

Synthesis Digital Library of Engineering and Computer Science

Morgan & Claypool's Synthesis is an innovative approach to how we use and understand book publishing. Synthesis consists of various 50-140 page PDF's that cover a variety of different subject areas and can be used to supplement existing materials or to replace classroom materials altogether. The publications are all electronic, and they are potentially an innovative, economical way for professors and practitioners to stay abreast of recent research developments and to assign quality course materials that save students money.

To understand how Synthesis works, it helps to outline the business model for typical books and textbooks, and how that model restricts library involvement in textbook and book distribution. Traditionally, books and textbooks have operated on a model where everyone who wants to read them should pay for them. When a professor assigns a textbook for a class, for example, each member of the class has to pay for the textbook. Libraries obviously offer a way for individuals to access material without purchasing it, but libraries cannot help bring down the costs of classroom assigned textbooks or books. The reason is obvious: libraries simply cannot carry enough print copies of a book for everyone in a class to check it out. They cannot afford to purchase fifty copies of a book. The most enterprising student may check an assigned book out of the library, but all the other students would have to pay for the book.

As the Internet became a part of our lives and analog and print media began to move to digital form, consumer rights advocates hoped that textbooks and books would become cheaper and more dynamic. Publishing has been one of the areas most affected by the digital age because basically all published material can be digitized; however, textbooks' and books' move from print to digital were not as promising as advocates had hoped. Traditional publishers began developing

and releasing electronic textbooks that they licensed to students. These electronic textbooks were available online, but despite the absence of printing costs and distribution costs, the prices of e-textbooks did not drastically decrease. Some sources argue that electronic textbooks actually cost students more than print textbooks. Publishers licensed e-textbooks to students individually, so each student had to pay for a copy of the textbook, and the prices were not much lower than they were for the print version. Students were then unable to sell or purchase used copies of the books, increasing students' overall costs. E-textbooks were also often accompanied by limited licenses, restricting how the books could be used and for how long they could be used. For example, some e-textbooks possess licenses restricting students' use of the textbook to a predetermined time period. After the license runs out, often coinciding with the end of a semester, students can no longer access the book.

Libraries faced a similar situation with electronic books and electronic textbooks. With print material, the number of copies a library can lend to users is obviously restricted. If a library has two copies of *A Brief History of Time*, it can lend out two copies of *A Brief History of Time*. Once it does that, it has no more copies. Pretty simple. With digital material, the old truism of scarcity no longer applies. If a library has a digital copy of a book and it lends it out to a patron, it still has a copy of the book. The same would be true if the library lent out fifty copies of the digital book. This obviously presents problems for publishers, who cannot afford to spend the money on developing books and textbooks and then sell one copy to a library and watch the library distribute copies to everyone. To deal with the lack of scarcity associated with digital books, publishers placed restrictions on electronic books that are similar to the restrictions placed on students' electronic textbooks. For example, a library might purchase a set of electronic books under a license that only lets it lend out 5 copies at a time. These licenses make sense for the

publisher and the library, but they severely restrict electronic books' impact on rising textbook costs for students. If only five students can use the material at the same time, they run into the same problem they did with print books.

The ability to restrict how students use and distribute e-textbooks has given publishers more control over the textbook market by allowing publishers to restrict the used book market. With a print textbook, the publisher makes money off the original copy sold. The student can then sell that copy back to a book store or to another user. This helps the student recoup some of the original cost of the textbook. With E-textbooks, publishers can effectively limit the used textbook market. Students cannot sell an e-textbook back to a bookstore or to another user, so each copy of the textbook that is purchased has to be purchased directly from the publisher; consequently, there is no used textbook market for e-textbooks. Because students cannot recoup any of the original price they pay for the textbook, the slightly lower costs of electronic textbooks often do not lead to any real savings for the student.

The Synthesis Series Explained

Synthesis embraces the digital form of e-books but does it in a way that helps students and libraries deal with high book costs. So how does Synthesis work? Think of it as a hybrid form somewhere between the journal article and the textbook. Just like with journal subscriptions, libraries purchase a subscription to Synthesis. Once they purchase the subscription, anyone affiliated with the institution can access Synthesis publications and use them freely. A professor can assign one of the publications as a text for a class, and her students can all access a PDF of the text for free. Journals work the same way. If a professor assigns an article from *The Journal of Clinical Neuroscience*, all her students can access the article for free as long as their institution has a subscription to that journal. Also, just like with journal articles, once the student has

downloaded a PDF, the student is free to use the PDF in any way that does not violate copyright law. There are no licenses that expire, there are no digital rights management restrictions that prevent students from using the publications on different computers, and there are no restrictions about the number of students or professors who can access the publication. Synthesis is an innovative approach to publishing in the digital age, and the business model goes a long way toward rectifying some of the restrictions that have marred earlier electronic books.

Synthesis differs from regular textbooks in more than just its business model. Synthesis publications are not typical textbooks, nor are they typical journal articles. Rather, they embrace a form of hybridity that may be useful to professors teaching courses at all levels of the university, but especially for professors teaching higher-level courses. Synthesis publications are longer than journal articles, but shorter than typical books. As the Synthesis website states, "The basic component of the library is a 50- to 100-page electronic book that synthesizes an important research or development topic, authored by a prominent contributor to the field." The goal of Synthesis is to provide both concise summaries of broad topics, appropriate for lower level courses, and introductions to very specialized topics. Because the publications are shorter than typical textbooks, professors have more latitude when developing their courses. They can draw from multiple concise Synthesis offerings instead of being constrained by the contents of one overarching textbook. Also, because the texts are free to the student, professors are free to assign small parts of different texts, drawing from the Synthesis library in ways that match well with the current push towards more interdisciplinary education.

Synthesis is divided into different series, and each series features publications pertaining to different subject areas. Each series is headed by a different editor who works with authors to develop publications (Synthesis calls them lectures) appropriate to different topics within a field.

The series range from broad subject areas like Communications or Engineering to more specific subject areas like RF/Microwaves and Antennas. The number of publications in each series varies; some have more than ten publications and others have only one or two publications. Most of the publications in each series are introductions to very specific academic areas. They work similarly to a review article in a journal, but they focus more on concepts and applications than on citing and addressing all the relevant work in a field. For example, the Mobile & Pervasive computing series features 4 lectures introducing readers to specific areas of pervasive computing. The subject area is obviously specialized, but the material is handled in an introductory way that is fairly easy to understand. These publications can be used by professors in their classes, or by academics or practitioners who are interested in keeping abreast of the developments in their field but do not have the money or time to read detailed textbooks explaining the intricacies of specialized subject areas.

Each Synthesis lecture is available in PDF form. Students log into the NC State network and can access all the Synthesis publications. They can save the PDFs to their computers, and the PDFs do not have strict rights restrictions, so students can highlight and annotate the text. Synthesis lectures also have both internal and external links. The external links point readers to outside reading material and the internal links take readers to specific parts of the document. The links make Synthesis publications more dynamic than some other electronic publications, and certain lectures take innovative approaches to learning, such as linking to videos of demonstrations. If the reader does not feel comfortable with the electronic copy of the lecture, she can order a print copy from Amazon for \$40. There are also print-on-demand options individuals can explore if they are interested in a cheaper print version of a Synthesis lecture.

Conclusion

Synthesis is an interesting new approach to electronic publishing. Rather than licensing books individually, Synthesis licenses an entire set of lectures to a library, and all members of that institution can then access the material. The lectures are a hybrid mix of the typical journal article and a full-length book. They are typically around 100 pages, and offer introductions to specialized academic topics, mostly focusing on technical and scientific areas. Because of the specialized nature of many of the publications, Synthesis will not have material for everyone. For many professors teaching upper level classes, however, Synthesis offers professors an opportunity to introduce students to topic areas without costing them a lot of money or taking up too much of their time. Synthesis may also prove valuable to practitioners and students and researchers interested in keeping up to date with the developments in their fields. At the North Carolina State Libraries, we are always interested in innovative approaches people take to publishing important material, and the Synthesis model is an approach that understands that publishing is changing in the digital age. If you have any further questions about Synthesis or about how you might use the lectures in your research or your classes, please contact your [subject specialist](http://www.lib.ncsu.edu/staff/subjectspecialists/) (<http://www.lib.ncsu.edu/staff/subjectspecialists/>).