

The Deconstructed Literature Review: An Innovative Assessment Approach for Teaching Critical Thinking

Abstract

This case study presents an innovative "deconstructed literature review" assessment developed for the 5405NATSCI module in Climate Change, Environmental Science, and Biology programmes. Rather than asking students to produce a traditional literature review, this approach structures a process involving a workshop and online exam questions to improve students understanding of literature reviews and academic criticality. Students read an existing review article and they are guided through analysing its content, examining the original sources cited, identifying contradictions, and extending the review with current research. By deconstructing and critically examining published literature, students develop essential skills in critical reading, evidence evaluation, and research synthesis that traditional approaches often fail to develop. While more time-intensive, this approach results in deeper engagement with scientific literature, prepares students for advanced research in their final year, and equips them with transferable skills for evaluating contradictory evidence. This case study details the implementation process, learning outcomes, and advice for adaptation across disciplines.

Key words

Literature review, Online exam, Critical thinking

The Background

Traditional literature review assignments often ask students to research and synthesize information on a specific topic without providing adequate guidance on how to approach literature critically. This innovative "deconstructed literature review" approach flips this model by providing students with an existing literature review and challenging them to analyse, critique, and extend it through a series of structured questions and activities. This assessment was developed to address several key gaps in traditional approaches:

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- **Students aren't taught how to read literature critically** - While we teach students how to search for journal articles, we rarely guide them through the process of reading critically.
- **Students struggle to evaluate evidence quality** - The assessment helps students distinguish between "good facts and bad facts" and identify contradictions in published research.
- **Students seldom encounter contradictory research** - The assignment deliberately exposes students to contradictory findings across different studies, helping them understand that scientific literature isn't always in agreement.
- **Students rarely examine methodological differences** - By comparing papers with different methodologies but similar conclusions (or similar methodologies with different conclusions), students learn to evaluate why results might differ.
- **AI-resistance** - Unlike traditional literature reviews that can be easily generated with AI assistance, this approach requires genuine engagement with the source materials at a far deeper level.

The Assessment Design

The module has two assessments. This innovative deconstructed literature review assessment makes up part of an online seen exam (60%) and an end-of-semester formal examination (40%). On a programme level, the deconstructed literature review is intentionally designed as a feedforward mechanism directly preparing students for their Level 6 dissertation.

Richard selects a comprehensive review article in the field (e.g., a Tansley review on climate change impacts on plant biology). The ideal review should:

- Be substantial but manageable (e.g., ~29 pages)
- Contain interesting assertions that require justification
- Include citations to papers with potentially contradictory findings
- Be relevant and complementary to course content

Richard has developed questions that require students to:

- Extract and explain key facts and findings from the review
- Locate and analyse the original papers cited within the review
- Compare findings across multiple papers
- Identify contradictions between the review's claims and the original sources
- Compare methodological differences that might explain disparate results
- Find recent research that could update the review

- Write original paragraphs that would fit within an updated version of the review using those new articles

A workshop introduces students to the assessment approach through a practice exercise:

- Students receive a short review paper and a set of questions
- They discover they cannot answer all questions from the review alone
- Students are provided the cited papers to help them complete the questions
- Students identify contradictions between sources
- A group discussion helps students recognise the importance of critical reading

Evidence of impact

The external examiner praised the assignment as "excellent" and "very novel," highlighting how it effectively assesses multiple learning skills related to literature reviews while ensuring students gain comprehensive knowledge about both the subject matter and the nature of literature review construction.

The assessment achieves a desirable grade distribution with an average mark of 65%, allowing highly engaged students to excel with marks in the 80+ range, while also providing opportunity for students who typically struggle with conventional assessments to perform well when they apply sufficient effort.

Challenges and Considerations

- **Time investment:** The primary drawback is the significant time required to develop the assessment, which mostly involves reading the literature.
- **Paper selection:** Identifying appropriate literature with the right characteristics requires careful consideration
- **Student preparation:** Students need clear guidance on expectations and approach
- **Scalability:** The assessment works across different class sizes and programme groups

Conclusion

This deconstructed literature review approach transforms a standard assessment into a journey that develops critical thinking skills essential for advanced study and research. While requiring more preparation time than traditional literature reviews, the

pedagogical benefits make it worthwhile, particularly for preparing students for final-year research projects and developing lifelong critical evaluation skills.

Through this design Richard asks us to think again about the level of skill students may have in these vital areas. Richard added: *"I'm teaching them how to do something that we presume... We presume students know how to read literature. We presume that they know what this word 'critique' means. Most of our students know the word, but they have no idea how to do it. That is, until we teach them how to."*