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HOW CODES OF PRACTICE MIGHT IMPROVE COMPLETION RATES IN DESIGN RESEARCH

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ABSTRACT
This paper discusses how codes of practice might improve completion rates in design research. The paper is structured into main parts of: What is design research?; problems experienced in research supervision; and how codes of practice might improve completion rates. Each part includes a reflection of the information as a discussion of the issues involved for design research education. Consideration is given to the broad nature of design, the types of doctorates and the typical misconceptions faced by design research students. Suggestions are made as to how codes of practice might help to overcome these misconceptions, to support students and the supervisory team. The paper illustrates how this could support the development of design research education.
The work relates to research being developed by the Creative Design Research Group and taught on design courses, in the School of Design, Engineering and Computing at Bournemouth University (BU).

Keywords: Design, education, research, supervision, methods, codes of practice

1 INTRODUCTION

The successful completion of a doctoral degree holds mixed feelings of relief, satisfaction and a sense of achievement for students, supervisors and the institution. Nobody really wants to fail at anything, but given the difficult level of a research degree qualification along with the endurance, determination and even a benefit of good fortune required to get through the process, means that some do not complete. While this may be accepted as a fact of life or just plain bad luck, the reasons and circumstances as to why and how have got to be of interest to all parties. Recently these have more significantly been to politicians, to the extent of producing government level codes of practice, for institutions to adopt and make available to students and supervisors.
This paper debates how codes of practice could support design research education. The paper is organised into key parts of: What is design research?; problems experienced in research supervision; and how codes of practice might improve design research education. Each part provides a reflection on the material as a debate of the influences in design research education. Reference is given to the wide scope of design, the types of qualifications and the common misunderstandings experienced by design research students. Proposals are put forward as to how codes of practice may assist in resolving these issues, to support students and the supervisory team.

2 WHAT IS DESIGN RESEARCH?

2.1 Historic background

The first conference on design methods was held in London in 1962. This initiated the Design Methods Movement and the study of design as a science, a process and a methodology. Much of the drives behind the development of a research oriented design culture of the 1960s lay in practice from the 2nd World War and the use of operational research methods and management decision making techniques. This, along with creativity techniques of the 1950s, growing systematic computing and scientific management methods and tools, indicated an intellectual rigour to design that warranted research activity. The 1962 conference spawned the emergence of the Design Research Society with the specific intention to initiate study and research into the process of design and designing as a generic activity across the many fields of design [1].

The work of the 1960s was rejected in the 1970s as being too systematic. This was seen as first generation methods concerned with *optimisation*, the next generation of the 1970s was to be more concerned with *appropriation*. The Design Research Society initiated the first journal of design research, *Design Studies* in 1979 and *Design Issues* followed in 1984. The 1980s moved design research into a more distinct discipline, linking research and professional practice. Since the 1980s, journals such as *The Design Journal*, the *Journal of Design Research*, *CoDesign* and conferences such as *Design Thinking, Design Computing and Cognition* and *Design and Emotion* have emerged [1].
Design research has a rich cultural diversity, as design industries span many product fields including graphics, packaging, apparel, consumer products, domestic goods, furniture, vehicles, transport, interior, spatial and architectural. One of the greatest difficulty design research students have is in making the transition from seeing their project work as a creative process with an artefact as the outcome, to one of a research method that leads to new knowledge. This is an issue that needs to be resolved early on in the project, such that the difference of emphasis to research is clear to the student.

2.2 Contemporary practice

Design research developed more prominently during the early 1990s through government based funding opportunities. The aim was to develop design tools, methods and processes for professional practice. Design research traverses a broad range of academic disciplines and is cross disciplinary and interdisciplinary, activities include: Theoretical studies, the formulation of scientific or conceptual methods; design disciplines with a specific technical or product focus; ergonomics, user needs and usability; cultural and historical research; contemporary issues and society; and design management. Although based in departments such as design or engineering, design research brings together researchers from other fields such as social science, psychology, marketing and management [2].
Given the diversity and breadth of design research, outcomes can take a variety of forms, typically: Research monographs, in whole or part; authored articles in professional journals; conference contributions; conference reports; descriptions of new devices and instrumentation; descriptions of new processes and materials; patents awarded; published papers in peer reviewed journals; software; and technical reports [3]. The research quality is based upon: The advancement of knowledge and understanding; originality and innovation; impact on theory, analytical techniques, products and processes, including design, production and management, policy and practice at international levels; influence and reach; and user take-up in academe and/or industry [3].
The Design Council surveys suggest that academic design research holds potential for business and industry, benefits include: Risk, adventure and the challenge of established practice; methodological rigour, objective insights and new directions, and wider perspectives across a range of disciplines. Knowledge dissemination of design research aims to be open and accessible to be built upon and applied by others. Publication and communication is through a range of media, such as conferences, journals, online networks, books and knowledge transfer with industry. Academic design research continues to combine scientific and practice-based principles, to contribute to economic prosperity, national wellbeing and to the expansion and dissemination of knowledge [2].
Design includes a broad range of expertise, ranging from the creative arts and aesthetics, through media, ergonomics, psychology and business to materials and engineering science. On the one hand there is a need for generic research to cover all fields and on the other, specific research focused towards a particular design industry or area of design expertise. This gives much variety and scope as to the nature of any particular doctorate, in content, method and outcome. Design research students need to be aware of this breadth, in a sense that it allows for a research project to take its natural course and move through many academic disciplines. However, there also needs to be clarity and a decision as to the distinction and novelty of the project and how it contributes new knowledge.

2.3 Future issues

An ongoing key issue in design research is the conflict of: Professional design practice and the creation of artefact; verses research publication and the PhD contribution to new knowledge. Design professionals may have difficulty with the value of a PhD, seeing it more as an academic qualification for lecturing. The emergence of the Professional Doctorate (DProf) aims to resolve this conflict, for example Northumbria University have a Doctor of Design Practice (DDP), a Design Doctorate (DDes) and an Engineering Doctorate (DEng). The DProf study is supported by taught material, recognising

and developing new professional practice by means of a thesis which may be in the form of a portfolio with support documentation [4].
The emergence of the DProf has naturally caused debate in the academic community, sometimes seen as second rate where *professional* may be considered *vocational* and taught/practice a lesser order than research/theory. Ironically, there was a similar response to the PhD in the 1950s and to the introduction of the EngD at Cambridge in 2005, a doctorate subsequently adopted at Cambridge, Oxford and across the Russell Group. Doctorates in law and medicine (professional practices) date back to medieval times in Oxford and Cambridge and pre-date the PhD. While a PhD is a substantial piece of original research that makes a significant contribution to knowledge and develops research skills; the DProf broadens the way in which design research may be undertaken and opens the door for industrial engagement with universities [5].
There is potential for design research to adopt the DProf model of a doctorate, provided designers, universities and the industry recognise the validity. This may just be a matter of time, as was seen with the PhD and the EngD. The nature of a PhD is open-ended, students take research and run with it, there is potential for breakthroughs, but this can also occur for those at the sharp end of design industries, delivering cutting edge, global products. What is important is that breakthroughs occur, what they are called and the form they take should not really be the issue. What matters is that new knowledge and understanding is emerging, that is surely what any doctorate research is about and what defines the doctoral student.

3 PROBLEMS EXPERIENCED IN RESEARCH SUPERVISION

3.1 Institutional process

Universities have traditionally taken the view that research supervision is based upon a supervisor/student, master/apprentice relationship. The inexperienced student undergoes a process of research training, mentored by the experienced research supervisor. The process defined by the institution is similarly a linear transition from choice of research topic to completion. The quality of the experience is typically rated against market driven criteria such as numbers and time to completion, in a one size fits all, economic model. However, the individual change and transformation that the research students undergo throughout their doctorate, as well as the personalities and conceptions of the student and supervisor do not necessarily fit with such a clear linear route [6].
A University may be seen as an institution, the system, dictating numerous procedures, milestones and deliverables. While the research student may resent these formalities, they cannot change them and have to realise that they have to work with them. Once this has been accepted and adhered to, there is a smoother and more comfortable experience, whereby the institution may be seen as helping with practical support through stages of progression [7].
The quality of supervision has been associated with non-completion of doctoral students. This has involved: Topic selection and keeping the same topic and supervisor throughout; developing a close relationship; meeting frequently; fast turnaround of material submitted; and collaborating on papers. The primary source of dissatisfaction expressed by students who did not complete was their perception that the faculty was not approachable [8].
The face of the institution in recruiting, welcoming and integrating the student into the academic community is an issue. Students need to dovetail all aspects of the research, from the topic and University to the supervision team and place of study. Marketing information and promotion needs to be clear, accurate and sensitive to this. Induction programmes may help to bond a cohort of students who can share their experiences. Research students do not necessarily undertake their doctorate at the same University as their degrees, so may be unfamiliar to the place, people, buildings and generally the way things happen at that particular institution. Although undertaking individual research topics, all research students are common to a process of learning research methods, process and skills, as well as engaging with the same institutional procedures and formalities. Undertaking a doctorate is difficult, so sharing those anxieties and dilemmas, as well as tips for dealing with them can only help.

3.2 Supervision roles

The most basic supervisory role involves filling in the progression forms, writing periodic reports and liaising with all interested parties. The more extensive and specific roles include: The training and development of technical skills; broader intellectual engagement to develop knowledge and expertise,

such as discussion, debate and critical thinking; practical and administrative support for resources and advice for project management and organisational issues, such as meetings and deadlines; institutional politics and publicity; and personal or emotional support and counselling [7].
An alternative perspective to a functional approach to research supervision may be one of *concepts* of research supervision, these include: Functional, such as project management; enculturation, where the student is encouraged to become a member of the academic disciplinary community; critical thinking, where the student is promoted to question and analyse their own work; emancipation, where the student is challenged to question and develop themselves; and developing a quality relationship, where the student is enthused, inspired and cared for. Here there is a greater emphasis upon the qualitative, rather than quantitative aspects to the research supervision experience as well as the research student's independence and personal development [9].
Misconceptions may occur in supervision where supervisors take approaches in their relationships with students that do not fit with the student conceptions. A mutual ethos must be established over time that provides the student with effective support to progress and develop. There needs to be flexibility between the institutional bureaucracy, supervisor's personal interests and the freedom of the student in choosing a research topic, content, focus, methods, process, meetings, deadlines and direction. Design research students, as previously mentioned, may have misconceptions of the nature of research compared to creative design activity, so this is especially so, given the breadth of design research.

3.3 The student experience

The student experience can greatly influence the completion of the thesis: Feelings of social and intellectual isolation; lack of physical and supervisory resources; personal and professional crises; and tensions through mismatch in conceptions of the student, supervisor and institution. Students have experienced: Personal and emotional problems; financial difficulties; job offers; work interferences; family demands; lack of peer support; frustration or loss of interest; and lack of time to work on the dissertation. Completion rates are generally higher and shorter completion times for full time students than part time students and for younger rather than older students. Those with a first or upper second class degree are more likely to complete within four years and admissions criteria is a key variable for completion. Those students who were better integrated into the academic environment of the institution were more likely to complete [8]. While the research student is entering an area that requires hard intellectual articulation and logical argument, they are also embarking on an emotional experience that involves considerable soul searching. Supervisors need to embrace this and reflect upon the personal as well as the professional side of the relationship and to recognise the emotional signs of what their students are going through.

3.4 DProf supervision

Professional doctorate students tend to be older, mature, higher status, busy individuals already established in their fields, and can take up to six years to complete. Status may be an issue as an established senior business professional may be being supervised by a junior research academic, or vice versa. The research is typically taken part time while the student is in their job, so meetings do not generally run during usual working hours and may take place in the University or the student's workplace. This places a degree of sensitivity and flexibility upon the supervisor and the organisational patterns within the relationship [5]. DProf students appear to stand out as a special supervision case, this is no real surprise and is probably because they are new and in a minority. Just as there has been shown to be conflict in the recognition of a DProf and the difference in the professional and philosophical, so there is emerging a difference in the way in which the DProf student is supervised compared to the PhD student. The advantage any supervisor has is that they have been there themselves. Perhaps the future of DProf supervision may involve other DProf graduates, or at least a supervisory team that includes one, only time will tell.

4 HOW CODES OF PRACTICE MIGHT IMPROVE COMPLETION RATES

4.1 Roles and responsibilities

The Quality Assurance Agency (QAA) produced codes of practice [10] for quality standards of research in response to national reports (the *Dearing* and *Garrick* reports). The codes provide

principles (precepts), practices and an authoritative reference and verification for quality management of research programmes, awards and qualifications. Each institution would have their own regulations for independent verification of quality standards and assurance systems. Institutional regulations were to include requirements for: admission; academic procedures; progression; completion times; and assessment methods. University regulations were to be made readily available to all students and staff involved with research programmes and to clearly state the responsibilities of the student and supervisor.

Listing the responsibilities of the student and supervisor, helps with defining the respective roles and how they may work together. The student accepts ultimate responsibility for their research activity, which gives them independence and autonomy. This is important to allow the student to find their own project, methods, process and outcome, that is motivating on a research topic that inspires them. It also allows for the researcher to be mentored, in a constructive manner with a student-centred approach. Choosing the right research topic and project is an issue for design research students, given the breadth and interdisciplinary nature of design. The supervisor team responsibilities serve as a guide and facilitate through the process of keeping the student and their work on track to meet milestones, deadlines and academic quality standards. Also, to ensure that the student is engaging in personal development and the academic community, identifying their needs and keeping regular contact through periodic meetings, reporting on progress and direction. All of this in line with policies and procedures and all of which are listed as joint responsibilities. Knowing where you stand, up front in any relationship gives a sound basis from which to develop and progress.

4.2 Monitoring progression

The QAA codes of practice [10] state that institutions must monitor the success of their research programmes against indicators and targets. These factors may include: Submission and completion times; passes, referrals, fails and withdrawals; appeals and complaints; examiners comments; recruitment profiles; student, employer and funding feedback; and student employment. The study environment must provide support for doing and learning research, factors may include: Research publications; staff numbers; knowledge transfer; funding ability; idea exchanges; access to academics; peer support networks; discussion forums; supervision; ethics; research skills; academic community; facilities and equipment; student welfare; and student feedback. The Bournemouth University (BU) codes of practice [11] aim to ensure that research students are effectively supervised to their full potential and appropriate time completion; that students and supervisors understand their roles and the policies and procedures of the University. The objective is to provide a set of standard procedures and specific responsibilities covering academic supervision, administration and assessment of research degrees. The BU codes include: Support services; the research degree programmes; the responsibilities of the student and supervisor; the use of the interactive learning environment *MyBuild* to monitor student progress; progress monitoring and timescales; examination and completion; thesis preparation; registration; and policies, procedures and regulations.

4.3 Time planning

The BU codes of practice timescales [11] and sequential time planning show the key milestones that the student has to reach. Provision of an induction programme brings together a research cohort and familiarises students with the environment and people. This can highlight individual needs and requirements as well as common support sessions such as research methods. A four month initial review indicates that the research needs to progress early and provides a target to get students and the supervisory team working together, establishing group dynamics and the research direction. This review can identify weaknesses in the research and allows for questioning and reflection early on in the process, with time to rethink or change the research idea. Annual reviews and training needs analysis allow for the identification of support or resources that were not foreseen at the start of the research and a consolidation as to the actual focus of the work, much of which may change considerably. The eighteen month transfer stage is as much an emotional phase as an academic one. This is a crucial point in determining whether the research has the potential to contribute new knowledge and the work is worthy of a PhD or an MPhil degree. It is also a sensible approach as it may deter a feeling of failure. On the one hand it offers a way out with a qualification and on the other it can be a formal, positive feedback indication, to boost confidence in the research work. A six month declaration of intention to submit by the student allows them to build up to be ready within a defined

timescale. A three month deadline for the viva allows enough time for preparation and reflection as to what exactly the whole research has been about. All of the key stages give opportunity for consolidation, feedback and reflection. These are essential activities in any research work and provide healthy support for the progression of a research project to completion.

4.4 Communicating supervision

The BU interactive learning environment *MyBuild* helps to keep track of student progress through the research journey and is accessible by all parties. The system serves as a central repository for records of discussions and highlights when and if students are meeting deadlines in the timescale as well as keeping communication common and consistent. This is a useful aid to reflect upon previous work to see why the research direction has gone a particular way, to justify the current direction and in some cases to backtrack because the direction needs to change. Also, if a supervisor on the team, for whatever reason was to leave, any subsequent supervisors could look back to see the research trail. The interdisciplinary nature of design means that a supervisory team could be spread across different academic groups, universities or other institutions and industries. A central point of communication for all may help to avoid confusion and misinterpretations of discussions and roles within the team.

5 CONCLUSION

Design research is a relatively new area of research activity that is multidisciplinary and interdisciplinary, with direct association to the many industries and professions allowing for generic and specific based research. Student choice of research topic, process, methodology and outcome, as such need to be monitored by the supervisory team and the student needs to be aware of the difference and transition from designer to researcher. Codes of practice provide an organisational structure and set of milestones and deadlines for design research students to aim towards, with the support of their supervisors. This allows for change of emphasis within the supervisory team as the research emerges, giving opportunity for focus of the project and clarity of topic, process, methodology and outcome.

Universities may sometimes be perceived as unapproachable organisations and the codes of practice consider institutional activities such as induction, research methods, environment and a research culture. This allows for a collective research student identity as a cohort and promotes the introduction into the wider academic community through communication and publication. Personal and emotional experiences and the relationships that students form with their supervisors may allow a supervisory team to evolve with the research student and project at the centre. The key issue is one of awareness from all parties involved, the research student, supervisory team and institution, that the relationships they form with reference to the codes of practice are what may really make or break the success of the research. Providing the codes of practice are seen and used as formal but flexible guidelines, they may help to improve completion rates in design research education.

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