

THE BUSINESS OF THE DESIGN DOCTORATE – A CRITICAL ANALYSIS OF AIMS, INTERACTIONS AND IMPACTS

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This paper examines the aspirations of research students, whether they are aimed at the creation of new knowledge within the design discipline and profession, or whether they relate more directly to new knowledge within a company, sector, industry or commerce in general. To this end, a distinction has been drawn between students who arrived at the research degree stage through a conventional path, via first degree, masters degree, without time spent beyond education, defined for the purposes of this paper as **the continuing group (CG)**. And those students, often mature, who have spent significant time in industry or are still employed within it pursuing their degree part-time – defined as **the professional group (PG)**.

There is a longstanding debate about how far academic freedoms might be curtailed by commercial constraints with regard to research. However there is little doubt that involvement with non-academic institutions means different rules of engagement, which may, or may not, favour the academic researcher; and some have argued the case for distinctive differences for retaining separateness:

“...innovative features suggest that design research might be fruitfully carried out within emergent structures like doctoral programmes, where research-orientated activities may converge and cluster independently from the kind of research carried out within companies or professional laboratories.”

(Manzini 1998)[ref.1]

However, in my experience the research student is more likely to be held back by the lack of response from potential collaborators, than by reluctance on the part of the commercial partner to divulge material or agree to its publication, once relationships have been established. In the case of continuing students, obtaining collaborative agreements can be more difficult than it is for professional students, for obvious reasons.

Relevance of student background and previous experience

Generally, design research degree students in the UK are drawn from a wide range of backgrounds and study within a variety of contexts: part- or full-time; overseas, European or UK status; self-, government- and occasionally commercially-funded; from academic and/or commercial backgrounds; and are positioned within assorted academic departments, research centres and occasionally within the workplace. Although firmly rooted within an academic context, the work undertaken varies from the practical to the theoretical, mirroring the breadth of the discipline of Design Research.

‘Design research undertaken by academics can be ‘blue-sky’ (open-ended activities) but it can also be practical applied research. Academic design research should challenge current assumptions, and provide a sound overview of work to date on the topic.’

(Cooper, Press, 2005)[ref.2]

The variety of contexts has meant that students have not always followed the predictable path of: degree, postgraduate degree and research degree; instead they have entered study at differing points in their careers. Although there are signs that as the design research culture matures and becomes managed and funded more professionally, this diversity tends to narrow in favour of the

norm of continuous graduate and postgraduate study. Nevertheless, this ‘maturing’ design research culture has enabled students with diverse experience and professional backgrounds to study. Such a varied cohort might be considered particularly appropriate to contribute to the growing knowledge base of the field of design research, as it provides professional skills which can contribute significantly to interdisciplinary research. Students with such varied professional backgrounds also have the potential to make unique contributions to the practical, and often, commercially focused field of design research for several reasons, including: unique access to data, resources, case study material and organizations; the ability to identify realistic and grounded research questions, often with relevance to design practice and industries; and broad experience of the global contexts and positioning of design and research – economic, technological, societal and organizational.

In terms of the motives of *the professional group*, beyond the obvious reasons for pursuing a research degree, such as acquiring research training, professional development and status, are the equally strong objectives related to the research field itself, which I have identified as research which takes four different forms.

There is research into:

- a professional practice or profession-related problem, context or opportunity
- a wider industrial/commercial problem, context or opportunity

or research which:

- extends or complements professional activity
- establishes a model which parallels a significant aspect of professional activity

In each case and to fulfill the criteria for a research degree, the scope of the field of study is required to be significant, substantial achievable and cannot be exclusively concerned with short term, purely commercial objectives and values. However attempts continue to be made to identify how the rigour, transparency and substance of the research degree, can be positioned within or alongside the professional world. Russell identifies three purposes that might induce a design practitioner to undertake postgraduate study: Firstly, the initiation of new design works (a creative & speculative approach). Secondly, the advancement of existing design work (a critical & speculative approach). Thirdly, the culmination of longstanding design work (historical and critical approach). (Russell, 1998)[ref.3]

Significantly, examples of all three purposes were found in both the continuing and professional groups response to the questionnaire, suggesting that there is little variation in the type of research carried out, but more likely in its context.

The different ways in which doctoral design investigation can draw upon industry

The range of research methods that can be applied within a collaborative relationship between academia and industry are limitless. The most significant issues do not therefore arise in terms of their choice, but through the wider context of their application. There are three basic forms in the way a researcher interacts with an industrial partner:

- *one-way data capture*
- data capture is an *interactive* process
- final results of the study are *fed back directly* into the company or industry to effect change

Firstly and most straightforward is *one-way data capture* which may involve interviews, primary source analysis and case studies; where the results are simply transferred out of the company.

Both professional and continuing groups can employ this research approach. Secondly, a more complex situation, in which data capture is an *interactive* process, in which the researcher and/or data contributes to the process being observed or recorded, as in the use of participant observation techniques methods. (Dane, 1990) [ref.4] The researchers may adopt some form of interactive practice as part of the recording phase, but the final outcomes and the conclusions of the research investigation are essentially not part of this process and lie outside the company or industry. Both professional and continuing group members employ this approach, but there is a tendency for the professional group to deploy such methods more frequently. Thirdly, data capture may, or may not, be interactive, but the final results of the study are *fed back directly* into the company or industry to effect change or substantiate the status quo. Here there is a significant tendency for the professional group to adopt this approach in comparison with the continuing group.

The general pattern of involvement between the CG's and the PG's with industry is clear: with the continuing group extracting data by the most direct means (such as by a telephone, emailed or face-to-face questionnaire to company employees). In contrast, the professional group tend to be more strategic in their approach, taking a responsive position with respect to data analysis and a more proactive position with regard to their findings, research outcomes and conclusions.

There is also a contrasting concern regarding the level at which researchers collaborate with non-academic institutions. The CG approaches the worker, whilst the PG tends to communicate with senior management; this varies from individual employee, department manager, company (executive), industry or industry body representative. In a global economy there is the added dimension of international collaboration i.e. sufficient seniority to include international links. There is a notable difference in the ability to develop viable investigative relationships between the PG and CG research student groups, with the former more able to successfully penetrate the hierarchy at a more senior level. This one element can have a profound impact on the effectiveness of the research collaboration/investigation outcomes and can be a significant pressure on the inexperienced student. Too often relatively inexperienced CG students spend considerable time and effort establishing relationships which do not have sufficient senior approval within a company to ensure that they are viable and sustainable. In contrast, professional group students are generally able to develop good working relationships within a relatively short time-frame (or are equipped with these at the outset) and at sufficiently senior level to ensure they are productive.

The impact of the research degree on the non-academic community

It is often suggested that in the design field, academic research has little to offer commerce and industry. The research degree in particular, can be viewed as a diversion, unconnected with the 'real world' of business and commerce and isolated within a particularly inaccessible 'ivory tower'. Such criticisms are often made on the assumption that the research student is often disengaged with commercial realities (not an issue for either of the groups studied, since engagement with practice or profession is a fundamental research aspiration of all members of both). The prejudice is further deepened, perhaps because it is based on the misunderstanding that continuing students are by far the most common; the suspicion being that rather unworldly students, with little experience of industry and an exclusive commitment to academic values and research interests, predominate. Yet this ignores the complementary nature of much academic research with respect to industry, in particular the ways in which an academic approach can be useful in its own right.

'Academic design research frequently follows rigorous methodological conventions which ensure that the findings are objective and contribute to new knowledge, thus providing the business with important, but often new, insights and directions which may not be identified when research is undertaken in more subjective environments.' (Cooper, Press, 2005)[ref.5]

In practical terms the research degree can make two general contributions:

Firstly, that it can improve the professional effectiveness of the researcher or the organization – through *'new, insights and directions'*. Secondly, that it can improve the knowledge base of the wider professional context within which the researcher operates. Although as professional group respondent suggests: *'Influence on policy and conventional practice is harder to achieve via research that is focused on short/medium term business ends.'*

Whilst it is quite common for a CG student to produce worthy results, it is equally possible that they remain relatively unexploited externally, simply because their personal connection with the wider world is, by definition, restricted. Conversely, the PG student is more likely, not only to produce realistic, insightful, useable results for the non-academic community, but is also often in a better position to disseminate them directly to that community.

Research into doctoral programmes

The paper draws directly on evidence from a pilot study questionnaire of twenty doctoral programmes, some currently in progress and others completed, carried out within the past ten years; to identify and compare their relationships within the three primary contexts. The study is part of a continuing investigation into the impact of doctoral studies in Design Research and intended to improve analysis and understanding of the student profile.

The pilot study consisted of analysis of the original student applications to pursue a research degree, which provided information on background, experience, qualifications, age. Alongside this information, a questionnaire has been circulated to the same students which addressed their attitudes and ambitions concerning industry and the design discipline. Comparison of the results in terms of the small sample group size at this stage, yielded indicative information only, but suggested that there were common concerns and differences in research focus, aims and context. Both continuing CG and professional PG groups tend to carry out research founded on a basic design-related critique of some aspect of current practices, methods, models, or design outcomes. To a degree one of the primary research questions related to the viability, or otherwise, of this critique for both groups; who also tended to view the research outcome as effecting real-world change within the non-academic field and/or organisation. Both groups also tended to provide a broad context for their research, beyond the immediate concerns they had with commerce and industry.

The questionnaire comprised seven sections –

A. Personal details. B. Research Degree Information. C. Relevant personal background
D. Contribution to and/or from industry to the study. E. Impact of the completed study on the non-academic world. F. Attitudes and experiences in relation to academic values and commercial interests. G. Additional comment. Group designation was determined on the basis of C. and information contained in the original research proposal. These initial results from the pilot study were collated and analysed using a single spreadsheet.

Research findings – The CG’s and The PG’s

The previous professional experience of the research student

The significance or otherwise of non-academic experience can be explored by making direct comparisons between those students who have had significant and relevant non-academic experience (*the professional group*) and those who have not (*the continuing group*). Table 1 sets out the general characteristics of both groups in terms of personal and research backgrounds.

Table 1. Comparison of the two research student groups		
	Continuing Group	Professional Group
mode	full-time	part-time
country of origin	Mainly overseas	UK
industrial experience	little or none	Significant previous and/or current
age	under thirty	Mature – over thirty
general research context	design discipline-related	corporate- or industry-related
research focus	<i>design</i> contexts, processes, practices and outcomes	<i>corporate or industrial</i> contexts, functions, models and outcomes
research origin	theoretical critique	practical critique
research outcomes	tools, guidelines, recommendations, methods, models, practice examples.	tools, guidelines, recommendations, methods, models, practice examples.
Research dissemination	Within an academic or design practice field	Within an an academic, design practice, corporate or industry field.

There were generally three areas of significant difference between the two groups.

Firstly the continuing group CG tended to be more ‘idealistic’ and had a wider engagement with ethics, environment, politics, culture and improving the social contribution of design, with or without a commercial or industrial focus. In contrast, the professional group PG tended to be more pragmatic, often aiming at making industrial practices more competitive, effective, efficient, or safer.

Secondly, the continuing group CG tended to locate their research within a practice discipline (industrial or graphic design), whilst the professional group PG tended to locate their research within the context of a particular commercial sector or company type. This could be related to the fact that most of the professional group had successful careers and were consequently working in an executive rather than design practice capacity.

Thirdly, the continuing group CG tended not to have an initial direct role within, or immediate access to, industry and often had to work hard to achieve basic contact. In contrast, the professional group tended to have effective initial access.

The benefits and problems associated with collaborations

The following represent a small but significant sample of student responses under questionnaire headings C. to G.

Relevant personal background

This group of questions acted as a primary method of differentiating between PG and CG students and provided detailed information beyond higher education for the PG only.

One PG researcher clearly linked his previous experience to theory/practice issues: *'The experience worked as a reference and indicator for me to know how relevant of the research was to practice.'* PGCC. Whilst another PG researcher was able to view her own professional focus in a wider ethical context: *'My experience of the above roles informed my belief that trend forecasting should and could be used in a more responsible way.'* PGMT

Contribution to and/or from industry to the study

During the course of their research, or after, more PG than CG students made significant contributions to commerce and/or industry: making available their own ideas, concepts, data, research outcomes, papers and designs. CG students were significantly less able to introduce their eventual findings back to industry, although many did this indirectly by employing their material within a higher education context.

Impact of the completed study on the non-academic world

At least one student (PG) noted a mismatch between academic and commercial interests which reduced the impact of the research findings and final evaluation and outcomes on the company: *'Unfortunately one of the side effects of my particular research direction was the fact that the critical approach to the women's publishing industry was not seen in a positive light on the part of the company, which was part of my case study. Hence, it would have proved very difficult for me to contribute to their commercial development.'* PGNS

Attitudes and experiences in relation to academic values and commercial interests

In general terms both groups found their contact with industry or commerce to be productive. Although a significantly higher proportion of CG than PG students were of the opinion that linking research directly to industrial/commercial needs reduces research impartiality or freedoms.

Responses to both PG and CG students were similar when it came to identifying the primary barriers to their research in relation to industry. Typically these were seen as:

- a lack of willingness to collaborate with academia
- intellectual property, non-disclosure agreements and commercial sensitivities
- restrictions caused by a lack of interest in a wider (academic) exploration of the research
- lack of interest in research collaboration which was not seen to directly benefit the company or industry.

Additional comment

A third of the students made use of this questionnaire section. One PG student made the point that experience in one industrial company or sector does not automatically provide relevant skills to work within another, although in the end this was a positive experience: *'Generally I have found*

talking to industry easier than I anticipated. However, it is very important to feed back research findings in a format that industry can access and find helpful.' PGMT

The same student comments on the wider cultural gap: *'I have been made very aware of the gaps between academia and the commercial world in terms of language, organizational cultures, and pace of work and of course priorities in financial terms.'* PGMT

Another student comments on the need for industry involvement at the early stages of the collaboration: *'In terms of confidence and trust in researchers' outcomes, industry people seem to me to prefer things that they have fostered or they were involved in....'* CGSR

Students from both groups share similar views on the possible barriers to industrial collaboration, although predictably the CG students see a lack of continuity of the industrial collaboration and the lack of industry-friendly outcomes from the PhD as being paramount. PG students speak of a general lack of will to collaborate and the narrow focus interests on both sides which are not compatible.

Conclusions

The investigation is an initial pilot study and will be continuing with increased numbers of interviewees in both groups planned for the future. At this stage results are indicative rather than conclusive. They include the suggestion that both CG and PG students generally share a critique as the starting point of their research. In the case of CG students, this is likely to be design discipline-related, whilst for PG students there is a predisposition for the doctoral investigation to be company or industry-related. Both groups also share an interest in optimising the impact of their research on a wider community. In the case of PG students, this tends to be almost exclusively within in the research period. In the case of CG students, this occurs both during and after the completion of the research degree. Finally, as many of the CG students move on to or return to an academic career on completing their research degree, one of main impacts of their work is within learning and teaching. This factor may well condition the positioning of their work relative to industry and commerce from the outset, with less of a priority given to industrial collaboration in most cases.

As stated at the outset, the pilot questionnaire has produced only indicative results at this stage. Nevertheless, it points towards significant differences in the ways that CG and PG students view non-academic collaboration. As the UK higher education sector is increasingly involved in commerce and is in many cases bringing research and enterprise closer together, it is perhaps timely to examine the positioning of the research degree relative to this shift. CG and PG students offer different approaches and could be aligned more effectively with enterprise or research, if they are better understood.

It is crucial to address the relative strengths and weaknesses between the CG's and the PG's and more specifically, to consider decreasing the gap between their abilities to access non-academic collaboration by developing supplementary research training models for each group in order to reinforce their contrasting strengths and anticipate their weaknesses; such as: offering training in industry-related methods for CG students and 'broadening the academic context' for PG students.

On a cultural level, and given that part-time and full-time students have few opportunities to mix, it may be helpful to decrease the divide between the two groups so that one group can inform the other. Perhaps this strengthened and diverse research group culture might ultimately make a contribution to the new kind of university proposed by Buchanan:

'This new kind of university - and there may be only a few of them in the future - will discover a dynamic balance among theory, practice and production, a balance that we do not now find in the vision of most universities today.'
(Buchanan, 2001) [ref.6]

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