Thesis by publication: some challenges
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The research project presented in a thesis by publication is the same that would be presented in a conventional thesis; it is only the format that is different. A thesis by publication consists of a number of journal papers and framing text that links these papers together into the report of a unified body of original work. The typical structure for a thesis by publication is an introduction chapter, chapters comprised of the publications, an integrative discussion chapter where necessary, and a conclusions chapter. A thesis by publication may also include conventional thesis chapters which present parts of the research not covered by the papers.

There are a number of challenges that need to be overcome to write a successful thesis by publication. These challenges, and writing strategies for overcoming them, are discussed in this document.

Some challenges in writing a thesis by publication

1. **Some research projects do not lend themselves to the thesis by publication format.**
   In some projects it is very difficult to achieve the required number of publications in high ranking journals given the time needed for the publication process. For example, in projects that involve experimental or field work over extended periods of time, the final results may not be obtained until late in the project, and thus there will not be time for papers to be written and accepted for publication before the thesis needs to be written.

   In collaborative research projects, where perhaps there are two students working together on a series of experiments, or there are a large number of co-authors for the publications, it may be difficult for a student to achieve the required level of contribution ( > 50% or more) to the work for each paper.

   **Strategy:**
   In these cases, it is likely that the student will need to write a conventional thesis.

2. **The research in a thesis by publication must be presented as a unified body of work.**
   It is vital that the research presented in the papers constitutes a unified body of work, not a series of loosely related studies. A large number of papers does not necessarily create a unified body of work: for example, one Engineering PhD thesis which included 9 papers was strongly criticised by examiners for not presenting a coherent body of work, while another PhD with only 3 papers was commented on very favourably by examiners.

   The writing around the papers is very important in integrating the papers into a coherent body of work. Examiners comment negatively on:
   - the weakness of the argument in the Introduction
   - the absence of an integrative discussion
   - the failure of the final chapter to provide more than a summary of each paper, to analyse critically the research outcomes, to draw conclusions from the work as a whole, or to highlight clearly the contributions of the research to the field of study
   - the weakness of a Conclusions chapter that merely repeats the conclusions of the individual papers without synthesising the findings of the work as a whole.
Strategies:
Argue convincingly throughout the thesis that the research is a unified body of work. Emphasise the coherence and the significance of the research project as a whole.

The Introduction chapter with the included review of the literature has the same purpose as these parts of the conventional thesis. This chapter needs to situate the current research in the context of previous research in the field, establish a significant research problem and then state the aims of the research project as a whole. Thus this chapter needs to provide the rationale for a coherent body of work rather than for a number of independent studies. It should also explain how the various parts of the investigation reported in the papers are connected and how they contribute overall to the entire research project.

Linking text before each paper is usually required to introduce the context and rationale for the work presented in that paper. This writing explains how the work of the paper fits into the research project as a whole.

The thesis must include a discussion of the findings of the research as a whole. Depending on the project and the papers, this discussion may need to be presented in a separate chapter where the findings of individual papers are critically analysed and their overall significance explained. The final chapter needs to draw conclusions from the research overall, not just restate the conclusions of each of the papers. This chapter needs to highlight clearly the contributions of the research to the field of study.

3. The research presented in a thesis by publication must equate to the research presented in a conventional thesis.
Sometimes the published papers do not cover the entire research project. If the thesis consists only of these publications, then the examiners may decide that the work does not constitute enough for a PhD. In addition, the papers may contain only concise information about important aspects of the research, particularly surveys of the literature and methodology.

Strategies:
Present the complete research project in the thesis. Any work integral to the PhD but not included in the published papers should be reported in additional conventional chapters or in additional sections of chapters. The introduction chapter should contain a comprehensive literature review.

As with a conventional thesis, additional supporting material can be presented in appendices. Such material could include patent applications, relevant conference papers, and other unpublished work or journal papers that are indirectly related to the research project.

4. In the papers for some research projects, there may be repetition of information that would cause weaknesses in a thesis by publication.
Repetition of information in a number of papers may make the thesis unnecessarily long and tedious for the examiners to read. For example, in papers reporting a series of experiments, there may be significant repetition in the introduction, the method and discussion sections of the papers. Examiners comment on the negative impact such repetition has on the quality of the thesis.

Strategy:
Always consider which thesis format works best for the examiner/reader. It may sometimes be advisable to write a conventional thesis, or to write a thesis by publication with the work of some of the papers written as conventional thesis chapters.
5. Examiners may find it difficult to assess the originality and quality of candidate’s own work. As it is generally accepted that supervisors are more closely involved in the process of writing papers than they are in the process of writing a conventional thesis, some examiners may feel that in a thesis by publication it is more difficult for them to assess the candidate’s independent contribution to the work.

To establish the candidate’s contribution, examiners focus on the writing around the papers as it is here that the candidate establishes their own understanding of the research, their ability to conduct research and their ability to communicate research independently.

**Strategy:**
Pay particular attention to the quality of the writing and the clarity of the argument in the introduction, the integrative discussion and the conclusions.