Educating the practice-based researcher: Developing new environments for collaborative and constructive learning

Practice-based Formal Research in Art & Design: framework, format, quality

Over the last ten years practice-based Ph.D research has become a recognised and validated form of research in Art & Design (Practice-based Doctorates in the Creative and Performing Arts and Design, UK Council for Graduate Education, 1997; Gray, 1998). It recognises the complexity of professional contexts, and attempts to identify and address questions relevant to that context through practice, within a rigorous formal research framework for the award of Ph.D. For the practitioner, this formal framework provides a time and a 'space' for focused practice and critical reflection on and analysis of that practice, in response to the research questions raised from the professional context. The process and outcomes of the research must be made explicit and communicable to professional peers in order to demonstrate contribution, value, and potential impact. How can this best be achieved?

As visual practitioners we prefer to use, whenever possible, visual methods of communication, increasingly making use of contemporary technologies. For art and design researchers these technologies enable greater opportunity for interactive debate, visualisation of process and presentation of product. It is clear that a shift is occurring in the nature of Ph.D theses submissions (ARIAD - www.ariad.co.uk) - from the thesis as a discrete text (where 'thesis' is synonymous with 'the black book') to thesis as 'argument' (in the true sense of the word), where evidence, in perhaps different media, each contributing different kinds of information, provides appropriate access to the argument, so that language is not 'doing the work of eyes' (Tyler, 1986). Ph.D submissions have been validated which comprise a set of related elements - a body of art/design work, other media documents which support and complement the work, and a text which sets out the argument, critically contextualises the research, describes the methodology, details the outcomes and concludes the argument. (For examples of completed practice-based Ph.Ds see: Douglas, 1992; Wheeler, 1996; Pengelly, 1996; Graham, 1997.) In a similar way, the format for the Ph.D thesis has been explored by submission in digital format, for instance Bunnell (1998; in: Malins & Gray, 1999), and interesting ways of disseminating design research findings in multimedia have been developed at Birmingham Institute of Art & Design (e.g. Jewellery Research CD-Rom). It is only by taking risks, learning from the results and putting forward other approaches that our discipline will ever achieve the research framework which it deserves.

The development of practice-based research has raised important issues about 'doctorateness'. (Practice-based Doctorates in the Creative and Performing Arts and Design, UK Council for Graduate Education, 1997). As with any other kind of research practice-based research must respond to the criteria and standards for the Ph.D award (Green & Shaw, 1997) and quality criteria which are generally accepted - 'rigour, relevance, revelation and return' - the four R's (Cooper, 1996). The shaping of practice-based formal research has evolved (and continues to evolve) through propositional constructions and debate. Consistent with this approach, structures and materials for practice-based doctoral education are being piloted, evaluated and reconstructed in a rigorous evolutionary process. Many of the characteristics of a constructivist research paradigm (Guba, 1990) have resonance for practice-based research in Art & Design. It is therefore appropriate that the education of practice-based doctoral researchers involves the use of constructive learning strategies.

Educating the Practice-based Researcher: developments at Masters level

In order to try to address the preparation and training for practice-based research, the authors decided to formalise some of the research structures and content developed at the Centre for Research in Art & Design into a set of learning resources within a Masters level course. Market surveys and analysis identified a key area of demand for these resources - professional practitioners and educators desiring continuing professional development (CPD). Three main requirements were apparent:

- to develop or enhance research skills and strategies in professional contexts
- to prepare for doctoral research
- to give an insight into research supervisory and management skills.

It was clear from this market response that the mode of delivery for such resources would have to be part-time, employ open and distance learning strategies, and be closely related to practice/work-based issues. The pedagogic structure which most appropriately accommodates research methods training through a practice/work-based project is a relatively new kind of masters degree - a Research Masters degree (M.Res). [For examples of MRes courses see reference for EPSRC web pages]. Therefore, the unique MRes in Art and Design was developed as a 2 year part-time networked distance learning course to provide high quality research preparation and training for practitioners in Art & Design. Crucially, the experiences from, and examples of, practice-based research projects are continuously informing the development of content and the structure of the course, as are demands from the professional context.

The course is structured using the metaphor of a 'journey' of exploration, comprising six learning modules focusing on the development and use of appropriate research strategy and methods in relation to a practice/work-based project. The modules are:

- *Planning the Journey:* an introduction to research in Art & Design
- *Mapping the Terrain:* developing an understanding of the context for research
- *Locating your Position:* planning and structuring a research project
- *Crossing the Terrain:* exploring and using appropriate research methods in Art & Design
- *Interpreting the Map:* methods of evaluation and analysis for research
- *Recounting the Journey:* methods of synthesising and presenting research

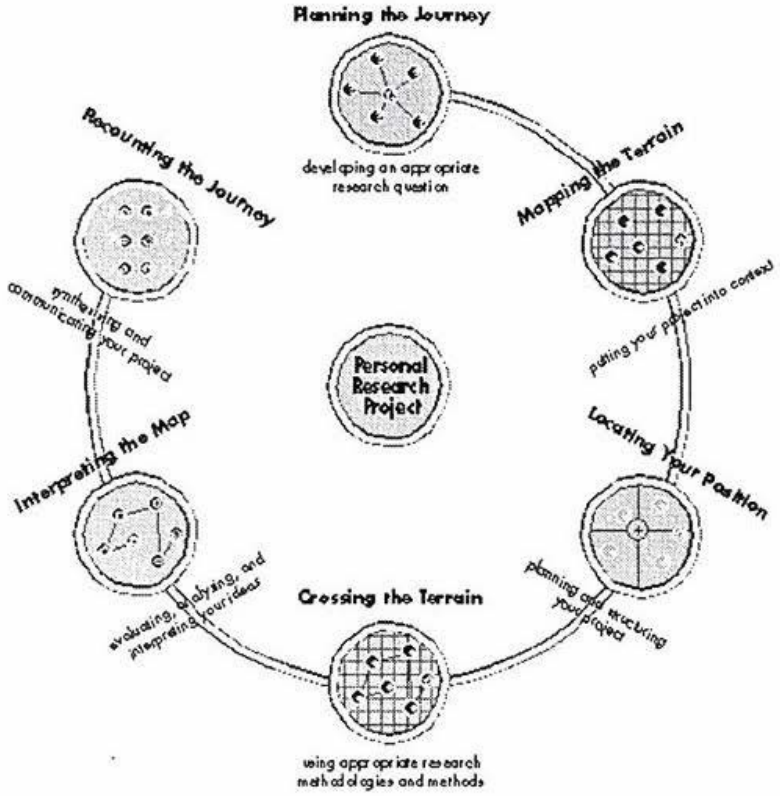

Fig: 1. Course structure of M.Res in Art and Design

The M.Res differs from other M level courses in Art & Design in its emphasis on research methods training and their application in work-based/professional

practice contexts. It differs from an M.Phil in the fact that there is a cohort of students, who engage in collaborative networked learning. As a course it seeks to contribute to the debate about practice-based research using dialogue and interaction between students, supervisors and external agencies in the professional context. In order to achieve this the course employs strategies of collaborative and constructive learning. Constructivism proposes that our knowledge of the world is an individual construction that is a product of our experiences of, and interactions with, the world rather than a reproduction of someone else's view that has been communicated to us. As it is debatable whether a 'consensual' body of knowledge exists in our discipline, a constructivist approach would seem appropriate:

> *"The role of education in a constructivist view is to show students how to construct knowledge, how to promote collaboration with others to show the multiple perspectives that can be brought to bear on a particular problem, and to arrive at self-chosen positions to which they can commit themselves, while realising the basis of other views with which they may disagree."* (Cunningham, 1992)

The first student cohort of the M.Res. in Art and Design started in August 1999, studying via networked distance learning through the course's web site (http://www.rgu.ac.uk/mres). The delivery of the M.Res requires a sophisticated web infrastructure, often referred to as a virtual learning environment or VLE. The authors are undertaking a research project (funded by the Scottish Higher Education Funding Council), which aims to evaluate the potential of computer assisted learning (CAL) for Art & Design. To this end we have developed a new VLE called studio**space**. This infrastructure development is being used to support the delivery of the M.Res in Art and Design (as well as other undergraduate courses), and in turn the M.Res provides a vehicle for developing and evaluating a range of new web tools and procedures for teaching, learning and collaborative research.

Appropriate Learning Environments for the Practice-based Researcher

'Studio**space**' has been designed to promote collaborative modes of working and constructive learning, with the emphasis on visual thinking and practice. This new system is designed to support asynchronous communication between research supervisors and students. The system is based on a relational database (FileMaker Pro) and conferencing software (FirstClass - http://www.softarc.com). This kind of networked learning environment enables M.Res students to access practice-based research training and experience as part of a supportive cohort, whilst remaining firmly connected to their professional working context. 'studio**space**' is

an example of a web portal, which provides access to a range of learning facilities including authoring, communication and administration tools in an integrated framework, providing the basis for an intranet/extranet system.

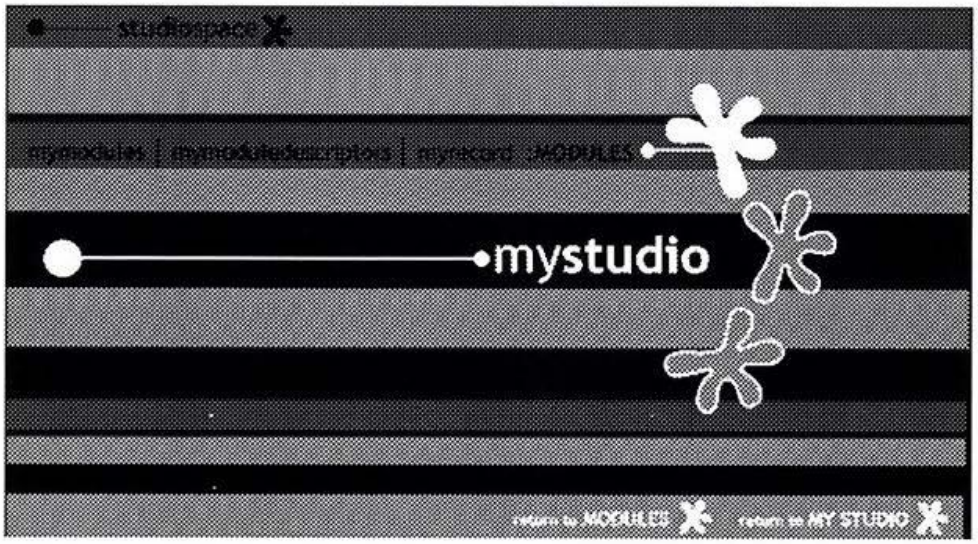

Fig 2. Interface to individual student work space

The studio**space Learning Environment** (www.rgu.ac.uk/studiospace/)
Studio**space** has the following tools which support practice-based research students and supervisors:

Authoring tools

Studio**space** provides authoring tools for research supervisors. These tools require no specialised programming skills, enabling multimedia content development and assembly. This content is entered into a 'knowledgebase' and appears pre-formatted into a web page within the studiospace interface.

This tool is important in research terms, as it encourages the accessing and transmission of 'tacit knowledge' and individual research experience into more explicit forms. It therefore enables shared research content development, and usable transferable knowledge. This content needs to be frequently revisited and updated in response to contextual changes and new developments. It is not a static 'body of knowledge' but an evolving research base for the discipline.

Communication tools

In studio**space** the 'Hub' provides access to a range of communication and collaboration tools that can be used for a variety of purposes. These tools support collaboration in a range of media. They are important for researchers

in order to develop dialogue with peers, structures for debate, and essential peer review mechanisms.

- Text-based Tools

  e.g. email, WWW links, discussion forum, chat room, notice-board, document sharing.

The discussion forum for instance is useful to research as it allows the archiving of debate contributions which can be used to trace the development of a debate over time.

- Graphical Tools

  e.g. visualisation tools, shared graphical interfaces for collaborative research, simulation and modelling tools, whiteboarding

Practice-based researchers in art and design need to understand and use visual research methods. Shared graphical or multimedia interfaces can be used for documenting the design process - brainstorming, visualising, annotating, constructing and evaluating with tutors, peers or other artists and designers. Such tools are currently being used to support a collaborative research across institutions, especially in visual disciplines.

- QAspace

  Studio**space** includes a searchable database of skill and process-based multimedia resources - 'QA**space**' - providing links to course module content, as well as links to external web resources. In research terms this is useful in providing a gateway to research-based resources, as well as being a shared central resource which includes key references and a glossary of research terms, important in developing a common 'language' of practice-based research.

- folio**space** - the virtual 'gallery':

  The concept of the virtual 'gallery' is well-established as both a resource, and an on-line 'shop-window' e.g. University of Illinois at Urbana-Champagne in the 'ID-online' learning environment designed in collaboration with Georgia Institute of Technology (visit http://www.art.uiuc.edu.idonline). folio**space** can used to archive work-in-progress and completed work. For practice-based researchers it can provide a visual record of completed work which can be used as part of a peer review process.

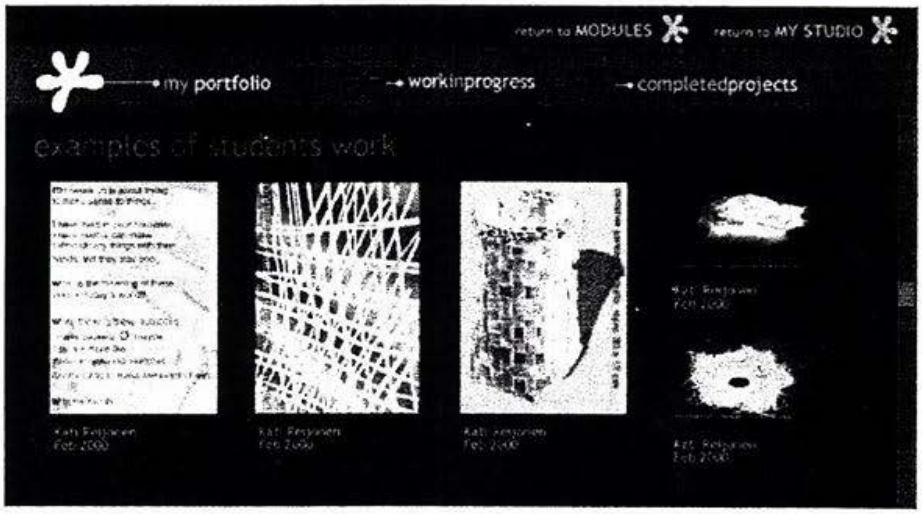

Fig. 3. foliospace example

- lecture**space** - the virtual lecture theatre

  lecture**space** is an example of a multimedia interface which incorporates a transcript of a lecture, linked to an audio commentary, with related visuals (including video clips), and navigated using an overview diagram. This tool is useful for the communication and dissemination of research findings through papers / presentations.

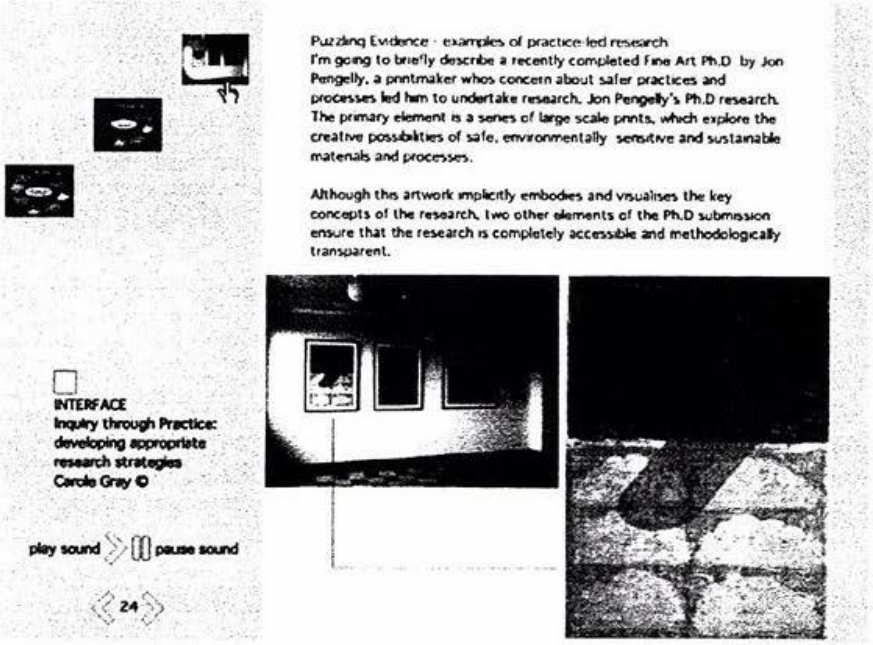

Fig. 4. lecturespace example

Administration tools

These tools integrate student monitoring and assessment information from different databases in response to individual student and supervisor requirements. Studio**space** generates an assessment matrix for each student assignment. An assessment matrix automatically displays learning outcomes, assessment criteria, and grading scheme. It can be used to archive assessment results and feedback. This is useful for research supervisors in developing quality monitoring procedures, which contribute to the establishment of shared research degree standards. For research students this is helpful in making assessment criteria explicit and understanding research quality.

Professional Development Profile (PDP)

In addition to the above tools studio**space** incorporates a tool for student self evaluation and action planning - the Professional Development Profile (PDP). This requires each student to identify, evaluate and reflect on their strengths and weaknesses. It provides a 'route-map' for personal and professional development, linked to individual tutorial requirements and particular resources. These profiles build into a visual overview of the student's professional development. Such on-line tools can support and evidence professional development as part of lifelong learning. The PDP is essential in promoting reflective practice, an important practice-based research position.

Conclusions

Educating the practice-based researcher demands that preparation, training and experience of research be firmly rooted in the contexts of professional practice. As a consequence, this kind of education needs to be specifically developed for, and delivered by, learning environments which encourage collaborative, constructive, and visual strategies. studio**space** provides a virtual learning environment using the metaphor of the studio. It is responsive to user needs, and is accessible 'anytime, anywhere'. Interactive networked technologies provide the opportunity for dialogue and debate, helping to generate a shared common research 'language' and therefore a shared discourse. They provide opportunities for collaboration between researchers, reducing the isolation of the 'long-distance researcher'. Such problems of isolation and communication have been identified by Hockey (1999). He states: " little is known about the experience of practice-based research degree student". Virtual learning environments like studio**space** provide the opportunity for harnessing and sharing practice-based research student experience. Although studiospace has been developed for art and design, there is clearly transferability to other practice-based disciplines, especially those which require more visual and interactive learning environments

e.g. architecture, nursing, engineering. This has implications for the development of interdisciplinary collaborative research methodologies. In relation to developing robust practice-based research criteria and standards of quality, studio**space** provides explicit research assessment criteria, developing from Shaw & Green's taxonomy of assessment domains (1997). The key characteristics of research - accessibility, transparency and transferability are embedded in the virtual learning environment of studio**space**.

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