

In praise of the textbook

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Abstract The humble textbook appears to be rarely used in the modern school science lab. When visiting school science labs, something we both do regularly, they are still there in an unloved tatty pile in a back corner, made obsolete by interactive white boards and web-based resources, with questions being answered on iPad's in a slick modern digital world. Resources from web-based providers have taken over the traditional role of the course textbook we carried daily to and from school. The standard 'read the passage and answer the questions' style of exercise is no longer physically tied to a book. While resorting to a textbook may seem old fashioned, dull and passive, we believe there are good reasons why they should still have a place in any science teacher's armoury.

On arrival at university, students are still given immense reading lists for every module; but many of us know that our students rarely, if ever, open a recommended text. This becomes very obvious at the end-of-year-1 exams, when colleagues are complaining loudly about the lack of reading around the subject. The need to read beyond the lecture notes, along with guidance and advice on how to do so, is stressed in support materials provided before arrival and throughout their time at university. Colleagues stress the need for further reading during their lectures and explain the mark-limiting effect of not reading beyond course notes as part of exam preparation and guidance. In spite of this effort, a lack of evidence of reading beyond lecture notes is a common complaint from staff during and after marking. Supporting evidence is provided by a failure by students to use the copies of course texts held in the library. A check of the availability of two core textbooks recommended for a year 1 module at the University of Leeds, undertaken shortly before the end-of-module exam, showed that of the 14 library copies of one text, seven were still available for loan, and for the other text three of the five copies were also still available. This is even more surprising when considering that these are also recommended texts for a module in the School of Geography and that the high price of many university level textbooks is a barrier to ownership.

Questioning of a recent year 1 environmental science module cohort, being careful to do so in a non-judgemental setting, revealed that only one student had read any book in the last year (it was Hanif Kureishi's *Buddha of Suburbia*). While later in our courses, engagement with texts clearly improves and, with the move from more passive learner to more active learner/researcher, engagement with the scientific literature becomes pivotal, we still see evidence of a lack of engagement with the literature by some of the students who have reached the stage of final-year project report writing. This problem of not reading textbooks has been identified across the higher

education sector and is not limited to the UK (Jenks, 2016; Nathan, 2005; Burchfield and Sappington, 2000). So why do students not read textbooks?

One possible contributing factor is that the time in their educational journey when they first encounter a course text and learn the basic approaches to using a complex printed resource is now later than it was for students in the past.

When books such as revision guides are encountered, they are often of a very 'bite size' structure that mirrors popular web-based resources. While a website-inspired style and structure enables fast access to the desired information without having to search through the body of the text, and appears familiar to those of the digital generations, the quality of the content of these resources can be questionable (King 2010, 2013). Although the recognition of errors in school textbooks is something that we should all be aware of, textbooks have been subject to a much higher level of editing and refereeing than many of the digital resources available from a simplistic web search. As the need to consult texts for degree-level study is unlikely to disappear, anything that can be done at school to familiarise young people with using books will be a great help. Using those unloved science textbooks can be one such way.

Another reason why we should use textbooks is that (unlike the ideal of a paper-free digital classroom) the number of photocopied resources and single-use (and often even single-sided) sheets of paper seems to be ever increasing rather than decreasing. According to Recycle Now, the average secondary school produces 22 kg of waste per pupil each academic year; the figure for primary schools is even higher at 45 kg per pupil. In the modern world, as educators we should surely be setting an example by making every attempt possible to minimise waste. Using a textbook is far more environmentally friendly as it is reused multiple times rather than being thrown away, and reuse is always better than

recycling. Auditing paper use to show how schools can save resources and money is an important part of the Green Schools Initiative. Paper use and sourcing is also central to the Eco Schools environmental review process so is clearly considered an area where overuse and waste may be occurring.

So next time you are setting a 'read the passage and answer the questions' style exercise, use the textbooks in the pile at the back of the lab and remember that you are not resorting to the method of the 1950s but are preparing your class for university education and saving the planet – or at least a tiny piece of it.

References

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- King, C. (2010) An analysis of misconceptions in science textbooks: Earth science in England and Wales. *International Journal of Science Education*, 32(5), 565–601.
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- Nathan, R. (2005) *My Freshman Year: What a Professor Learned by Becoming a Student*. Ithaca, NY: Cornell University Press.

Web links

- Recycle Now, *How much does your school waste?*: www.recyclenow.com/recycling-knowledge/getting-started/recycling-at-school/how-much-does-your-school-waste
- Green Schools Initiative, *Hands-on environmental audits: find out how your school can save money and resources*: www.greenschools.net/article.php-id=99.html
- Green Schools Initiative, *Changing paper consumption*: www.greenschools.net/article.php-id=75.html
- Eco-Schools: www.eco-schools.org.uk

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