHUMBRIA UNIVERSITY ASSESSMENT POLICY AND PRACTICE

Introduction

This document defines Northumbria University Principles of good assessment and feedback, recommended good practices, and the enabling requirements underpinning these Principles. It focuses on the key role of assessment in student learning, in order to achieve the ambitions for Northumbria Graduates to be critical thinkers and lifelong learners. The Student Learning and Experience Strategic Plan 2013-14 states in its Strategic Outcome that it will provide students "with appropriate preparation, support and on-going development for partnership learning" to achieve its objectives. The principle of partnership underpins this Assessment Policy by focusing on engaging students fully in the assessment process, so that they are enabled to become active partners in their learning. This approach is supported by current research and developments nationally in assessment and feedback, which argue that empowering students to become independent, self-regulated learners is key to improving assessment and feedback (see, for example, Nichol and MacFarlane-Dick 2006, Sambell et al 2013, and the QAA Code of Practice on Assessment of Students, September 2006). A key focus of these Principles is to change the relationship of students to assessment from passive consumers of individual feedback to active partners who take shared responsibility for their learning by engaging with assessment and feedback. Through this, students will be enabled to become more effective lifelong learners who are empowered to monitor and evaluate their own learning, and able to draw upon the resources of teachers, peers and themselves in managing their development. It is intended that this shift in focus will bring about a more efficient and effective use of resources, as less time is wasted in providing feedback that is not used effectively by students to improve their learning.

The first section presents Northumbria University's 8 Principles of Assessment and Feedback, 5 recommended good practices, and the enabling requirements for achieving these. The second section provides further clarification of the principles and recommended good practices, with examples of how these might be put into practice. Section 3 provides guidelines for implementation. Further examples of the principles and recommended good practices from Northumbria University and beyond will be available on the Learning and Teaching Hub:

www.northumbria.ac.uk/learningandteaching.

Section 1: Northumbria University Principles of Good Assessment and Feedback Practice

These principles are core to all assessment and feedback practices at Northumbria University. The questions below each principle are intended to guide those responsible for assessment and feedback in how they can be used in the development of curricula.

NU Assessment and Feedback Principles

1. Help clarify what good performance is (goals, criteria, standards)
To what extent do students in your course have opportunities to engage with, clarify and understand goals, criteria and standards, before, during and after an assessment task?

2. Encourage 'time and effort' on challenging and authentic learning tasks
To what extent do your assessment tasks focus student learning on meaningful and applied learning tasks, rather than surface learning of isolated facts and figures?

3. Provide high quality feedback and opportunities that enable learners to close the gap between current and desired performance.
What kinds of feedback do you provide – in what ways does it help students evaluate their levels of achievement, and does it include 'feed forward' that can be used before the final hand in date? To what extent is feedback attended to and acted upon by students in your module, and if so, in what ways?

4. Ensure summative assessment impacts positively on learning
To what extent do you use summative assessment rigorously, but sparingly, to develop valued qualities, skills and understanding?

5. Ensure formative assessment opportunities
To what extent do students have opportunities to try out and practice knowledge, skills and understanding before they are summatively assessed?

6. Encourage interaction and dialogue around learning and assessment (peer and teacher-student)
What opportunities are there for feedback dialogue (peer and/or tutor-student) around learning and assessment tasks in your module/programme?

7. Facilitate the development of self-assessment, reflection in learning and autonomy
To what extent are there formal opportunities for reflection, self-assessment or peer assessment in your course to enable students to learn to evaluate their own progress and direct their own learning?

8. Ensure an inclusive approach to assessment and feedback
To what extent have you developed flexible assessment tasks and feedback that facilitates learning and achievement across a diverse and increasingly internationalised student body?

Recommended Assessment and Feedback Practices

In addition to the principles are 5 recommended assessment and feedback practices. Many of these practices already exist at Northumbria University; it is recommended that these be supported and extended further.

Recommended assessment and feedback practices

1. **Support the development of learning groups and learning communities.**
   To what extent do your assessment and feedback processes help encourage social bonding and the development of learning communities?

2. **Encourage positive motivational beliefs and self-esteem.**
   To what extent do your assessment and feedback processes enhance and encourage your students' motivation to learn and excel?

3. **Provide opportunities, where appropriate, for student choice in the topic, method, criteria, weighting or timing of assessments.**
   To what extent do students have input into and choice in the topics, methods, criteria, weighting and/or timing of learning and assessment tasks in your course?

4. **Involve students in decision-making about assessment policy and practice.**
   To what extent are students in your course engaged in consultations regarding assessment decisions?

5. **Provide information to teachers that can be used to help shape their teaching**
   To what extent do your formative and summative assessment and feedback processes inform and shape your teaching?

Enabling Requirements Underpinning NU Assessment and Feedback Principles

The enabling requirements are elements that must be in place in order to achieve the principles and recommended good practices of assessment and feedback.

- Expected learning outcomes have been defined for programmes and modules, and module outcomes are mapped onto programme outcomes.

- There is clear alignment between the expected learning outcomes, what is taught and learned and the knowledge and skills assessed, thus ensuring validity.

- Assessment criteria, grade descriptors and marking schemes have been developed that distinguish between different knowledge and skills, and between grades[1], and that are aligned across modules and programmes. Assessment criteria, grade descriptors and marking schemes are shared with students, and feedback is given in relation to these.

- Module assessment is integrated into an overall plan/timeline for programme assessment which is shared with students.

- Learning outcomes and assessment criteria are written in a way that is understandable to students and can be used to develop their graduate attributes.

- There is variety and complexity in assessment methods appropriate to the learning outcomes that encourages a deep approach to learning (e.g. essays, problem-based, portfolios)

- There is a progression in the complexity and demands of assessment requirements in later years of modules.

- Plagiarism is minimised through careful task design, explicit education and appropriate monitoring of academic integrity.

- Steps are taken to ensure that assessments and feedback are fair, reliable, flexible and inclusive, taking into account student diversity, including processes to take account of the requirements of individual students, as appropriate.

1. Grades are clearly delineated making use of the full marking range, with 3 marking blocks in the 70-100% range (70%-79%, 80-89%, and 90-100%)

Explaining the assessment and feedback principles and recommended good practices

Below a brief explanation of each of the principles and recommended good practices is provided, with examples to demonstrate how these might be achieved. Further examples from across the disciplines will be available in the Learning and Teaching Hub www.northumbria.ac.uk/learningandteaching

1. Help clarify what good performance is (goals, criteria, standards).

To what extent do students in your course have opportunities to engage with, clarify and understand goals, criteria and standards, before, during and after an assessment task?

Explanation

Underperformance in assessment tasks has been linked to lack of clarity regarding expectations. Students often do not understand written definitions of criteria and standards, which are often insufficient to convey meaning. Therefore more time should be spent by students identifying and discussing criteria, both at the planning stage and as they engage with tasks. The more students actively engage with goals, criteria and standards, the more likely they are to internalise them and use them in their own learning.

Examples

- Get students to examine completed assignments and evaluate these against the assessment criteria before attempting an assignment. This is particularly valuable for open-ended tasks where criteria are tacit and difficult to express with verbal descriptions.
- Teachers can also model how they would think through and solve exemplar problems in class, paying attention to the concepts behind problems.

2. Encourage 'time and effort' on challenging and authentic learning tasks.

To what extent do your assessment tasks focus student learning on meaningful and applied learning tasks, rather than surface learning of isolated facts and figures?

Explanation

Focus assessment on meaningful and complex assessments spread across a module to get students to engage actively with learning.

Examples

Consider breaking down large assignments into smaller tasks that are undertaken at regular intervals across the module, creating opportunities for feedback during the process of the assessment (self, peer, group or individual). For example, a project/essay requiring a project/essay plan, annotated bibliography, and presentation of key arguments and evidence as tasks to be completed during the course of the module.

3. Provide high quality feedback and opportunities that enable learners to close the gap between current and desired performance.

What kind of feedback do you provide – in what ways does it help students evaluate their levels of achievement, and does it include 'feed forward' that can be used before the final hand in date? To what extent is feedback attended to and acted upon by students in your module, and if so, in what ways?

Explanation

Good quality teacher feedback should help students check their understanding of assessment requirements, criteria and standards, and self-regulate their own performance.

In order to do this, it must be timely, so that students can use it to improve their next piece of work, or their final summative assessment; and it must be understood, ideally by relating feedback to well defined assessment criteria, with information on how and where students should focus their efforts to improve.

Greater effort needs to be paid to creating opportunities for students to use feedback to improve their performance, for example by providing feedback on work in progress to enable students to use feedback to improve their summative assessments.

Examples

- Generic feedback could be provided to the class at the point when they submit their work, when they have just worked through the assignment and are at their most receptive. This could take the form of a handout outlining suggestions in relation to problem areas identified in previous cohorts, supplemented by in-class explanations (Race 2005). Alternatively this could be given to students in advance of handing in their work.
- Another technique is to ask students to identify three questions they would like feedback on, in order to involve them in evaluating their own work.
- Students may also be asked to self-assess their work against the criteria prior to submission, so that they can compare their own evaluation to that of an expert.
- Classroom time can also be used to involve students in identifying action points for future assignments using the feedback they have received.
- The Skills Plus programme at the library has been used effectively to link feedback to resources that could support students in specific areas, for example referencing, or tutorials on evaluating information. FADS already have a standard section within their feedback form directing students to Skills Plus and with the introduction of electronic submission, marking and feedback there is potential for these links to be made electronically.

4. Ensure summative assessment impacts positively on learning

To what extent do you use summative assessment rigorously, but sparingly, to develop valued qualities, skills and understanding?

Explanation

It has been argued that summative assessment has the largest impact on student learning, influencing the knowledge and skills students pay most attention to developing. Summative assessment should therefore focus on the full range of qualities, skills and knowledge defined in the learning outcomes.

Example

Students are more likely to focus on developing a wide range of skills and understanding if they are expected to develop a profile of achievement, rather than simply being given a grade or a single score. Detailed transcripts and portfolio assessments can address this.

5. Create formative assessment opportunities

To what extent do students have opportunities to try out and practice knowledge, skills and understanding before they are summatively assessed?

Explanation

Formative assessments should be used to help build up the knowledge and skills that will be assessed summatively. If formative assessments are not aligned with summative assessments students are less likely to engage with them. Staff workloads can be kept manageable if summative assessments are minimised, while providing students with many opportunities for formative assessment and feedback including self, peer and tutor feedback. Attributes which are difficult to assess summatively can be developed formatively, and recorded by students through portfolios which can be shown to prospective employers.

Examples

Skills Plus have been involved with a range of programmes to embed formative assessment opportunities into the curriculum, for example in the pre-registration health module elements of Skills Plus are being linked to the curriculum to develop student awareness of their skills before attending sessions to discuss their knowledge and understanding.

6. Encourage interaction and dialogue around learning and assessment (peer and teacher-student).

What opportunities are there for feedback dialogue (peer and/or tutor-student) around learning and assessment tasks in your module/programme?

Explanation

Student-student and student-teacher interaction and dialogue is a key condition for student learning. It can help to clarify the meaning of feedback messages (e.g. 'this report requires more critical analysis') and clear up conceptual misunderstandings. Students generally request more opportunities for one-on-one contact with academic staff, however, with increased demands on academics' time this can be hard to maintain. Peer dialogue, when suitably organised, can support student-teacher interaction by providing opportunities for students to work together to test their own ideas and skills, and expose students to alternative perspectives. New technologies such as electronic discussion boards and electronic voting systems can also enhance dialogue and feedback.

Examples

- Students can be asked to read the written feedback they have been given and discuss with peers in tutorials, asking them to develop ideas and strategies they could use to improve performance next time. Students can also be asked to give each other feedback using the assessment criteria prior to submission.
- Group work provides excellent opportunities for students to discuss progress in relation to goals and criteria before and during the project.
- Electronic voting systems can be used in class to check understanding of difficult concepts presented in the class, which can provide immediate feedback to students on their understanding and promote active engagement in lectures. This can be enhanced by incorporating peer discussion, for example by getting students to convince each other they have the right answer before testing students again. Class wide discussion can also be used to get students to explain the reasoning behind their choice.
- The one-minute paper can also be used, asking students at the end of class to answer two short questions: 'what was the key idea in today's lesson?' and 'what question remains unanswered in your mind? Teachers can then use the answers to provide feedback and stimulate discussion at the next lecture. This is a useful way of building dialogue in large classes.

7. Facilitate the development of self-assessment, reflection in learning and autonomy

To what extent are there formal opportunities for reflection, self-assessment or peer assessment in your course to enable students learn to evaluate their own progress and direct their own learning?

Explanation

One of the most effective ways to foster independent learning is to provide students with many opportunities to practise regulating aspects of their own learning. Self-assessment tasks are a good way of doing this, as are activities that encourage reflection on progress in learning. A key principle behind self-assessment and self-regulation is that students are involved both in identifying the standards/criteria that apply to their work and in making judgements about how their work relates to these standards.

Examples

- Students asked to make some judgement about their work before an assignment submission (e.g. its strengths, whether they have met certain criteria) or estimate the mark that they think will be awarded.
- Involve students in constructing portfolios and choosing topics of study (where appropriate), to encourage them to reflect on their achievements and to make judgements in selecting work that meets criteria for academic standards and professional development. This can encourage students' sense of ownership over their work and accomplishments across a range of complex skills and knowledge.
- Create opportunities for students to provide feedback on each other's work, using assessment criteria.
- Give students opportunities to identify the areas they would like feedback on.
- On line multiple choice tests and quizzes that students can use formatively to develop their understanding prior to summative assessment.
- Students keep a reflective journal in relation to learning on a course.

8. Ensure an inclusive approach to assessment and feedback

To what extent have you developed flexible assessment tasks and feedback that facilitates learning and achievement across a diverse and increasingly internationalised student body.

Explanation

Meeting the needs of a diverse student body can involve inclusive assessment and feedback that are built into course design at the outset to meet the needs of the majority of students, as well as individual adjustments to meet the needs of individual students. There is a lot staff can do to make their assessments and feedback as inclusive as possible in the first place and this will then cut down the need to make individual adjustments for particular students. Where possible this is favourable to individual adjustments made in response to individual need. Research at Northumbria found students preferred inclusive approaches over individual adjustments (Strachan 2012). One way of approaching inclusivity is to focus on meeting the learning outcomes, rather than specific teaching and assessment methods, since the same learning outcomes can often be achieved through many different methods of assessment. This approach can lead to a more flexible and open approach to considering different ways in which the learning outcomes can be met.

Examples

- In Architectural Studies at Northumbria students undertake a Student Selected Investigation which requires 10,000 words **or equivalent**, where students are permitted and encouraged to use relevant communications methods to achieve the intended learning outcomes of the inquiry. In architecture, this permits the use of videos, podcasts, visual methodologies etc. The programme also makes use of Learning Contracts, whereby students demonstrate learning through the building of models, mock-ups, and structures etc. coupled with a written reflective critique.

- Some students, such as students with dyslexia may be given additional time in examinations. This might also legitimately apply to students writing in their second or third language. A student with blindness may require the use of assistive technology in an examination. A student with Asperger Syndrome may require adjustments to an oral presentation assessment.
- In certain programmes at Northumbria Direct Entry International Students (i.e. Final Year Entrants) complete a project instead of a dissertation (which is required for home students). This, as argued in the literature and reflected in practice across the sector, can be a more appropriate forum for International students to successfully demonstrate that they have met the intended Programme learning outcomes.

Recommended Good Practices of Assessment and Feedback

1. Support the development of learning groups and learning communities.

To what extent do your assessment and feedback processes help encourage social bonding and the development of learning communities?

Explanation

Academic success and retention at University have been shown to be highly dependent on experiences of social integration, by whether students participate in friendship groups, have a sense of belonging, feel part of the wider academic community and have contact with academic staff outside the classroom.

Social integration is particularly challenging and important where there are large class sizes, a wide mix of cultures with students of different nationalities, ages and backgrounds and with commuter students with external commitments and part-time employment. Assessment practices can influence both academic integration and social integration in and out of class.

Examples

- Group projects and assignments can lead students to study together and to form friendships and affinity groups. This is particularly important when students first enter university but should not be neglected in later years. In some cases, students might select the members of their own group while in other situations it may be appropriate to manage the membership mix, for example, when the aim is to enhance cross-cultural understandings. Key challenges include balancing and assessing individual and collaborative contributions to group projects, and managing plagiarism.
- Building support and mentoring of first year students by more senior students
- Encouraging the formation of peer study groups
- Online environments can help enable supportive relationships to develop amongst commuter students with external commitments.
- Contact with members of academic staff, and a sense that there is empathy, has also been shown to enhance social integration. This can be supported by developing learning communities and societies around academic study, or professional roles.

2. Encourage positive motivational beliefs and self-esteem.

To what extent do your assessments and feedback processes enhance and encourage your students' motivation to learn and excel?

Explanation

Motivation is central in learning and assessment as it is linked to self-confidence, self-efficacy (belief in the ability to do something) and self-esteem. Students' motivation is determined by whether they perceive that their own needs are being met, whether they see value in what they are doing and whether they believe they have the ability to succeed with reasonable effort. Research has shown that frequent high stakes assessment (where the focus is on marks or grades) can have a negative impact on motivation for learning, and especially when the marking regime limits opportunities for prior practice and feedback. Dweck (1999) argues

that such assessments encourage students to focus on performance goals (passing the test) rather than learning goals (mastering the subject matter). Feedback given as grades and without comments has also been shown to have especially negative effects on the self-esteem of low ability students.

Examples

- Create opportunities for early experiences of success (this might require early and regular low stakes assessments)
- Encouraging students to focus on learning goals (mastering the subject) not just performance goals (passing the test, looking good), for example by providing formative tests where students can self-assess
- Develop authentic assessment tasks that mirror the skills needed in the workplace and providing opportunities to experiment

3. **Provide opportunities, where appropriate, for student choice in the topic, method, criteria, weighting or timing of assessments.**

To what extent do students have input into and choice in the topics, methods, criteria, weighting and/or timing of learning and assessment tasks in your module?

Explanation

The provision of choice in the topic, methods, weighting, criteria or timing of assessment tasks is about offering learners more *flexibility* in what, how and when they study. Greater flexibility gives students control over aspects of their learning and prepares them for their future as lifelong learners. When students enter the workplace they will often be required as professionals to create the criteria for their own learning and assess themselves against these criteria. Hence at university, students should have opportunities to develop these skills.

While the learning outcomes will remain the same, not all students progress in learning at the same pace, and learning may need to be tailored to individual needs. This is particularly important in meeting the needs of learners with special educational needs, such as dyslexia or international students, who may require different modes of assessment in

order to demonstrate that they meet the learning outcomes of their course of study. A key issue is comparability of standards: flexibility should not allow students to avoid critical areas of the defined curriculum. One approach is to provide flexibility in formative opportunities that help students develop the skills required in order to achieve those outcomes.

Examples

- Students select topics for project work
- Choice in when students can take an online test.
- In portfolio assessment, students are asked to choose what content to put forward for assessment, to evidence their achievement.
- Involve students in developing assessment criteria, or adding their own criteria to those provided by the teacher, for example when engaging in project work (with assessment being based on both sets).

4. Involve students in decision-making about assessment policy and practice.

To what extent are students in your course engaged in consultations regarding assessment decisions?

Explanation and examples

As partners in learning, students are involved in decision-making about assessment policies and strategies at course, department, faculty and institutional level. The latter two normally occur through student representation on faculty and university academic committees that have a learning and/or assessment brief (e.g. a programme validation committee) and/or by students providing feedback on their assessment experience with this feedback being used to make continuous improvements in assessment practices.

Students can also be involved in some cases in developing the curriculum, for example, final year students might work with first year course leaders to re-design assessment tasks so they are more engaging. First year students could be involved in discussion about why marks for an assignment are allocated the way they are or why assessments are

structured in a particular way. A key idea behind such developments would be to foster ownership by students and enhance their level of engagement in the university.

5. **Provide information to teachers that can be used to help shape their teaching**

To what extent do your formative and summative assessments and feedback processes inform and shape your teaching?

Explanation

Good assessment and feedback practice is not only about providing good information to students about their learning: it is also about providing good information to teachers. It provides teachers with information on how well students have learnt, and areas that require further attention. There are a number of ways teachers can gather data on their students' learning, besides monitoring student performance on marked assessments.

Examples

- Regular formative assessment tasks provide rich information about the development of students' understanding and skill.
- One minute papers, where students carry out a small assessment task at the end of a session which is handed in anonymously can provide useful feedback on learning (e.g. what was the main point of this lecture? What question remains outstanding for you at the end of this teaching session?). Regular use of this technique has also been shown to help build a sense of community in class.
- Electronic voting systems can provide teachers with immediate feedback on students conceptual understanding
- Engaging students in discussions about assessments can provide another source of feedback to the teacher or the department.

Section 3: Guidelines for Implementation

This section provides guidelines about how to implement the Principles, recommended good practices and enabling requirements described above. The Principles should be core to all assessment and feedback practices, the recommended good practices should be supported and developed across programmes, while the enabling requirements should all be in place in order to implement the Principles and recommended good practices.

1. **Using professional judgement in implementing the Principles and recommended good practices**

   The Principles and recommended good practices should be understood holistically as a set of principles and practices to enhance assessment and feedback. In practice, many of the principles overlap, while not all will be relevant to all situations and contexts. Teachers and managers of learning and teaching should use professional judgement in applying the principles and recommended practices in a manner that is appropriate to their disciplinary and professional contexts. The enabling requirements all need to be in place in order to achieve the Principles, to assure an effective environment for enhancing assessment and feedback.

2. **Involve students actively in the implementation of the Principles**

   Student engagement is a central principle underpinning the Principles and recommended good practices. This principle of partnership needs to be actively pursued and developed so that students are aware of their rights and responsibilities as partners in assessment and feedback. It is important that the assessment and feedback Principles are communicated with students at institutional, faculty, programme and module level, so that they understand why changes are being made, and the benefits for students of engaging with these developments, and so that a coherent message is communicated across all levels.

   The more students can be involved as critical and independent learners in assessment and feedback, the more it will enhance their learning (for example, in a session where students were examining examples of assessed work, it would generally be more beneficial for them to have an opportunity to identify which is better and why, rather than simply to give students a model answer).

3. **Align responses to the National Student Survey to the assessment and feedback Principles**

   While Northumbria University does best on the assessment questions in the NSS relative to other Universities (ranked 19/124 in CUG HEIs 2012), responses to the questions on assessment are still the lowest scoring category (73% in 2012), as is the case across the UK. Northumbria does particularly poorly on question 9 'feedback on my work has helped me to clarify things I did not understand' (66% in 2012 - the only NSS question where NU scores below 70%). The Policy on Assessment and Feedback should be used holistically to improve scores on the NSS in relation to assessment and feedback. This will require more than mechanistically providing more detailed feedback to students, or making assessment criteria available in module handbooks: efforts need to be made to actively communicate expectations and standards to students so that they understand the role of feedback in their learning, and their rights and responsibilities in relation to assessment and feedback.

4. **Align responses to the International Student Barometer Survey to the assessment and feedback Principles**

   In the case of certain programmes, i.e. those where there are large cohorts of Direct Entry students who will not complete the NSS, reference should be made to the International Student Barometer student satisfaction scores related to "assessment" and "performance feedback". In the most recent survey 848 International students responded to the assessment question and 860 to the feedback question.

5. **Align responses to External Examiners feedback to the assessment Principles**

   External examiners provide extremely valuable feedback on the quality of assessment practices at Northumbria University. The Assessment and Feedback Policy can be used to make sense of comments from external examiners and identify where actions need to be targeted to bring about the intended changes.

6. **Use digital technologies to support and add value to the implementation**

   The assessment principles and recommended good practices should be used to inform the application of new technologies to assessment and feedback. The opportunities created by the eSAF process should be embraced in

implementing the Principles and recommended assessment and feedback practices. In addition, innovations at the forefront of technology enhanced assessment and feedback should be supported.

7. **Take a holistic approach to implementing improvements across modules and programmes**

   The Assessment and Feedback Policy should be applied across programmes, departments and faculties, rather than in a piecemeal way to individual modules. This is important if students are to develop a coherent understanding of expectations in relation to assessment across the student learning journey. They need to experience a consistent message about assessment and feedback across their programme of study. This should be achieved through a coordinated approach to enhancing assessment and feedback at institutional, departmental and faculty level in implementing the Policy. This enhancement approach should be reinforced through the approval and review processes, by evaluating how well programmes meet the Policy framework. It should also be considered in the process of implementing changes to programme design and delivery, for example, to align with the new Principles for Programme Structure and Delivery (SLE, May 2013).

8. **Evaluate the impact of changes brought about by the implementation of the assessment principles**

   It is important to evaluate the impact of changes to assessment and feedback practices. A key measure would be improvements in institutional KPIs, in particular to the NSS questions on assessment (including an increase in positive qualitative comments by students), the achievement of good degrees, and enhanced external examiner feedback. It is also possible to measure some process improvements, for example, enhanced learning opportunities for learners, such as opportunities for peer dialogue, self-assessment, or inclusivity in assessment choices before and after a redesign.

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INTRODUCTION TO COMPONENT 2: *'Towards a Learning Commons for Architecture'* (2013)

Reference: Holgate, P. and Sara, R. (2014) 'Towards a learning commons for architecture'. *Charette*, 1(1), pp. 146-155. Available at: https://architecturaleducators.wordpress.com/aae-journal/charrette-11/ (Accessed: 29 July 2015)

Background: As one of the founding members of the Association of Architectural Educators (AAE), the author collaborated to the establishment and development of a new organization with the following collegial aims:

1. To develop, support and represent communities of practice and learning in architectural education in the U.K. and Ireland.
2. To foster inclusive dialogues between the AAE community, students and employers, and educational and professional bodies.
3. To encourage research and scholarship of teaching and learning in architectural education through critical and reflective discourse.
4. To promote the value, richness, quality, and diversity inherent in architectural education.

Output: This position paper supports the application of the principles of 'Scholarship of Teaching and Learning' to architectural education, in support of critically reflexive, trans-disciplinary, and co-created curricula

Impact: The AAE continues to support the exchange of pedagogic ideas in architectural education throughout the UK and beyond. To date, two international conferences have been successfully delivered, a new peer-reviewed journal, 'Charette' (which includes this paper) has been published, and an organizational web-site has been established:

https://architecturaleducators.wordpress.com/

Collaborator: Dr Rachel Sara

COMPONENT 2: TOWARDS A LEARNING COMMONS FOR ARCHITECTURE

Peter Holgate, Rachel Sara

Abstract

The newly formed aae generates a unique opportunity to establish a learning commons for architecture, in which architectural educators committed to inquiry and innovation convene: to exchange ideas; to collaborate in the co-creation of knowledge; and to employ these outputs in meeting the challenges of educating architecture students for personal, professional, and civic life. This position paper reflects on the provenance and development of the Scholarship of Teaching and Learning (SoTL) movement in order to build a case for such a commons. Through this model, we argue that the aae might be conceived as a conceptual space which should be established as an inclusive, critical and collegiate community of practice, dedicated to the public exchange, development and communication of architectural education.

Keywords

scholarship, architecture, education, learning commons, aae.

Scholarship Reconsidered

Architectural education exemplifies great creativity and innovation. However, it is also often undertaken in isolated silos, with little collaboration across schools of architecture, let alone with outside disciplines. In addition, beyond the annual external examination process (whereby academics and professionals are appointed to give feedback to the appointing school of architecture on its teaching, learning and assessment processes) there are relatively few opportunities to share, critique, validate or develop particular educational processes or associated knowledge production, with peers both within and outside the discipline. Accordingly, it is often difficult to explain or justify the value of architecture's educational methods to those outside of the discipline (particularly institutional managers at a local level, and government bodies at a national level). Additionally, opportunities to share the experience, expertise and learning of others are being missed. We believe that the association of architecture educators (aae) has the potential to respond to this lack of scholarly community. This position paper draws on the development of the Scholarship of Teaching and Learning

movement (SoTL) to build a case for defining the role of the aae as a learning commons for architecture.

In architectural education Ernest Boyer is best known as one of the co-authors of *Building Community: A New Future for Architecture Education and Practice* (Boyer & Mitgang, 1996). Based on data gathered from schools of architecture in the USA, this work celebrated educational strategies within the discipline whilst also highlighting conflicting demands, values and aspirations within architectural tuition. 'Building Community' proposed several goals for architectural education, which were intended to benefit students, academics, practitioners and the wider society. In short, these goals can be understood as responding to four interrelated areas: the academy, the profession, the community and the students themselves (see figure 1).

Fig. 1: Summary of the key goals outlined in the Building Community report (after Boyer)

The aims of *Building Community* were:

• Goal 1: *An Enriched Mission*; whereby students are empowered with a duty to promote a wider agenda of beauty in support of an enriched environment and society

• Goal 2: *Diversity with Dignity*; promoting inclusive, varied, accessible and creative educational environments
• Goal 3: *Standards without Standardization*; maintaining diversity in provision and offer while maintaining rigorous, fair and open professional and educational standards
• Goal 4: *A Connected Curriculum*; fusing the scholarships of teaching, inquiry and engagement with other communities within and outside the academy and the profession
• Goal 5: *A Climate for Learning*; providing learning communities, which are supportive, transparent and sharing of common purposes between students, academics, support staff and professionals
• Goal 6: *A Unified Profession*; seeking closer collaboration and understanding between the academy and the architectural profession
• Goal 7: *Service to the Nation*; establishing an ethical and socially activist agenda in architectural education for the betterment of society and the environment.

Sadly, the achievement of these goals remains elusive in a contemporary context of mass higher education, decreasing budgets, perceived competition, managerial cultures and associated time pressures, although some progress has been made; the prompt to connect higher education with the profession, the wider community, and society as a whole suggests a move away from the ivory tower of the academy, and into the real world. Considering this agenda in the context of the Research Excellence Framework (REF, 2014a) this has potential parallels with the increased emphasis given to 'impact' of research as measured by reach and significance (REF, 2014b), implying a paradigmatic shift in the way academics in the UK understand the relationship between the university and wider society.

'*Building Community*' could be considered as a discipline-specific development of key themes that emerged from Boyer's previous publication *Scholarship Reconsidered* (1990). This report, commissioned by the Carnegie Foundation for the Advancement of Learning, evaluated the aims and practices of higher education institutions in the USA at the end of the 1980's. Its findings challenged a commonly accepted hierarchy of research, teaching and service within the academy; Boyer argued that this narrow view of scholarship maintained a divisive and false separation between researching to establish new knowledge and teaching old knowledge, manifesting itself in:

1) a disproportionate bias in the academy towards the tenure and promotion of research staff,

2) an assumption that teaching excellence requires minimal effort and support, thereby being predominantly viewed by academies as being of lesser value than research,
3) a consequent depletion of, and lack of concern for the undergraduate's learning and social experience.

To challenge this culture, Boyer called for the definition of scholarship to be broadened beyond the narrow limits of singular disciplinary research. Boyer categorised four distinctive forms of scholarship to be acknowledged, developed and rewarded within the academy: the Scholarship of Discovery, the Scholarship of Integration, the Scholarship of Application and the Scholarship of Teaching. In this taxonomy, Boyer assigned traditional inquiry and research to the Scholarship of Discovery. Secondly, he proposed that the Scholarship of Integration should incorporate academic work that is multidisciplinary, contextual, adventurous, and developed through and for a wider academic community. Thirdly, the Scholarship of Application revitalised notions of higher education informing practice and providing social and economic benefits. Finally, the Scholarship of Teaching sought to recognize and reward efforts to establish critical and rigorous cultures of teaching and education within the academy for the enrichment of learning communities; 'Without the teaching function, the continuity of knowledge will be broken and the store of human knowledge dangerously diminished' (Boyer, 1990, p.24). Boyer's report sought to assign equivalent and mutually dependent values to each scholarship, viewing all four as being interlinked and essential to the continued health of higher education institutions. His commentary also stressed the importance of developing communities of learning wherein students, academics and administration shared common goals and values, in order to achieve and support his fourfold model of scholarship.

After more than two decades since the publication of Scholarship Reconsidered, it could be argued that there has been a limited response to Boyer's recommendations (Peel, 2009) There has perhaps been a small shift in the way in which research is valued, with a move (in Boyer's terms) from the Scholarship of Discovery towards a greater emphasis on the Scholarship of Integration (as evidenced by research funding bodies' increased emphasis on multidisciplinary projects) and the Scholarship of Application (as evidenced by the increased value given to impact in the REF 2014). However, the scholarships of integration and application are still arguably subordinate in research circles, with anecdotal evidence suggesting that both interdisciplinary and applied research remains under-promoted (Wooding, 2013).

With respect to Boyer's scholarship of teaching, the Higher Education Academy was founded in 2004 to 'support the higher education community in order to enhance the quality and impact of learning and teaching. [They] do this by recognising and rewarding excellent teaching, bringing together people and resources to research and share best practice, and by helping to influence, shape and implement policy' (HEA, 2013). This body has created an award system for academics engaged with the scholarship of teaching, providing professional recognition through the titles of Associate, Fellow or Senior Fellow to the HEA. This system has consequently started to support the value of teaching within the academy, with some universities now recognising teaching and learning as an alternative route to promotion, readerships and professorial appointments. However, the ratio of funding indicates little actual change, with available grant funds being heavily biased towards the scholarship of discovery, and fewer opportunities available for the funding of the scholarship of teaching.

Scholarship Assessed and the Scholarship of Teaching and Learning

Scholarship Reconsidered prompted the publication of *Scholarship Assessed: Evaluation of the Professoriate*, which responded to academic demand to define criteria for the assessment of Boyer's four scholarships. This volume proposed shared and qualifiable values for evaluating academic quality: 'in order to recognize discovery, integration, application and teaching as legitimate forms of scholarship, the academy must evaluate them by a set of standards that capture and acknowledge what they share as scholarly acts' (Glassick et al., 1997, p. 22). Through a systematic evaluation of institutional criteria for the assessment of service, teaching and research, this report distilled a set of six qualitative standards by which 'scholarship' could be identified and assessed (see Figure 2). These were identified as: 'clear goals', 'adequate preparation', 'appropriate methods', 'significant results', 'effective presentation', and 'reflective critique' (ibid, 1997, p. 25).

Scholarship Reconsidered, in common with *Scholarship Assessed*, had been commissioned by the Carnegie Foundation for the Advancement of Teaching. The Foundation employed the recommendations of these reports in establishing the Carnegie Academy for the Scholarship of Teaching and Learning (CASTL), a key driver of the Scholarship of Teaching and Learning movement (SoTL). This movement was developed to encourage critically reflective inquiry into educational methods and theories for the promotion of successful student learning. One of the guiding principles

of the SoTL movement was a philosophical shift from teaching to learning: 'By engaging students in the conceptualization of a problem, they are invited to exercise the best of their analytic and speculative abilities' (Eisner, 1994, p. 82). In contrast, it could be argued that many educators in schools of architecture school have traditionally adopted a behaviourist paradigm with 'knowledge as power' underpinning the pedagogical approach (Parnell & Sara, 2007; Webster, 2007).

SIX QUALITATIVE STANDARDS FOR THE IDENTIFICATION AND ASSESSMENT OF SCHOLARSHIP (Glassick, Taylor-Huber, Maeroff, 1997, p. 36)	
Clear Goals	Does the scholar state the basic purposes of his or her work clearly? Does the scholar define objectives that are realistic and achievable? Does the scholar identify important questions in the field?
Adequate Preparation	Does the scholar show an understanding of existing scholarship in the field? Does the scholar bring the necessary skills to his or her work? Does the scholar bring together the resources necessary to move the project forward?
Appropriate Methods	Does the scholar use methods appropriate to the goals? Does the scholar apply effectively the methods selected? Does the scholar modify procedures in response to changing circumstances?
Significant Results	Does the scholar achieve the goals? Does the scholar's work add consequentially to the field? Does the scholar's work open additional areas for further exploration?
Effective Presentation	Does the scholar use a suitable style and effective organization to present his or her work? Does the scholar use appropriate forums for communication work to its intended audiences? Does the scholar present his or her message with clarity and integrity?
Reflective Critique	Does the scholar critically evaluate his or her own work? Does the scholar bring an appropriate breadth of evidence to his or her critique? Does the scholar use evaluation to improve the quality of future work?

Figure 2: Qualitative Standards for the Identification and Assessment of Scholarship (after Glassick et al., 1997)

A key aspect of the Scholarship of Teaching and Learning is the commitment to open and inclusive dissemination of scholarly inquiry, making pedagogic research findings public and open to scrutiny. As such, it can be viewed as outward-facing, collaborative, and supportive of dialogue, in contrast with other forms of educational research (Kreber, 2002). Lee Shulman, who succeeded Boyer in the role of President of the Carnegie Institute, was a pivotal influence in the embedding of this principle as a core value of SoTL. Shulman argued that the dissemination of scholarly, peer-reviewed educational research was a necessity, in order to withstand critical comparison with academic research in other fields. 'An act of intelligence or of artistic creation becomes scholarship when it possesses at least three attributes: it becomes public; it becomes an object of critical review and evaluation by members of one's community; and members of one's community begin to use, build upon, and develop those acts of mind and creation' (Shulman, 1999, p. 17).

The Learning Commons and Architectural Education

Drawing upon Shulman's commitment to the wider dissemination of teaching and learning research, the development of SoTL has continued to champion educational inquiry as community property. This principle has been extended by Huber and Hutchings into the conceptualization of the Teaching Commons, an academic space whereby 'communities of educators committed to pedagogical inquiry and innovation come together to exchange ideas about teaching and learning and use them to meet the challenges of educating students for personal, professional, and civic life' (Huber & Hutchings, 2005, p. x). We argue that of all the transferable lessons from the SoTL movement, an adapted concept of the Teaching Commons has potentially the greatest value for both architectural education in general, and for the development and identity of the aae as a community of learning. This 'academic space' is reconceived as a 'learning commons' in order to emphasise the aforementioned shift in focus from teaching to learning, as well as to acknowledge the commons as a place of communal learning. With respect to the challenges laid down by *Building Community*, the development of an architectural learning commons could provide a new platform for addressing Boyer's goals.

Huber and Hutchins employ the metaphor of the Commons Room in their proposals, as a space where teachers form a supportive community to share experiences and good practice, thereby resisting the 'pedagogical solitude' identified by Shulman (1993). The title of the Teaching Commons however has been imbued with contemporary

resonance with the rise of Creative Commons; this cultural movement seeks to resist the proliferation of unnecessary barriers to knowledge dissemination: 'Creative Commons develops, supports, and stewards legal and technical infrastructure that maximizes digital creativity, sharing, and innovation' (Creative Commons, 2013). For educators with a commitment to architectural education as a social, inclusive, engaging, and enriching activity, the extended concept of the learning commons seeks to establish a mutually supportive yet diverse community of practice, in short, shifting expertise and content from private stock towards community property. It also supports collaborations that break free of institutional and disciplinary boundaries to promote wider dialogues regarding architectural and educational values. We assert that co-operation within and beyond the current confines of architectural education could open up valuable and emancipatory possibilities for all participants, as discussed under the following themes of pedagogy, resourcing, policy and ethics:

Pedagogy

The Scholarship of Teaching and Learning places education (in its broadest sense) at the heart of its mission. By their complex nature, architectural and design teaching methods are often seen as antithetical to the managerial enforcement of modularisation, cost-control and timetabling in Higher Education. These one-size-fits-all practices may drive institutions towards a default model of traditional lecture-based delivery for all programmes, irrespective of signature pedagogies and effective learning. In order to counter institutional antipathy towards studio based learning an effective and inclusive counter argument, grounded in educational research from wider scholarly sources, could offer a common position for all schools in presenting the studio as a unique, authentic and invaluable learning environment. In support of this position, an argument can also be made that architectural curricula may be underpinned by validated pedagogical theories, encompassing 'constructive alignment' (Biggs & Tan, 2009), subject specific 'ways of teaching and practicing' (Entwistle, 2009), discipline-specific pedagogical content knowledge (Shulman 1986), reflective practice (Schon 1983; Schon 1985), and communities of design practice (Wenger, 1999), amongst others.

An outward facing Learning Commons could reciprocally learn from external disciplines when seeking to address the concerns of *Building Community*, as well as promoting the methods of architectural education to other disciplines in Higher Education. Such methods, including live projects, design reviews, project-based and experiential

learning, appear to provide excellent examples of the scholarships of integration and application, coupling interdisciplinary working with transferrable applicability across subjects. The aae holds the potential to act as a shared and inclusive repository of such educational inquiries and publications, as well as a catalyst in encouraging and developing critical and reflective approaches to learning and teaching issues in architectural education.

Resources

The charge of architecture programmes being expensive and resource-demanding is commonly held by university managers, and typically justified by facile comparisons with 'chalk and talk' teaching methods (Blackmore & Kandiko, 2012). Studio spaces have become a battleground of institutions, being regarded as an example of 'special pleading' on behalf of the discipline. The costs of five years of architectural education for the student are compounded by recent rises in tuition fees, and the expense of architectural education's methods of production; printing, equipment, media and materials costs, field study trips, book binding, exhibitions etc. An Architectural Learning Commons could share knowledge and initiatives to drive economies of time, money and effort through open and constructive collaboration. Possible examples of collaborative ventures (with many of these already being practised through local agreements) could include:

• the sharing of learning materials, particularly copyright free images, open-source materials, and old and common knowledge, circumventing the time consuming and expensive procedures of copyright clearance employed within Universities.

• reciprocal arrangements for staff exchanges for studio reviews, peer observation, critical friendship, and sharing of good practice. With institutional managers remaining sceptical of the value and requirements for visiting reviewers etc., the establishment of school partnerships could widen the pool of expertise available to all participating institutions. Although the HEA organises two-way exchanges, a discipline-focused community of practice could perhaps establish more flexible collaborations.

• the shared use of expertise, contacts and physical spaces for national and international field study trips; connections with student and staff communities at home and abroad can only serve to enrich the students' learning experiences. The pooling of local and situated knowledge can serve to improve the range and quality of

opportunities for travellers. A practical example is the invaluable feedback received by one of the authors from colleagues in other schools concerning approaches to the duty of care with relation to overseas field study trips. Collated responses contributed to an alteration in the institutional policy of the author's workplace, to the cost benefit of both architectural and geography students.

• the co-operative funding of visiting speakers from overseas, teaching and learning conferences, student design awards etc. The funding of key speakers from practice, particularly from overseas, can be an expensive proposition. The possibility of supporting national 'tours' of such speakers, including regional centres beyond London, could be enabled by collaborative, cross-institutional organisation.

Policy

Architectural education appears to be at the centre of a political storm, with a variety of policy initiatives threatening the sustainability and diversity of the discipline. UK Higher Education policies currently privilege STEM subjects (Science, Technology, Engineering and Mathematics) in terms of funding opportunities, whilst excluding architecture and construction from this categorisation. There appears to be scant recognition of the contribution of the building industry to exports and GDP, and even less recognition of the potential of architectural education to serve as a transferrable model of education to these STEM subjects. A collaborative and concerted position could strengthen a collective bargaining position for schools of architecture, in contrast to the currently divisive and target-driven competition between institutions. Further external challenges to architectural education are manifesting themselves in the current political and economic climate. At the time of writing, challenges to programme length, widening access, and the perceived misalignment of the academy with the profession, are issues being raised and challenged (Building Futures, 2013; UK Architectural Education Review Group, 2013). While schools of architecture in the United Kingdom are raising tuition fees, European universities are offering heavily subsidised programmes, many of which are now being taught in English. Recent amendments to border control policies in the UK have also effectively dissuaded international students from applying to study in the UK; unfortunately, Boyer's goal of 'diversity with dignity' appears to be moving further away.

Ethics

In spite of the competitive pressures for individual Schools of Architecture to sell themselves as uniquely capable of delivering high quality curricula, it could be argued that collective architectural education constitutes a Scholarship of Integration in support of valuable, relevant and good work (Gardner et al., 2007); it thereby develops key academic, professional and transferrable skills in its scholars. This paper asserts that schools will not necessarily lose their distinctive values and philosophies by sharing common knowledge, skills, resources and expertise with one another. If Boyer and Mitgang's goals of 'a unified profession' and 'service to the nation' are to be achieved, closer collaboration towards common goals is desirable, not least in establishing solidarity in the promotion of the intrinsic qualities and potential of architectural education. Concurrently, further collaborative educational research would benefit the critical development of architectural pedagogies to address recalcitrant problems of traditional teaching methods. *Building Community* identified many of these issues over twenty years ago, and yet these remain at best tolerated, at worst celebrated; adversarial student feedback mechanisms (Parnell & Sara, 2007; Webster, 2007), unhealthy and unsociable student time management (Bachman & Bachman, 2006; Holgate & Jones, 2012), gender imbalance and professional barriers to women in architecture (de Graft Johnson et al.), are examples of normative practices in architectural education which require both critical reflection and evidence based solutions.

Further opportunities for SoTL within Architectural Education

'…we are convinced that architecture education, at its best, is a model that holds valuable insights and lessons for all of higher education as a new century approaches' (Boyer & Mitgang, 1996, p.5)

Higher education institutions and their individual programmes of architectural study in the UK are facing multiple challenges which threaten their continued survival. The introduction and increase of tuition fees has put financial sustainability at the centre of this conversation. Where institutional management has embraced the quasi-privatisation of universities, students have been re-assigned as 'customers' rather than 'scholars'; 'Policy makers, legislators, and the media increasingly view higher education not as an investment in the collective public good but as a private benefit to individuals'

(Glassick et al., 1997, p6). We argue that as a community we wholeheartedly believe in the signature values of architectural education; its inherent commitment to quality, its role in the improvement of society's environments, its transformative potential for scholars, its ability to engage with and communicate complexity. The responsibility therefore lies with us to collaborate and develop a shared and inclusive vision of our disciplinary values in order to sustain and ensure the survival of the profession we love. The success of the first annual conference of the aae, hosting papers on pedagogical variety from twenty one UK institutions and twenty three overseas schools, provides some auspicious reassurance that such shared values exist. In reflecting upon the provenance and development of SoTL, we present a case for a learning commons for architecture. The aae has the potential to act as this learning commons by: establishing an inclusive and collegiate community of practice; providing a location for the sharing of resources; establishing a place in which architecture pedagogy can be exchanged, critiqued and developed; communicating to those outside the community what is particular and valuable about what we do (for the purposes of both pedagogical development and lobbying); and building a code of ethics around our particular community of practice. In this way, the aae might be powerfully conceived as a conceptual space in which architectural educators committed to inquiry and innovation convene; to exchange ideas; to collaborate in the co-creation of knowledge; and to employ these outputs in meeting the challenges of educating architecture students for personal, professional, and civic life.

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INTRODUCTION TO COMPONENT 3: '*Northumbria Architectural Design Process Overview'* (2011)

Reference: Jones, P., Holgate, P., Hunt, D. and Jones, O., 2011. Introduction to Northumbria University Curriculum. [online] Available at: http://studentsdownload.autodesk.com/ef/27288/cdcoll/downloads/sd/2011/BIMCurriculum/assets/northumbria/northumbria_university_architectural_design_introduction.pdf (Accessed: May 20, 2011)

Background: Autodesk, the world's largest developer of computer drafting software, approached Northumbria University to collaborate on a project to define the effective use of BIM (Building Information Management) in architectural studio design projects and teaching.

Output: The Northumbria Architectural Design Process Overview has been published on the Autodesk Student website, available to over 2 million students worldwide. Visual mapping of the design process has been employed to make the research as accessible as possible to design students and teachers.

Impact: *"the Northumbria creativity curriculum presents an amazingly detailed and systematic examination of the steps/workflow highlighting the goals at each stage of the design process… this approach to understanding and enhancing the entire process is something that all design instructors need to think about as it can greatly enhance the effectiveness of their teaching and the learning process…the slides are incredibly beautiful and very inspiring – clearly an example of the best of the best produced in an advanced studio."* Professor Glenn Katz, Stanford University

Collaborators: David Hunt, Paul Jones, Oliver Jones

design process overview

view of the facility from the River Tyne, showing the fishing reasearch centre wing (left), pier (centre), and leisure wing (right)

main image with 'rollover' links

Key:
* **rollover text**
→ ***link***

link to '3ds max material' page

link to '3ds max lighting & rendering' page

link to '3ds max modelling' page

link to 'photo editing' page

***on the edge:* a new fishing research centre and leisure marina for North Shields, UK**

The design of this student architectural project from Northumbria University encapsulates the design ethos of the school - architecture designed with context and 'sense of place' at the forefront.

The site for this project is at North Shields at the mouth of the River Tyne on the North East coast of England. North Shields and its surrounding landscape is characterised by its fishing industry and connection with the Tyne through industrial structures and massive sea defences.

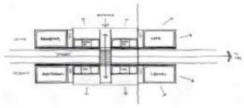
The four main stages of the design of this project are set out below. Please follow the links to expand on each phase.

concept

*study drawing of existing fish quay ice loader

link to 'concept' page

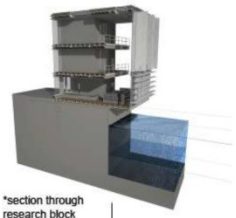
design



*initial sketch diagram of room adjacencies and outward views

link to 'design' page

technical detail



*section through research block showing primary and secondary structure

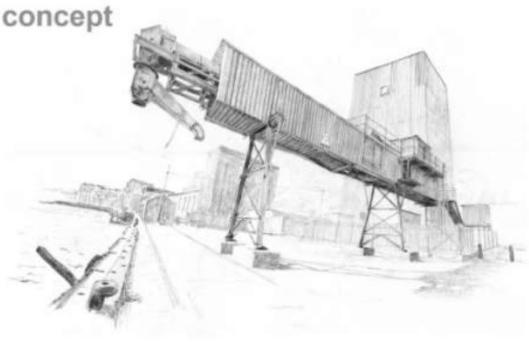
link to 'technical detail' page

communication

*rendered sectional perspective showing building set within quayside context

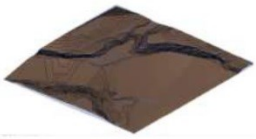
link to 'communication' page

concept



study drawing of the existing fish quay ice loader recording the materiality and language of the place.

*2d site mapping in AutoCAD



*3d contour model created in Revit

concept stage:

At this stage there is extensive data collection regarding the site and the brief. This is recorded through sketches, photographs, text, diagrams and study drawings.

The physical context of the site is mapped in 2d using AutoCAD and modelled in 3d using 3d Studio Max or Revit. Ecotect can then be used to carry out accurate site analysis of the virtual site.

These early studies form a foundation on which to build a well informed, site-driven response.

site mapping & modelling

link to 'site modelling' page

site recording

link to 'site recording' page

cultural context

link to 'cultural context' page

precedent study

link to 'precedent study' page

diagram

link to 'diagram' page

modelling

link to 'modelling' page

concept

- site modelling

aerial view of the existing site at North Shields at the mouth of the River Tyne

site modelling

Ordnance Survey data (levels and maps) are imported into AutoCAD to allow the creation of accurate site drawings and the ability to construct 3d virtual models in Revit or 3d Studio Max.

This information is useful in site analysis and site driven responses throughout the design of the project.

media used at this stage:

AutoCAD - site mapping

Revit or 3ds max - site topography

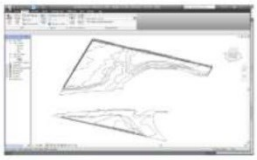
Ecotect - site analysis

card / wood - physical modelling

2d AutoCAD site plan

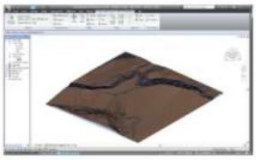
*OS site plan imported into AutoCAD

3d contour lines



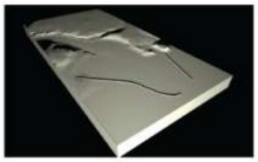
*Revit used to create 3d contour lines

3d terrain



*3d terrain created from contours in Revit

rendered site model



*virtual site model rendered in 3ds max

concept

- site recording

charcoal sketch of the boats at the existing fish quay, scanned and edited using photo editing software

important historical and cultural artifacts of the site are photographed and edited for display using photo editing software

site recording:

The aim of this process is to gather pertinent information about the site to encourage site specific design responses and ideas.

Photographs, and drawings / sketches using a variety of media aim to capture and convey the spirit of the place and build up a background of information which can be drawn upon for inspiration throughout the design project.

media used at this stage:

charcoal / pencil / pen / film etc. - site recording

Adobe Photoshop - photo editing

genius loci - spirit of place

*charcoal elevation sketch of the historical North Shields lowlight

site axonometric studies

*axonometric sketch of the existing site

*study of site topology, massing, and geography

exisiting site - observation, materiality & language

*detail study drawing of the language and materiality of the existing site structures: fish quay ice loader

coal staithes and imagery of industrial structures on the site form a strong cultural site identity

media used at this stage:

charcoal / pencil / pen / film etc. - site recording

Adobe Photoshop - photo editing

cultural context:

The historical, cultural and social context of the site is also the subject of research to complement the site recording of existing physical conditions. The gathering of this information and site 'stories' in conjunction with the physical context of the site helps build up a rich background from which ideas can be formed.

cross-programming of fishmongers, net repairs, offices and dwellings on quayside street

sea defences and industrial structures

*site identity defined by defensive, industrial structures

fishing heritage of site

*net mending for the fishing fleet

physical remnants of former building typologies

*variety of former building typologies reflect the site activities: smoking, canning, and processing of landed fish

"Wreckers, Coast of Northumberland", J. M. W. Turner

media used at this stage:

pen / pencil etc. - diagrams

Adobe Photoshop - photo editing

AutoCAD - site mapping

precedent study:

From the earlier investigations involved in site recording and cultural context, a precedent study branches out further and can involve research into examples of existing buildings, typologies associated with the site (in this case coastal defences), and artworks which capture the spirit of the place.

These precedents can all be drawn on in terms of responses to the site, whether it be through the poetic response of the artworks, or the architectural response of precedent buildings.

artworks

*Fisherwomen, Cullercoats", Winslow Homer: the activities and scenes captured in Winslow Homer's Cullercoats paintings capture the activities and essence of the site and form a strong poetic backdrop to the fishing industry at North Shields

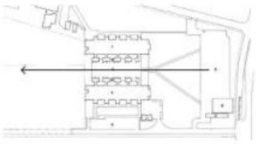
coastal defences

*the coastal defences surrounding the site show an environmental response to the harsh conditions of this exposed coastal location

precedent buildings

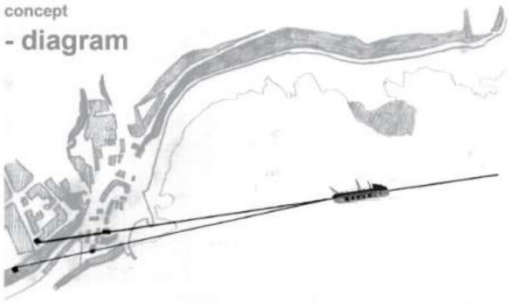
*the Salk Institute in California by Louis Kahn shows how the stark symmetry of form can create a dramatic linear projection of view. This institute which overlooks the sea consists of two wings orientated around a central courtyard. The relative heights of the buildings to the space frame a view out to sea to powerful effect. The order of the building elements creates a rhythm along this view and adds to the power to the intermediate space.

analysis diagrams



*analysis diagrams of precedent buildings clearly show key moves which are being explored and drawn upon in their design

concept
- diagram



cultural and physical linkage: new building form aligned with existing structures on the site, allowing key views along the coast and out to sea

site strategy: restocking the North Sea in conjunction with other satellite schemes

diagram:

After the recording and analysis of the site data, diagrams are used to formulate strategies for the building and site. These diagrams convey initial considerations of issues such as; site analysis, sun paths and prevalent winds, existing and proposed massing, views in and out, transport links, entrance location, serviced and servicing spaces, room adjacencies, and many more.

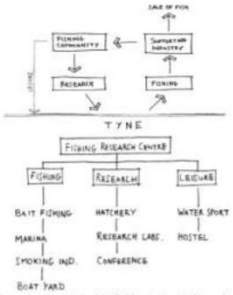
media used at this stage:

pencil / pen - diagrams

Adobe Photoshop - photo editing

AutoCAD - site mapping

typology & programme

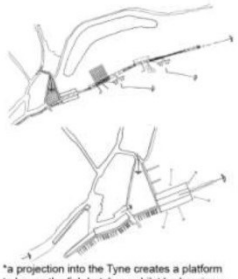


*creating a sustainable fishing industry through a cross-programme

strategy diagram

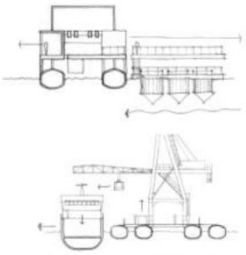
*site strategy: creating a fish hatchery to provide sustainable fishing within the North Sea

building diagram



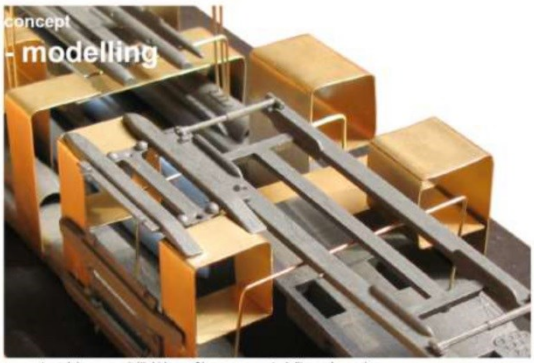
*a projection into the Tyne creates a platform to house the fish hatchery whilst harbouring a marina to the north for leisure use

key ideas

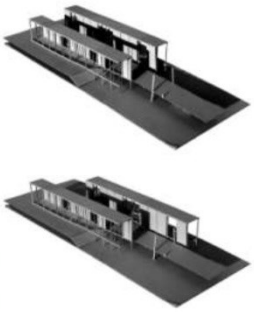


*diagrams convey key ideas of a fish hatchery and a loading platform to carry fish out to sea. note: diagrams not to scale

concept
- modelling



concept model conveys initial ideas of language, materiality, and massing



volumetric model considering spatial explorations via the positioning of the two main blocks

modelling:

This stage may involve the creation of a physical model or drawing of other media which conveys an architectural response to the site. The concept embraces the physical, cultural, and environmental context of the site and encapsulates the key ideas being explored in the design.

The model may not be to scale but could explore a key idea in response to the site; in the case of this model it is the exploration of language and materials.

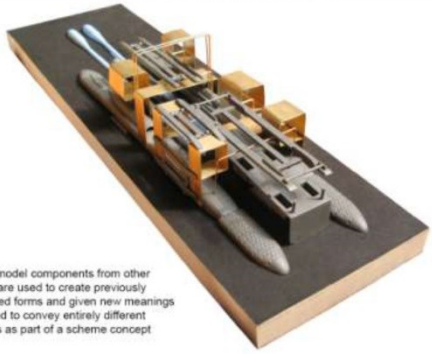
Other types of models may explore materiality, structure, volumetric and spatial considerations.

media used at this stage:

card/wood/plastic etc. - modelling

Adobe Photoshop - photo editing

concept model - massing ideas, language



physical model components from other contexts are used to create previously unimagined forms and given new meanings when used to convey entirely different structures as part of a scheme concept

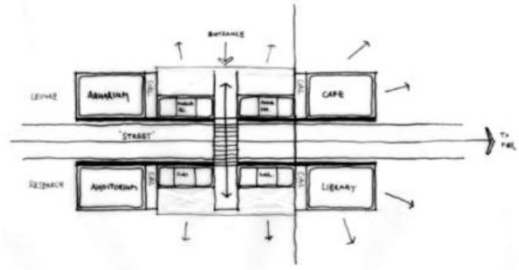
elevation - scale

*a linear form as derived from the concept diagrams is modelled with thoughts to scale and other issues of site

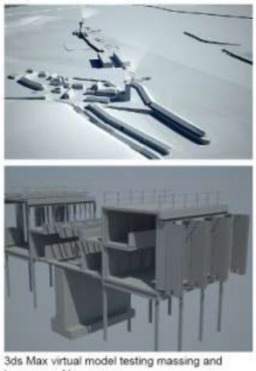
industrial language

*the physical and cultural background of the site's industrial past informs the strong industrial concept

design



plan diagram sketch showing key relationships between spaces and the site



3ds Max virtual model testing massing and language of key areas

design stage:

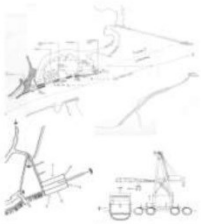
There is now an editing down and distillation of ideas and information whereby key ideas are explored in greater detail. Scale now begins to be explicitly considered when applying these ideas to a site which has a physical, social, and environmental context.There is still a heavy bias towards physical working methods of sketching and physical model making, but there is a gradual introduction of computer aided design. This allows for a quick and accurate realisation and testing of spaces in 3d, which alongside the other physical methods aids the design process.

media used at this stage:

pen / pencil / card etc - sketches / models
AutoCAD - area analysis
3ds max - massing & language

setting	diagram	modelling	sketch	model - language

*there is a constant reference to the site throughout the entire, iterative design process



link to 'setting' page | *link to 'diagram' page* | *link to 'model' page* | *link to 'sketch' page* | *link to 'language' page*

the North Pier sea defence and lighthouse adjacent the site provides a backdrop of monumental scale

media used at this stage:

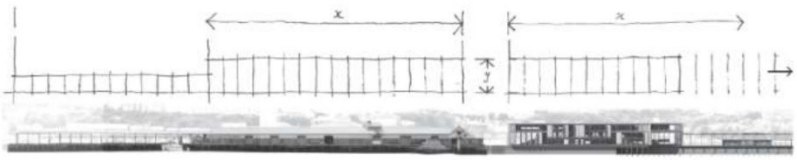
pen / pencil etc - diagrams / sketches
AutoCAD - site mapping / area analysis
3ds max - massing & language

setting:

Again, as with the 'concept' phase, there is a constant reference back to the site throughout the design process. Whilst the concept design is germinating, there will be new questions asked of the site and the context arising from the design development. By 'placing' the concept into this setting it is clear to see whether potential solutions will fit.

In the case of this project there was a consideration of the industrial nature of the site and its fishing heritage, and this was developed into the design through an acknowledgement of scale and massing, and of the tectonic language of the context.

tectonic nature of fishing sheds	influence of massing, rhythm and scale of exisiting builidng in elevation

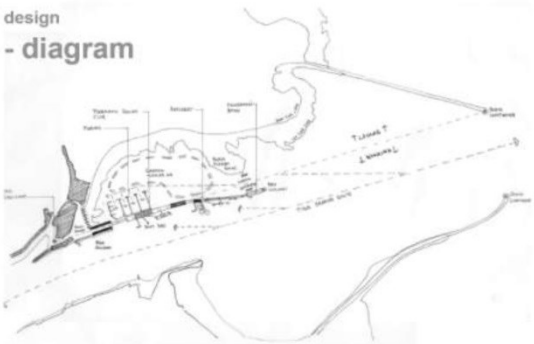


*the industrial nature of the site evokes a response befitting the harsh and rugged conditions of the place.

*the existing fish quay sheds (left) are considered in terms of scale and rhythm in elevation with the new proposal (right) for a sensitive contextual response

design

- diagram



site plan diagram showing key moves within the massive scale of the harbour

media used at this stage:

pen / pencil etc - diagrams / sketching
AutoCAD - mapping / area analysis
3ds max - massing & language

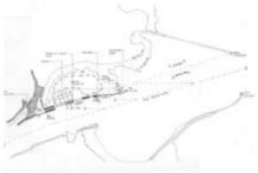
diagram:

Diagrams are again used throughout the design stage enabling the a quick speed of development. At this stage diagrams will be more advanced and will be to scale detailing the influences of the site and context.

Diagrams play a key role in the design of the scheme in quickly conveying design problems to the designer and other parties and allowing solutions to be worked out methodically.

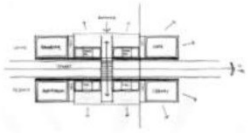
Used in conjunction with computer based methods and physical models the design can progress through a constant reframing of the problem which in itself brings up novel solutions to problems.

site strategies



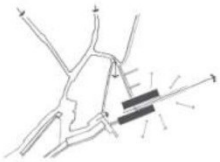
*considering site wide strategies through diagrams simplifies the problem and highlights clear solutions and moves

plan diagram



*before moving into CAD based plan design, key moves and relationships in the plan are considered in diagram first

key moves



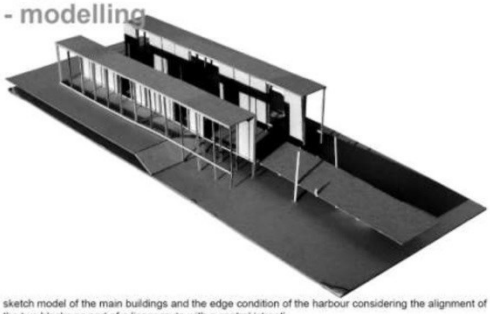
*elemtents such as site access are considered and clearly displayed through simple diagrams

testing with model

*these ideas are then translated and reframed through other media such as physical or virtual modelling

design

- modelling



sketch model of the main buildings and the edge condition of the harbour considering the alignment of the two blocks as part of a linear route with a central 'street'

media used at this stage:

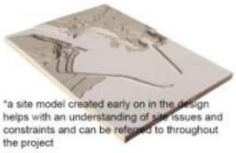
pen / pencil etc - sketching
card / wood etc - modelling
AutoCAD - area analysis, planning, drawing of components for laser cutter
3ds max - massing & language

modelling:

Physical models play a vital role in designing and conveying design decisions, in particular they act as physical milestones throughout the project which can be constantly referred to. The natural advantage of working in model is the abilitiy to manipulate and experience spaces first hand with real lighting. Models also necessitate the consideration of structure and materiality on their construction which helps with a greater depth of understanding of the proposal.

Using models of different scales helps to reframe problems to test different solutions. For example using a site model with a massing block of the building helps with understanding site wide issues on a broader scale.

site model

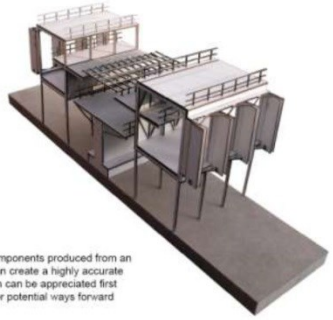


*a site model created early on in the design helps with an understanding of site issues and constraints and can be referred to throughout the project

building massing

*simple massing models can help with key design decisions as with the offset linear blocks in this project

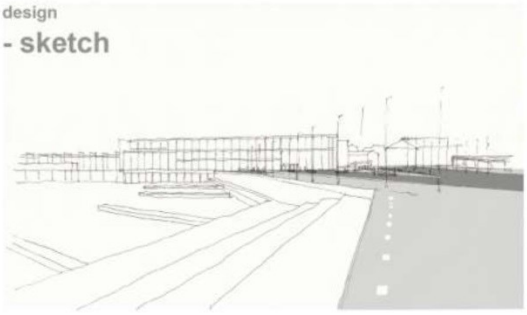
language model - structure and materiality

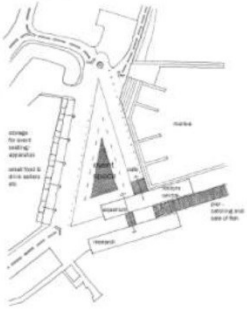


*precise laser cut components produced from an AutoCAD drawing can create a highly accurate physical model which can be appreciated first hand and assesed for potential ways forward

design

- sketch





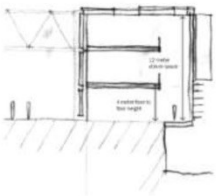
perspective sketch of the marina (left) and public square (right) with the edge created by the facade of the new public building

sketch:

Throughout the entire project sketching is employed as a means of quickly conveying design ideas and diagramatic arrangemtents in 2d. The key advantage with sketching is speed of development and checking concepts within the setting to work out issues before committing to CAD 2d drafting and 3d modelling. Perspective sketches create a sense of the 'feel' of spaces and draw in considerations of material, light, and shadow. Sectional sketches are a simple way undertanding the internal workings of a space and by their nature necessitate thoughts of interior and exterior connections.

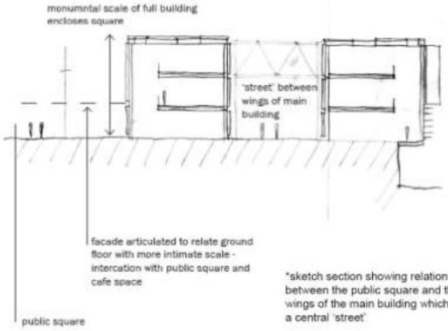
media used at this stage:
pen / pencil etc. - sketching
AutoCAD - area analysis, planning
3ds max - virtual modelling

section - scale issues



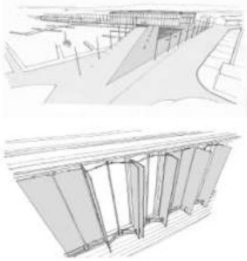
*sketch section showing relationships between the internal spaces and the creation of an atrium within the public space

consideration of public spaces and massing



*sketch section showing relationships between the public square and the two wings of the main building which encloses a central 'street'

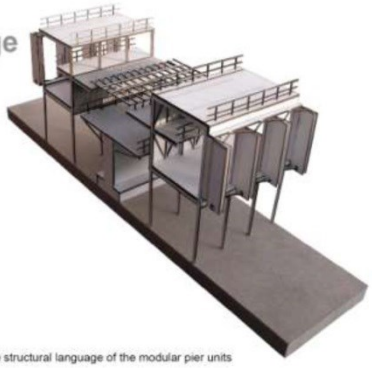
3d studies of spaces and components



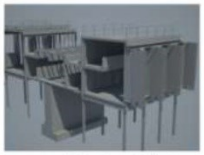
*perspective sketches of the main public square (above) and the vertical storm shutters on the southern facade (below)

design

- language



detail model showing the structural language of the modular pier units



test render of virtual model showing early development of structural lanuage

media used at this stage:

pen / pencil etc. - drawing
card / wood etc. - modelling
AutoCAD - area analysis, planning
3ds max - virtual modelling

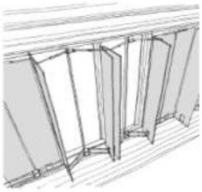
language:

Once there is a greater understanding of the rudiments of the design, the language of the architecture is considered in greater detail. As throughout the project, there is a reference back to the site and the influence of the industrial buildings which dominate the fish quay at North Shields. Physical and virtual models both offer different advantages in this area with the computer allowing quick creation and manipulation of component parts in a modular based design. Physical models offer the advantage of the ability to 'see' the model first hand and to think around problems with greater immediacy.

structure

*physical model of the structural bays within the modular pier units

materials / patina



*materials and patina draw upon the industrial influence of the site with robust detailing inlcuding stainless steel storm shutters, exposed feature steelwork, and glazed elements connecting the interior spaces with the external landscape

section - environmental response

*a sectional model shows how a double height space on the southern facade shelters the pier from the prevailing weather conditions

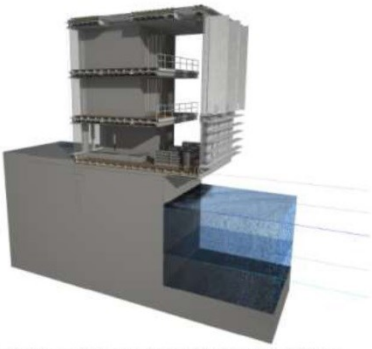
physical modelling

*physical models offer a greater immediacy of working than virtual models

virtual modelling

*using a virtual model allows for the quick reproduction of repetitive elements in a modular type design

technical detail



rendered 3d technical section showing research block with its constructional build up within its quayside context

media used at this stage

pen / pencil /film etc. - sketching
AutoCAD - technical section
3ds max - virtual model
Ecotect - building analysis

technical detail:

Consideration of the technical detail is analogous to representing the 'DNA' of the project's architectural form. Succesful detailing will involve 'commodity, firmness, and delight, dealing with the specific environmental conditions of the site and embodying the design language which runs through the entire scheme.

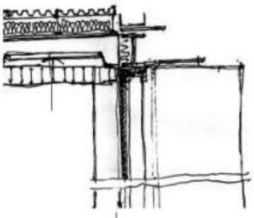
Again, there is a reference back to the site and precedent and this cultural background is drawn upon as an influence in the detailing of the scheme.

Whilst various media can be used to portray detailing including physical models and hand drawing, virtual modelling and computer based drafting offer clear advantages at this stage with their superior accuracy.

site influence

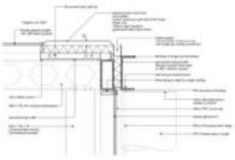
link to 'site influence' page

sketch detail



link to 'sketch detail' page

2d technical section



link to '2d technical section' page

virtual model

link to 'virtual model' page

technical detail - site influence

the shipyards along the banks of the River Tyne provide a strong cultural identity to the area

media used at this stage

pen / pencil etc. - sketching, recording
AutoCAD - technical section
3ds max - virtual model

site influence:

As throughout the concept and design phases, there is a constant reference back to the site and the influence from precedents. With a site rich in industrial heritage such as that of North Shields on the River Tyne, the structures and industries which have defined this area play a heavy influence on the design.

site heritage - shipping industry

*exposed structural steelwork, cambered beams, and heavy industry at the shipyards along the banks of the Tyne in Victorian times

structural principles of fishing sheds

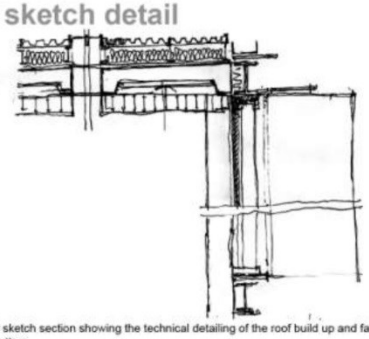
*the fishing industry buildings today with its stripped back, structural fishing sheds providing an industrial backdrop to the site

existing fishing industry buildings

*elevation of the existing fish quay buildings and fishing sheds along the banks of the Tyne to the west of the site

technical detail

- sketch detail



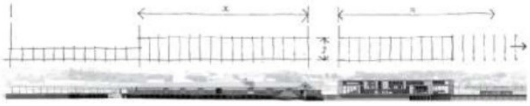
2d sketch section showing the technical detailing of the roof build up and facade glazing with storm shutters

media used at this stage

pen / pencil etc. - sketching
AutoCAD - technical section
3ds max - virtual model
Ecotect - building analysis

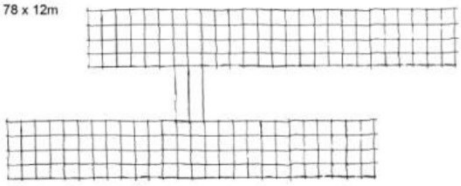
sketch:

Sketching again aids speed of development when considering technical details of the design. Design problems can be quickly worked through and referenced allowing the details to be resolved before committing them to computer based drafting in Autocad.



proportions of plan and modular nature manifest in technical detail

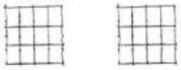
plan - 78 x 12m



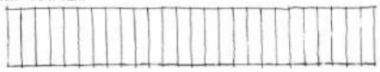
* the proportions of the plan are considered as part of a modular design whereby each modular bay is made up of a repetitive structural element with a rhythmical nature

proportion and rhythm of existing buildings inform building modules

section - 12 x 12m



elevation - 78 x 12m



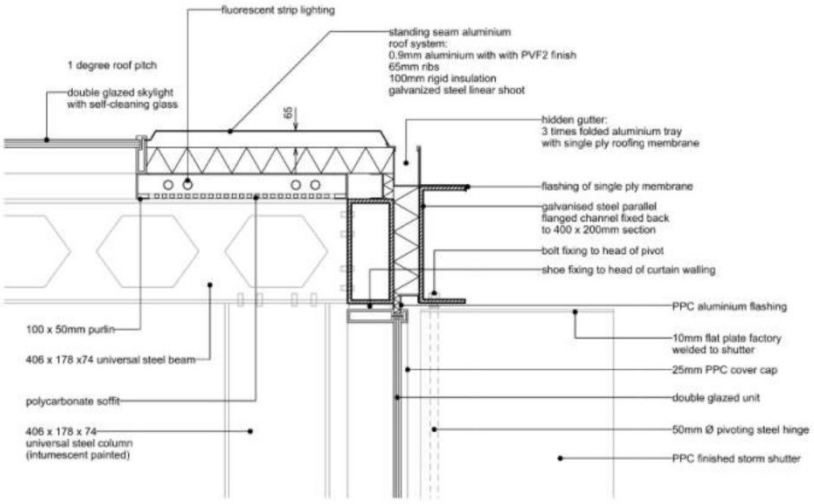
modular bay with storm shutters - 3 x 12m (shutters 8m)

* the modular design of the plan is mirrored in section, elevation and in the individual modular bays made up of repetitive structural elements and facade detailing with storm shutters

technical detail

- 2d technical section

industrial influence of site on detailing



2d technical section:

When producing drawings of technical details accuracy is paramount and therefore there is a clear advantage of using 2d Autocad drafting software.

2d technical sections usually convey a vertical 'slice' through a part or whole of the building and display the building components which are involved in the constructional build up of this section.

The section may then be used as the basis for further drawings used in presentation, for example a 3d technical section from a virtual model built up from the 2d drawing. A 3d virtual model built this way with accurate detailing can be then analysed in Ecotect for performance.

media used at this stage

AutoCAD - technical section
3ds max - virtual model
Ecotect - building analysis

*2d Autocad technical detail of corner detail with skylight and above atrium space and external storm shutter system - CAD based drawing at this stage offers superior accuracy and speed for the purpose of producing drawings which aim to convey the technicalities of a design rather than the spiritual or poetic

the 2d technical section shows the environmental response in the design and detailing to respond to the specific conditions of the site

technical detail

- virtual model

media used at this stage

AutoCAD - technical section
3ds max - virtual model
Ecotect - building analysis

virtual model:

There is a major advantage of virtual modelling when designing technical details. The computer enables the the quick and accurate production of detailed component parts which may otherwise be very difficult to model physically. These components can then be easily manipulated and copied when used in a repetitive modular type design.

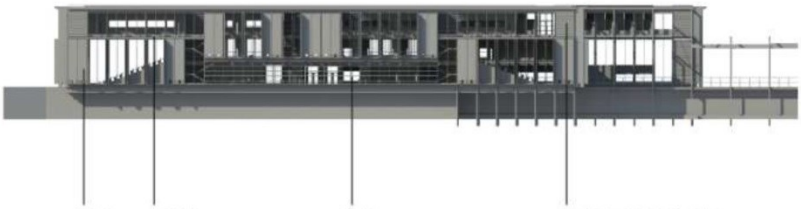
Technical components can also then be rendered individually to produce accurate technical drawings with realistic lighting and materials.

A virtual model can also be imported into Ecotect for analysis at this stage to provide accurate information on the environmental performance of the building and its construction.

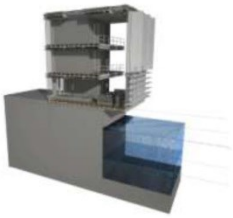
rendered virtual model showing technical detailing with vertical louvers and feature steelwork trusses

facade detailing

*rendered south elevation of research wing showing the vertical storm shuttering system empoyed on this facade and the horizontal briese soleil spanning the length of the library space.



virtual model



*technical section through research block showing primary and secondary structure and technical components within quayside context

communication

media used at this stage

pen / pencil / charcoal etc. - drawing
card / wood etc. - modelling
3ds max - rendering
Adobe Photoshop - image editing
Adobe InDesign - presentation

communication:

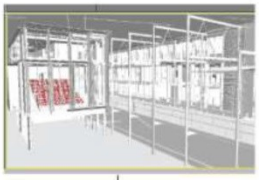
The successful communication of a design will involve displaying key views of the scheme in a way which conveys the experiential nature of the place. This will involve authentically representing the design, by means of realistic lighting, materials, context, activities, and climate.

The first three pages in this section provide a concise guide to modelling, materials, and rendering in 3d Studio Max with the aim of highlighting the steps involved in creating a computer generated architectural render.

Finally, the 'image construction' section indicates further enhancements which can be made to an image in photo editing software.

design section created from 'sliced' virtual model with post image editing showing context & materials

3d model

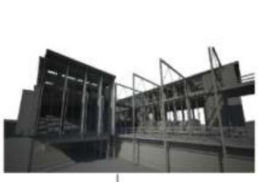


link to '3ds max modelling' page
- to be completed

materiality

link to '3ds max material' page
- to be completed

rendering



link to '3ds max rendering' page
- to be completed

image construction

link to 'image construction' page

communication

- image construction

perspective view created from rendered 3ds max model with post image editing showing site materials and context

media used at this stage

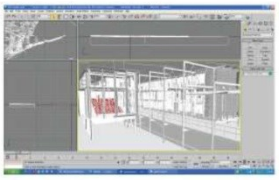
pen / pencil / charcoal etc. - drawing
card / wood etc. - modelling
3ds max - virtual modelling and rendering
Adobe Photoshop - image editing

image construction:

The final presentation of the scheme involves 'constructing' the complete image. The style of the drawings should aim to embody the spirit of the scheme, and communicate a sense of experiencing the place.

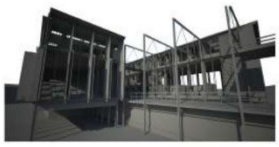
At this stage virtual models can offer huge benefits with the ability to select any view, both internal and external, of the proposals, and generate a rendered image with realistic lighting and materials. This however, does not negate the use of manual modelling and drawing, and indeed these methods can enhance a computer generated image further by giving a greater depth and life to what can sometimes be a sterile rendered image.

3ds max - wireframe model



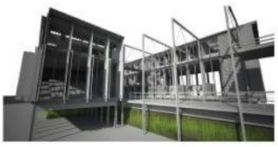
*2d AutoCAD plans are imported into 3ds max whereby each component of the computer model is constructed in 3d - at this stage the model is 'virtual' and in unrendered 'wireframe' format

rendered image



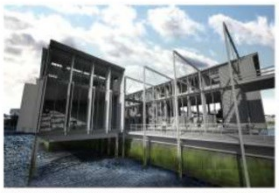
*once the virtual model is ready a view is set up of the desired image for rendering - rendering generates a realistic image with simulated lighting and materials and depending on the complexity of the model may take a number of hours for the computer to produce

photo editing - materiality



*the basic rendered image can then be imported into a photo editing software whereby further enhancements can be made - additional textures from the site can be added to appropriate elements on the model to give a 'realness' to the final image

photo editing - nature of site



*further elements can be added to animate the drawing including site activites such as people, natural elements, weather, and photography of the contextual background can be dropped in to set the drawing within its site

INTRODUCTION TO COMPONENT 4: *'The Toughened Glass Ceiling: Women in Architectural Education in 2012'* (2013)

Reference: Holgate, P., MacKinnon, K. and Salter, J. (2012) 'The toughened glass ceiling: women in architectural education in 2012', *'Built and Natural Environment Research Papers. Special Issue: Architecture',* 5(1), pp. 5-12.

Background: One of the students of Northumbria's Part II course based her final year submission on the experiences of women students studying architecture at both NU and Newcastle University; in conjunction with the author and another member of NU staff, the scope of this inquiry was focused on the experiences of NU women graduates. Interviews with these graduates identified key themes and commonalities shared by the interviewees.

Output: This paper was published in a special edition of the peer-reviewed 'Built and Natural Environment Research Papers', available on-line

Impact: Explicit discussion of the Equality act is now embedded into the curriculum, specifically in the teaching of Practice Management and Law. The findings of the inquiry and the research methods employed are embedded in the Architectural Research Methods module. The findings have been used in consideration of curricular support for women students.

Collaborator: Kelly MacKinnon (NU staff), Jenna Salter (NU student)

COMPONENT 4: THE TOUGHENED GLASS CEILING: WOMEN IN ARCHITECTURAL EDUCATION IN 2012

Peter Holgate, Kelly MacKinnon, Jenna Salter

Abstract

Low representation and poor retention of women practitioners in architecture remain as failings within the profession. Recent surveys reinforce the facts that architecture suffers in comparison with law and medicine with respect to equity between the sexes. Following initial, broader research by one of the authors (Salter, 2010), a small scale qualitative research inquiry into the experiences of female architectural students at Northumbria University (NU) was conducted in 2012. Questionnaire responses were elicited from NU graduates in response to recommendations arising from a report commissioned by the Royal Institute of British Architects (RIBA) in 2003. This paper reports on the responses provided, and their practical potential to improve the architectural programmes at NU with respect to diversity, equality of opportunity, support and provision for all students.

Introduction

Gender inequities in the established professions are not news; however, recent reports have highlighted continued prejudices and obstacles for women practitioners of architecture in the U.K. A key survey of architecture graduates commissioned by the RIBA produced some key observations; '…men were more likely to be working in architecture with 82% compared to 71% of women respectively employed in architecture. Men were also more likely to be employed on a permanent or open-ended contract on a full-time basis than women (38% compared to 26%). Furthermore 42% of those women who did not work in architecture stated that they were prevented from working in architecture as a result of a 'lack of confidence' compared with only 21% of males. Gender already seems to be impacting on female respondents even at this early stage in their career.' (Samuel and Foster, 2011) In 2012, the Architects' Journal devoted an issue to 'Women in Practice' which argued that the architectural profession had failed to progress substantially with respect to gender equality. This journal cited ARB figures that only 20% of the profession's registered architects were female, with around 40% of architecture students being female (Architects Journal, 2012). Concurrently, an RIBA survey reported that the proportion of women in the architectural

workforce had reduced from 28% in January 2009 to 21% in December 2011 (Young, 2012). To compound the issue, further analysis of the AJ research has revealed significant disparity in pay between men and women architects, with 84% of men at director level or similar receiving pay in excess of £51,000 per annum compared with only 47% of women with equivalent professional standing in the same financial bracket (Murray, 2012). This is in direct contravention of the Equality Act 2010.

Architectural practice by necessity interacts with the cultures of other professions within the building industry, and is influenced by normative attitudes to a host of issues, including women in practice. This paper aims to specifically interrogate the programmes of architecture at Northumbria University (NU), seeking to identify key issues and to consider how these could be tackled, and educational practices improved. Gender-specific issues are compounded by anomalies and contradictions inherent in the education of an architect. Numerous commentators have identified systemic failings and poor practices that continue to flourish in schools of architecture; for example, the cult of the individual rather than collaborative enterprise; '…within architectural culture, the collaborative nature of architecture is repressed in favour of the star system and the hero architect – invariably male – who embodies the values of design genius and intense individuality.' (Walker, 1997); the hegemonic and uncritical use of white male western architects as paradigms of quality in the syllabus of architectural history; studio learning with all its associated benefits and problems; and dominant cultures of power, exclusivity and entitlement (AIAS, 2002; Dutton, 1991; Cuff, 1992; Till, 2010)

Establishing the research problematic

The graduate author commenced her research with a review of key secondary data sources concerning women in architecture, and architectural education in particular. While undergraduate numbers at NU appear to demonstrate parity between female and male students, elsewhere the gap between numbers of men and women entering and pursuing practice appears to widen considerably. In response to such statistics, the RIBA commissioned a report in 2002 report RIBA into 'Why Women Leave Architecture', led by the University of the West of England (UWE). This report's aim was to identify causes for gender inequities in the profession, and to propose recommendations for change. As this study had a wide remit, it was only able to 'consider' educational aspects (de-Graft Johnson, et. al., 2003). The report did not uncover any particular hierarchy of reasons for women leaving architecture; however

similar themes repeatedly emerged in the data provided;

- low pay – unequal pay – long working hours – inflexible/ family unfriendly working hours – sidelining – limited areas of work – glass ceiling – stressful working conditions – protective paternalism preventing development of experience – macho culture – sexism – redundancy and/or dismissal – high litigation risk and high insurance costs – lack of returner training – more job satisfaction elsewhere (de Graft-Johnson et.al, 2003, p3)

The report identified that architectural education to some degree contributed to levels of dissatisfaction: 'Women felt that this (macho) attitude started at University. One cited an example where she had been forced to work almost continuously over a weekend, including at night in order to meet a completely unreasonable deadline imposed by a tutor.' (de Graft-Johnson et al., p20). The report's authors made several recommendations to both practice and education. Of particular note for universities were; better dissemination of employment legislation and good practice; mentoring and advisory help and support; more diverse representation of the profession to the public; the embedding of gender equality in both the curricula and practices of architecture schools; more diverse staff profiles in schools of architecture; monitoring of the performance of schools in improving diversity targets and equal opportunities practice; and advisory practice notes for both architectural practices and schools of architecture to be produced by the RIBA. An evaluation of these report recommendations, with specific focus on their relevance or otherwise to the programmes at NU, formed the core of this paper's data collection.

Inquiry design

The original student investigation, which provided the impetus for this paper, focused upon gender issues in architectural practice and education within the regional context of North East England. Qualitative data was gathered through a survey of undergraduate and postgraduate architecture students at both the University of Newcastle and Northumbria University, supplemented by interviews with professionals in North East architectural practices. Secondary quantitative data was provided by a variety of university and national statistics. A survey of open questions allowed female architectural students to raise their concerns anonymously. Students were asked their opinions concerning their experience of the architectural profession; their aspirations before entering architectural education; their experiences during undergraduate and postgraduate education; the quality of their year out placement experience; and their

future career plans. The graduate author secured 67 responses to the undergraduate survey and 46 replies to the postgraduate inquiry. Analysis of the results found that key issues(not all of which were necessarily gender-related) surfaced consistently amongst the student respondents; stress & pressure, long hours, the learning culture, the 'crit', 'macho' cultures, destructive criticism, opinionated & biased marking, cost, content and length of programmes, poor connections to industry, and negative year out experiences. However, by combining the results from both universities, the practical application of this analysis was effectively hindered by not assigning specific comments or issues to particular institutions or programmes.

With this practicality in mind, the current paper confined its research aims to the programmes of architecture at Northumbria University. As a small scale action research inquiry, it was focussed at establishing the key issues for NU female graduates with respect to gender equality; seeking emergent themes from the questionnaires; and gathering suggestions for improvements to the courses. Sampling was therefore restricted to women graduates who had either a) studied exclusively at Northumbria University at Parts I and II, b) completed the Part II programme at NU after studying Part I at another institution, or c) left the architectural profession after completing Part I at Northumbria. This sampling strategy sought to ensure that responses were informed predominately by respondents' experiences in their year out practice, and during their studies at Northumbria. As the first graduates of the Northumbria Part II programme qualified in 2008, the sample size was consequently restricted to the 20 women who had graduated from the Part II programme over the four academic years from 2008 to 2011 (excluding the graduate author), plus two Part I graduates of Northumbria who had subsequently left architecture to join other professions. The inquiry was limited to graduates in order to encourage freedom of comment, without any possible or perceived threat of penalty from the institution. Responses were gathered by means of a semi-structured questionnaire, enabling respondents to reply in depth to the issues presented. This document provided a wide remit of questions that allowed students to "freely express their opinions without being directed." (Punch, 2003).These questions were developed to directly address the recommendations made in the 'Why Women Leave Architecture' report. This questionnaire, accompanied by a letter explaining the purpose of the inquiry and requesting the informed consent of participants, was e-mailed to the sample group. All responses were collated and anonymised by a third party prior to being forwarded to the authors for analysis.

Responses

Six graduates submitted responses to the questionnaire. A larger response may have warranted a more systematic coding of the qualitative responses, using SPSS or equivalent methods, and could be deemed to have more statistical significance. The small number of submissions however enabled simple analyses and comparisons to be made. The quality and depth of the responses provided relevant, purposeful and insightful narratives (Cousin, 2009, Biesta, 2010), beneficial to the development of both future research inquiries and curricula. As aforementioned, the survey questionnaire focused on the key recommendations made by the original UWE report with respect to architectural education. These are listed below, together with specific responses garnered from the participants in response to these suggestions:

Recommendation 9: Schools of architecture need to change the staff profile to reflect diversity of the population:

Although under-representation of women staff members was acknowledged as an issue at NU, key responses concerned the quality of education rather than the enforcement of diversity; 'I think that there are more important things that could be done to improve rather than just appoint loads of women' (Respondent A); 'It shouldn't be a question of gender – it should be about who is best for the job.' (Respondent D). The pastoral aspect of under-representation was also highlighted; '…I'd have spoken more openly to a woman.' (Respondent F). Suggestions were also made that female NU alumni could usefully contribute to the community of learning, providing exemplars and mentoring to women undergraduates.

***Recommendation 10: Schools of architecture should review their publicity, including websites, to ensure that it is accessible…and inclusive. Staff profiles should be included*:**

Interviews are normally conducted for applicants to both Part I and Part II degrees at NU, a factor which appeared to have positively influenced applicants, although a stronger female representation at this stage was also suggested. Respondents also recommended that the undergraduate website should bridge the knowledge gap between secondary and higher education; 'Sixth form careers advice was terrible.' (Respondent E)

***Recommendation 12: Reinforce need for and monitor teaching of diversity issues. Assess this through attitudinal assessment in coursework/exams*:**

Increased teaching of diversity (and wider practical and professional issue) was to be welcomed by the respondents: 'As part of further development, particularly for post-graduate students, I recommend lectures / CPD's to be organised on employment rights which touch on equality and diversity…would be useful knowledge and increase awareness'(Respondent B). It was also acknowledged that 'diversity' could be even more diverse: 'In my opinion, NU has great links to industry which is perfect for many students. For me however – diversity is what makes architecture interesting and to fail to fully acknowledge the inherent diversity in all projects is to do architecture a disservice' (Respondent A). A wider approach to 'soft skills' was recommended; 'In my experience females definitely seem to be more adaptable to engaging with aspects of the community…Being able to communicate with clients is vital' (Respondent E)

Recommendation 13: Embed Equal Opportunity Policy issues into curriculum and validation:

This was also felt to be an area which needed reinforcement in the curriculum. Describing professional practice; 'I have often felt patronised by some of my male colleagues. This is something that has made me feel uncomfortable and has been raised at HR, however not entirely sure what actions have been taken towards the issue' (Respondent B). Generally, issues of employment rights and legislation were seen to be of timely and critical value: 'More about diversification, what you can do with your degree/qualifications in times of austerity' (Respondent C): 'I don't think with just regard to gender…particularly considering current climate aspects of employment law, your rights and obligations should be covered in greater detail. More graduates are now being employed on a temporary or contract basis, and also having to go through processes relating to redundancy …this isn't covered by the course' (Respondent D)

Recommendation 15: Curriculum to cover and address working with diverse groups/people from different cultural backgrounds etc.:

The general response was that this was rarely covered at NU; 'Not sure how this could be addressed through teaching other than raising student awareness as to what the public expect from an architect' (Respondent E)

Recommendation 17: Embed and embrace more diverse historical and theoretical content

Respondents differed in their opinions on this point. While one respondent championed the use of female precedents in the teaching, another called for self-directed learning to address this point: 'Certainly at Part 2 there is freedom to approach this aspect from a personal perspective which I think is the most appropriate route' (Respondent D). Field study visits beyond western Europe, and a wider variety of guest lecturers were suggested as potential drivers towards these aims.

Recommendation 18: More diverse range of work presented and valued e.g. more women and minority architects profiled:

Consideration was recommended of separating the work from the personality; 'I don't really think this matters – I think what is important is that the type of architecture used is wide ranging' (Respondent A) It was also suggested that the architecture programmes should encourage a wider view of other design disciplines where female representation was possibly higher.

Recommendation 21: Sustained staff development across the board including senior ranks, support staff, admin staff, technical staff

Thankfully, none of the respondents reported discriminatory behaviour from either NU teaching staff or fellow students (although staff 'favouritism' was highlighted by one participant.)

Recommendation 29: Review of and change in attitude within crits:

'I found the whole 'crit' idea very masculine and old school boys club attitude…Tutors and guest reviewers on a power trip to make themselves feel better' (Respondent C). Generally however, respondents did not believe they had suffered gender discrimination at NU, where the core teaching team are continually endeavouring to replace the confrontational 'crit' in favour of constructive reviews and dialogue.

Recommendation 30: Develop new methods of presenting and assessing design work to increase the variety and types of representation which more accurately reflect the range of presentation and discussion in practice:

Parity, equity and transparency of assessment methods were highlighted in responses as being of key value, rather than the adoption of new methods; 'I think NU have trialled various methods of communication with varying degrees of success and shouldn't necessarily do more. I worry there is too much 'spoon feeding'…'

(Respondent E). The excessive length of architectural education and professional accreditation was also highlighted as an issue of particular pertinence to women.

Recommendation 33: Mentoring for students:

Respondents were not supportive of positive discrimination; 'I don't think there should be any special mentoring for women students – in my experience they are highly motivated and organised and match their male counterparts' (Respondent D). The quality of advice and mentoring proffered was stated to be of more importance. Peer-mentoring was generally considered to be a positive aspect of the studio system run at NU, and was regarded as something to be nurtured.

Recommendation 37: Commitment to developing a comfortable, supportive work environment for all which embraces diversity and promotes respect:

Generally, NU was reported to be providing a supportive learning and social community;'…a 'mothering' of female students would surely be counterproductive to the long term goal of equal opportunity and mutual respect from male peers.' (Respondent E)

Supplementary comments which may benefit women in studying architecture at Northumbria University:

'Don't just focus on women…I don't think giving women special treatment such as mentoring or extra time with tutors will be beneficial in the long run. I believe that a more rounded focus would help, and maybe confidence building in a holistic way…to enable students to professionally and assertively articulate their opinions or requests' (Respondent A)

'I don't feel there are changes that can be made at universities to ensure (gender equality) will be the case, it will be down to the industry as a whole' (Respondent D)

'I currently know of somebody who is experiencing sexual harassment and bullying within the workplace and can see how difficult it is for these issues to be raised to an employer (particularly as the responsible party is within a position of power). This shouldn't be tolerated and should always be tackled.' (Respondent E)

'Peer-mentors. Tutors giving honest and first hand experiences of the challenges they have witnessed.' (Respondent F)

Discussion

This inquiry, albeit very limited in its scope and response, highlighted some key, but bounded concerns of women architecture students at NU. The greater scale of sexism within the wider profession should however not be underestimated (Fowler & Wilson, 2004). Generally, the six respondents appeared to prioritise course content, aims and quality above any form of positive discrimination. Their positive and assertive responses provided encouraging signs that architectural teaching at Northumbria was developing successful programmes in terms of both pedagogy and social values.

Issues regarding policies and rights appeared to resonate with every respondent. As a result of this inquiry, it is hoped to incorporate a more comprehensive teaching of these issues within the architecture curriculum. In preparation for the year-out of practical experience, the inclusion of diversity and equality presentations (possibly delivered by Human Resources staff from the University) would provide preliminary tools for students to consider whether their employers are meeting the diversity responsibilities enshrined in legislation.

Pragmatic concerns appeared to dominate the respondents' replies with respect to wider employment and societal concerns. These covered the profession as a whole, and echo the speculations of other commentators: 'What happens when men are also home-workers and part-timers? Will they not be competing like mad for anything that is going, be it a permanent job or short-term contract to be carried out on the kitchen table? Just at the point where the particular work experiences of women might be seen as a pattern for future employment, and therefore to their benefit, so the general situation of architects makes it increasingly unlikely that most within the profession will be able to do anything except struggle' (Finch, 1996). A wider curriculum could therefore also include issue such as general employment rights – including the enforcement of the minimum wage, which in the current economic climate is being wilfully disregarded by some offices in order to secure cheap, or free labour. Future research at NU may build upon this paper, through deeper inquiry into the key concerns of the six respondents. As more academic years are completed in these relatively new programmes, such an inquiry will clearly benefit from the increasing number of women graduates from the NU architecture programmes, who will bring a wider breadth and wealth of experiences in both education and practice. Sharing such experiences through a strong learning community will also be encouraged in response to the identification of peer learning as a positive factor for all inquiry respondents.

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INTRODUCTION TO COMPONENT 5: '*Regional Engagement at Northumbria: a Synergy between Research and Teaching'* (2011)

Reference: Beacock, P. & Holgate, P. (2011) 'Regional engagement at Northumbria: a synergy between research and teaching.' In: Beacock, P., Makstutis, G., and Mull, R. (eds.) (2011), *Intercultural interaction in architectural education.* London: ASD Projects / London Metropolitan University, pp. 5-9.

Background: An invited paper presentation to the Standing Council of Heads of Schools of Architecture (SCHOSA) on the subject of public and social interaction with the wider community beyond Schools of Architecture; this presentation highlighted how the particular and rich context and community of North-East England was successfully embedded into the teaching of architecture at Northumbria University.

Output: This presentation was re-presented in a co-authored chapter contribution to the SCHOSA publication, 'Intercultural Interaction in Architecture Education'.

Impact: The importance of local context, in its variety of forms, has continued to ground the teaching of architecture at Northumbria University through social, political, historical, cultural, geographical, and environmental inquiry. The use of 'live projects', whereby students engage with clients and non-governmental bodies who have projects sited in the region, continues to provide meaningful service learning for Northumbria's architecture students.

Collaborator: Peter Beacock (NU staff)

COMPONENT 5: REGIONAL ENGAGEMENT AT NORTHUMBRIA: A SYNERGY BETWEEN RESEARCH AND TEACHING

Peter Beacock, Peter Holgate

Northumbria is a regional University, set within a landscape of diverse urban centres, rural settlements, and managed and wild countryside. The university is located in Newcastle upon Tyne, a city with a long history still legible within its built form, and with a strong maritime and industrial heritage. Culturally it is diverse, with arguably stronger links to the north and east than to the south. Economically, its traditional industries are in decline, and the region has some of the poorest communities in the county. Historically, the region has maintained a distinct character in its architecture; late seventeenth century brick architecture showed the influence of trade links with the Low Countries; the nineteenth century work of John Dobson in Newcastle city centre adapted the principles of his mentor John Soane to an 'architecture born of place' (Faulkner and Greg, 1980). In the late twentieth century, the situated internationalism of Ryder and Yates developed a distinctly northern feel (Carrol, 2009). Ryder and Yates were foremost of a group of prominent architects working within the regional context, and the housing development at Byker by Erskine and Gracie demonstrated the power of a deep engagement with the community. The region has however, suffered, like many others, from a decline and loss of identity. Many early 21st century speculative developments (generally by firms from outwith the region) show no more than a superficial respect for the existing fabric of the region, manifesting Buchanan's predictions of 1984: *'A precious harmony built up over ages between buildings and setting, is now rapidly being destroyed and replaced by chaotic and dislocated sameness'* (Buchanan, 1984)

There has been, however, a significant response from the region's universities to embed regional identity and engagement as a key part of their mission. This strategy informs research, knowledge transfer, and teaching activities within the academic community. These aims and their associated relationships to social, cultural and artistic interactions have become fundamental to the development of the architecture programmes at Northumbria, with an ambition to produce both graduates whose work engages with, and is informed by, local context, and architecture that makes a positive, multivalent contribution to the region. This approach has emerged from formal and informal encounters, through research and reflection on pedagogy, and from the interests of the architecture teaching team. These aims have been guided, for example,

by interaction with key protagonists such as Steven Moore: *'Newcastlers told me that they aspire to become a region which we eventually were able to distinguishfrom a province. The difference we agreed upon is that a region is one unique place among peers of a different sort whereas a province exists only in relation to some distant point of authority ... Regionalism in the sense we proposed ... is both politically and culturally democratic whereas provincialism is hierarchical ... this progressive kind of regionalism is not about discovering tribal purity or the truth about one's place bound essence ... rather, progressive regionalism is about constructing life enhancing futures.'* (Moore, 2008)

Thus, the central ethos of architectural design at Northumbria has developed into contextual studies informing place; a multi layered basis for inquiry, within a physically and culturally diverse region, delivered through a main vehicle of regional engagement. This requires the student design enquiry to be initiated through research. Scholarship underpins teaching activities to ensure that learning is not 'provincial' or parochial, but is universally transferable.

Fig. 1: Grey Street, Newcastle

Fig. 2: Metro Centre, Gateshead

Staff members' research interests inform teaching. For example, studies on the architecture and culture of Tyneside (Faulkner, Beacock & Jones, 2006) led to the publication of a book, contributions to academic papers and two local exhibitions (Fawcett, 2006; RIBA North East, 2010); and doctoral research into the framework of place-making (Radfar, 2009), has generated data for both staff and students. Research informed teaching ensures currency and focus. The undergraduate programme develops an understanding of physical and social context that informs design process from the first year. This interest in projects with a connection to place extends to sustainability and materiality. The awareness and development of proposals in context lends authenticity to the process, and depth to the theoretical underpinning

of the projects; *'regionalism, despite traditionally being used to describe, define and isolate networks of places and spaces, can provide a rhetorical basis for making claims about how spaces and places are connected to spatially and conceptually broader patterns of meaning. In a time when the breadth of crisis can be so vividly revealed to us, critical regionalism can be a way to assert what the relationships among places should be.'* (Powell, 2007)

Studio-based design projects are designed to stimulate imaginative responses to current and authentic issues concerning the region. Design projects account for half of the undergraduate programme, and are underpinned by taught modules with assignments constructively aligned to studio work. The key benefits of this approach to student learning are:

- contextual awareness: making the students aware of architecture's interrelationships with locale, society and climate; encouraging students to position themselves with respect to the responsibilities, opportunities and impact of the subject
- accessible sites: ensuring familiarity with the historical and physical contexts; enabling return visits to promote deeper reflection, understanding, awareness, engagement and research; mitigating against spiralling travel costs for students
- authenticity to process: encouraging engagement with authorities, agencies and NGO's; providing insight into the mechanisms and processes of development and procurement; developing the student as a 'critical practitioner' in the subject area
- engagement with local practice: establishing links between student projects and live projects; supporting teaching and learning by architects, consultants, clients, and sponsors of live projects.
- engagement with local communities: enabling interaction and dialogue with communities; encouraging awareness and debate with real-life issues; activating the potential for real change to perceptions, aspirations and policy
- meaningful engagement: developing sensitive, authentic projects with a considered attitude to context at many levels: social, historical, physical, theoretical, aesthetic and cultural. These approaches to design are progressively introduced from the first year onwards, with the students developing an understanding of the increasingly complex interactions. In the third year these are explored in two projects, each concentrating on different aspects of contextual inquiry; the first project urban based, dealing with communities and social issues, and the second landscape based, engaged with historical narratives.

Case studies

***Shields Road One Stop Shop, Byker*:** This project was to provide a new 'one stop shop' in a deprived area to the east of the city centre, and gave the students opportunities to develop links with community groups and local residents in order to address social issues and develop schemes with programmes to meet real needs. Although at this stage in their architectural development, the solutions may not be completely realistic, the students derive real benefit from such an engagement, and it has a significant impact on their developing attitude to the design process:

'I think the (architecture) course really did influence my career direction. It made me realise that good design couldn't be achieved by students working in silo … I think the future of architectural education should move towards a multidisciplinary approach, where the projects are defined by a separate real life 'client' and 'user group' for the student to engage with to involve more real life collaboration.' (Lisa Hanking)

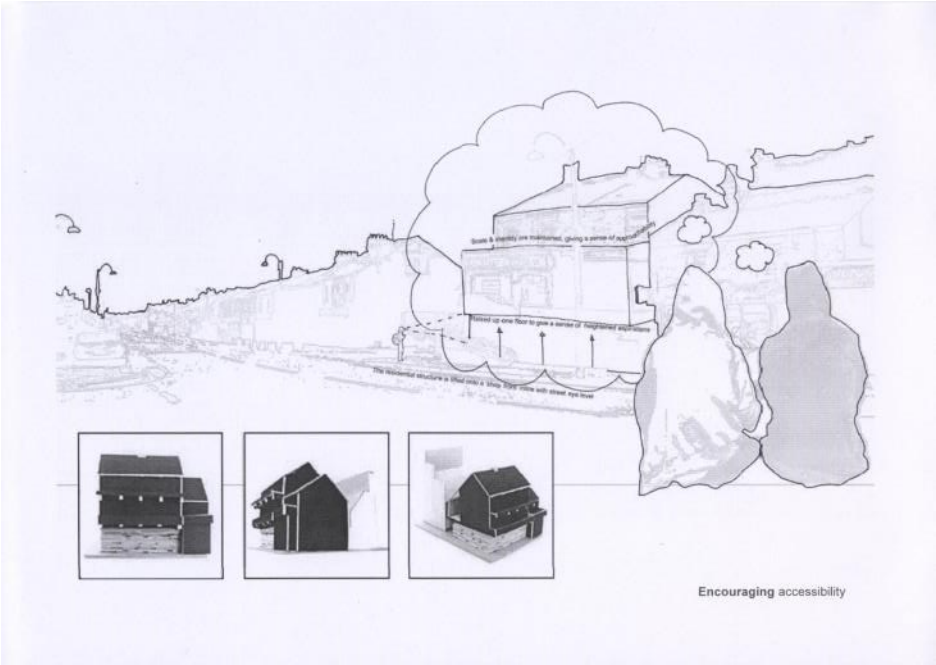

Fig. 3: Lisa Hanking, Shields Road One Stop Shop, Byker, 2007/08

***Lindisfarne Gospels Exhibition Centre*:** The second project in third year is a rural, landscape-based scheme which engages to a greater extent with historical narratives. Students are given greater freedom than in the first project to choose an appropriate site, and to develop the programmatic detail of the scheme. This focus on the cultural and historic contexts of architecture often allows powerful poetic responses to site and

brief. In this project, the remote and beautiful island of Lindisfarne, off the coast of Northumberland near Berwick upon Tweed, provided a spectacular physical setting, and a rich cultural narrative. The proposal was to provide a museum to house the Lindisfarne Gospels, brought back to the place of their creation. The schemes have generated much local and national interest, and have helped to reignite the longstanding debate about a home for the gospels in the north. Matt's proposal, a demonstration of historical narrative located in place, won the 2010 Northern Design prize and was featured on the BBC national web-site.

Fig. 4: Matt Drury, Lindisfarne Gospels Exhibition Centre, 2008/09

The MArch programme

Whilst the design projects at undergraduate level have an emphasis on a response to context and the 'spirit of place', at MArch level, the intellectual agenda is for a much deeper enquiry. Projects are based on research and a thorough investigation of broader physical, cultural, social, technological and theoretical issues. The diagram below (fig. 5) illustrates a student's approach to identifying the multiple problems associated with the regeneration of North Shields, a settlement at the mouth of the Tyne, once flourishing from fishing and shipbuilding, and with a wealth of history and sense of community, but in now in serious decline. This diagram was part of an environmental report, demonstrating the development of an holistic interpretation of 'sustainable development', which has increasingly driven student investigations. Proposals are based on analysis at a very broad level, not just carbon reduction technologies for the built fabric.

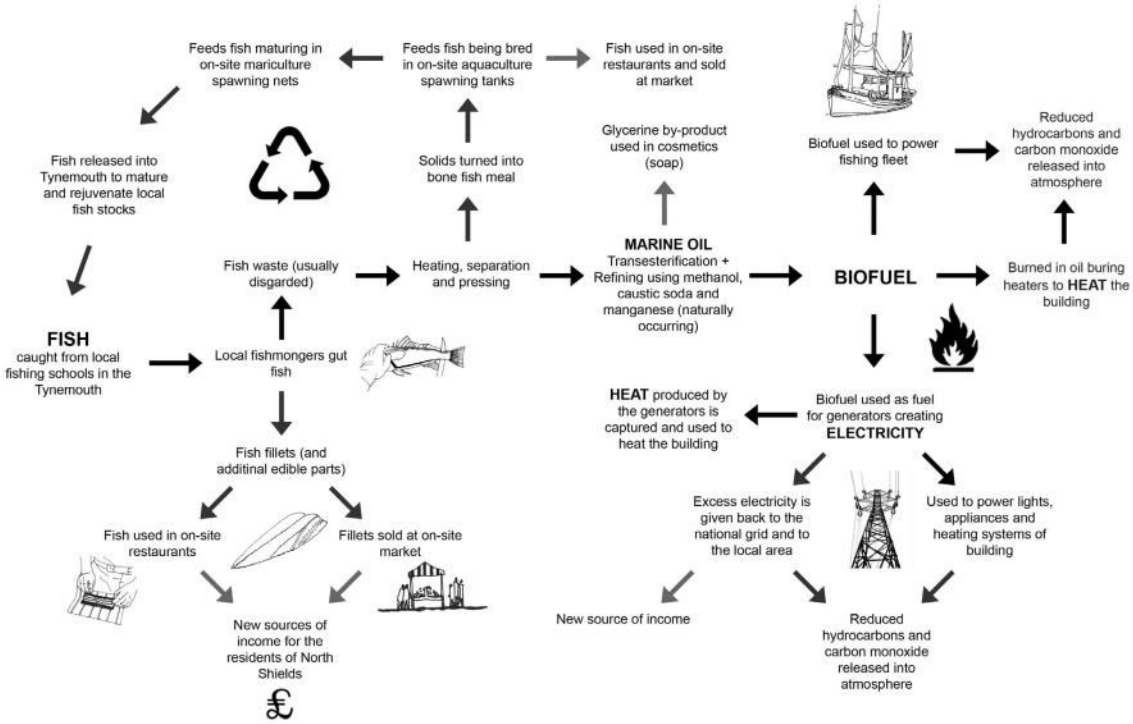

Fig. 5: Ben Kinch, North Shields Sustainability Diagram, 2009

In the first year this approach is introduced through both group and individual investigation. In the short history of the programme, students have engaged in activities that have encompassed studies of regeneration proposals in the Newcastle suburbs; proposals which informed the development of the Stephenson quarter, a rundown historic area of Newcastle, and a study of Morpeth, a market town to the north of Newcastle, where students proposed progressive changes over the next 10, 20 and 50 years to demonstrate the potential for developing a sustainable community. Morpeth was chosen as the study vehicle in response to a concern about the general pressures on such communities which are destroying their identity and response to place, and also to specific problems highlighted by recent serious flooding in the centre of the town. Proposals by the students took a long term view, and suggested removal and relocation of flood risk housing to reintroduce of water meadows as 'buffer zone' parkland beside the river, and integrating allotments to allow increased local food production. This met with a very positive response from the community involved, and culminated in an exhibition in the farmer's market, to great local interest. There are proposals to use the students' study as evidence in the development of the local plan.

Fig. 6: Exhibition, Farmers' Market, Morpeth, 2010

The major project in second year is an individual student led investigation, predominantly set within the region. The design response may critically evaluate and improve upon the existing, or propose considered alternatives to help reinvigorate the location of study, and encourages a variety of speculative and imaginative approaches by the students. Areas for enquiry are selected by staff, and are based on the need for imaginative development to support regeneration. Study areas have included the 'Stephenson Quarter', and the east Pilgrim Street development area, both in central Newcastle; North Shields, at the mouth of the Tyne; Redcar, a former fishing community and Victorian seaside resort to the south of the river Tees, now badly affected by the closure of the Corus steel work; and Newburn, a former mining community on the river Tyne, on the fringe of the Newcastle/Gateshead conurbation. The process of developing proposals is based on research and analysis at many levels, and founded on contextual awareness, with the development of narrative being key to informing the proposals. The two case studies demonstrate this approach.

Case Studies

Marine Renewable Energy Institute, North Shields: This investigation of North Shields concentrated on Smiths Dock, 30 acres of derelict and contaminated shipyard that dominates 500 meters of the town's riverfront – a remnant of the industrial revolution that once set the Tyne at the forefront of British shipbuilding during the late 19th Century. Mark proposed an institute for renewable technologies to house research and development, educational and visitor facilities. The project reuses the existing

fabric of the shipyard by sensitively placing the building within the largest of six dry docks, and the programme makes use of the skills in engineering manufacture that are still available in the community. The project has been informed by its historical context, an abstract interpretation of the past that places form both physically and historically. With reference to proportion, repetition, material intensity, light, water and the experience of monumentality, the characteristics of past forms and atmospheres at Smiths Dock have been embodied in the realisation of a contemporary building – acknowledging and remembering the legacy of ship building on the Tyne. The design project strives to counteract the 'placelessness' and lack of meaning that have degraded North Shields by referencing the contextual forces of its cultural heritage, thus restoring meaning, identity and a sense of place.

Fig. 7: Mark Todd, Marine Renewable Energy Institute, 2008/09

Regenerative Landscapes, North Shields: The scheme is a marine ecology college, algae farm and fish hatchery positioned at the mouth of the River Tyne and is conceived in response to the need for a facility that addresses the ever-diminishing fish stocks in the North Sea, and the demise of the communities that rely on the fish stocks for income. There has been commercial fishing from North Shields for over 1000 years but the industry has been in decline for a century, largely due to over-fishing, although climate change is now a contributing factor. Experts have warned that there may be as little as 10 years before the stocks are completely exhausted. The proposal aims to replenish fish stocks by growing sprats and releasing them in the North Sea. Algae are farmed to feed plankton which in turn feeds the sprats. The fish hatchery is cross-programmed with a higher education facility for marine ecology as a potential outpost to one of the Northeast universities. Redundant fishermen would be re-employed to take the sprats out to sea, and other work would be generated in the maintenance of the hatchery, the algae farm and the general support of the university facility. The

project is borne out of discourse in relation to context and critical regionalism. The architectural language, scale and form recall the former industries: the coal staithes and conveyors, suspension structures across the river, shipbuilding, all technologies that have been a backdrop to the area and the communities on the river since Victorian times. The algae farm is a new language on the river, representative of a new era of environmentalism. The algae farm appears as a piece of land-art from the sea; there is the potential to subtly alter the building's appearance by growing algae with different chromatic qualities.

Fig. 8: Gavin Lowdon, Regenerative Landscapes, North Shields, 2008/09

This advocacy of a student-centred approach which emphasises the importance of reflective practice within the philosophy of the programme, is exemplified by this project. Gavin won the 2009 AJ/3DReid Prize for the Best National Part II Project. The scheme was described as *'an architectural tour de force that is connected to its social and geographical context'.*

Some reflections

Architecture at Northumbria is a recent addition to a multi-disciplinary school of the built environment. The undergraduate programme was validated in 2004, and the diploma in 2009. The philosophy of contextual studies informing place, a multi layered basis for inquiry, delivered through a main vehicle of regional engagement, has permitted rapid development of a sophisticated, responsible approach to a meaningful architecture, within the context of research interests within the school and the wider university community. There is benefit to staff in giving a focus to research informed teaching; but

there are implications: there is a significant amount of work in finding and setting up appropriate project vehicles through the five years of study, that are appropriate to the student's development and which have a time scale that fits with the year's programme. The logical development to encourage this work would be the setting up of a live project office to develop the links with local communities and identify appropriate projects.

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INTRODUCTION TO COMPONENT 6: '*Subverting the Architectural Design Competition'* (2012)

Reference: Dalton, R., Hoelscher, C., Holgate, P., Brosamle, M. (2012) Subverting the architectural design competition. In: *Theory by Design: Architectural Research made explicit in the design teaching studio*. Artesis University College: Antwerp

Background: In support of widening the remit of architectural education towards inter-disciplinary collaboration, this initiative emerged from the ongoing research collaboration on theories of spatial cognition between NU and the Universities of Freiburg and Bremen. The initiative commenced with the design and conducting of an architectural design competition, open to students and professionals, concerning the integration of spatial cognition theory into design proposals for a social 'hub' building on the campus at Bremen.

Output: The successful completion of the competition and the potentials for inter-disciplinary scholarship emerging from the results, led to a conference presentation followed by this chapter in the 'Theory by Design' publication (competition available at: http://cognition.iig.uni-freiburg.de/martinb/inside-out/index.htm

Impact: The competition has subsequently led to a number of international research projects and exhibitions, as well as informing the author's participation in the development of the institutional Research Rich Learning strategy.

Collaborator: Ruth Dalton (NU staff), Christoph Hoelscher (Freiburg University Staff), Martin Brosamle (Freiburg University Student)

COMPONENT 6: SUBVERTING THE ARCHITECTURAL DESIGN COMPETITION

Ruth Dalton, Christoph Hölscher, Peter Holgate, Martin Brösamle

Abstract

In 2011 a seemingly 'typical' architectural competition was organised (consisting of a real site, design brief, International jury and prizes) by the Universities of Freiburg and Bremen (Germany) in collaboration with Northumbria University (UK) but with an ulterior motive of pursuing a specific design research agenda. The reasons for the competition were: to engage architects in an academic research agenda through a comfortingly familiar modus operandi; to bring together researchers in architectural theory/spatial cognition and practicing architects with an interest in user-centred design; to use a design competition as a means to investigate the effects of designing with a particular focus (in this case: movement paths/pedestrian flow and the unfolding user experience); to amass a uniform database of example buildings, all responding to the same brief and site whilst also in a common format amenable to further research analysis.

The competition was entered by 30 teams of which a short-list of 12 schemes was selected for exhibition in New York which took place in November 2011. Three schemes were selected as prize-winners and those designers were invited to present at an academic workshop (on the topic of spatial cognition and architectural design) held concurrently with the exhibition. The competition was perceived as being a highly productive way to engage design practitioners in an active research agenda (and vice versa). The winning architects who subsequently participated in the workshop found it a valuable experience whilst the competition organisers have now amassed a valuable database that will be invaluable resource for further research into the topic. The success of this event had led to plans to repeat the process.

Background

In recent years, wayfinding (how people comprehend and navigate complex spatial systems) in urban and architectural environments has developed into a vibrant area of research of interest to design and psychology disciplines. More broadly, it can be held to be closely aligned to (or even a sub-set of) the larger research area known as ‘user-centred design’. This is because, in order to investigate how people find their way

through complex, man-made spaces, it is first necessary to be aware of how people fundamentally experience, encode and subsequently recall aspects of the built environment; this can only be achieved by focusing on the end-user. Furthermore, it is this placement of the individual at the heart of the design-problem that unites the two research communities (design and psychology). The practical application of this research agenda will be the production of buildings and urban landscapes where actors (the end-users or inhabitants) are capable of making informed judgements in orienting themselves within and interacting intuitively with their environments. As architects remain, at present, responsible for the design of these environments, their design processes and conceptualisation of such design problems is a key area of interest (see Figure 1).

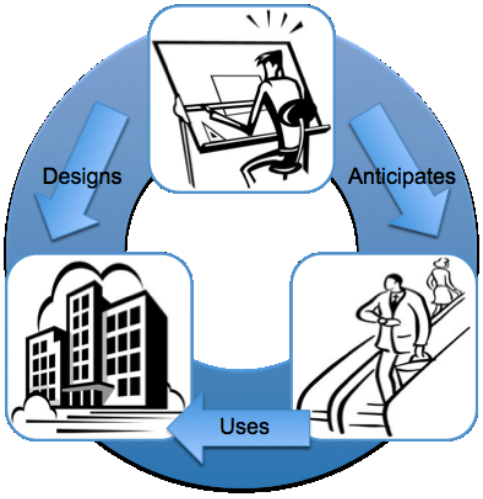

Figure 1 The relationship between architect/designer (top), the building user and environment

The differing cognitive tasks of the architect and the building user are further elaborated in Table 1 below:

Architects/Designer's Role	Building User/Inhabitant's Role
Take abstract, non-spatial relationships (usually encapsulated in the 'brief') and translating these into spatial relationships	Comprehending the overall layout / arrangement of rooms /space s/locations within a building
Design the overall spatial layout / arrangement (an iterative process)	Finding their way around a spatially complex environment

Create the users' experience of inhabiting / moving through the building	Initially forming, then progressively refining / updating and retrieving *some kind of* internal representation of a building
Put themselves 'into the shoes' of a user (imagining their experience)	Understanding the relationship between a spaces and their use / function
Communicating spatial ideas through sketches, plans and models	Form emotional attachments to and memories of places (place-making)
Understand an often highly complex set of 3D spatial relationships	Communicate directions / descriptions of the building to other inhabitants
Verbal communication of aspects of the building with client/end-users	

Table 1 Everyday spatial problems concerning the architect and building user

There are two ways to approach this research: first, to focus on the behaviour of the user in a designed-environment, second, to attempt to understand the design processes of architects, with respect to their own conceptualisation of the user and the associated role/tasks of the building user. In earlier work by Hoelscher and Dalton (unpublished, see also Brosamle and Holscher, 2007, 2008), they proposed that the process of architects designing buildings, especially with respect to wayfinding, is doubly-complicated as two distinct forms of 'perspective taking' are required. First, the architect is required to imagine themselves immersed in, or moving through, a complex, yet frequently purely imaginary, set of spaces (a demanding 3D spatial task); second, the architect is furthermore required to place themselves 'into the shoes' of the user (see Table 1) in order to comprehend how they (rather than the architect) might experience the environment. If the architect is also considering the wayfinding experience of the user, this type of 'perspective taking' becomes particularly challenging as the architect is the 'expert' on the layout of the building, since it was conceived by him/her and therefore their knowledge of the building's layout is both absolute and comprehensive. In contrast, a building user, especially entering a building for the first time, will have either no knowledge of the building's layout or incomplete/patchy knowledge at best. In order for the designer to 'step into the shoes' of the building user, they must somehow find a way to discard their expert knowledge and assume the mantle of the naive user.

The challenge of approaching this rich and interesting research area, however, has always been one of how to engage the architectural community directly. In previous work by Brösamle and Hölscher (2007, 2008), they conducted face-to-face interviews with architects in order to investigate how they conceptualized the user's wayfinding and navigational experiences with respect to typical architectural design-tasks. Although relatively successful, this approach to the research problem required the recruitment of practicing architects as research-participants which proved to be an ongoing challenge of this work.

In order to overcome the natural resistance of architects to participate in a mode of activity (the semi-structured, videoed interview) which does not normally form part of their everyday work-habits, it was decided that a completely new approach was required, one which worked within a paradigm familiar to all practicing architects, namely the architectural design competition. In developing and promoting this design competition, the authors attempted to capture the design decisions (associated with issues of wayfinding, spatial orientation and user-experience) by means of an authentic design brief which would position wayfinding as central to the judging criteria of the architectural design

Architectural research

Architectural research remains a contested area of scholarship; commentators have asserted that architectural design, in and of itself, does not constitute research and should be more precisely categorised as consultancy (Yeomans, 1995). To some degree, this is evidenced by a clear schism in schools of architecture. While taught undergraduate and masters programmes centre the curriculum on the design project, postgraduate and doctoral architectural research predominantly use written submissions as the standard method of dissemination.

At the same time, the architectural design process has been championed as an authentic and valid method of dealing with problems of complexity (Schön, 1983, 1985; Boyer & Mitgang, 1996). This is in clear contrast to positivist, and reductionist methods which seek to exclude context and variables from the research design. It could be argued that the design process is undermined by a consequential lack of rigour in seeking a compromise between the various functional, procedural, regulatory and aesthetic criteria which need to be addressed in architectural designs. However, these are the 'real world' considerations that architects must incorporate into proposals.

Research methodology; developing the design competition

The authors chose the design of a public building on the campus of the University of Bremen to be the focus of this design competition (Figure 2). The concept of an 'academic interchange' was established in order to consider how a building's occupants could be coerced by the environmental design towards social interactions. In modern university design, there has been a recent proliferation of 'hub' spaces designed to engender collegiate and trans-disciplinary encounters for the benefit of shared practice and knowledge transfer. Furthermore, it was anticipated that in such a building where 'socialising' was considered a key functional aspect of the design, the relationship between spatial navigation (movement-flow through the building) and chance encounter/social interaction could be clearly and rationally brought into the foreground of the design-brief. The development of the competition brief also drew upon the expertise of one of the authors in the design of higher education facilities, and an authentic schedule of spaces was developed to ensure that competitors were assessed on a fair and equitable basis. A package of relevant information (site plans, orientation, site images, schedule of areas, and rationale for the brief) was provided to participants to provide comprehensive information and parameters upon which to base their proposals, in the manner of any standard architectural design competition. Although the brief clearly stated that it was an 'ideas-only' competition and that it was aligned to an academic research agenda, the packaging and promotion of the associated materials in all respects imitated a 'normal' architectural competition.

Figure 2: Competition site location, University of Bremen

The competition, which was opened to both students and practicing architects, sought to gather as many entries as possible in order to provide representative sampling. A website was created, and details were posted on the major international portals for architectural competitions, hence promoting international participation. A prize was offered as incentive for participation in the form of a travel stipend to New York City to attend the competition exhibition (and associated academic workshop). The competition brief stated that all designs would be made available for reproduction and further use by the competition organizers, thus ensuring the entries could be utilised as raw data for the research team. With respect to ethical issues, this stipulation ensured no future dispute regarding the copyright of the design submissions. Other ethical considerations meant that, as far as possible, the authors responsible for the development of the competition were separated from the authors who would form the core of the judging committee, in order to avoid any potential bias regarding entries from students of Northumbria University.

A key element of the architectural competition was the production of a portfolio of design and written information to illuminate the process and theory behind the individual designers' approaches to this brief. The provision of visual, textual and diagrammatic evidence effectively 'triangulated' each designer's proposals, effectively testing and 're-framing' their solutions prior to the judges' evaluations.

Testing: the results of the competition

Bias is inevitably a key issue in the judgement of architectural competitions. Aesthetic preferences, quality of presentation etc. can skew the opinion of judges unless clear, specific criteria of performance and requirements are stipulated in the brief and the assessment criteria. The judging committee consisted of both professional architects (with extensive experience in the evaluation of international design competition entries) and key experts in cognitive behaviour. The key criteria of the brief formed the basis for the assessment of the competition entries. A remarkable degree of agreement was found between the judges with respect to marks awarded to individual entries. The competition was entered by 30 teams of which a short-list of 12 schemes was selected for a public exhibition in New York which took place in November 2011. Three schemes were selected as prize-winners (figures 3 & 4): one student prize-winner, one young professional prize-winner and one practitioner-prize. As well as being present at the exhibition opening, the competition participants were encouraged to take part in the wider discussions at the parallel symposium/workshop taking place, on the topic of

architectural cognition. All prize-winners elected to attend the academic workshop, despite not being required to do so.

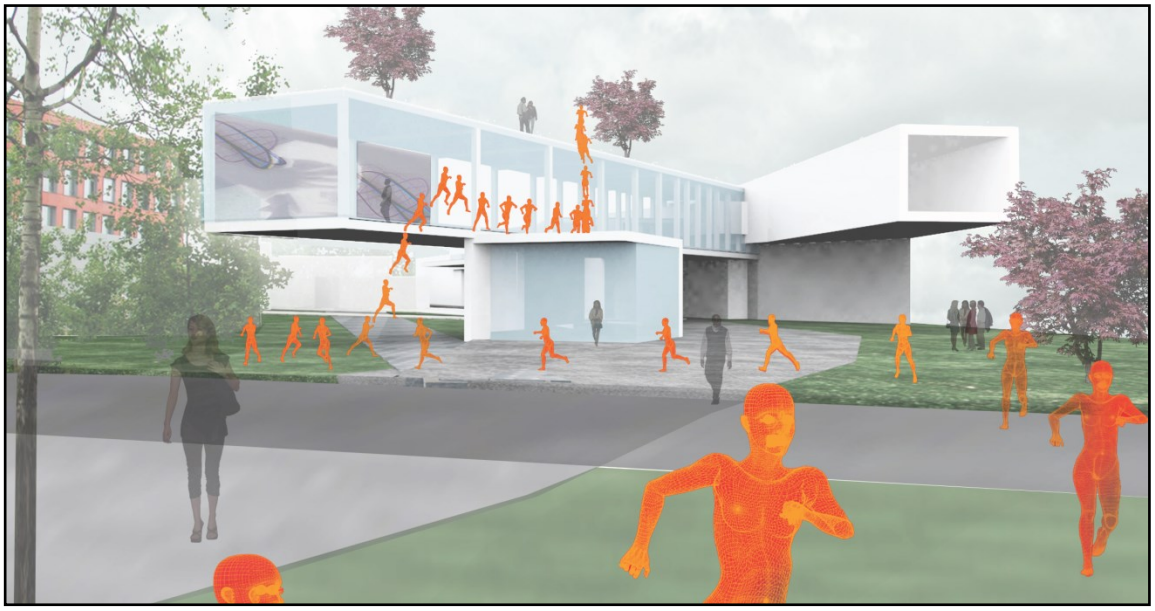

Figure 3 External view of competition entry by Alessandro Ayuso, Dragan Pavlovic and Harpreet Lota (young professional prize)

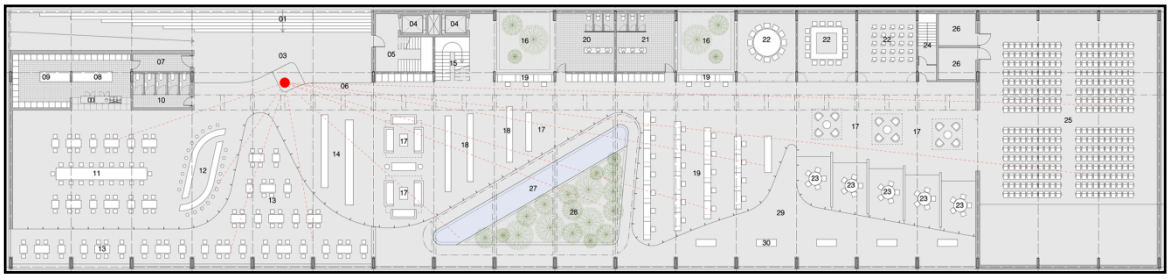

Figure 4 Ground plan of competition entry by David Flynn (practitioner prize)

Discussion

The reasons for the competition were: to engage architects in an academic research agenda through a comfortingly familiar modus operandi; to bring together researchers in architectural theory/spatial cognition and practicing architects with an interest in user-centred design; to use a design competition as a means to investigate the effects of designing with a particular focus (movement paths/pedestrian flow and the unfolding user experience); to amass a uniform database of example buildings, all responding to the same brief and site whilst also in a common format amenable to further research analysis. The success or failure of achieving each of these aims is discussed below:

Aim 1: engaging architects in a research agenda

One of the aforementioned contradictions within architecture is the schism between practice and research in the academy. The use of the architectural research competition as an inductive research method – developing a solution/hypothesis to be tested – provides opportunities to generate valuable and rich data for the behavioural scientists whilst also contributing to the relatively small research field of architectural design process (e.g. Lawson, 2006).

The success of this project was chiefly due to a close alignment of the research question to a relevant and authentic research/design methodology. The design brief and the design competition are key elements of the practice and vocabulary of architects and urban designers. To test the research question without utilising the professional and normative expertise of these design professions would produce results which would neither reflect the true nature and practice of architectural design, nor reflect the authentic context of site and process considerations.

Aim 2: unified approach to user-centred design

The evidence of whether we were able to use the competition as a vehicle for bringing together academics and practitioners with common interests in the human-factors aspects of architectural design was manifested in the voluntary attendance of the academic workshop of all the competition winners. Apart from a brief presentation of their winning schemes (and attendance at the opening of the public competition) there was no requirement for the prize-winners to attend the accompanying workshop or engage further with the academic community. In fact, all the prize-winners elected to attend the whole workshop and engaged in lively discussions over the ensuing days. The topic of user-centred design was central to the topics debated in the workshop and the practitioners were able to make an essential and valuable contribution to this topic. Had any other format of academic/practitioner engagement been used, such a valuable exchange may not have taken place.

Aim 3: design competition as methodology

As mentioned already, the success of the competition is primarily due to couching a research agenda in a very familiar mode of architectural endeavour. Rather than bringing architects to the research-table, we attempted to bring a research topic to the architect's drawing-boards. Without question, this has been our most successful

method of engaging a range of architects, of differing levels of experience, with a specific research agenda.

Aim 4: data-gathering

The competition organizers are now in possession of a set of thirty different design schemes, plus accompanying texts describing their design approach (written by the entrants) which we have permission to utilize for future research/analysis. Given that all of these are in response to a specific research agenda, namely the focus of the experience of the building-user, these constitute a unique academic resource, which we intend to make the basis of further research (see final section).

Conclusion

The use of an architectural design competition as a research methodology gives rise to a host of possibilities for future developments. The true potential of inter-disciplinary working and research can be exploited by linking design and research in this fashion (Rendell, 2004). An acknowledged attribute of doctoral research and process is 'originality' (Phillips & Pugh, pp. 63-64); however, in reality, doctoral submissions rarely venture beyond the 80,000 word written thesis, despite the developments of PhDs by Portfolio, PhD by Design etc. It is envisaged that the use of the design competition as a valid research methodology could contribute to the demands for inter-disciplinary research, authentic problem solving, and pragmatic originality in doctoral level inquiries, subverting the hegemonies of established practices in academia as well as the limitations of the typical architectural design competition.

It is envisaged that one possible next phase of this research will be to ask the successful entrants to re-design their competition entries following a focusing of the competition brief. This then moves the research into a classic action-research cycle of identification – implementation – testing – evaluation (McNiff & Whitehead, 2006) whereby the optimum solution to a problem 'in the field' can be developed by a cycle of iterations.

Further uses of the database of design entries might also include: the use of spatial analytic techniques (such as space syntax analysis) to look for underlying commonalities or differences that could be significant with respect to the stated research agenda (wayfinding and user-experience), additional text-based analysis, using the accompanying descriptions of the design intent/process written by the

entrants (a valuable and hitherto untapped resource in its own right) and the use of the building designs as settings for subsequent psychological research experiments (for example, wayfinding experiments in virtual simulations of the design schemes in order to test their navigability).

In conclusion, the process of subverting the architectural competition for research purposes has proved to be unexpectedly successful, and the authors envision that future work will continue with, not only the dataset gleaned from this competition, but also in repeating and/or refining the methodology for other research questions.

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Jurors: Ruth Conroy Dalton (Northumbria), Georg Vrachliotis (ETH Zurich), John Peponis tbc (Georgia Tech), Wilfried Wang (http://www.hoidnwang.de/ & University of Austin), Christian Derix (AEDAS R&D)

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INTRODUCTION TO COMPONENT 7: *'Programming the Programme: Pacing the Curriculum in Architectural Education'* (2012)

Reference: Holgate, P. & Roberts, S. (2012) 'Programming the programme: pacing the curriculum in architectural education' *Proceedings of the HEA STEM Learning and Teaching Conference*, Imperial College London, 12-13 April 2012. Available at: http://journals.heacademy.ac.uk/doi/abs/10.11120/stem.hea.2012.010 (Accessed: 19 July 2015)

Background: The author was one of the co-organisers of the Higher Education Academy's STEM conference at Imperial College London. In support of disciplinary collegiality and widening the scholarship of teaching and learning in the Built Environment sector, a presentation was delivered regarding the use of constructive alignment and assessment for learning in the timing of curricular delivery of the second year of architecture at NU.

Output: A conference presentation to peers across the Built Environment sector at the Higher Education Academy STEM conference in London 2012 was accompanied by a peer-reviewed paper.

Impact: The paper was made available on the HEA website, as well as being posted on Academia.edu.

Collaborator: Steve Roberts (NU staff)

COMPONENT 7: PROGRAMMING THE PROGRAMME: PACING THE CURRICULUM IN ARCHITECTURAL EDUCATION

Peter Holgate, Steve Roberts

Abstract

Constructive alignment in project based learning provides the opportunity to 'entrap students in a web of consistency' (Biggs, 1999). While the central design of a curriculum can incorporate the core elements of a syllabus for successful alignment, consideration of pace and timing of content delivery, assessment and learning opportunities can enhance student engagement and satisfaction.

This paper draws upon a case study of the second year architecture curriculum at Northumbria University. The curriculum has been designed to provide an authentic and engaging learning experience for the student body, incorporating peer-learning, real-world assignments, and group working to produce a varied portfolio of student work. Principles of constructive alignment are also incorporated into the curriculum design to bring relevance and interest to the student's learning. Pace of delivery and differentiated learning have also been considered in the aim of encouraging creativity. In this respect, curriculum design reflects a much broader view than the transmission of a syllabus; the satisfaction and well-being of students, as well as academics and other staff members provide key drivers in planning the curriculum to ensure engagement, variety and manageability, and to avoid burn-out, clashes and withdrawal.

Keywords

architecture; constructive alignment; curriculum; time-management;

Introduction

'…the core elements of architecture – learning to design within constraints, collaborative learning, and the refining of knowledge through the reflective act of design – have relevance and power far beyond the training of future architects.' (Boyer & Mitgang, p. xv)

The architecture programmes at the School of the Built and Natural Environment at Northumbria University have achieved notable attention and plaudits in recent years. In particular, National Student Satisfaction scores for both the undergraduate and

postgraduate programmes have achieved between 97% and 100% for the last three years. Amongst the possible reasons for this success is staff engagement with the critical evaluation and creative scheduling of the programmes. Staff members in the department have actively engaged with pedagogic research in recent years, and educational theory underpins both courses. This paper seeks to examine the development and delivery of a curriculum for the second year of the undergraduate programme, an academic year which has particular issues and potentials. Whilst the first year provides an introduction to the subject, and the third year is clearly aligned to the final award, the second year for many students lacks relevance and focus.

Curriculum Theory and Seaton Delaval

Flexibility of the curriculum plan is bounded by the need for compliance with the learning criteria of the Architects Registration Board (ARB) and the Royal Institute of British Architects (RIBA). The joint ARB/RIBA criteria are grouped into five categories; *Design; Cultural Context; Technologies and Environment; Practice and Management; Communications*. The architecture programmes at Northumbria University are modularised, and the individual modules are aligned with, and address the joint criteria. '*Design'* modules – generally in the form of studio based projects – account for 50% of the weighting of each academic year.

Constructive Alignment

At Northumbria, design is considered to be a holistic process rather than the aggregated sum of its individual constituent parts. A foundation of designing architecture programmes at Northumbria is 'constructive alignment' of the modules; by focusing the content and assessment of the non-design modules on the central design project, students are 'entrapped in a web of consistency' (Biggs, 1999)

The portfolio outputs of the design modules usually comprise plans, sections, elevations, perspectives, models, diagrams and text. The design proposals provide opportunities for the explicit integration of learning from the other four categories. For example, ideas and learning from *Cultural Context* modules can be manifested in a design which references historical building precedents; the syllabus of *Technology and Environment* may become apparent in the constructional methods employed in the Student designs; *Practice and Management* can be evidenced in the design's compliance with building codes and other regulations; Finally, the curriculum of *Communications* modules concerns the successful description of the students'

intentions by means of graphical, electronic, oral and written media.

At Northumbria, it was felt that while the third year curriculum of the undergraduate course had been constructively aligned, thereby achieving excellent results, this structure had not yet been effectively implemented in the lower years. A restructuring of the second year delivery allowed the programme to be reconsidered in the light of third year best practice and staff members' educational research.

Fig.1 Seaton Delaval Hall, John Vanburgh (Photo Credit: Authors)

Design

Authenticity and complexity in assignments are seen as key conditions to successful assessment for learning. A collaborative venture between the National Trust and Northumbria University provided an ideal opportunity to engage in a variety of design projects centred on the local grade 1 listed Seaton Delaval Hall and its surrounding estate (Fig. 1). The first projects, 'Frame' and 'Object', engaged the students with this context by means of intensive observation, research, and graphical recording; 'Investigation' provided a short, practical vehicle for group work, with students collaborating on a demountable bridge design to improve accessibility to the estate's mausoleum; the remainder of the first semester was devoted to the individual 'Theatre' project, concerning the creative re-use of this mausoleum. Seaton Delaval Hall also formed the basis of the second semester design curriculum, enabling deeper student engagement with the context and its themes. The National Trust kindly allowed repeat visits for students to engage fully with the site.

Cultural Context

Seaton Delaval Hall provided an exemplary case study for the second year history and theory module. The second year studies seek to develop a deeper understanding of, and engagement with the historical development of architecture. The teaching of neo-

classical principles was given immediate relevance by the choice of Seaton Delaval insofar as the architect, Sir John Vanbrugh was influenced by the works of Andreas Palladio (particularly the Villa Foscari) in his design of the great hall.

Technologies and Environment

A comprehensive technological and environmental module supports second year student learning. With respect to Seaton Delaval, specific lectures were delivered centred upon the re-use of existing buildings, drawing upon the practical experiences of the lecturers in dealing with similar buildings. Other lectures considered the sustainability aspects of dealing with existing structures, touching on issues such as embodied energy and temporary interventions. The 'Investigation' project (Fig. 2) provided a group work vehicle for the learning of structural principles, reflecting authentic collaborative practice in the profession.

Figure 2: 'Frame' And 'Investigation' Example Projects (Student Credit: Joe Ecob)

Practice Law and Management / Communications

Practice, Law and Management teaching is generally concentrated in the third year studies at Northumbria. However, the use of Seaton Delaval provided ideal opportunities, through the design and technologies modules, to discuss aspects of planning and listed building legislation with the students. Imaginative two and three dimensional communication of concepts, designs and proposals was encouraged via experimentation in the 'Frame and Object' assignments; engagement with a real building also provided students with first-hand experiential appreciations of scale, patina and materiality.

Curriculum Design and Theories

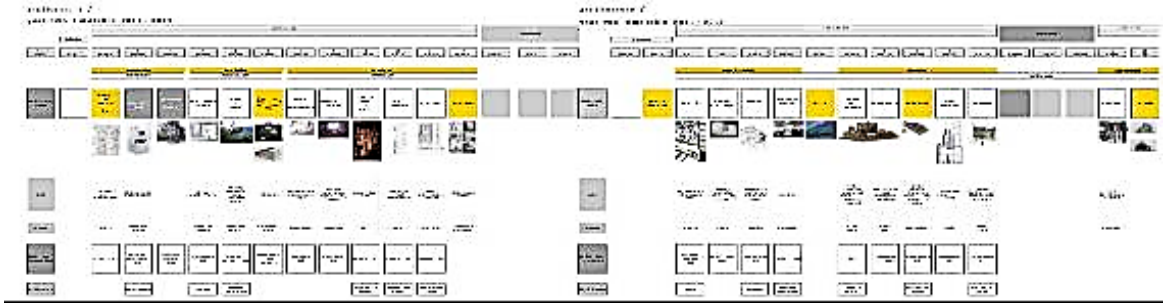

Figure 3: Curriculum Plan For 2nd Year Seaton Delaval Project

Curriculum Planning

The second year structure adopts the strategy that; *'…the curriculum is the totality of the experiences the pupil has as a result of the provision made.'* (Kelly, 2009). The key aim of the semester curriculum plan was to align studio design, subject content, and independent learning in a framework which would engage students in creative learning. This was guided by the intention to move from the teaching of *declarative* knowledge (i.e. rote learning) towards the learning of *functioning* knowledge, which can be constructively applied to student projects. Weekly task sheets, with clearly defined outputs, directed student learning towards a set of achievable outcomes which formed the foundation for the following week's work.

At Northumbria, informal feedback is provided on a weekly basis in group and individual tutorials. Programmed reviews provide key targets and gateways whereby students can assess their progress against the programme and their peers; studio working encourages peer learning, review and support. This rich blend of meaning, practice, community and identity establishes an effective 'community of learning' in the architectural studio (Wenger, 2003). Extensive formative feedback provides the information to allow students to direct their own learning; reviews, tutorials and studio attendance and practice allows students rich opportunities for peer learning and self-assessment

Student Well-being

In recent years, staff members in the architecture programmes at Northumbria have considered issues of student time management in depth (Holgate & Jones, 2011). This is in recognition of the normative practices and workload models of architectural education which encourage working long, unsociable and unhealthy hours (Bachman & Bachman, 2006, AIAS, 2002, Boyer & Mitgang, 1996).The semester one curriculum therefore avoided clashes of coursework submission dates where possible, and provided a variety of pace in the multiple studio assignments. Where students chose to work extended hours, it was designed to be by choice rather than necessity; *"Activities we love fill us with energy even when we are physically exhausted. Activities we don't like can drain us in minutes, even if we approach them at our physical peak of fitness"* (Robinson & Aronica, 2009)

Creativity and the Journey from Teaching to Learning

Mastery of a discipline is commonly believed to take at least a decade to achieve (Simonton, 2008), a fact which should be considered with a profession such as architecture which has its roots in a craft tradition that pre-dates the modern university (Schon, 1985) However, the professionalization of the discipline, coupled with a production-line approach to target driven higher education, means that learning by making – and in particular, learning from mistakes – is being squeezed out of the modular curriculum. A key challenge is therefore how students 'learn how to learn' and it could be argued that Schon's concept of the reflective practitioner is contingent upon the academic space and time for reflection. The Northumbria curriculum therefore seeks to allow variation in pace and 'down-time', in order to avoid a tread-mill approach to learning. This is doubly beneficial when considering recent research regarding learning and creativity; *"…intellectual understanding itself often benefits from this gradual, soaking-it-up-through-the-pores approach. Really 'getting your brain round' a topic seems to depend at least as much on the slower processes of 'mulling over' and 'cogitating' as it does on being mentally busy"* (Claxton,1998)

Integrated Curriculum Programming

University teaching and administrative support teams are often under extreme pressure with regards to the successful delivery of academic programmes. Assignment marking, handling, timetabling, quality assurance procedures etc. often undermine effective teaching. Regrettably, centralised planning of such activities often prioritises managerial systems over student experience and learning (timetabling being a particular issue in recent satisfaction surveys). An ongoing project at Northumbria is the development of an integrated curriculum plan which centres the student learning experience at its core, and pursues the holistic alignment of the curriculum with these administrative functions to allow students, academics and administrative staff to all perform efficiently and creatively.

Discussion

Initial student feedback has indicated that the detailed planning of the second year curriculum incorporating significant learning goals (Fink, 2007) has paid dividends in student engagement, the development of a strong learning community, and independent learning and creativity. Although studio space is financially prohibitive, the lessons of retaining a cohort in a single space hold particular value in establishing discipline identity and a community of learning (particularly for part-time students).

Although the body of knowledge regarding curriculum planning, particularly for primary and secondary education, is extensive, policies consideration of the *pacing* and *creativity* of curricula in higher education appears thin. With modularisation of programmes, increased pressure on resources in higher education, and moves towards the concept of the student as 'customer', there appears to be an uncritical move towards filling the notional hours of the curriculum with as much directed teaching, contact and assessment as possible (HEFCE, 2012). If the avowed aim is to nurture self-directed, independent learners at the point of graduation, students should be afforded the 'academic space' for self-reflection and self-development (Bandura, 1997). Consideration should also be made of the enjoyment of studies, with the means to ensure that enthusiasm and creativity are developed in architecture and other STEM subjects, in lieu of 'chalk and talk' supported by repetitive assessment. Finally, students should be allowed the time to develop external interests and social skills, which are as important to the student and the wider community (not least in grounding learning and innovation within an authentic social context) as the singular pursuit of scholarship. In

this respect, the staff at Northumbria endeavour to shape the curriculum in order to encourage student self-efficacy in the learning activities, as well as designing the timing and pace of the academic year to allow students to engage with their external pursuits and interests.

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INTRODUCTION TO COMPONENT 8: *'Care of the Self: Embedding Well-Being into Architectural Education'* (2011)

Reference: Holgate, P. and Jones, P. (2011) 'Care of the Self: embedding well-being into architectural education' *WELL-BEING 2011; The First International Conference Exploring the Multi-dimensions of Well-being*, Birmingham City University,18-19 July 2011. Available at: http://www.biad.bcu.ac.uk/research/wellbeing2011/index.php (Accessed: 19 July 2015)

Background: Architecture education has an entrenched culture of long hours and overnight working which often translates into ill-health, poor student time-management and peer pressure in both education and practice towards a poor life- work-study balance. In applying the self-reporting methodology of Bachman & Bachman to students of architecture at Northumbria University, this inquiry sought to understand the reasons for, and the extent of this culture in the institution.

Output: A conference presentation at the interdisciplinary First Annual Well-Being Conference, Birmingham City University, and the subsequent dissemination of the peer-reviewed conference paper via the conference webpages

Impact: Local responses to the inquiry findings have included the explicit discussion of time management with architecture students, as well as the continuing policy of closing the studios to dissuade 24 hour working.

Collaborator: Paul Jones (NU staff)

COMPONENT 8: CARE OF THE SELF: EMBEDDING WELL-BEING IN ARCHITECTURAL EDUCATION

Peter Holgate, Paul Jones

Abstract

In this paper we consider the impact of conflicting work, study and social pressures on architecture students in the particular context of Northumbria University. We will also consider students' abilities to manage their time effectively, and whether architecture as a profession has a duty of care to students and practitioners to establish healthy working methods. We will also report on a small scale research initiative to examine student time management in more depth.

Keywords

Architecture, higher education, time management, well-being

Introduction

London, 1988: An architecture student sets her alarm for a maximum of two hours of sleep in the afternoon after working all night to complete a student project. Her mother prepares a meal as quietly as possible, in order not to wake her daughter, and feels powerless to help.

Frankfurt 1996: One of the authors is preparing to work all night in order to complete the drawings for an office development, ahead of a planning submission scheduled for the following day; his wife is at home, exhausted with a two year old baby. One of the office partners, about to leave for the evening enquires about the project's progress. When told of the expectation to work overnight, the partner orders the author to go home; 'we don't work overnight in this bureau' he states categorically. Work on the submission is completed successfully the following day, achieving the deadline.

Newcastle 2009: One of our students states that she expects to be working on her design project overnight; we tell her to do her best, but no more; she has to sleep; her health is more important than architecture.

Background

It is a truism that there is never enough time in architecture. The profession is populated by practitioners and students who care about their work to the point of obsession. There will always be another construction detail to be drawn to ensure that the architect's vision is faithfully reproduced; there is always another development of the proposals which could improve the design immeasurably; there is always another rendering which will communicate the design more effectively. In short, there is often a drive towards an unattainable perfectionism in a creative profession which sees architects continually setting themselves exemplary standards through impossible targets. This has been compounded in recent decades by the impact of various technological and cultural shifts. The rise of Computer Aided Architectural Design (CAAD) has fundamentally increased the notional productivity of architects and designers; additionally, the internet has allowed unhindered access to a constant stream of information, thereby breaking 'traditional', bounded working and living patterns. This 'perfectionist' behaviour of architects is exacerbated and encouraged by both intrinsic and extrinsic influences. The professional education and development of the architect (which is held by its own community of practice and by external educationalists in high esteem) has to some degree become entrapped by its own signature pedagogy (Schulman, 2005; Boyer & Mitgang, 1996; Schon, 1994). Problem-based learning is justly praised as a teaching approach which develops functioning knowledge in response to complex and authentic tasks. However, its limitations have been less conspicuously reported. Extrinsically, the introduction of, and subsequent rise in higher education fees has added to existing time pressures, with students having to seek paid employment to cover tuition and maintenance fees. With the raising of the Universities' fee cap in England in 2011, these pressures are likely to continue and rise.

This paper seeks to confine its inquiry to architectural education, in the specific context of Northumbria University. The development of a studio culture has been central to the problem-based pedagogy adopted here, with the aim of encouraging peer learning and self-assessment, and establishing learning communities of practice (Wenger, 2003). Studio hours have been deliberately restricted in the hope that students adopt sensible and healthy working patterns. By comparison, it should be noted that the University library has recently commenced 24 hours opening, in response to students' requests for more flexible access. This, reportedly, is a product of students having to work flexible hours to support their finances.

Policy

The Working Time Directive (EC, 2003) explicitly focuses its policy upon the health and safety of the worker. However, the definition of the 'worker' appears to be vaguely defined with regards to the legal positions of students or programmes of study periods. Although a maximum working week of 48 hours is stipulated, derogations are allowed subject to the duties of the employee (e.g. healthcare and emergency workers). The Working Time Directive is currently being reviewed in light of changing workplace trends, and one statistic quoted reports a reduction in the average weekly working hours across the European Union from 39 hours in 1990 to 37.8 hours in 2006 (EC,2010). This document also notes that the 48 hour working week dates back to the Hours of Work (Industry) Convention issued in 1919, and that average working hours for some workers may still vary from 49 to 80 hours per week, particularly where employees are holding down two or more jobs. It can be surmised that similar working hours could apply to students who assume both study and work commitments.

Northumbria University's Duty of Care policies (Northumbria University, 2010) are similarly focused upon student health and well-being. The Working Time Directive is explicitly noted in this document, but only with respect to student placement guidelines; there appears to be no reference to this policy with regards to full-time study workloads, etc. As with other universities which have adopted a modular curriculum, Northumbria University stipulates that a full time student must achieve 120 credit points per academic year. This roughly equates to 1200 study hours in the two-semester academic year, or approximately 40 study hours per week (divided into notional hours of directed learning, independent learning, etc.) In recent years, part-time routes into study have been developed at Northumbria, as per most UK universities. These programmes of study are primarily directed towards students working in professions that align with their studies. Both regulatory bodies for architecture in the U.K. publish professional guidelines for architectural practice. The Architects Registration Board (ARB) 'Architects Code' states that practitioners should be 'competent to carry out the professional work you undertake to do' (ARB, 2010), and the Royal Institute of British Architects (RIBA) 'Code of Professional Conduct' similarly requires that 'Members should realistically appraise their ability to undertake and achieve any proposed work' (RIBA, 2005). Otherwise, there appears to be nothing explicitly stated in either code regarding the welfare of the architect as either employer or employee.

Literature Review

A focused review of peer-reviewed literature was undertaken to evaluate existing research which would encompass the subjects of architectural education, time management, sleep deprivation, and associated themes. Search terms needed to be broadened to generate a reasonable spread of literature indicating that there was a gap in the knowledge for this association of issues. On widening the search terms (and including sources that were not journal based) key texts emerged encompassing the chief concerns of this project. Most forcefully, the American Institute of Architecture Students Report identifies the corrosive effect of long hours on student health (AIAS, 2002). De Graft-Johnson, Manley and Greed (2003) note the impact of architecture's culture of long hours as an influence on the disproportionately small number of women who remain in the profession. Studies of the time management of architectural students proved more difficult to uncover, however, a key text emerged in 'Student Perceptions of Academic Workload in Architectural Education' (Bachman & Bachman, 2006). This quantitative study highlighted the negative impact of studio design projects on student workloads, adopting a notional weekly plan of a 14 credit hour semester as the basis of its methodology. This paper provided the basis for an initial discussion with the study sample group at Northumbria. Bachman & Bachmans' weekly plan underpinned our notional grid for a Northumbria University student's 120 credit point academic year (Table 1). This table breaks the week into the general components of; study; work; sleep; eat; personal; household; commute. These components were then interrogated in further depth in both this paper's literature review and in the students' questionnaire.

Study: Of concern here is the impact of extended hours of study to quality and production. 'Study' with respect to students of architecture, encompasses both declarative knowledge (generally through taught modules, such as history, technology etc.) and functional knowledge (fusing physical activities such as model making, drafting, sketching etc. to creative applications and reflection). At the heart of problem based learning through design projects, this functioning knowledge mirrors authentic practice, yet may also exact more physical and mental demands of the student than traditional 'chalk and talk' activities. Within creative subjects such as architecture, there are also reported benefits of 'downtime' with respect to creativity 'There is direct evidence that creativity is associated with a state of low-focus neural activity.' (Claxton, 2008, p.148)

Sleep: Sleep research is an enormous field of medical and behavioural research. Sleep deprivation was considered at the outset of this inquiry to be the area of highest importance with respect to the time-management of students. This follows the sobering report of an architecture student being killed in a motoring accident after falling asleep while driving, having spent over 48 hours awake in order to complete a project (AIAS, 2002). The scope and timescale of this inquiry did not extend to an in-depth, comprehensive systematic review of the wealth of literature on general sleep and health research. However, several papers indicated the complexity and impact of sleep-deprivation on student health and performance; it has been reported that sleep-deprived students tend towards low-effort, simpler tasks than comparable, non-sleep deprived colleagues. This behaviour appears to occur in order that some control of quality of response would be maintained, to counter the fatigue and slow reaction times of sleep-deprived students (Engle-Friedman et al., 2003). Correlations of sleep deprivation with depression and mental illnesses have also been reported (Stein et al., 2008). Sleep duration has also been linked with mortality (Grandner et al., 2009), and other studies have linked sleep behaviour with obesity (Patel, 2009), and diabetes (Barone & Menna-Barreto, 2011). In contrast (and of relevance to architecture and design), recent research has established positive correlations between good sleep patterns (particularly with respect to REM sleep) and creativity (Cai et al, 2009). It is to be hoped that knowledge of such studies can persuade students to adopt better sleeping strategies.

Work: Long hours at work, as aforementioned, are seen by policy makers as being detrimental to employee health. For example, a recent study asserts that workers spending more than 11 hours at work could increase their chances of suffering heart attacks by two-thirds (Kivimaki et al., 2011). The optimum balance of work with part-time University study, is also contested, with one study highlighting that part-time students associated time spent in work as positive, yet time spent in University as negative (Lingard, 2007).

Nutrition: Extensive research has highlighted the importance of nutrition in learning and behaviour (e.g. Dani et al., 2005). Conceivably, excessive time devoted to studio design work could give rise to poor nutrition, however these are issues beyond this inquiry. Similarly, this inquiry does not concern itself with the reported use of cognitive enhancing drugs (e.g. Ritalin) by healthy students hoping to boost academic performances (Greely et al., 2008).

Personal: Policy commitments to widening access in the architectural profession must also consider the variety of personal factors which can impact upon the time management of students. These may include; students' mental and physical health, including physical and hidden disabilities; family and religious commitments. Again, the scope of this inquiry is too narrow to encompass all such issues, however, the qualitative responses would hopefully prove useful in indicating a typical range of the personal issues.

Household: This study expected little or no particular aspects of housekeeping (laundry, washing-up, cleaning, etc.) to have significant bearing on student time-management.

Commute: As previously commented, the increase in tuition fees in recent years has led to significant shifts in student lifestyles. Students are choosing to study in local universities and, by extension, remain at the parental home for chiefly financial reasons. Hence, the option of living in halls of residence or student flats close to campus may no longer be open to all. Coupled with a rise in rents over the last twenty years, living at home is set to become more prevalent. Commuting from off-campus may consequently add to a further time pressure on students.

Research Methodology

Aims and Objectives

The chief research aim of this inquiry was to generate initial data with respect to student working methods and time management. The research objectives were to:

a) collect comparative data of the hours allocations for the sample students' weeks
b) gather qualitative data of student's personal experiences with respect to the pressures on their time

Context and Sampling

As a small scale pilot project it was decided to concentrate on the cohort of the first year of the Master of Architecture programme at Northumbria University. This cohort was chosen for this research proposal on the basis that;

a) they had completed a three year undergraduate programme in architecture, either at Northumbria or elsewhere; they had therefore experienced similar time pressures in the completion of design projects in their first degree
b) the majority of the students had also completed up to one year's practical experience in architectural practices in the UK, gaining practical experience of the 'typical' working week.
c) this cohort were concurrently working on a design project which required them to reflect on their design processes and working methods as part of the summative assessment. As such, they were encouraged to consider their time management and provide a written reflection within a design report.

Given the pressures on the second year students of the Masters programme with respect to completing studies in the award year, it was decided to restrict the sample to first year students. The total cohort available was therefore 29 students, clearly limiting the validity of the research for wider application. However, it could be argued that the unique context of Northumbria University (with respect to learning and teaching strategies, project choices, and studio practice) would not necessarily make this research applicable to the wide and varied approaches taken by the many architectural schools throughout the UK and elsewhere. As a focused, contextual inquiry, it could also be argued that this specificity is directly required to improve on localised practice. The sample group was introduced to the research project by way of a short presentation from one of the authors.

A straw poll at the time of this presentation indicated that 27 out of the 29 students available had, at some point in their studies, worked through the night to complete design assignments. The author presented the design project brief in order to re-iterate the requirement for the production of individual reflective reports on working methods and time-management. These reflections could inform participants' responses to data collection. Participation in the enquiry however was clearly presented as being voluntary (see ethics.)

Quantitative Methods

Bachman and Bachman's idealised weekly plan for the 14 credit hour semester provided the basis for an initial discussion with the study sample group. This was adapted by the authors to form a notional student workload plan for the Northumbria University 120 credit point academic year (table 1):

	MON	TUE	WED	THU	FRI	SAT	SUN	hours
study	8.0	8.0	8.0	8.0	8.0	0.0	0.0	**40**
work	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0**
sleep	7.0	7.0	7.0	7.0	7.0	7.0	7.0	**49**
eat	2.0	2.0	2.0	2.0	2.0	2.0	2.0	**14**
personal	5.0	5.0	5.0	5.0	5.0	12.0	12.0	**49**
household	1.0	1.0	1.0	1.0	1.0	2.0	2.0	**9**
commute	1.0	1.0	1.0	1.0	1.0	1.0	1.0	**7**
hours	**24**	**24**	**24**	**24**	**24**	**24**	**24**	**168**

Table 1: Notional weekly breakdown for students' academic week

Students were asked to complete a blank grid, estimating the breakdown of their daily and weekly hours for two specified weeks of the academic calendar. The first week (week commencing 14th February 2011) was chosen as being relatively 'normal', having no assignments scheduled for submission. The second week (week commencing 28th March 2011) preceded a major assignment submission for the final review of a studio design project. As Bachman & Bachman (2006) had previously identified studio design projects as being particularly problematic with respect to the time planning of architectural students, these periods were chosen to evaluate weeks of low and high potential stress for the students.

Qualitative Methods

Northumbria University has been praised for its application of constructively aligned problem-based learning in its programmes of architecture, and teaching staff members are keen to maintain this strategy. Continual dialogue between staff and students helps to establish a supportive learning community, and the student voice is respected by staff members. A collaborative research inquiry was therefore developed, with the aspiration of improving student time-management and well-being without an equivalent loss of design quality. The students' voices and personal experiences were therefore considered to be of primary importance in consideration of strategies to improve practice at Northumbria. The components of the idealised weekly plan formed the basis of a semi-structured questionnaire, designed to elicit qualitative responses with respect to the key themes identified on the grids (i.e. study; work; sleep; eat; personal; household; commute). Responses were then compared to find emergent themes

(Corbin & Strauss, 2008) common to the participants. The questionnaire was structured to elicit qualitative responses by means of open questions regarding the students' weekly schedules.

Ethics

The inquiry was subject to the ethics guidelines of the School of the Built and Natural Environment at Northumbria University. Students were advised (both verbally and in writing) that participation was voluntary, and that nonparticipation would not affect either student marks, or staff relationships with students. Informed consent forms were provided for participants explaining that data from completed grids and the questionnaires could be used anonymously in publications. It was clarified by the authors that data collected would be stored in a locked, secure location, unavailable to public access and scheduled to be destroyed within three years. On completion of the grids, students were asked to return these to the School's administration office for collation before being returned to the authors. Questionnaires respected the students' anonymity, and no details of gender, age, location etc. were requested from participants.

Research Findings And Analysis: Quantitative results

Of 29 potential returns, 17 submissions provided data for the week commencing 14th February 2011 (see table 2), and 18 were provided for the week commencing 28th March 2011 (see table 3);

	study	**work**	**sleep**	**eat**	**personal**	**house**	**commute**
average	53.2	1.5	54.1	13.7	31.6	6.3	7.4
minimum	28	0	45.5	8	18	1	0
maximum	76	22	60.5	19	49.5	13	22.5

Table 2: Student Hours Breakdowns, week commencing 14th February 2011

Commentary: Study hours for the first week of the inquiry varied between 28 to 76 hours per week, with the sample average being 53 hours (13 more than the notional workload figure of 40 hours.) The average sleep hours per night approximated to 7.7,

slightly above the notional 7 hours. Other averages approximated to the predicted hours of table 1 with the exception of 'personal' time which was approximately 32 hours per week compared with the notional average of 49. 'Work' hours did not appear to be excessive.

	study	**work**	**sleep**	**eat**	**personal**	**house**	**commute**
average	78.3	1.6	48.6	12.9	17.3	4.6	4.5
minimum	53	0	35	8	8	0.5	0
maximum	103.5	21	58	18.5	38.5	16	13

Table 3: Student Hours Breakdowns, week commencing 28th March 2011

Commentary: Study hours for this week averaged almost double the notional 40 hours assumed in Table 1. Two respondents logged over 100 hours of study in this working week. Sleep averages approximated the 49 hours expected in the notional grid. As with the week commencing 14th February 2011, the outstanding 'deficit' was to be found in the 'personal' column, encompassing socializing, family, exercise, volunteering etc. Work hours on average were low, however one respondent logged 21 hours in one week, over and above study hours.

Qualitative Responses

Responses to the questionnaires were collated for each question. These responses were then analysed to see where correlations between the respondents occurred:

Study: The use of the studio was cited as being good for peer learning and community activities, but bad for concentrated learning. The balance of assignments' worth between studio design and taught modules was generally considered to be biased towards design projects, with studio work being the primary driver of long hours; 'I find that although the course is weighted 50:50 with regards to design work the timescale workload is not evenly balanced in fact it is more like 90:10 favouring design over written reports.' Many students reported issues with clashes of assignment deadlines, and multiple deadlines were seen to be stressful. Many respondents stated that they tended to underestimate the time needed to complete assignments, and some students

self-reported tendencies of displacement activity. The iterative and non-linear development of design was seen to prevent successful time planning. Time spent by students in the university design studio varied from 6 to 60 hours per week. Students also expressed concern at the time required to produce large scale models. Peer comparison with other courses of study in the School indicated that workloads for architecture students were higher than for students of other courses. Finally, some respondents confirmed that their personal responsibilities beyond the university (health, family, work etc.) made regular time-planning problematic.

Sleep: Over half the respondents cited problems with sleeping; All but two of the respondents had worked all night on assignments. Over two thirds of the respondents indicated that they suffered from poor quality of sleep, with 'thinking about work' being a consistent factor in disturbing their sleep patterns; 'Struggle to sleep due to stress of work, always feel I could be doing more. You can never do too much…a never ending task…visual work can always be improved with time.' Some students were aware that lack of good quality sleep would affect their next day performance; however, 'fear of failure' proved to be a key motivation in working extended hours.

Work: While the majority of respondents did not currently work, most also reported that there was a financial imperative to find work to support themselves; high course fees, lack of parental support, costs of materials and equipment were all cited as financial concerns. Students in employment generally worked long shifts (e.g. bar work), and it was reported that some employers provided little flexibility with respect to their employees' studies. Three respondents reported that they had stopped working in order not to jeopardize their studies, and that the long hours associated with architectural studies had influenced this choice; 'I feel as the course is very intense I feel it is difficult to maintain a full time and even part time job.'

Personal: The majority of respondents did participate in sport and leisure activities, but a number could not exercise on a regular basis due to study commitments; studies tended to take precedent over personal well-being. For some students exercise was required for health reasons, and for others, personal health issues affected their studies. Although the majority of respondents allowed time for social activities, it was cited by many that they had few opportunities to make friends outside their peer group in the course ('Majority of friends in Newcastle are architecture students so I see them in the studio anyways'). Studies also appeared to take precedent over social activities, although a small number maintained time for church, charity and volunteer work. Most

poignantly, one respondent stated 'It is almost impossible to be in a relationship, as study always takes over. If you are not doing it you are thinking about it…'

General: One respondent reported that dyslexia contributed to the pressures of students of architecture. A separate small-scale inquiry at Northumbria University indicated that almost a third of the students in this cohort suffer from dyslexia, and consequently spend even more time dealing with aspects of learning, time-management, and written assignments. Architecture, in common with several art and design courses, is a popular route for students who suffer from dyslexia. Links between dyslexia and artistic aptitude have been posited (Chakravarty, 2009). However, these abilities are counteracted by one or more of the symptomatic manifestations of dyslexia, which include poor organisational abilities; poor short-term memory; poor word-recognition, etc.

Discussion

The limited sample size and the contextual specificity of this inquiry preclude any claims to general validity of the findings herein. However, the patterns of time allocation were of little surprise when one of the authors presented initial findings to members of the Standing Council of Heads of Schools of Architecture in April 2011. While the working conditions of trainee doctors have been well documented and discussed within the medical profession, the bodies entrusted with the professional standards of architecture have been relatively mute with respect to comparable issues.

Clearly, the hours spent on global 'study' were far in excess of the notional estimate, as displayed in the quantitative analyses for both weeks. Qualitative responses indicated that this excess was chiefly a product of the open-ended nature and complexity of studio design projects, corresponding with the findings of Bachman & Bachman (2006). Teaching staff consideration should therefore be made of the quantity, the limits, and the challenge of problem-based design projects; 'The student must have a reasonable probability of success in achieving the task.' (Biggs & Tang, 2009, p.92). Learning outcomes should not be vicariously assessed by quantity. Educationalists have argued that learning exercises which attempt to maximise coverage may consequently deny opportunities for deep learning (Gardner, 1993). However, architecture by its nature is a complex subject. And, although multiple deadlines were perceived by students as generating stress, this complexity mirrors authentic practice in the profession. Teachers should therefore carefully consider how best to carefully define the boundaries of

project submissions – an equivalent to the word count of dissertations - to establish attainable outputs within defined time limits. The extrinsic motivation of 'fear of failure' could preferably be supplanted by an intrinsic motivation to learn and develop skills, without harm to the student's well-being.

However, there are conflicting issues intrinsic to architectural design in both education and practice which conspire against the ease of achieving these ideals. Critically reflective development improves design quality, and extensive development work is therefore valued by teachers of architecture. Consideration should therefore be made of how reflective practice is embedded in intended learning outcomes, evidenced successfully by outputs (which should not depend on unsustainable production), and the better management of expectations on the part of both staff members and students. Problem based learning is justifiably praised as an effective method of acquiring functioning knowledge and skills to creatively tackle complex issues (Biggs & Tang, 2009); however, this inquiry sees benefits in establishing clear boundaries to the complexity and/or scope of student design projects.

On the part of the student of architecture, valuable skills of self-regulation need to be acquired, preferably through the encouragement of the curriculum, but essentially through the student's own dispositions; 'In academic functioning…perceived academic efficacy to regulate ones' own learning activities, social efficacy to cultivate supportive interpersonal relationships, and self-regulatory efficacy to resist peer pressures for activities that undermine academic pursuits together account for substantially more variance in academic achievement than does academic efficacy alone' (Bandura, 1996, p.337). Students who can acquire these skills draw upon a range of learning and self-management strategies, have belief in their own capabilities, and set themselves personal and professional goals;'…self-regulated learners engage in three important processes; self-observation (monitoring of one's activities); self-judgement (evaluation of how well one's own performance compares to a standard or the performance of others); and self-reactions (reactions to performance outcomes)' (Eccles & Wigfield, 2002, p.124). Some degree of self-regulation can be ascertained from the findings. For example, the quantitative inquiry indicated that average hours of sleep were not dissimilar to those expected in Table 1, and with regards to all night working, one student reported 'This is counterproductive…so I've not done this recently.' However, sleep quality clearly appeared to be of concern with respect to the qualitative response. There is evidence that quality of sleep has a greater impact on next-day performance than quantity (Pilcher et. al. 1997). Researchers have also contested the perceived

inflexibility of consecutive sleep patterns (Horne, 2011), and the long hours associated with design work may not necessarily be counter-productive; 'Activities we love fill us with energy even when we are physically exhausted. Activities we don't like can drain us in minutes, even if we approach them at our physical peak of fitness.' (Robinson, 2009, p.93) It would therefore appear sensible to evaluate research into what constitutes 'good quality' sleep behaviours, and disseminating these findings within the curriculum.

The balance of work and study could be further supported by mechanisms embedded within the curriculum. It can however be argued that there are direct and indirect benefits to be gained from a flexible mix of both; 'Learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world. Conflict, differences, and disagreement are what drive the learning process.'(Kolb & Kolb, 2005) This is empirically confirmed from the work of part-time students at Northumbria and other institutions, who have excelled in their studies, utilising their employment to establish fixed time-frames to structure their week. Clarification of the European Working Time Directive would also be beneficial with respect to a) whether the recommended maximum hours should cover study time alone, and b) the provision of an annual period of leave to study programmes.

In general, the value of time needs to be considered more carefully in the profession, and in its education. Architecture continues to undervalue its use of time (Building Futures, 2011) in contrast with professions such as law. Both quantitative and qualitative responses to this inquiry reported that the personal lives of the participants suffered as a result of perceived time-pressures. The subsequent loss of inter-personal opportunities and engagement with wider communities inhibits both the potential of networking and the development of a socially motivated profession; 'The study of architecture may highlight spatial intelligence, but an effective teacher of architectural design may well underscore and make use of logical, naturalist, and interpersonal perspectives' (Gardner, 2007, p.33). The authors intend to report these findings back to the student body to jointly consider how best to develop the curriculum to optimise learning and wellbeing in the course.

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INTRODUCTION TO COMPONENT 9: '*Academic Literacy and the Transition to Studying Architecture'* (2014-15)

Reference: Holgate, P., Bramley, E. & Welch, H. (2015) 'Academic Literacy and the Transition to Studying Architecture', *The Three Rivers Annual Learning and Teaching Conference 2015,* Sunderland, 27 March 2015 Available at: https://3riversnortheast.wordpress.com/conference-archives/conference-2015/paperworkshop-presentations/ (Accessed 19 July 2015)

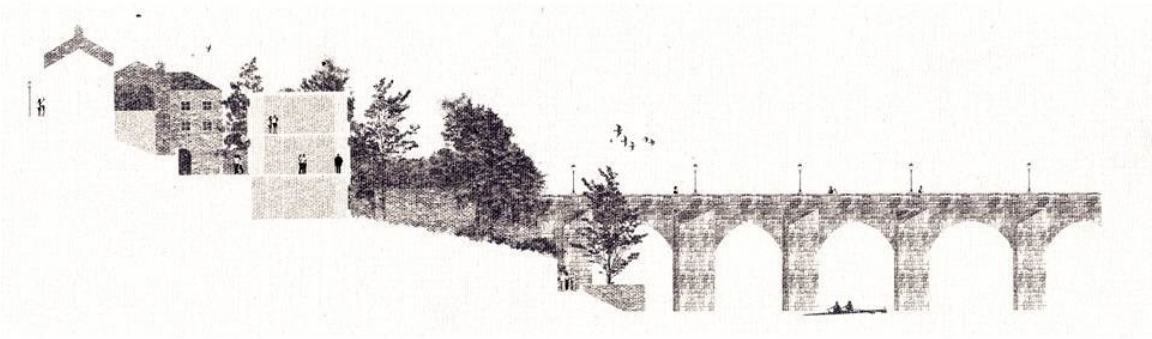
Background: In recognition of the importance of the first year experience to establishing principles of academic literacy for the benefit of the student, this focus group research sought to establish how the transition to the learning experience of architecture education at NU could be improved

Output: A conference presentation at the Three Rivers Conference, Sunderland University, March 2015 was delivered by the author and the two student co-authors.

Impact: Several recommendations from this ongoing research have been incorporated into the development of the first year curriculum, particularly through the integration of higher level study skills into the module 'Management: Practice, Principles and Communications', the development of skills training with NU's Library and Learning Services,

Collaborator: Emma Bramley (NU student), Hollie Welch (NU Student)

Academic Literacy and the Transition to Studying Architecture



Three Rivers Conference,
27th March 2015

Emma Bramley
Peter Holgate
Hollie Welch

background

Rationale:

- start of the student learning journey in an unfamiliar discipline; consideration of ways of thinking and practicing in Architecture (Meyer & Land, 2003)

- policy drivers: research rich learning
  assessment & feedback
  total student experience
  internationalisation
  employability
  student engagement

- widening backgrounds of student intake; internationalisation, alternative routes etc.

- PH ongoing research into dyslexia in architectural education – diagnostics

context

Delivery:

- PH inheritance of 1st year module, '*Management: Principles and Practice*'
- redevelopment of module to incorporate principles of assessment for learning; group work; critical thinking; academic writing
- comparison of academic and professional attributes; aspiration of 'making meanings' over discipline and L&T

Assessment:

- group work assignment; analysing the roles, responsibilities and performance of architects, clients and contractors with respect to an built project
- individual assignment: academic writing utilising feedback from first assignment; reflective writing on learning journey to date and transition to HE

theory – the first year experience

Key features of an 'ideal' first-year curriculum from the literature:

• ***orientation of students*** to increase social and academic engagement, 'connectedness' to university, sense of direction and future career (Beder, 1997)

• ***development of learning skills*** (Lines, 2005; Harvey, Drew and Smith, 2006)

• ***student-centred, active learning*** through problem-based, project-based and group learning (Beder, 1997; Harvey, Drew and Smith, 2006)

• ***collaborative learning or learning communities*** to enhance transferable skills and lend a sense of belonging (Barefoot, 2002; Lines, 2005)

• ***formative assessment and feedback*** (Yorke, 2003; Nicol and Macfarlane-Dick, 2006)

• ***progressive skills development*** (Jantzi and Austin, 2005)

• time and structures for ***reflecting on learning*** (Jantzi and Austin, 2005)

From 'Quality Enhancement Themes: Curriculum Design for the First Year' (Bovill, Morss, & Bulley, 2008, p.10)

academic literacy

***'Assessment Literacy**: 'needed to maximise (student) opportunities to provide excellent evidence of achievement 'when it really counts', in assessment whether written, oral , practical or collaborative'*

***Academic Literacy**: 'tuning in to exactly how the world of post-compulsory education works, and where to focus their energies in the quest to succeed'*

***Information Literacy**: 'becoming ever more able to interact with the information and communication technologies around them, particularly to locate subject material electronically … and finally make good use of what they have chosen'*

***Social literacy**: further developing the skills to work effectively with each other, and interact fluently with all the other people they meet on the way through higher education…'*
(Race, P., 2014, p.13)

'…convergence is an important aspect of student assessment literacy, since it is important that students align their mental models of 'good' standards with those of staff (their assessors).'
(Price et al., 2012, p.75)

aims and objectives

Aim:

to improve the transition for first year undergraduates of architecture in order to help them move quickly to attainment of 'academic literacy' in support of an excellent and transformative learning experience

Objectives:

to canvas students' views on their first year experience with regards to key elements of architectural education

to develop alternative mechanisms for collecting and interpreting module and programme feedback

to develop shared understandings, language, and expectations between students and staff

to link 'pedagogical content knowledge' to improving student academic literacy and skills

Mark Todd Year 1 / Year 6

the focus group: operation

- focus group facilitated by Masters Level students (EB / HW: former NU undergraduates); currently enrolled in Level 6 'Architectural Research Methods' module, thereby gaining practical experience of applied research methods ahead of final year thesis projects

- desire to adopt a clear, understandable language; open ended questions under key themes

- purposive sampling: taken from wide spectrum of students in 2nd year in terms of nationality, gender, academic ability etc.

- facilitation to guide discussions and to provide equality of opportunity; to identify and record key themes of discussions; encourage student participation and comfort to discuss

Advantages of focus group data	Disadvantages of focus group data
Detailed and qualitative data	Not anonymous
Establishes consensus	Dangers of 'Group-Think' (janis)
Less likely to get extreme views	Potentially small sample sizes
Responses not pre-determined	Risk of student facilitator bias
Ideally represent cohort views	Mediated data

adapted from Townley (2014)

the focus group: themes

Theme 1: **Design**. *'...the current approach of teaching presents one model: the egoist, or the elitist, even though the facilitator role can help establish social responsibility.'* (Salama, 1995, p.38)

Theme 2: **Non-Design Teaching;** 'relevance and need' (Biggs et al.)

Theme 3: **Feedback**. *'...feedback should be dialogue between staff and students... engagement with feedback is not the responsibility of the student alone. This dialogue does not take place in isolation, but within an environment or community which will impact on the content and delivery of the feedback'* (Price, et al. p.112)

Theme 4: **Research;** what underpins design decisions in the studio? (Healey, Brew, etc.)

Theme 5: **Group Work**. *'There is something about the profession of architecture – a team pursuit if ever there was one – which really, badly eternally wants to maintain the illusion of the lone genius.'* (Pearman, 2015)

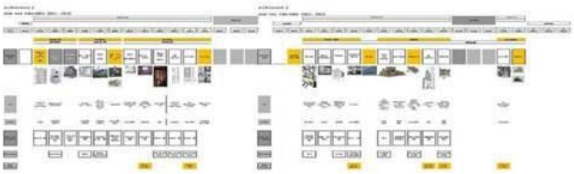
Theme 6: **Reflection**. *'...demonstrating and imitating, telling and listening, must take the form of reciprocal reflection in action.'* (Schon, 1985, p.63)

theme 1: design

'It was a big jump from my previous school to studying in this course…I didn't study anything so specific as architecture.'

-importance of structure / timetabling in first year – need for phased transition to self-direction?

- assumption of 'Information Literacy' with regards to students; electronic submission and feedback unfamiliar to many students



-students identified need to learn subject-specific design methods; e.g. considerable differences from A Level product design

- appreciation of sketchbooks as tools for exploration and evidence of process / learning

theme 2: non-design modules

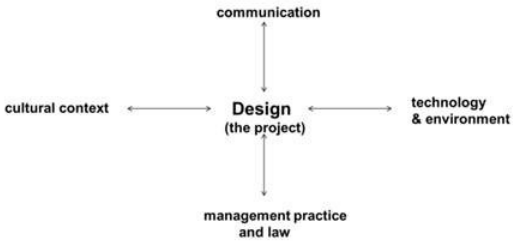
'ADVICE – write down what lecturers say instead of presentation text; you can check that later'

-subject specific information desired – more 'generalist' teaching not appreciated

-constructive alignment: *'What was expected from us was not what we were taught'*

- need for better balance between independent learning / transmission content

-Quality vs. quantity: *'We want to learn all this stuff but when you have so much to do it falls to the back of the list'*



-*'we're paying nine grand to come to Uni – you get out what you put in - go to lectures!'*

theme 3: feedback

'Help us by giving us honest feedback during our tutorials, not when its over and feedback grades are given'

-need to learn about the whole Northumbria Administrative systems – give students time to learn the medium as well as the message

- *'feedback here is so much better when you have you peers providing input'*

-*'tutors are very comfortable to talk to';* however, some personal impact of negative feedback (c.f. Boud and Falchikov, 2007)

-*'Great feedback in tutorials and pin-ups – written info could be more helpful*

- student desire for professional consistency with boundaries, non / late submissions, etc.

theme 4: research

'Daunted' by library / library – initially intimidating – slow to realise the benefits'

- be very open minded when it comes to research – go beyond the architecture section

- advice to share information and collaborate (not in competition with each other)

- *'the library lectures don't make you want to go!' / 'the library...makes you a bit nervous!'*

-make new students aware of other resources

- need to highlight relevance / purpose of background reading; give examples

-*'You learn more by self-direction than by being told...'*

theme 5: group working

'I really appreciated working alongside with other people, doing the same things as I was, sharing information and the studio space.'

-recognition of authentic with respect to practice; also social benefits in collegiality

-importance of tutor recognition of individual student contributions

- recognition of peer collaborations resulting in more justified proposals / conclusions

theme 6: reflection

'We are going to be doing this for the rest of our lives… and it's non-stop!'

- **transition**; challenge of jump from school to University in terms of workload / time management / time to research and understand information provided and university mechanisms

-**time management;** students - do work in timely fashion ' staff – timely posting of lectures and feedback

- **self-authorship;** recognition of students forming their own architectural identities

- **shared expectations;** 'rules' to be enforced equally and consistently

- **student voice;** opportunities welcomed to give feedback and to feel like their point is being heard

impact: curricular design

- co-ordination with ESAP tutors (English for Specific Academic Purposes)

- increased emphasis on AfL and early feedback

- earlier introduction of Library and Skills Plus

- greater emphasis on academic writing and reflective element of assignment:

Ask4Help - information and advice 24/7 on or off campus.
E-mail, telephone or visit an Ask4Help point.
ask4help@northumbria.ac.uk
0191 227 4125
www.northumbria.ac.uk/ask4help

student 1: *'ESAP lectures couldn't help me understand deeply about how an essay worked, so I asked a lot of people and found books to help me write and met group mates to set up a theme about the essay. Yet my poor English of listening made me watch that video more than five times and then I had to write it like a day-to day account.'*

student 2: *'I also need to work on my time management skills to ensure I can do my all my work in the highest quality...as I have been officially diagnosed as dyslexic ..'*

student 3: *'Crucially, I now enjoy my work as I am intrinsically motivated rather than extrinsically, as I was at A-Level when the final grade was the driving force.'*

discussion

expectations: developing commonality between students and staff

language: what does 'student engagement', 'academic literacy' mean to students? focus group leaders translating the language of educational theory!

academic rigour: also expected from students (but does not discount supportive learning environments

staff : are students more flexible than staff to changes in 'traditional' teacher / learner relationship?

assumptions: use of the library, independent research, technology enabled

timing: providing the right information at the right time (induction / feedback / content, etc.)

sources

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INTRODUCTION TO COMPONENT 10: '*Developing an Inclusive Curriculum of Architecture for Students with Dyslexia'* (2009-2015)

Reference: Holgate, P. (2015) 'Developing an inclusive curriculum of architecture for students with dyslexia' *Art, Design & Communication in Higher Education*, Vol 14, No. 1, pp. 87-99

Background: Through the ten years of the author's practice in Higher Education, several initiatives have been implemented with the intention of ensuring that students with dyslexia studying architecture at Northumbria are allowed opportunities for assessment parity with their peers. This inquiry sought to establish the efficacy of these initiatives in terms of their utility by means of a series of semi-structured interviews with graduates of the Part I and Part II courses.

Output: A paper submitted to the academic journal 'Art Design and Communication in Higher Education' (accepted for publication)

Impact: The amendment or continuation of these key initiatives for the benefit of students with dyslexia; several of these alterations to practice have been beneficial for the wider student body, particularly international students.

COMPONENT 10: DEVELOPING AN INCLUSIVE CURRICULUM OF ARCHITECTURE FOR STUDENTS WITH DYSLEXIA

Peter Holgate

Abstract

Design subjects, including architecture, tend to attract students with dyslexia. The relevant disciplinary skills of three-dimensional design and visual communications often align to these students' academic strengths. However, as these students progress towards their final award, many appear to find the requirements for extended writing (in the forms of dissertations, reports, etc.), and self-directed personal organization and management to be problematic. A number of interventions, implemented in the architecture curriculum at Northumbria University over a period of five years, sought to provide academic support and alternative assessment methods for these students. The efficacy of these initiatives has been evaluated through a series of semi-structured interviews conducted with graduates of architecture. The enquiry concluded that the development of academic writing skills was viewed by graduating students with dyslexia as desirable with respect to further study and practice; alternative assessment methods provided both problems and opportunities in implementation. Concurrently, staff efforts to understand and manage the impact of dyslexia in higher education studies was highly appreciated in terms of developing self-efficacy and confidence in students' abilities.

Keywords

architecture, assessment, curriculum, dyslexia, support

Introduction and Context

The programmes of architecture at Northumbria University (NU) have traditionally enrolled students from wide and diverse backgrounds in support of UK institutional and professional body policies for widening access to the discipline (NU, 2014; RIBA, 2014). Teaching and assessment methods in these programmes have been developed to reflect best practice in 'Assessment for learning' (Sambell et al., 2013), in short, providing students with extensive small-step opportunities to develop their skills and abilities by means of authentic project-based learning allied to extensive formal and informal assessment methods. In the United Kingdom, the traditional route to

professional qualification has been through the seven-year route of a three-year undergraduate degree (Part I), a two-year postgraduate degree (Part II) and a separate Professional Practice examination (Part III); typically, students have one year of practical experience between Parts I and II, and at least one more year in practice prior to Part III. At NU, the Part II programme commenced in 2006, following the success of the undergraduate programme. Over time, it became evident that a number of the students enrolled (who had successfully completed the Part I undergraduate course) were struggling with extended written submissions. Unsurprisingly, a large proportion of these students had been previously diagnosed with dyslexia. Supporting the research findings of Wakelin and King (2007), who posited that numbers of students with dyslexia at NU could be severely underestimated, up to approximately 30 per cent of a single cohort of architecture students at NU had evidenced forms of dyslexia or associated learning difficulties in any one year. Architecture is a popular subject for students with dyslexia, with many applicants excelling in the fields of three-dimensional design and visual communications. Richard Rogers, one of the UK's premier architects, has written and spoken extensively about his battles with dyslexia and his poor educational experiences as a child, using his position to raise awareness of dyslexia charities. However, relatively little research appears to have been conducted regarding the impact of dyslexia in the architectural profession and in architectural education.

In addition to the aforementioned policies, widening access to education and the profession is enforced by the Equality Act in the United Kingdom; this act includes references to specific learning difficulties, including dyslexia, in its definition of disabilities (Gov.UK 2014). There is therefore a statutory duty to make 'reasonable adjustments' for disabled students, including those who suffer from dyslexia. NU has therefore developed well-established procedures for the diagnosis of hidden disabilities, and provides associated support mechanisms for students. Individual recommendations are generally made by dyslexia assessors regarding the provision of 'reasonable adjustments' in teaching and assessment, related to students' needs. However, it can be argued that these support systems, to some degree, support the labelling of dyslexia as an impairment; 'The dominant paradigm in the sector is the deficit model with a managerialist approach to providing support. The 'disorder/disability' is 'diagnosed', the difficulties identified, and an assessment of need is drawn up which details all the equipment and arrangements necessary if the student is to have a chance of operating on a level playing field … arrangements will often include individual study support with study skills (based on a widespread acknowledgement of the heterogeneity of dyslexia)…The underlying concern has been

how to help dyslexic learners fit into existing structures and gain qualifications, with the help of reasonable adjustments.' (DfES, 2004)

An automatic assumption is therefore made that 'existing structures' are fit for purpose in both duty of care and in providing effective teaching and learning support for students from diverse backgrounds and abilities. For example, the default application of the extended written essay as a traditional assessment method in curricular design may provide a standard solution for the ease of course management, yet may also prove inflexible and / or inauthentic in a disciplinary context.

Curricular inflexibility can be compounded by static traditions and prejudicial assumptions. Despite extensive research into dyslexia and its associated neurobiology over the past century, several commentators continue to maintain that the condition is a socially constructed phenomena; in short, an excuse for poor performance in written and writing skills; 'Students may come to university already predisposed to think of themselves as needing help with any changes and do not find it problematic to ask for help…only a few years ago, students who had problems tended to get on with things because they did not want to be seen as weak or incapable of coping…Now everyone looks for a difficulty to declare, like the hundreds of students who register themselves as 'dyslexic' when the problem, if it exists, is exceptionally rare.' (Ecclestone and Hayes, 2009, p. 89)

By contrast, other commentators have sought to dissolve, rather than solve such issues, questioning the prescriptive use of 'traditional' literacy as the sole criterion for intellectual ability and academic success (Gardner, 2004, pxxiii). Irrespective of these varying paradigms, the author quickly became aware of students struggling with extended writing and self-organization in the architecture programmes at NU, in spite of the same students evidencing exceptional design and presentation skills, as well as higher level abilities in critical synthesis and verbal argumentation. A closer examination of students' dyslexia evaluations appeared to support Gardner's theory of multiple intelligences as evidenced in a variety of skills. The lack of direct correlation between student intelligence and the heterogeneous manifestations of dyslexia was exemplified in the results of one student's dyslexia assessment (reproduced with the student's permission):

Verbal Comprehension Index	88 per cent
Perceptual Reasoning Index	92 per cent

Working Memory Index	18 per cent
Processing Speed Index	5 per cent

Thus, institutional and professional body criteria of extended critical thinking at postgraduate level appeared to be well within the capacity of students with dyslexia; attempting to evidence these skills through 'traditional' written outputs appeared to be the barrier to academic success. In reframing the condition of dyslexia as a 'social model', the architecture programme sought to dismantle this barrier by critically questioning the existing structures of the learning environment and curricular design.

In recent years, higher educational practice has developed an imaginative array of alternative assessment methods, providing alternatives to the 'default' written submission. These have included the development and submission of assessment methods including critical diaries, web logs ('blogs'), journals, electronic presentations, web pages and websites, oral examinations, video formats, audio formats and so on (Knight and Yorke, 2003, p.76). Each method has its own intrinsic and relative strengths, weaknesses and authenticity of application; the viva, for example, may accurately model an architect's 'pitch' in explaining how successfully she has answered a client's brief. Spoken formats may more accurately reflect intellectual abilities than the written word; 'the literary bias of traditional grammar…derived from the fact that the earliest Western grammarians were mainly concerned with the preservation and interpretation of the texts of the classical Greek writers…By contrast, most linguists today take it as axiomatic that speech is primary, and that the written language is secondary and derived from it.' (Lyons, 1978, p.18)

In applying a broader interpretation of the Quality Assurance Agency for Higher Education (QAA) Graduate Attributes for Architecture ('ability to apply a range of communication methods and media…clearly and effectively') the author sought to break down entrenched barriers in order to foster academic success in the community of students with dyslexia. (QAA, 2010)

Development of the Research Inquiry (2008)

An initial driver for the initiative was the author's inexperience in implementing support procedures for students with dyslexia. An initial meeting with NU's Dyslexia Support Tutor in November 2008 was followed up with an informal joint presentation by the Support Tutor and the author to students of architecture who had been diagnosed with

dyslexia. An open invitation was issued to all students of architecture, explaining that attendance would automatically waiver anonymity; nevertheless, around 30 students attended the session. The presentation sought to clarify the key support strategies available to students at the institution, and drew upon the wide body of expertise accumulated by the Dyslexia Support Tutor. Purposefully avoiding the inference of 'deficit', dyslexia was presented as a medical phenomenon, studied for over 100 years, which was known to be separate from intellectual ability. This was underpinned by reference to historical and ongoing research into dyslexia and its associated neuroscience. As an empirical example of the condition's impact on academic ability, the support tutor cited case studies of two Ph.D. students at Northumbria who had both been diagnosed with dyslexia. One of these doctoral candidates had provided an illuminating and inspirational narrative of her student experience for dissemination to the wider academic community (Jefferies, 2015). The presentation continued to acknowledge the heterogeneous nature of dyslexia, and its variety of manifestations in student performances, including one or more of the following with particular reference to academic writing;

- Sharp differences between practical abilities (good) and written work (poor)
- Clear discrepancies between the quality of course work and exam performance
- Confused sentences, unfinished sentences, poor punctuation
- Little or no logic or continuity between paragraphs
- Lack of structure in written work
- Limited vocabulary, restricting the use of words to those that are easy to spell
- Poor word retrieval/lack of technical language
- Difficulties with comprehension at speed and/or extensive reading

Other, separate manifestations include a lack of confidence in reading aloud, poor self-organization, and 'good' and 'bad' days in terms of academic performance. The wide variety of 'coping strategies' and technologies utilized by students with dyslexia was also discussed. Unexpectedly, this presentation transformed into an open forum, with students freely sharing and comparing their experiences in higher education generally, and in the architecture courses in particular. Examples cited by the student body included cases of dyslexia evaluations from secondary school being invalid on entry to university; students being diagnosed with dyslexia at the end of their academic journey; and relief that the meeting provided proof that these students were not alone in their experiences. The positive response to this presentation led to the development of a small-scale research enquiry.

The Research Initiative (2009)

Given the wealth of anecdotes supplied by this group, the heterogeneous nature of their individual experiences – and the passion (sometimes anger) with which the participants spoke – the author chose to follow this up with a series of semi-structured interviews with students enrolled on the postgraduate architecture programme. The use of interviews for narrative enquiry was adapted from the methodologies employed by key texts regarding research into dyslexia in higher education (DfES 2004; Preston et al. 1996). Questions were derived from the wealth of literature provided by the support tutor, synthesized with critical issues raised by the student body. The enquiry sample was chosen from students who had completed the three-year undergraduate course at Northumbria, and who had subsequently conducted a year out in architectural practice before commencing the postgraduate programme, given them both academic and professional perspectives of dealing with dyslexia. In total, five students participated. Informed consent was sought, anonymity was preserved, and participants had the right to leave the enquiry at any time (although none did). Voice-recorded interviews were transcribed, and descriptive coding was employed to identify a small number of key themes, categorized as expected, surprising or unusual (Punch and Oancea, 2014, p.220; Creswell, 2014, p.195)

Organisation and Time Management: This issue arose repeatedly in discussions; 'Dyslexia is different for everybody but the one thing that everybody needs to get right especially on our course is time management' (Participant 3). While the organization and structure of the undergraduate programme at NU appeared to be clearly mapped out, at postgraduate 'Masters' level study the attributes of self-direction and self-management appeared to place additional demands on the scholar. In the profession of architecture, time management and programming are essential skills, and the use of complex and authentic design projects as the central assignment at NU demanded similar self-management skills. Personal organization was also perceived to be hampered by one of the key manifestations of dyslexia; '…you can have good days and bad days, so…that obviously messes up the organization on meeting deadlines' (Participant 2).

Early Identification: Students previously diagnosed in primary or secondary school with dyslexia appeared to be better prepared and more confident in their abilities; 'At school it was a much more relevant problem, but…over the years you start to learn how to overcome these pressures' (Participant 4). Such scholars had often learned or

developed methods for dealing with the condition at an earlier stage in their personal and educational development, and thus appeared to cope better with academic demands. This was supported in the associated literature: 'It is generally agreed that the earlier dyslexic difficulties are identified the better are the chances of putting children on the road to success.' (Rose, 2009)

Delivery and Assessment: The use of reading materials and written assignments prompted debate; 'I know I am not very good at writing and reading I tend to put it off when in fact it should be the first one to start it' (Participant 3). Format, length, typefaces, fonts and text size, all additionally impacted student learning; 'I won't read a book if it's Times New Roman! It's too hard! I always avoid that, but I like Arial or something like that' (Participant 2). Consideration of multi-sensory approaches to teaching was generally welcomed; 'I've learned over the years that…people have different strengths in either audio, visual or memory…' (Participant 4). Hence, dialogue, discussion and verbal presentations appeared to be comfortable territory for many of these students, and the architecture programme's extensive use of individual tutorials was also cited as being beneficial to their effective learning.

Peer Support: The initial gathering and presentation appeared to have sparked a sense of community amongst the students with dyslexia on the programmes: '…it's about getting people together, it's the best way because when you're on your own it doesn't matter what…type of dyslexia you struggle with, it'll all be amplified if you're on your own…but when you're with other people your strengths can really come out' (Participant 1). By contrast, the feeling of isolation engendered through self-awareness of learning limitations could be manifested as perceived recalcitrance; 'Ensure the correct words are used; I combat this by talking quietly in case I do make a mistake' (Participant 5). Beyond the institution, it also appeared that the use of family, friends, and peer support could be extensive; 'I think I have about four people who check my work before it's seen by anyone. My boyfriend checks it first, and then my mum checks it, and then usually my dad will check it and, if it's really important, I have a friend who'll also check it' (Participant 2).

Interventions (2010 – 2014)

The findings from the 2009 inquiry subsequently contributed to curricular interventions in the development of the postgraduate programme in architecture. A simple start was made through the graphic representation of the two years of the syllabus, showing key

dates and events, enabling students to effectively prioritise and organise their own learning journeys (Figure 1). The timeline was disseminated via hard copy in the studio, and electronically through the institution's virtual learning portal. This initiative built upon the established success of a similar project in the undergraduate programme (Holgate & Roberts, 2012). Secondly, the author (in his capacity as Programme Leader for the Part II programme) maintained an oversight of returning and new Part II students, and engaged in early discussions of support mechanisms with students identified as having dyslexia. Thirdly, as lead tutor for the postgraduate 'Architectural Research Methods' module, the author ensured that his ongoing research enquiry into dyslexia was incorporated as a case study, with the tacit intention of: communicating the programme's supportive attitude towards students with dyslexia; identifying the author as the point of contact for any concerns; and providing a relevant methodological example as part of the module syllabus.

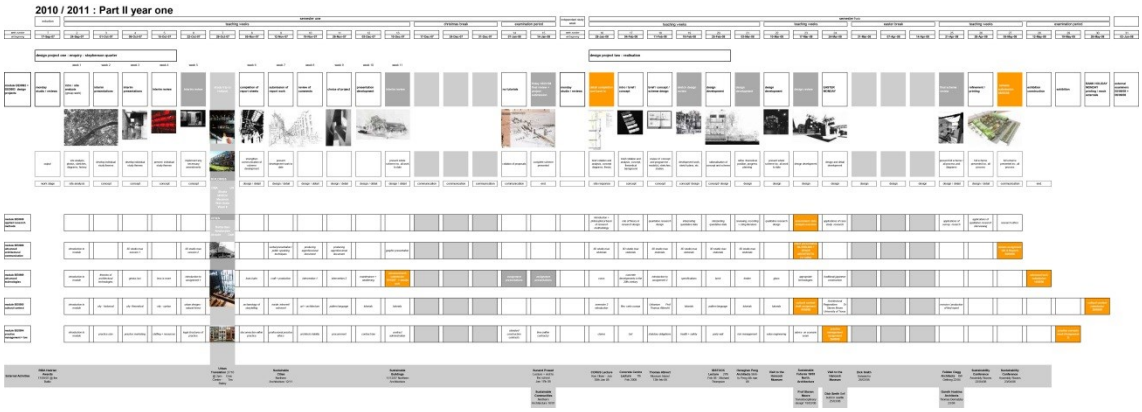

Figure 1: Syllabus plan, Part II Year One.

In support of providing alternative assessment methods, the Student Selected Investigation (SSI) module (which acts as the non-design 'capstone' submission of the student's learning journey) was redeveloped. In addition to the traditional extended written submission, students were given the option of submitting their work by a variety of applicable media and formats, providing that these would meet the assessment criteria and module learning outcomes, and have relevance to the self-selected subject choice of the student. In the years subsequent to this adaptation, completed assignments have been submitted as videos, podcasts, mapping exercises and visual reports (although the preferred form of submission remains predominantly the extended written essay), The use of alternative media has also been supported through a specific Research Methods presentation on the variety and use of visual

methodologies, which provided relevant, discipline-specific examples, supported by key texts (e.g. Rose, 2001; Berger, 2008).

Re-evaluation, 2014

As part of the ongoing curricular development of the Part II course, an evaluation of these interventions was conducted in 2014, with a view to establishing their efficacy in supporting learning for students with dyslexia. A purposive and pragmatist question of 'what works?' was synthesized with the concept of sustainable assessment (Boud and Falchikov, 2007); this idea is predicated on the benefits of nurturing authentic skills for lifelong, self-directed learning using creative teaching and assessment methods. A series of new interviews was conducted with graduates from the Master of Architecture programme, all of whom were now employed in architectural practice. A number of these interviewees had also successfully completed Part III of the UK route to chartered architect status and were now practicing as salaried architects. Five key aspects of the postgraduate architecture programme's development were therefore explored; the programme and assessment design (including the enlarged scope for alternative submission formats in the SSI); the establishment of an explicit community of learning support in the course (derived from the informal peer support mechanisms element of the first enquiry); institutional support (building upon the need for 'early identification' of dyslexia); technological support (responding to an institutional drive towards technology enhanced learning); and student self-efficacy (developing from themes of sustainable assessment and active learning). Semi-structured interviews were conducted based upon these broad themes in Spring/Summer 2014 with six participants; ethical permissions, interview methodology and data analysis mirrored the 2009 initiative, with two of the original participants contributing to the new data collection cycle.

Programme and assessment design: Although writing is a necessary skill for several aspects of architectural project management, a closer analysis evidences that the majority of day-to-day documentation comprises e-mails, letters, structured pro-formas, reports, lists, certificates, meeting minutes and statutory applications. The requirement for extended written pieces (comparable to a dissertation) is accordingly rare, and the closest formats to this requirement are perhaps accessibility and planning statements. Where authenticity is a driver for assessment, a clearer link between assignment format and real-life architectural practice could be established.

However, the move away from written assignments (and, to some extent, examinations) was queried by the participants; in short, writing was generally seen as a key skill in both academic and professional progression. The use of alternative media was seen, to some degree, as avoiding the issue of improving written literacy. It was reported that the use of alternative presentation media brought its own intrinsic difficulties. Most notably, the time taken to learn and develop skills in video, audio and associated technologies was a key factor; some media (including podcasts) were deemed to be irrelevant to authentic practice. The lack of coursework examples utilizing alternative media was also seen as a deterrent to widespread adoption. Participants also questioned how alternative submission formats could be realistically compared with written assignments in the evaluation of masters level critical thinking skills. Participant F noted that examinations and extended written pieces were normative assessment methods for the Professional Examinations at Part III, begging the question as to whether the architecture programmes at Northumbria were providing adequate preparation for future study. As a counterpoint, this same participant reported that personal performance in the viva voce examination far surpassed written submissions, lending weight to the use of the Viva as an effective measure of student learning. The option of using alternative media for media was nevertheless generally welcomed for its intention, if not necessarily for its adoption.

Community of Learning: Peer learning at Northumbria is manifested in the promotion of design studio working, with all students in the academic year engaged with design projects in a single space. This approach elicited mixed views; at its best, it provided a community of practice and support, encouraging self and peer-assessment through exposure to other students' work. Participants remarked on the benefit of the studio community in elucidating points made in lectures and presentations, in learning from other students' methods, and in establishing connections with other students with dyslexia. Weekly, one-to-one tutorials were viewed as extremely helpful given the working memory issues of some participants, as was the open door policy of staff to support students. However, it was also considered that the individualistic nature of studio assignments did not accurately reflect the authentic collaborative practice of the architectural office. Such issues of competition between students were seen to undermine the confidence of some students with dyslexia. A lack of other students' understanding of dyslexia's manifestations was also reported, particularly with regards to group working, although all participants were keen not to 'wear dyslexia like a badge'. It was also reported that some students of architecture had voiced opinions that dyslexia had been used as an excuse by other students to simply acquire a free

computer (an option available through dyslexia support policies in the United Kingdom). Generally, staff efforts to discuss dyslexia openly with all students was appreciated, and the original 2008 presentation was seen by many as emancipatory in highlighting that dyslexia was a common theme among many students; these students had then formed smaller communities of peer learning and support within the institution.

Institutional Support: NU's student services follow up assessments for registered students with dyslexia with tailored recommendations to teaching staff. These 'reasonable adjustments' may include additional time for examinations, advanced sight of lecture and presentation materials; extra time for coursework; and permissions to tape lectures. Such measures provoked mixed opinions; Participant A stated that 'you never get extended deadlines in practice'. Participant D, who had developed coping strategies in secondary education, refused to use the extra time allowance. Participant E believed that the extra time would never suffice in any case; '…I'm just going to have to accept that whatever I do in life there's always going to be mistakes in it…and people are going to...have a go at us'. It was commonly felt that the assessment procedures to diagnose dyslexia were unduly bureaucratic, and poorly administered for students with time management and organizational issues. However, the actual confirmation of dyslexia was also seen by some as emancipatory; 'I realized it wasn't just me being slow or a bit dumb or a bit thick – once you're diagnosed it almost becomes a weight off your mind' (Participant C).

NU's Dyslexia Support Tutor (who had collaborated with the author throughout the initiative) drew praise from all participants who had worked with her, and was seen as essential in the development of skills beyond the scope of the architectural teaching team. Conversely, the Dyslexia Support Tutor's inexperience with design led courses (and their particular impacts on students with dyslexia) was also highlighted by participants. Continued, collaborative dialogue between course leaders and student services was recommended, in order to manage simple administrative issues, such as avoiding clashes between teaching time tables and structured dyslexia support sessions.

***Technological Support*:** Measures in support of students diagnosed with dyslexia often included the provision of a free personal computer and/or additional assistive software. In general, the personal computer was viewed as superfluous by the participants, who argued that a laptop was, in any case, essential for students in higher education. There were mixed opinions regarding transcription software provided, with

recollections of ‘three hours writing notes of a one hour lecture’ (Participant A). Text to speech systems were particularly highlighted as being of variable quality, with a common complaint of the time taken to learn the software being compounded by further time needed to ‘train’ the software to record particular words or phrases accurately. By contrast, recording devices were viewed as a ‘big help, whether suffering from dyslexia or not’ (Participant B), as well as mirroring authentic practice in the use of voice recorders to ensure accuracy in the transcription of meeting minutes.

Somewhat surprisingly, the preference for the physical artefacts of journal papers and books over digital media was a repeated theme; ‘I like tangible things more than the technology – documents in my hands […] were always more helpful to me than audio recordings’ (Participant D). Marking and highlighting text on physical pages, and having these to hand as a reminder of personal progression, was viewed as psychologically supportive; ‘having hard copies of things and print outs has been the most useful, having things, information literally to hand, to scan it, highlight it, copy it, draw on it. I tend to read it and jot down notes on a pad or post-its of different colours…I end up with lots and lots of lists and then reduce them down’ (Participant E). Other, relatively low technologies such as white lines paper, coloured overlays, tinted glass spectacles, were also seen to be relatively efficient and helpful in comparison to more high-tech interventions.

Self-Efficacy: High levels of ingenuity, self-awareness and resilience were evidenced by all of the participants; these are clearly desirable attributes for success in the architectural profession and beyond. It appeared that active learning had emerged as a necessary skill for all the participants, and that all had developed self-authored strategies for life-long learning. Participant A stressed the need to take responsibility for one’s own learning and to play to one’s own strengths, by being as proactive as possible; Participant B also highlighted the importance of being open with regards to the condition of dyslexia; ‘if you plough on people will just think you are making mistakes or being tardy’. Organization and time management often demanded distinct discipline; ‘dyslexics can’t multitask as well as other students – have to clear schedule and have one task – clear it, do it – because tasks in architecture are large and complex – from this hour to that hour do task A and not for a minute consider task B. (Participant D)

Community, staff and family support remained highly valued, however self-confident the student with dyslexia may have appeared. For example, Participant F praised the

British Dyslexia Association website; its content identified typical traits of people with dyslexia, and provided sources of useful guidance and literature (BDA, 2014). Again, this external source contributed to dispelling the student's feelings of isolation in having to deal with the condition.

Discussion

'We have large numbers of people who are struggling to find a sense of identity as students in higher education; many are dealing with being 'mature', with being 'non-traditional' in background and with being 'dyslexic', and frequently all three. The concept of 're-framing' learning difficulties/dyslexia by the individual…involves 'reinterpreting the learning difficulty in a more productive and positive manner' (Pollack, 2007, p.39).

The student centred curriculum of architecture at NU has intentionally sought to effect such a reinterpretation through a set of initiatives which sought to provide greater parity of opportunity for students with dyslexia, seeking to advance their learning in a supportive learning community. In sum, it would appear from this re-evaluation that these efforts have been welcomed by students with dyslexia. However, there remains room for iterative improvement, and some of the measures taken need to be reconsidered in terms of their intended benefits.

The alternative assessment methods of the SSI – conceived with the intention of providing alternatives to the ubiquitous extended essay – appeared to provide partial success, however, cognizance and consideration of the importance of writing in the architectural profession (including the professional Part III examination) is required in developing these methods. It may be argued that written critique is essential in demonstrating Masters level academic ability; '…literature gives you ideas to think with. It stocks your mind. It does not indoctrinate, because diversity, counter-argument, reappraisal and qualification are its essence. But it supplies the materials for thought. Also, because it is the only art capable of criticism, it encourages questioning, and self-questioning.' (Carey, 2006, p. 208)

In practice, the SSI's scope for different formats has proved to be increasingly popular with students following their incremental adoption; international students particularly, appear to have benefitted from the use of mixed media and visual methods. In terms of authenticity, the employment of appropriate media has been beneficial for particular

themes; for example, one successful submission utilized video as the medium to analyse the design of stage sets for television productions, and to present the findings. Consideration is being made of a compulsory written element to address participants' concerns regarding the development of competent literacy.

In both sets of interviews (2009 and 2014), the participants were aware of the initial presentation, and the gathering of students with dyslexia from all years that took place in 2008. All participants responded positively to the opportunity of meeting peers as a group and exchanging experiences and advice. This is an event that will hopefully be repeated in the future, re-establishing links with the Dyslexia Support Tutor, enabling better coordination of the syllabus with support sessions, and providing an opportunity to update the presentation to reflect the latest neuroscientific research, as well as to build upon the insights gained from this study.

It also appeared that the participants were generally satisfied with their education at NU in terms of preparation for the work place and for further study (with the exception of adequate preparation for the Part III assessment methods). However, in light of NU's drive towards the widespread adoption of technology enhanced learning (in common with many Higher Education institutions), it is noteworthy that the enquiry participants declared that papers, books and physical texts remain essential, if problematic, tools of learning for students with dyslexia. This highlights a need for caution in the rapid adoption of virtual learning technologies; the assumed benefits of accessibility and flexibility of e-learning to the student body in general, may well be mitigated by difficulties encountered by students with dyslexia in achieving their academic potential. Beyond these technologies, simple acts of dialogue, empathy and trust would appear to be irreplaceable in terms of effective student support.

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POSTSCRIPT / DECLARATIONS OF CO-AUTHORSHIP

In support of the choice of portfolio components, and their relevance to the overall theme of developing a curriculum for engagement, the criteria of 'Scholarship Assessed' (Glassick et al. – see Component 2) have been applied to each component as evidence of methodological and purposive relevance to the overall thesis. This evaluation of scholarship sets the following criteria and questions as evidence of advanced scholarship across a range of activities:

Clear Goals: Does the scholar state the basic purposes of his or her work clearly? Does the scholar define objectives that are realistic and achievable? Does the scholar identify important questions in the field?

Adequate Preparation: Does the scholar show an understanding of existing scholarship in the field? Does the scholar bring the necessary skills to his or her work? Does the scholar bring together the resources necessary to move the project forward?

Appropriate Methods: Does the scholar use methods appropriate to the goals? Does the scholar apply effectively the methods selected? Does the scholar modify procedures in response to changing circumstances?

Significant Results: Does the scholar achieve the goals? Does the scholar's work add consequentially to the field? Does the scholar's work open additional areas for further exploration?

Effective Presentations: Does the scholar use a suitable style and effective organization to present his or her work? Does the scholar use appropriate forums for communicating work to its intended audiences? Does the scholar present his or her message with clarity and integrity?

Reflective Critique: Does the scholar critically evaluate his or her own work? Does the scholar bring an appropriate breadth of evidence to his or her critique? Does the scholar use evaluation to improve the quality of future work? (Glassick et. al., 1997, p. 36)

The application of these standards to the individual components follows:

	CLEAR GOALS	ADEQUATE PREPARATION	APPROPRIATE METHODS	SIGNIFICANT RESULTS	EFFECTIVE PRESENTATION	REFLECTIVE CRITIQUE
COMPONENT 1	Development of Northumbria University's institutional assessment & feedback policy	Collaboration of colleagues from the four faculties, Academic Registry, and the Library and Learning Services of NU	Employment of a focus group and continual discussion and consultation to establish principles	Incorporation of the Assessment and Feedback policy into the Programme Framework for Northumbria Awards (PFNA)	Use of a set of key, easily-understandable and clear principles for employment by all disciplines	Post implementation evaluation expected following PFNA implementation in 2015-16
COMPONENT 2	Developing cross-institutional collegiality in support of improving architectural education	Collaboration across institutions and with key author on subject of architectural education in the UK	Use of cross-disciplinary literature review drawing on fields of architecture, pedagogy and research	Establishment of the Association of Architectural Educators (AAE); two international conferences held since 2013	Publication of position paper in AAE peer-reviewed journal of architectural education, 'Charrette',	Ethos of paper seen to be manifested in continued interest in Association of Architectural Educators output and conferences
COMPONENT 3	Mapping the architectural design process of a NU student project for wider dissemination	Students / staff collaboration to discuss design process in a mutually understandable medium	Employing visual methodologies to clarify and communicate an authentic student design process through critical reflection	Praised by Stanford University as a comprehensive mapping of the student design process	Use of a visual, student-focused presentation to demonstrate the design process employed at NU	Evaluation and study of design process developing into a key research field in the department
COMPONENT 4	Seeking to establish equality of opportunity for women students of architecture at NU	Collaboration between staff and students to seek improvements to provision and support for women students	Use of semi-structured interviews reflecting on key issues identified in original RIBA report	Findings used to inform the curriculum content of NU Architecture with respect to equality laws	Publication of a peer-reviewed paper directed specifically towards an audience of Built Environment academics	Increase in women numbers of both students and staff; issues of equality openly discussed between all parties

	CLEAR GOALS	ADEQUATE PREPARATION	APPROPRIATE METHODS	SIGNIFICANT RESULTS	EFFECTIVE PRESENTATION	REFLECTIVE CRITIQUE
COMPONENT 5	Developing a coherent and context rich milieu for learning and application of architectural design	Employment of theories of Critical Regionalism and Place Identity in establishing theoretical basis of curricular content	Reflective review of assessment design and student self-selected projects to establish validity of context-driven approach	Contribution to deeper social, historical and contextual engagement with region and beneficiaries	Contribution to a peer-reviewed publication comparing approaches to interaction and engagement in various schools	Continued and thriving research and engagement with regional sites, clients, policymakers, etc.
COMPONENT 6	Collaborating with colleagues across other disciplines towards the development of design competitions	Development of a design brief using language familiar to both students of architecture and cognitive scientists	Development of the architectural design competition as a methodology for design process inquiry	Design outputs serving to promote dialogue between cognitive scientists and architectural designers	Competition outputs familiar to students of architecture; plans used as basis for wayfinding research themes	Inter-disciplinary research now on agenda for NU research strategy; architecture seeking different collaborative partners
COMPONENT 7	Developing the pacing of the architectural curriculum in order to support student learning and reflection	Curriculum planning as an intrinsic role and necessity in the design of a constructively-aligned course of study	Critical reflection on how a successful academic course has incorporated key educational theories	Use of the visual curriculum plan to ensure clarity of expectations for students and avoid assessment clashes	Presented to inter-disciplinary audience as a consideration of the constructively aligned curriculum	Timing and design of curricular delivery remains a key benchmark for iterative improvement of courses
COMPONENT 8	Seeking to establish the extent of sleep deprivation in students of architecture at NU	Preliminary research into legal aspects of duty of care with regards to long hours of study at University	Quantitative method of self-reporting of hours supplemented / triangulated by qualitative survey responses	Findings incorporated into the curriculum as both content for staff / student discussions and process for research methods	Presented to inter-disciplinary audience at conference concerning well-being and higher education	Current clash between academic management at NU and architecture team over 24 hour studio provision

	CLEAR GOALS	ADEQUATE PREPARATION	APPROPRIATE METHODS	SIGNIFICANT RESULTS	EFFECTIVE PRESENTATION	REFLECTIVE CRITIQUE
COMPONENT 9	Seeking to improve the experiences of students entering architectural education at NU in the first-year	Based upon the theoretical papers suggesting the potential for first year experience coupled with study skills initiative	Use of a student-led focus group to uncover the experiences of students completing First Year	Shared and high expectations of first year curriculum now incorporated into NU Programme Framework	Presentation to cross institutional conference on the theme of student engagement	Development of effective first year academic skills being jeopardised by unsustainable increase in student entry numbers
COMPONENT 10	Aiming to evaluate the effectiveness of initiatives made to improve learning experience of students with dyslexia	Longtitudinal action research with origins in author's continuing collaboration with NU Dyslexia Support Team	Conducting semi-structured interviews with graduates of the programmes of architecture to establish 'what worked'	Key changes to curriculum made for benefit of students with dyslexia appear to be benefitting other students	Peer reviewed paper published in Journal of disciplines where dyslexia in students has high occurrence	Cyclical research requires author to re-commence use of staff-student forum to bring students with dyslexia together

Declarations of Co-Authorship

As discussed in the accompanying Critical Commentary (q.v.), collaborative working is intrinsic to the authentic practice of the author. Hence, the majority of the components within this portfolio evidence collaboration and co-production of knowledge. The following 'Declarations of Co-Authorship' seek to clarify the personal involvement of the author in these submissions. Component 10, 'Developing an Inclusive Curriculum of Architecture for Students with Dyslexia', was completed without collaboration in authorship.

Component 1:

NORTHUMBRIA UNIVERSITY ASSESSMENT POLICY AND PRACTICE

DECLARATION OF CO-AUTHORSHIP OF PUBLISHED WORK

Section A

Name of candidate: Peter Holgate

Name of co-authors: Susan Mathieson, Gill Rowe, Tim Nichol, Kevin Robertson, Simon Robson, Chris Turnock, Nicole Pegg, Kathryn Smith, Lesley Fishwick, Kay Sambell, Roderick Adams, Yunus Akram, Nicola Reimann

Full bibliographical details of the publication (*including authors*)**:**

Northumbria University (2013) 'Northumbria University Assessment Policy and Practice (June 2013)'. Available at: https://www.northumbria.ac.uk/static/5007/arpdf/aq/afpolicy.pdf (Accessed: 28 July 2015)

Section B

DECLARATION BY CANDIDATE (*delete as appropriate*)

I declare that my contribution to the above publication was as:

(i) ~~principal author~~

(ii) ~~joint author~~

(iii) **minor contributing author**

My specific contribution to the publication was:

Member of academic focus groups contributing to discussion of good academic practice in support of developing institutional Assessment and Feedback principles; commenting and contributing to final draft; disseminating principles at Faculty level

Signed: .....(candidate) 15th August 2015 (date)

Section C

STATEMENT BY CO-AUTHOR (*delete as appropriate*)

Either **(i)** **I agree with the above declaration by the candidate**

or **(ii)** **I do not agree with the above declaration by the candidate for the following reason(s):**

Signed: .....(co-author) 7 Oct 15 (date)

Component 2:

TOWARDS A LEARNING COMMONS FOR ARCHITECTURE

DECLARATION OF CO-AUTHORSHIP OF PUBLISHED WORK

Section A

Name of candidate: Peter Holgate

Name of co-author: Dr Rachel Sara

Full bibliographical details of the publication Holgate, P. and Sara, R. (2014) 'Towards a learning commons for architecture', *Charette*, 1(1), pp. 146-155. Available at: https://architecturaleducators.wordpress.com/aae-journal/charrette-11/ (Accessed: 29 July 2015)

Section B

DECLARATION BY CANDIDATE (*delete as appropriate*)

I declare that my contribution to the above publication was as:

(i) ~~principal author~~

(ii) **joint author**

(iii) ~~minor contributing author~~

My specific contribution to the publication was (*maximum 50 words*): Developing the theme of the Scholarship of Teaching and Learning, with specific reference to its application to architectural education; developing the position paper to incorporate the SoTL themes of 'Scholarship Assessed' and the 'Teaching Commons'; embedding this position paper within the wider development of the Association of Architectural Educators.

Signed: 15th August 2015 (date)

Section C

STATEMENT BY CO-AUTHOR (*delete as appropriate*)

Either **(i)** **I agree with the above declaration by the candidate**

~~**or (ii) I do not agree with the above declaration by the candidate for the following reason(s):**~~

Signed: ....Dr Rachel Sara.....(co-author) 18th September 2015 (date)

Component 3:

NORTHUMBRIA ARCHITECTURE DESIGN PROCESS OVERVIEW

DECLARATION OF CO-AUTHORSHIP OF PUBLISHED WORK

Section A

Name of candidate: Peter Holgate

Name of co-author: Paul Jones

Full bibliographical details of the publication: Jones, P., Holgate, P., Hunt, D. and Jones, O., (2011). 'Introduction to Northumbria University Curriculum'. [online] Available at: http://studentsdownload.autodesk.com/ef/27288/cdcoll/downloads/sd/2011/BIMCurriculum/assets/northumbria/northumbria_university_architectural_design_introduction.pdf (Accessed: May 20, 2011)

Section B

DECLARATION BY CANDIDATE (*delete as appropriate*)

I declare that my contribution to the above publication was as:

(i) ~~principal author~~

(ii) **joint author**

(iii) ~~minor contributing author~~

My specific contribution to the publication was: Supervision, guidance of and collaboration with the Masters student (David Hunt) in developing a visual mapping analysis of the student project; communication the design process via production of slides for Autodesk website; collaboration with Paul Jones on liaison with Autodesk, research design of web pages, and authorship of introductory text.

Signed: .....(candidate) 17/09/2015 (date)

Section C

STATEMENT BY CO-AUTHOR (*delete as appropriate*)

Either **(i)** **I agree with the above declaration by the candidate**

or **(ii)** **I do not agree with the above declaration by the candidate for the following reason(s):**

Signed: .....(co-author) 17/09/2015 (date)

Component 4:

THE TOUGHENED GLASS CEILING: WOMEN IN ARCHITECTURAL EDUCATION IN 2012

DECLARATION OF CO-AUTHORSHIP OF PUBLISHED WORK

Section A

Name of candidate: Peter Holgate

Name of co-author: Kelly MacKinnon, Jenna Salter

Full bibliographical details of the publication: Holgate, P., MacKinnon, K. and Salter, J. (2012) 'The toughened glass ceiling: women in architectural education in 2012', *'Built and Natural Environment Research Papers. Special Issue: Architecture'*, 5(1), pp. 5-12.

Section B

DECLARATION BY CANDIDATE (*delete as appropriate*)

I declare that my contribution to the above publication was as:

(i) principal author

(ii) ~~joint author~~

(iii) ~~minor contributing author~~

My specific contribution to the publication was: Developing research design, conducting literature review, seeking ethics approval, and conducting the interviews with the participants of the inquiry; analysis of interview data, and writing up of findings; collaborating with co-authors on structure and narrative of final paper.

Signed: .....(candidate) 15th August 2015 (date)

Section C

STATEMENT BY CO-AUTHOR (*delete as appropriate*)

Either **(i) I agree with the above declaration by the candidate**

or ~~**(ii) I do not agree with the above declaration by the candidate for the following reason(s):**~~

Signed: .....(co-author) 13th Oct 2015 (date)

Component 5:

REGIONAL ENGAGEMENT AT NORTHUMBRIA UNIVERSITY: A SYNERGY BETWEEN RESEARCH AND TEACHING

DECLARATION OF CO-AUTHORSHIP OF PUBLISHED WORK

Section A

Name of candidate: Peter Holgate

Name of co-author: Peter Beacock

Full bibliographical details of the publication (*including authors*)**:** Beacock, P. & Holgate, P. (2011) 'Regional engagement at Northumbria: a synergy between research and teaching.' In: Beacock, P., Makstutis, G., and Mull, R. (eds.) (2011), *Intercultural interaction in architectural education.* London: ASD Projects / London Metropolitan University, pp. 5-9.

Section B

DECLARATION BY CANDIDATE (*delete as appropriate*)

I declare that my contribution to the above publication was as:

(i) ~~principal author~~

(ii) **joint author**

(iii) ~~minor contributing author~~

My specific contribution to the publication was: Co-authorship of paper developed from literature review of theories of place attachment and critical regionalism; collation and critique of student outputs from Northumbria University; presentation of paper to SCHOSA conference and editorial input to 'Intercultural Interaction' publication.

Signed: .....(candidate) 15th August 2015 (date)

Section C

STATEMENT BY CO-AUTHOR (*delete as appropriate*)

Either **(i)** **I agree with the above declaration by the candidate**

or **(ii)** ~~I do not agree with the above declaration by the candidate for the following reason(s):~~

Signed: .....(co-author) 19th August **2015** (date)

Component 6:
SUBVERTING THE ARCHITECTURAL DESIGN COMPETITION

DECLARATION OF CO-AUTHORSHIP OF PUBLISHED WORK

Section A
Name of candidate: Peter Holgate

Name of co-author: Dr Ruth Dalton

Full bibliographical details of the publication: Dalton, R., Hoelscher, C., Holgate, P., Brosamle, M. (2012) Subverting the architectural design competition. In: *Theory by Design: Architectural Research made explicit in the design teaching studio.* Artesis University College: Antwerp

Section B
DECLARATION BY CANDIDATE (*delete as appropriate*)

I declare that my contribution to the above publication was as:

(i) ~~principal author~~

(ii) **joint author**

(iii) ~~minor contributing author~~

My specific contribution to the publication was: Development of the 'Designing from the Inside-Out' architectural competition (project brief, collation of information pack, dissemination through key websites); co-authorship of conference paper with Dr Ruth Dalton; co-authorship and conference presentation of final paper.

Signed: (candidate) 15th August 2015 (date)

Section C
STATEMENT BY CO-AUTHOR (*delete as appropriate*)

Either **(i)** **I agree with the above declaration by the candidate**

or ~~**(ii)** **I do not agree with the above declaration by the candidate for the following reason(s):**~~

Signed: .....(co-author) **22nd October, 2015** (date)

Component 7:

PROGRAMMING THE PROGRAMME: PACING THE CURRICULUM IN ARCHITECTURAL EDUCATION

DECLARATION OF CO-AUTHORSHIP OF PUBLISHED WORK

Section A

Name of candidate: Peter Holgate

Name of co-author: Stephen Roberts

Full bibliographical details of the publication: Holgate, P. & Roberts, S. (2012) 'Programming the programme: pacing the curriculum in architectural *education' Proceedings of the HEA STEM Learning and Teaching Conference*, Imperial College London, 12-13 April 2012. Available at: http://journals.heacademy.ac.uk/doi/abs/10.11120/stem.hea.2012.010 (Accessed: 19 July 2015)

Section B

DECLARATION BY CANDIDATE (*delete as appropriate*)

I declare that my contribution to the above publication was as:

(i) principal author

(ii) ~~joint author~~

(iii) ~~minor contributing author~~

My specific contribution to the publication was: Linking the theme of constructive alignment to the development of the second year curriculum of study at Northumbria University; developing and presenting conference paper as part of HEA Academic Associate duties; co-developing use of Seaton Delaval Hall and liasing with National Trust for project and teaching vehicle with co-author.

Signed: .....(candidate) 15th August 2015 (date)

Section C

STATEMENT BY CO-AUTHOR (*delete as appropriate*)

Either **(i) I agree with the above declaration by the candidate**

or **(ii) I do not agree with the above declaration by the candidate for the following reason(s):**

Signed: .....(co-author) 15/08/2015 (date)

Component 8:

CARE OF THE SELF: EMBEDDING WELL-BEING IN ARCHITECTURAL EDUCATION

DECLARATION OF CO-AUTHORSHIP OF PUBLISHED WORK

Section A

Name of candidate: Peter Holgate

Name of co-author: **Paul Jones**

Full bibliographical details of the publication (*including authors*)**:** Holgate, P. and Jones, P. (2011) 'Care of the Self: embedding well-being into architectural education' *WELL-BEING 2011; The First International Conference Exploring the Multi-dimensions of Well-being*, Birmingham City University,18-19 July 2011. Available at: http://www.biad.bcu.ac.uk/research/wellbeing2011/index.php (Accessed: 19 July 2015)

Section B

DECLARATION BY CANDIDATE (*delete as appropriate*)

I declare that my contribution to the above publication was as:

(i) **principal author**

(ii) ~~joint author~~

(iii) ~~minor contributing author~~

My specific contribution to the publication was: Developing the theme of student time-management; conducting literature review into student burnout in architectural education; developing research design; conducting self-reporting questionnaires and analysing qualtitative and qualitative data; co-authorship and co-presentation of conference paper.

Signed: .....(candidate) 15th August 2015 (date)

Section C

STATEMENT BY CO-AUTHOR (*delete as appropriate*)

Either **(i)** **I agree with the above declaration by the candidate**

or **(ii)** **I do not agree with the above declaration by the candidate for the following reason(s):**

Signed: .....(co-author) 17/09/2015 (date)

Component 9:

ACADEMIC LITERACY AND THE TRANSITION TO STUDYING ARCHITECTURE

DECLARATION OF CO-AUTHORSHIP OF PUBLISHED WORK

Section A

Name of candidate: Peter Holgate

Name of co-author: **Emma Bramley,** Hollie Welch

Full bibliographical details of the publication: Holgate, P., Bramley, E. & Welch, H. (2015) 'Academic Literacy and the Transition to Studying Architecture', *The Three Rivers Annual Learning and Teaching Conference 2015*, Sunderland, 27 March 2015 Available at: https://3riversnortheast.wordpress.com/conference-archives/conference-2015/paperworkshop-presentations/ (Accessed: 19 July 2015)

Section B

DECLARATION BY CANDIDATE (*delete as appropriate*)

I declare that my contribution to the above publication was as:

(i) **principal author**

(ii) ~~joint author~~

(iii) ~~minor contributing author~~

My specific contribution to the publication was: Development of theme of academic literacy, based upon literature of student engagement; development of focus group methodology, organisation of participants, and determination of key themes (co-authors conducted final focus group); data analysis and co-presentation of outputs at Learning and Teaching conference.

Signed: .....(candidate) 15th August 2015 (date)

Section C

STATEMENT BY CO-AUTHOR (*delete as appropriate*)

Either **(i)** **I agree with the above declaration by the candidate**

or **(ii)** ~~**I do not agree with the above declaration by the candidate for the following reason(s):**~~

Signed: .....(co-author) 19th August 2015 ..... (date)