Letter

Textbook inflation: thirty-five years of Brown's general chemistry textbook

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Abstract: Today's general chemistry textbooks have grown to considerable size and cost, with a dazzling array of photos, illustrations, tables, insets and worked problems that compete for attention with the actual text. This letter examines the evolution of one particular textbook – Brown, LeMay, Bursten, and Burdge's '*Chemistry: the central science*' – and raises some questions about the current state of the general chemistry textbook. [*Chem. Educ. Res. Pract.*, 2006, **7** (1), 46-48]

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When I started as an undergraduate at Cumberland College, I used Brown and LeMay's *Chemistry: the central science*, 3rd edition. I thought the book had a good balance of written material and illustrations, was of a manageable size at well under 2 kg, and was reasonably priced at around $50 dollars (if memory serves). The most recent edition of this book has swelled to over 1152 pages, weighs around 2.5 kg, and costs around $140. This 'elephantiasis' of the general chemistry textbook (Cohen, 1986) has also occurred with the organic chemistry textbook (Kerber, 1988). Previous articles have examined the evolution of textbooks from 1789 to 1939 (Kaufmann, 2002) and during the 20th Century (Bailar, 1993). Here, I want to look at the evolution of one particular textbook and raise some questions about these developments.

Table 1 presents some details about the various editions, chosen because they were the ones on my shelves. Note that the first book listed is not part of the series. It is included for two reasons: it was published the year I was born, and it serves as a good reference point for the edition that I used and its successors. Notice that the 1968 text has only 688 pages, weighs just over a kg, and each chapter is of the order of 20 pages (all the books listed have about 25 chapters). I focused specifically on the 'Electronic structure of atoms' and 'Chemical kinetics' chapters because these had the same title throughout all the editions.

As the years progress, a new edition appears every three years. Do we really need a new edition so often when we have only just become accustomed to the last one? The number of pages per figure shrinks from about 2.5 pages/figure in the 1968 edition to as low as 1.4 pages/figure in the 2003 edition. One chapter has increased to 50 pages with 29 figures (Chapter 14, 2000 edition). Given the fact that the number of class hours devoted to a general chemistry course, and particularly to a given chapter, is probably about the same as 20 years ago, is all this material really necessary?

Table 1. Features from Brown's general chemistry textbooks.

Title, Author(s)	*Edition, year*	*Total pages*	*Dimensions (cm.), weight (kg)*[a]	*Illustrations, photos, ancillaries*	*Electronic structure of atoms*	*Chemical kinetics*
General Chemistry[b] Theodore L. Brown	2nd 1968	688	24×18×3 1.1	gray, brown, no photos	Ch. 6 6 figs. 15 pages	Ch. 13 9 figs. 24 pages
Chemistry: The Central Science Theodore L. Brown H. Eugene LeMay Jr.	3rd 1985	942	26×20×5 1.8	gray, blue, b/w & a few color photos	Ch. 5 19 figs. 25 pages	Ch. 13 15 figs. 34 pages
Chemistry: The Central Science Theodore L. Brown H. Eugene LeMay Jr. Bruce E. Bursten	5th 1991	1118	26×21×5 1.8	multicolor illustrations, all color photos, software, video	Ch. 6 32 figs. 44 pages	Ch. 14 21 figs. 41 pages
Chemistry: The Central Science Theodore L. Brown H. Eugene LeMay Jr. Bruce E. Bursten	6th 1994	1112	26×21×4 1.8	multicolor illustrations, all color photos, laserdisc	Ch. 6 28 figs. 41 pages	Ch. 14 22 figs. 46 pages
Chemistry: The Central Science Theodore L. Brown H. Eugene LeMay Jr. Bruce E. Bursten	7th 1997	1086	26×21×4 1.8	multicolor illustrations, all color photos, online center, CD-ROM	Ch. 6 29 figs. 40 pages	Ch. 14 27 figs. 48 pages
Chemistry: The Central Science Theodore L. Brown H. Eugene LeMay Jr. Bruce E. Bursten	8th 2000	1120	26×21×4 1.8	multicolor illustrations, all color photos, course management	Ch. 6 29 figs. 40 pages	Ch. 14 29 figs. 50 pages
Chemistry: The Central Science Theodore L. Brown, H. Eugene LeMay Jr. Bruce E. Bursten Julia R. Burdge	9th 2003	1152	27×22×4 2.5	multicolor illustrations, all color photos, 22 ancillaries	Ch. 6 28 figs. 38 pages	Ch. 14 28 figs. 50 pages

[a] These values are approximate.
[b] This book is from a different series than the other editions.

The 1968 edition has no photos, and the 1985 edition still has two-tone illustrations. Earlier editions have simple illustrations and a few black and white or color photos interspersed in the text. In the later editions, more illustrations, photos, and examples are crammed into the chapter so that some pages have more 'extra' material than text. Sometimes in a given two pages, one sees a sample problem worked, a table or illustration, a couple of photos, or perhaps a special topics inset. Do we really need all this detail? I find that this makes it very difficult to follow

the thoughts presented in the actual text. Is this trend a response to the supposed preferences of the current generation of college students: their shorter attention span, their marked preference for image over text, their preference for screen over book?

I have also listed when different supporting materials became available. Software and videos became available with the fifth edition (1991), online and CD-ROM resources appeared with the seventh edition (1997), and course management software is offered in the eighth edition (2000). The ninth edition (2003) boasts the availability of 22 different ancillaries. Who has time to utilize all of these extra materials? Is the general chemistry textbook market driven by actual need or by profit?

If you have not done so already, I encourage you to ask some of these questions of your chemistry textbook publishers. Perhaps if we question what is really driving this process, we can curtail the current trend of bigger, more expensive general chemistry texts with more bells and whistles that may begin to appear every two years or dare I say it, every year!

References

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