



Postgraduate Research Code of Practice

APPENDIX 14

Policy for PhD Research by Design

Definition

1. Research by Design (RbD) is a transdisciplinary and methodologically distinct approach to knowledge production, which involves “knowing through making”. Its distinct methodology aims to discover new knowledge and understanding of the problem domain through the creation and application of an artefact. Thereby, the researcher engages in a creative inquiry through the act of making in a process-oriented model of understanding, which offers valuable insights that could not have been achieved otherwise.
2. Research by Design has two distinct features:
 - a. It is intrinsically inter-disciplinary and therefore requires a mixed method of knowledge production by integrating different insights in the creation, reproduction and evaluation of (a) tangible output(s).
 - b. The research outputs and knowledge claims to “knowing” (through making) are usually made through the symbolic language of the discipline in question, thus not limited solely to text and numbers as is the case with traditional forms of research reporting. Therefore, RbD necessitates a representational richness (e.g. through drawings, 2D/3D models, visualisations, animations, moving image, simulation models, computational models) in order to communicate its outputs, as well as its contextual and time-bound validity.
3. RbD differs radically from a commercially motivated “design practice” because it does not deal solely with “a product” but more importantly with the process of its creation as a method of its investigation. Therefore, design-led research might be concerned with the development of “new types” of solutions, or might aim to set standards for a particular class of user requirements (for a particular or a set of products), or might focus on effective developmental methods, or might aim to achieve the development and implementation of a particular product/solution/method to a particular problem in a situated context.

Clarification and Guidelines

4. Research by design is not a generic/common name for all design related research. Research for design typically focuses on specific and individual design cases (precedent studies), usually documented in a case study format to give insight beyond an individual case. Research into or about design is an empirical examination leading to theories about design that has far reaching implications for a discipline e.g. design taxonomies. These forms would normally employ conventional research scientific or social scientific methodologies and focus on the historical, cultural and environmental context of design.
5. By contrast research by design (RbD) is a distinct method of knowledge production, which involves “knowing through making” where design becomes the vehicle for acquiring and shaping knowledge to assist future design activities¹ .

Examination

6. The assessment of the RbD will be conducted in accordance with the requirements set out in Appendices 7, 8 and 9 of the Postgraduate Research Code of Practice and there must be adequate evidence that the research:
 - a. is informed by prior research and guided by research goals
 - b. thoroughly and systematically documents the design process by making the implicit elements of design explicit

¹ Downton, P. (2003) Design Research RMIT University Press

- c. includes formative research to expose inadequacies in the problem analysis, the solution, and the design procedure
- d. generalises the findings towards the development of domain theories, design frameworks and design methodologies.

Supervision

7. Appropriate supervisory teams will be allocated to RbD students in accordance with Appendix 2 of the PGR Code of Practice. These teams will be expected to closely monitor, identify and manage the following together with the PhD candidate:
 - a. how the proposed PhD research integrates the constituent disciplines (if any) aimed at the creation of tangible (but not necessarily physical) products of societal and/or technical significance
 - b. any modelling, simulation, visualisation and prototyping needs necessary for the design, testing and evaluation of the new solutions
 - c. if any external partners are involved, the degree of their contribution to the project (i.e. supervision, training, access to knowledge/facilities, further development and implementation)
 - d. coordination of the interdisciplinary team (if necessary) in relation to the development, testing and evaluation of the outputs in real-life situations
 - e. how the knowledge resulting from the development of designed outcomes might be generalised into broad theoretical principles.

Viva and thesis submission

8. The normal procedures for submission of the thesis and for the *viva voce* examination as outlined in Appendices 7 and 8 of the PGR Code of Practice and the Ordinances shall apply.
9. Students submitting for a PhD undertaken with research by design will be required to include a presentation of the creative work and a written report of normally not more than 50,000 words accompanied by a visual documentation of the creative work (e.g. in a USB drive) and undertake a *viva voce* examination.
10. The visual documentation may take the form of a video, drawings, 3D models (digital/physical), physical mock-ups, diagrams, installation, exhibition, or any other form approved by the S/IDPR and FDPR. A discussion of both the presentation and the supporting written report will form the basis of the examination. A record of the final thesis (including visual and written material) in an approved format will be submitted to the Library for archival purposes.

Training

11. Intrinsic to RbD is the need to recognise multiple knowledge cultures: methodological, epistemological and ontological differences and overlaps between positivist, interpretivist, and design-led approaches to research: and the need for specialised skill sets to operate in a highly socio-technical and multi-actor settings.
12. Both students and supervisors of this PhD route will be encouraged to attend the relevant seminars, lectures as well as skill building workshops (as necessary) which are offered by the relevant Departments/Schools.
13. Students who undertake this route of PhD will also be expected to complete the standard University Development Needs Analysis.

Collaborative supervisory arrangements with external partners

14. A unique aspect of the proposed PhD programme will be the strong external partnership aspect that may be formed, either through or for any individual PhD project. The external partners and formal collaborative arrangements will be managed through the standard procedures of the University of Liverpool. This should include:
- Any specific project requirements
 - The distribution of the necessary knowledge input
 - The role of the external organisation in relation to the supervision of the candidate
 - The intellectual and material co-production
 - IP rights and issues linked to envisaged outputs of the project