

## The Integrated Thesis: The Second-Class Option

A doctoral degree represents the highest level of formal education or scholarship in a given field. The length of a doctoral programme can vary widely depending on the subject, the country, and the institution, but it generally takes between 3 to 6 years of full-time study. Over the past 70 years, there has been a significant increase in the number of doctorates awarded. For perspective, in 1958, only 8,773 doctorates were earned in the United States. By 2020, this number had increased to 55,283 (<https://nces.nsf.gov/pubs/nsf22300/report/u-s-doctorate-awards#overall-trends>).

The ad hoc development of universities means there is no common nomenclature, much less a standard for the awarding of a doctoral degree. This inconsistency even extends to the degree's abbreviation, such as DPhil at Oxford and some other British Universities, and PhD elsewhere. The degree may involve coursework and examinations but is nearly always completed by a dissertation or thesis that is examined by a committee. After the thesis appraisal, the degree is awarded, or the candidate may be required to undertake further work. The instructions given to the examining committee usually involve considerable subjective judgment. For example, Princeton University specifies:

“The dissertation must show that the candidate has technical mastery of their field and is capable of doing independent and original research. It must enlarge or modify current knowledge in a field or present a significant new interpretation of known materials.”

While the University of Oxford Degree regulations state the examiners must ascertain that:

“the student has made a significant and substantial contribution in the particular field of learning within which the subject of the thesis falls.”

The traditional format of a thesis is a monograph. This can be defined as a detailed written study of a single specialized subject. Some universities accept a dissertation formed from a number of bound papers by the candidate. A slightly different form is the integrated thesis. In an integrated thesis, published papers are slightly modified to form chapters within the thesis, which also includes an introduction, literature review, discussion, and conclusions.

Completing a PhD is a challenging and stressful marker in a person's academic life. The commonest difficulty is judging whether you have 'enlarged current knowledge' or 'made a significant contribution'. The integrated thesis finds favour with some students as the candidate can enter their viva with confidence, having previously published much of the thesis in the peer-reviewed literature. It is very difficult for the examining committee not to accept the publication(s) as *prima facie* evidence of the thesis being worthy of a doctoral award.

However, an integrated thesis, while efficient and advantageous in certain aspects, also faces criticism. The traditional dissertation examination process involves meticulous inspection; examining statements, equations, figures and references. Examiners often act as constructive critics, suggesting corrections or highlighting overlooked work. This process usually results in a thesis that is better written and easier to understand. In contrast, examining an integrated thesis can be a frustrating experience. Typically, a thesis receives more thorough reading and critique than a journal paper. It can be disheartening for an examiner to find errors, only to realize the work has already been published, making revisions to the thesis largely irrelevant.

One of the most glaring issues with integrated theses is their structure, often comprising chapters that are essentially 'cut and paste' versions of published papers, each with nearly identical introductions. Ideally, this introductory material should be consolidated at the beginning of the thesis, but even then, it is often a subpar introduction, only superficially introducing fundamental material by citation (as in the style of an academic paper). The old adage "to truly understand something, teach it" has a corollary here: a deep understanding of underlying principles is demonstrated when the student articulates them clearly in his or her own words.

Doctoral research frequently encompasses efforts that yield unfruitful results or null findings. Such outcomes are notably challenging to publish. This situation can create a cycle where subsequent students, who often rely on their predecessors' theses as a practical guide to initiate their studies, may unknowingly repeat these unproductive paths. Furthermore, the succinct nature of academic papers often means that integrated theses lack the detailed practical information necessary for replicating or building upon previous work.

Another concern with integrated theses, for those based on papers with multiple authors, is the difficulty in ascertaining the student's individual contribution.

An advantage of the integrated thesis is its efficiency, allowing students to present their work with minimal formatting changes. This approach is influenced by the fact that academic papers are a key metric in academia, and historically, accessing a thesis involved library interloans and long waiting periods. However, with the advent of digital technology, theses are readily accessible online within seconds. This immediate availability eliminates the need to convert doctoral theses into papers solely for the sake of exposure.

Finally, doctoral study can be likened to an academic apprenticeship, where the student, under the guidance of mentors, acquires knowledge and skills until they become an independent researcher. By promoting the integrated thesis, academics inadvertently treat students more like post-doctoral researchers rather than doctoral candidates. This approach can lead to a suboptimal learning experience, producing a disjointed work where each chapter was initially conceived independently, missing the opportunity for the student to construct a long, coherent, and compelling argument.