

**EDDISON Antony J.**  
**Design, Research and the Five-Legged Dog**

**Abstract**

There are many ways of defining research and there are several established traditions as to how research should be carried out. This paper examines some common definitions of 'research' activities and asks if some fit into the category of research at all. Rather than continue to split semantic hairs as to what can and what cannot be called legitimate research, the paper goes on to look at PhD-level degrees in Design and the Sciences and their requirement of making a contribution to knowledge, pointing out the particular issue of perceived 'equivalence' that this may present when framing design-based research higher degrees, particularly PhDs, in a traditionally scientific environment. The context of this paper is that the discipline of Design at The University of Newcastle now finds itself within a new school that includes the discipline of Information Technology, the school being one of five schools that make up a new Faculty of Science and Information Technology. These alliances provide for many opportunities, however there are inherent issues, particularly at RHD level where knowledge and methodology has a tradition of being viewed from a scientific perspective and the principal body of work at PhD level being the 'thesis' as opposed to the 'exegesis'. A case study from QAA Subject Review Report from a United Kingdom university is presented and similarities with developments at The University of Newcastle are commented upon.

**Biography**

Professor Antony Eddison is Chair of Design at The University of Newcastle, NSW, Australia and a former Specialist Reviewer for the Quality Assurance Agency (QAA) in the United Kingdom. He has over fifteen years experience of both working in the Design industry and in academia in the United Kingdom, Europe and Australia. Within a 'design and communication' context, his interests are centred upon interactive multimedia, on-line learning and applications of Virtual Reality, with most of his consultancy projects being based on the 3D digital reconstructions of archaeological sites and artefacts in Europe.

He is currently undertaking a PhD at the University of Technology, Sydney, addressing the particular usability needs of the 65+ age group in their interactions with the Web. Issues regarding this group's short-term or 'working' memory, motor skills and visual acuity are a particular emphasis of this work which is being carried out in close collaboration with the School of Psychology at The University of Newcastle, national organisations and several overseas institutions.

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**Design, Research and the Five-Legged Dog**

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1. Introduction – The Five-Legged Dog

If we were to call a dog's tail a leg then how many legs does a dog have? Most would say the answer is five. But of course the real answer would be four. We can call the dog's tail a leg as much as we like but in reality it remains a tail and not a fifth leg.

A similar thing can be said of 'research'. We designers call many things 'research', but what is it really? Are we really doing it? And can or should we find some common ground with traditional science-based research?

The exploration of doctoral level studies in Design is an unusually complex and sensitive topic raising a number of issues about regulations, examinations, supervision, funding, submissions and equivalence, perceived and actual, between both similarly named and different types of doctorates in the same and different disciplines. For many schools of Design who are embarking on doctoral level work for the first time these basic considerations have become fairly major issues, particularly where traditionally the 'research' activities of these schools have centred upon practice, consultancy and exhibition and not primarily publication.

Within Design, the activity of 'research' is frequently seen to be the gathering of information and very often it is just this activity of collecting information - prior to the commencement of a creative endeavour - that designers continue to call 'research'. 'Researching into' or 'collecting' information, even when this results in a tangible product or outcome is very difficult to justify as valid research as universities and DEST perceive the term and such work is even more difficult to publish. So, is this activity of 'collecting information prior to the commencement of a creative endeavour' really research or is it the dog's fifth leg? I offer no immediate answers here.

Whereas, a systematic enquiry that follows a more scientific method is more readily acceptable for publication, but this method is often unfamiliar to many students of Design.

A third option follows Dearing's<sup>1</sup> definition: 'research where the end product is an artefact where the thinking is ...embodied in the artefact, where the goal is not primarily communicable knowledge in the sense of verbal communication, but in the sense of visual or iconic or imagistic communication'. The outcomes here may be communicable through performance, installation and exhibition, either real or virtual and this definition of research traditionally would align itself most closely with the activities undertaken in most schools of Design but how does this concept align itself with more traditional research communities and funding bodies?

The widely accepted definition of research as a **disciplined enquiry** is well understood by the sciences and can be applied equally to research in design. The generic characteristics of this kind of enquiry:

- that research should be accessible – a public activity, open to scrutiny by peers
- transparent – clear in its structure, process and outcomes
- transferable – useful beyond the specific research project, applicable in principles (if not specifics) to other researchers and research contexts.

are useful criteria for both shaping and evaluating research in design.

At the time of writing, there appears to be no nationally accepted framework and typology of postgraduate awards in Design in Australia, as is the case in many other countries and there exists a variation in both what constitutes a PhD in this area, the relative significance of practice-based work and written components or exegesis and their criteria for examination. As the form of the PhD can be so diverse, the purpose and scope of the study may be often misunderstood, this may well be compounded by the fact that many supervisors of Research Masters and PhD candidates in Design do not hold an equivalent research degree themselves and this in itself has become a contentious issue.

The question of appropriate supervision and examination for PhD candidates will differ from institution to institution. As universities in Australia differentiate, particularly at RHD level driven by funding mechanisms, it may be opportune to consolidate, to identify existing particular strengths and build on them, only offering Research Higher Degrees, including PhDs that are defined and agreed within the context of our own institutions and upon careful consideration of the demonstrated expertise of staff and the appropriateness of available resources.

This has become a successful model for typically mid-career alternative of the Professional Doctorate where there is some taught curricula and the research is likely to be closely aligned with the agendas of the schools that the students study in.

A little over ten years ago the choice between a Professional Doctorate and a PhD did not exist in Australia, today there are over 130 such programs offered in 35 of the 38 public universities across the country.

Sixty percent of these operate within the DEST definition and it is possible to have a HECS scholarship awarded provided it is completed on time. Those with less than two-thirds of the program focussed on research are fee paying and are more likely to include FPOS students among the cohort.

Professional doctorates draw heavily upon the expertise and research of staff with the students crafting their doctorates around their workplace projects to literally learn on the job.

This form of study, when compared to that of PhD, typically leads to a higher pace of study and subsequent faster completions, fewer problems with access to relevant people and equipment and a more satisfying experience brought about by being a member of a cohort in taught classes and continued pro-active support of and by their fellow students.

The 800 year tradition of regarding the PhD as the pinnacle of postgraduate studies is alive and well and, to date, Professional Doctorates have been largely treated as ‘subsets’ of the PhD with the result that industry has ignored them and academics have mistrusted them and, notwithstanding its income earning potential, are suspicious and afraid of them ‘lowering academic standards’.

It is interesting to consider that where the traditional PhD is intended to develop professional researchers, the professional doctorate is designed to develop researching professionals – both are relevant to Design, depending on the individual researcher’s goals and the level of resources and expertise at the hosting university.

## 2. An Australian University Perspective

Design at the University of Newcastle is considering developing Professional Doctorates and recently enrolled several candidates into traditional PhDs, all of the candidates having upgraded from a Research Masters degree they were already undertaking at the university. The format is that of negotiated study in full-time or part-time mode, with regular but as yet undefined contact between the supervisory team and the candidate. The scope of research at Masters and PhD levels across Design is diverse encompassing both practice-based and empirical work. There are currently three PhD candidates, one candidate is at the examination stage, the field of study is Illustration and the body of work comprises a substantial exhibition of artworks and an 80,000 word exegesis.

The discipline of Design at Newcastle is currently experiencing issues concerning supervision and examination, in particular where it is submitted to the examiners that the written thesis should be regarded as ‘supporting’ the artworks and not the contrary. In Design, it is necessary to explain to some examiners the relationship between written and practice-based work components of PhD submissions; in Fine Art I understand that the supporting nature of the written work, if this is indeed the form of the submission, is well understood and accepted.

The addressing and resolving of these and other issues is now a priority for the discipline of Design, that due to a recent university restructure, is now placed alongside the disciplines of Communication and Information Technology within a Faculty of Science and Information Technology where the perception of Dearing’s definition of research, noted previously, is perhaps misunderstood and undervalued.

The misunderstanding may in part arise from the belief that only those disciplines where the scientific method can be applied in reasonably direct form should give rise to a PhD rather than the belief that any and every discipline can give rise to a PhD award.

The qualitative as opposed to empirical nature of much of the work in Design is an area for discussion. This is an interesting point as the ‘scientific method’ has itself changed over recent years, taking onboard qualitative research methods, particularly in the social sciences, and humanities. This has led to less obsession with the need for experimental control and a willingness to step out of the lab to test such theories that are created are indeed applicable to the real world outside. Not all scientists take this view of course.

Karl Popper’s<sup>2</sup> view of good scientific theory in that it should be readily falsifiable, or rather that the design of the experiment to test the theory should be falsifiable, is applicable to science and some aspects of design. Design is a pragmatic area of study and while all this is of course important, it is at least as important that design research should also concern itself with the validity of such theories in the real world through application and practice.

I believe that the Faculty of Science and IT at Newcastle is trying hard to understand the nature of the work we do in Design, its teaching and its research and to express that understanding in coherent ways across the Faculty both in terms of its encouragement through teaching buy-out to allow the undertaking of research activities, research methods training, mentoring, supervisory training and reasonable expectations of both students and staff undertaking higher degrees in Design. Design, in turn I believe,

should make an effort to come to terms with the research concerns of science and attempt to establish both a common ground and a healthy understanding of our respective areas of academic concern.

This may be more difficult than it first seems. Much of science is governed by well understood, 'proven' (in so much as the truth is approximated) and accepted laws, Design, unlike Physics and Chemistry for example, apparently does not have any laws, laws being the descriptions of regularities that occur across a wide range of observations, an atheoretical approach that summarises data rather than explains it. If Design were more quantifiable, as Bruce Archer<sup>3</sup> attempted to show in the 1980s where 'utility theory' was applied to quantify the design process, then some of the issues outlined above may not be issues. Fortunately for Design, it is not.

What are Design's concerns as an academic domain? These must be established in order to justify research at doctorate level. Less than a hundred years ago the discipline of Psychology was in a similar position, looking at justifying just what were their academic concerns. The then scientific community, considering the study of the workings of the human brain and memory being far too complex to study and quantify. Before this, Chemistry, with its origins in Alchemy, was also in a similar position. Psychology went ahead and carried out research in its own way, explored empirical findings systematically and expressed them clearly and succinctly, this together with a real attempt at understanding and explaining the field to others allowed it to flourish and grow and become established in credible and wholly acceptable areas of research. Psychology thus did what Design is in the process of doing; it defined just what its academic concerns were, what would make a significant contribution to those concerns and what would constitute an original contribution – all prerequisites of a PhD award.

I believe that there can be wonderful and fruitful alliances between Design, the creative arts and the sciences. For this potential to be realised an understanding, acceptance and celebration of the differences between these disciplines must be achieved and their respective research activities be afforded the recognition they deserve. Collaborative and interdisciplinary work and effective communication and healthy argument will help this process.

Reading 'Design/Science/Research: Developing a Discipline', an excellent paper by Nigel Cross<sup>4</sup>, should be considered essential reading for anyone wishing to venture down this path.

### 3. A UK University Perspective

Research in Design is a current issue for many universities in the UK as are most practice-based doctorates in the creative and performing arts.

A case in point is a UK university with very similar issues to The University of Newcastle in many respects.

Again, from a university restructure came a new school, of which Design was and still is a major component. In the midst of a Quality Assurance Agency<sup>5</sup> (QAA) review, similar to those of AUQA in many respects, the new school worked upon a strategy to develop its research activities and examine how to attract further research funding and to enjoy improved regional, national and international recognition for their work. They decided that they should look at 'research' as an intrinsic aspect of all school curricula and identity. This imperative was all the more important as it was felt that the university ethos as a whole did not fully promote research as much as it might in relation to its work and outlook.

Clearly, 'research' did underpin a number of the university's key initiatives and the school, if it was to have an important role in those developments, found it crucial that the work of individual researchers was known to others and opportunities for discussion and collaboration inside and outside the university were seized and embraced.

Research was largely contextualised within the broad envelope of the UK Research Assessment Exercise<sup>6</sup> (RAE) the outcomes of which determined government research funding to universities. It was therefore limited to discipline and subject teams as these were the categories for the RAE. It was considered important that while the needs of the RAE needed addressing, equally they must explore a more open address of the potential for collaborative research between disciplines within the new school with a view to bringing additional benefits and rewards.

A school Research Development Group (RDG) was established to promote a school-wide research culture and formulate some initiatives to 'foreground' research as a significant area of shared interest,

debate and possible collaboration. It was hoped that such initiatives would serve to signal an appreciation of the value of such work and encourage school staff in developing their research in full recognition of its value to themselves, to students, to other staff and to the school itself.

It was considered a priority that staff should be able to show the significance and distinctiveness of their own work as part of the curriculum they deliver. Only by demonstrating the quality and uniqueness of this work and the success that has been achieved could the school consistently enhance its profile and define its identity in an increasingly competitive environment.

It was agreed across the school that 'research' should not only embrace government funding and curricula criteria but it should be one of the discursive and working currencies of the school, and an agent in potentially bringing together some of its more diverse aspects. Among the ideas that emerged were:

1. The development of a range of practices where staff may know of and exchange ideas about their research interests. This was done in a number of ways, for example, in a cross-disciplinary forum, a 'themed' interest group, etc. Such initiatives were also supported by a basic school publication including statements by staff about their own research interests and proposed initiatives. This information was to become available on the school Web-site thus promoting the research activities of the school to a wider audience.
2. The development of an in-school conference day(s) which was structured to facilitate the ideas and needs of the researchers in the school. As well as presentations by researchers, this involved talks on funding issues, cross-disciplinary research strategies, and preparation of strategic and grant proposal documents, etc. The conference days also involved case studies looking at the way research can underpin curriculum development, how 'research' translates into papers and publication, and models of collaborative research activity. External speakers were also invited, but the primary aims of the events were to promote research activity within the school, share ideas and develop initiatives accordingly. It remained important that the school looked at its own talents and abilities and sought to constantly enhance itself and its identity
3. To ensure that staff may develop their work, whether as creative practitioners or scholars, the school set aside 20% of contracted staff time for research and scholarship, which could be pooled and used flexibly.
4. An annual census of research plans and achievement was undertaken to inform the research strategy. Requests for research support were peer evaluated by the RDG in the light of strategic priorities.
5. The creation of a working forum addressing the possibilities of a central 'hub' project initiative that would involve all aspects of the school providing a key structural element of common research, curricula development and partnership. Priority was also given to partnerships and the building of regional and trans-national networks, to pool resources and ensure that work developed in a particular context could be taken up more widely.

These initiatives were successful and they continue to encourage staff to embrace research activities in addition to their teaching and administrative tasks.

The RAE made clear a context for research activity in the UK. The Arts and Humanities Research Board<sup>7</sup> (AHRB) provides an excellent definition of research. In this definition, research is considered to be a process built around three key features:

1. Clearly articulated research questions to be addressed through the research and a related series of objectives which will enable the questions to be explored and answered.
2. The specification of a research context for the questions and a rationale for why it is important that these particular questions should be answered or explored; this description of context should make clear what other research is being or has been conducted in this area; and what

contribution this particular project will make to the advancement of creativity, insights, knowledge and understanding in this area.

3. The specification of appropriate research methods for addressing and answering the research questions and a rationale for the use of particular methods.

The AHRB then goes on to address practice. Whilst practice, or aspects of it, can be part of the research methodology, **practice alone is not research**. A clear distinction is made between research and practice *per se*:

Creative input can be produced, or practice undertaken, as an integral part of a research process; but equally, creativity or practice may involve no such process at all, in which case these are not considered to be research. The precise nature of the outcomes of the research may vary considerably, and may include for example, monographs, editions or articles; electronic data, including sound or images; performances, films or broadcasts; or exhibitions. Teaching materials may also be an appropriate outcome from a research project as defined above

Similarly, the RAE provides further clarification about practice: 'Professional practice qualifies as research when it can be shown to be firmly located within a research context, to be subject to interrogation and critical review and to impact on or influence the work of peers, policy and practice ...'

These definitions help us when considering that dog's fifth leg.

#### 4. Conclusion

In summary, this paper has looked briefly at defining and justifying research activities in Design and at the context of Design within a scientific environment. The context of Design at The University of Newcastle has been discussed as has a discipline of Design with similar issues at a UK university. A national understanding of what does and what does not constitute research in the Arts and Humanities sector, at least as far as funding for such activities is concerned in the UK, is offered.

The author believes that, if doctoral level work, Professional Doctorates, PhDs or otherwise, is to flourish in Design then it is important to focus on existing strengths, even though this may result in a lower critical mass initially, both in terms of students and staff involved in such activities, it best forms the basis for the kind of doctoral work that can be adequately supervised and provided for.

A full understanding of staff expertise and experience simplifies the task of accepting a PhD candidate or requesting that they modify their proposal or apply elsewhere. A greater appreciation of design research expertise and activities across Australia would help with the latter and the finding of appropriate members of the supervisory team and examiners and reviewers of related conference abstracts and papers.

It is suggested that nationally, Design should work towards developing subject-specific criteria for excellence within the field and compliance with the three principles underpinning a PhD award, those being:

1. The submitted work must make a recognisable contribution to knowledge and understanding in the field(s) of study concerned.
2. The student must demonstrate a critical knowledge of the research methods appropriate to the field of study.
3. There is a submission of some form, which is subject to an examination by appropriate assessors.

These considerations underpinned by ongoing communication and a greater understanding of what we are all doing will greatly assist in developing research activities and outcomes in Design.

## 5. Proposal

In order to encourage and facilitate discussion on this topic, the author is currently working on a project to establish a national database of potential supervisors, examiners, speakers and reviewers for design research activities. This would be a valuable resource both in terms of assembling supervisory and examining teams and a good means of networking, talking to each other and keeping abreast of our research activities. It would be opportune to expand the scope of this database to include the creative arts and practitioners as well as academics although further assistance and manpower would be necessary to accomplish such a task. It is envisaged that the searchable Web-site will be established later this year.

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<sup>1</sup> <http://www.leeds.ac.uk/educol/ncihe/>

<sup>2</sup> <http://www.univie.ac.at/karlpopper2002/abstracts/sektionen.html>

<sup>3</sup> Archer, B 'A View of the Nature of Design Research', in Jacques, R. and Powell, J. (eds), *Design:Science:Method*, Westbury House, Guildford, 1981

<sup>4</sup> <http://design.open.ac.uk/people/academics/cross/DesignScienceResearch.pdf>

<sup>5</sup> <http://www.qaa.ac.uk/>

<sup>6</sup> <http://www.hero.ac.uk/rae/>

<sup>7</sup> <http://www.ahrb.ac.uk/>