



The Value of a Textbook

By Robert Brooker

June 2, 2008

In the 1970s, when I was an undergraduate at Ohio's Wittenberg University, I couldn't understand why my science textbooks seemed so outrageously expensive. The tenor of the times called for a reflexive cynicism when it came to big business, so my fellow students and I were certain the publishers were jacking up prices because they had us at their mercy. We needed those books to do well in class.

Today, as a professor of genetics and biology at the University of Minnesota, I still hear my students complain about the price of their textbooks, just as I did. The difference for me now is that — as the author of one textbook on genetics and co-author of another on biology — I have a much better idea today of what goes into the researching, writing, editing, illustrating and publishing of a state-of-the-art science textbook.

I also know that despite the high prices, the long-term value of an accurate, up-to-date textbook far exceeds its cost.

Textbooks are just one of the expenses involved in obtaining a college education, which remains one of the best investments any individual can make. The average cost of obtaining an undergraduate degree at a four-year college today is approximately \$52,000. According to a 2007 College Board study, over a working life, the typical full-time, year-round worker with a four-year college degree earns more than 60 percent more than a worker with only a high school diploma. And textbook costs represent a small percentage of that investment relative to the value good textbooks provide.

Consider that, on average, undergraduate students spend approximately \$700 a year on textbooks, which means textbook costs comprise, on average, about 7 percent of the total expenditure for college. The actual value that textbooks contribute as a percentage of a student's total college education is impossible to assess, but I would estimate it to be far more than 7 percent — perhaps as much as 50 percent of their learning, especially during the freshman and sophomore years, when teachers and students rely largely on textbooks to provide a solid grounding in all scientific disciplines.

Why are textbooks – especially science textbooks – as expensive as they are? Several reasons come to mind, but the simplest and most compelling is that good textbooks are expensive because they cost a great deal to develop and produce.

I recently completed the 3rd edition of my genetics textbook, as well as the first edition of a biology textbook, which has cost approximately \$2.5 million to produce. The \$2.5 million figure represents the biology textbook's total development costs, an amount confirmed by McGraw-Hill's Higher Education Group. The biology textbook I have coming out this year is a collaborative effort, written with three other professors, each with a specialized knowledge of a different area in the field. Even so, it took us three years to research and write its more than 1,300 pages of text. Much of that effort was taken up with countless conferences and meetings devoted to content development and artwork. Likewise, the efforts of hundreds of faculty members across the world were solicited during the development of this book.

An excellent textbook is one where the content is as clear as possible – where the pedagogical features of the book are consistent, making it easy for students to understand and follow from one chapter to the next. This applies to the visuals and the presentation just as much as it does to the text. If a particular protein is depicted as being blue in Chapter 3, we have to make sure that the same protein is blue again, when it is shown in another context in Chapter 27.

Another reason textbooks are more expensive than mass market trade books and other types of books you might find in a bookstore is because they are no longer just cardboard and paper, with simple illustrations. Today's students enter college with course materials that are nothing like the textbooks I used at Wittenberg in the '70s or Yale in the '80s. The artwork and photography of modern textbooks is very sophisticated, and with such sophistication comes a high price tag.

Also, the word "textbook" now encompasses an array of inter-related printed material, multimedia and digital technology products. Both my genetics and biology books come with PowerPoint lectures that are a real boon to the professors and, by extension, to the students. Students who buy the books also receive CD ROMs with all of the slides and the artwork. The CD accompanying Genetics contains 45 animations that were expensive to produce, but which provide an understanding of genetic processes impossible to fully communicate with words or static pictures alone.

Yes, students today will complain about the costs of their books and materials, just as I did 20 and 30 years ago. I honestly sympathize with my students. However, I hope that they will one day realize, as I have, that the benefits they will gain from their textbooks and ancillary materials will pay off many times over.

Rob Brooker is a professor of genetics, cell biology and development and an associate department head at the University of Minnesota-Twin Cities. His latest textbook, *Biology*, 1/e, written with Eric P. Widmaier, Linda E. Graham and Peter D. Stiling, was published by McGraw-Hill Higher Education this year.

