

The Open Textbook Revolution

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There is a movement afoot to disrupt the traditional college textbook market. Although it is probably too early to call this movement a revolution, despite this essay's title, this change is coming slowly but surely, and instructors and students will only benefit. This movement is the "open" textbook movement, and it is challenging the dominance of the traditional textbook market.

A few huge companies dominate the traditional college textbook market: Cengage/Wadsworth, McGraw-Hill, Pearson, Wiley, and some others. They are fine companies, and they produce excellent, peer-reviewed textbooks that summarize the major knowledge that undergraduates should be expected to know.

However excellent these textbooks are, they are also very expensive. Many and perhaps most of the leading textbooks in the major core courses in a college curriculum cost at least \$150 in hardcover when they are new and increasingly more than \$200. Many paperback texts in core courses cost well over \$100. College algebra and elementary and intermediate algebra textbooks at major publishers cost between \$166 and \$175 at the time of this writing. Across the United States, college students pay between \$600 and \$1,200 annually for their course textbooks, depending on which study one reads [1].

Why are traditional textbooks so expensive? A major reason is that they are very expensive to produce. They are full of color photographs, maps, and other features for today's visually-oriented

students. They are also typically accompanied by PowerPoint slides and other supplements. Permission fees, typesetting, and other production costs must also be paid. As well, it takes many people to produce a core textbook: developmental editors, copyeditors, production and design specialists, and so forth. All these people must be paid through textbook proceeds. All these production costs for core textbooks can easily end up in the hundreds of thousands of dollars and often more than that. Large publishers also have huge marketing and sales forces whose salaries and expenses contribute to textbook prices.

Although traditional textbooks must perform very well, publishers have a low profit margin on any one textbook. The income that publishers derive from the average textbook equals only about 7 percent of the cost of the textbook, with the rest of the cost going to meet publishers' expenses, authors' royalties, and bookstore expenses and income [1].

Many students, as many as two-thirds in some surveys, report they have been unable to buy at least one textbook because it is too expensive [1]. Textbook prices are especially burdensome for low-income students at community colleges and public universities. When students cannot afford to buy textbooks, their grades suffer, and they are more likely to drop out of school.

Against this backdrop, the rise of open textbooks (also called open-source textbooks) is an exciting development that is a win-win situation for students and instructors alike. An open textbook is a textbook that, first and foremost, is published online and available there for students to use for free (yes, free!). Anyone with Internet access anywhere in the world can read an open textbook. Many open textbooks are also customizable:

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DOI: <http://dx.doi.org/10.1090/noti907>

2.1 Introduction to Algebra

LEARNING OBJECTIVES

1. Identify an algebraic expression and its parts.
2. Evaluate algebraic expressions.
3. Use formulas to solve problems in common applications.

Preliminary Definitions

In algebra, letters are used to represent numbers. The letters used to represent these numbers are called **variables**. Combinations of variables and numbers along with mathematical operations form **algebraic expressions**, or just **expressions**. The following are some examples of expressions with one variable, x :

$$2x+3 \quad x^2-9 \quad 3x^2+2x-1 \quad \frac{x-5}{x^2-25}$$

Terms in an algebraic expression are separated by addition operators, and **factors** are separated by multiplication operators. The numerical factor of a term is called the **coefficient**. For example, the algebraic expression $3x^2 + 2x - 1$ can be thought of as $3x^2 + 2x + (-1)$ and has three terms. The first term, $3x^2$, represents the quantity $3 \cdot x^2$, where 3 is the coefficient and x is the variable. All of the variable factors, with their exponents, form the **variable part of a term**. If a term is written without a variable factor, then it is called a **constant term**. Consider the components of $3x^2 + 2x - 1$.

instructors may modify the order of chapters or of topics within a chapter, and they can add or delete material that suits the needs of their courses.

A natural question concerns the quality of open textbooks. Anyone can put almost anything on the Web; much of what is on the Web is excellent, and much is schlock or worse. Happily, a growing number of open textbooks are peer-reviewed and match or exceed the quality of traditional textbooks. And they do so at a much, much lower cost.

I have written an introductory sociology text and a social problems

text for the first and largest open textbook publisher, Flat World Knowledge (FWK; flatworldknowledge.com), founded about five years ago by two former Pearson executives [2]. I have also written five textbooks for traditional publishers. My experience as an author for both sorts of books is strikingly similar.

Like my traditional publishers, FWK has textbook proposals and manuscripts intensively peer-reviewed. Some three dozen sociologists from various institutional settings reviewed my introductory text either in part or in whole from the proposal stage until the copyediting stage. Also, like my traditional publishers, FWK has professionals guide a book's development through the design, copyediting, and proofreading stages until it is finally ready for publication.

Again, as with my traditional publishers, I receive royalties from my FWK books. I obviously do not get a royalty when students read my books free online, but I do get a royalty when they access the books via a variety of low-cost alternatives (about \$40 for a print black-and-white copy and about \$35 for a PDF and eBook version). Students enjoy this flexibility, and the majority purchase a print copy or electronic version. I'm pleased with the royalties I've received so far, but I am also pleased to know that I'm saving students a lot of money if they choose to read it online. As a professor for more than thirty years at a state university serving many first-generation students, I am very aware of the financial problems many college students face; for these students, open textbooks are a godsend.

At the time of this writing, FWK published or was about to publish textbooks in elementary

algebra, intermediate algebra, and statistics (<http://bit.ly/FWK-Math>). Consistent with FWK's open model, students may read these books free online or purchase them in other alternatives for \$25 to \$40, depending on the format. If 100 students in a large college algebra course each bought a new copy of their \$170 traditional textbook (and many will not), they would pay \$17,000 altogether. With an FWK open algebra book, these same 100 students could potentially pay nothing, or at most \$4,000. The savings to students are certainly considerable, and they are more likely overall to read the book because they are more likely to be able to afford it.

Students can afford FWK books, but how can FWK afford to produce them? In answering this question, I should stress first of all that FWK does not ask its authors to take on typesetting, copyediting, or any other tasks that traditional textbook authors do not perform. Rather, FWK has reduced its costs by harnessing technology to achieve specific efficiencies in production, marketing, and other areas. As this screen shot from FWK's elementary algebra book shows, its books are indistinguishable from those of traditional companies. They are professional textbooks in every respect, and they are free or inexpensive.

The success of FWK's approach is seen in the fact that three of its books, including my introductory text, have won the "Texty" Textbook Excellence Award from the Text and Academic Authors Association. The company's book list, adoptions (from individual instructors and also from institutional licensing arrangements at several colleges and universities), and revenues are growing rapidly.

When I first heard about FWK's open model a few years ago, I still remember saying to myself, "That just makes so much sense!" Now that I am an open textbook author twice over, I continue to hold that opinion, only more so. Open textbooks are the wave of the future because they make so much sense for students and instructors alike. As these books continue to transform the textbook market, what is now a small movement may indeed become a revolution. I have high hopes that one day we will regard the \$200 textbook as we now regard the slide rule: a quaint relic of a bygone era.

References

- [1] OFFICE OF OPERATIONS REVIEW AND AUDIT, *Textbook Costs in Higher Education*, University of Wisconsin System, Madison, WI, 2007.
- [2] CHOW, CHRISTINE, Going digital: Flat world knowledge and the emergence of the online college curriculum, *Access to Knowledge* 4(1), 2012, 1-7.