The Interactive Authorship

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The established paradigm for authoring university textbooks is to develop a manuscript, obtain a contract with a publishing company, edit the proofs of the text, wait for the yearly royalty check, and complain that one receives less than minimum wage for the time that was spent writing a textbook. Large publishing companies generally receive over 80% of the gross profits from a textbook while contributing only 10% to 20% of the overall effort and providing about one-third of the initial overall investment (considering the value of the author's time for developing the manuscript). In addition, publishing companies sell textbooks generally with little interaction with the professors that use them. With the advent of powerful and easy-to-use publishing software and the relatively low cost associate with printing a book, self-publishing textbooks have become a viable option that eliminates the middleman -- namely, the publishing company -- between the author and the college bookstore. Self-publishing a textbook allows authors to realize all the profit from their books, control the quality of the production of the textbook, and determine and implement the marketing strategy for the text.   In addition, a real opportunity for self-publishing authors is to provide personal interaction, supplementary materials and services to the professors who have adopted their textbook that can improve the performance of the textbook in the classroom.

Software companies have done an excellent job of providing service to their customers by being sensitive to their needs. They recognize that their business is largely dependent on meeting the needs of their customers and that their customers are the best source of ideas for developing new software products. They actively solicit input form their customers on the effectiveness of their products based on the customers experience with the software. The good software companies get in the "trenches" with the customers to more fully understand the needs of the customers and use this experience to develop improved products. They understand that they are in a service business, i.e., serving the needs of their customers.

I believe that the university textbook business should be a service industry as well even though the publishing companies have not treated it that way.   The approaches presented here are means of providing service to the professors that use the textbook, are a means of develop material for future editions of your text, and are effective ways to retain your customers. This approach is referred to here as an interactive authorship since it is based on different ways of interacting with the customers, the professors that are using the textbooks in their classes.

The interactive authorship can include, but is not limited to (a) sharing course materials; (b) sending out questionnaires to professors and students that are using the textbook; (c) using follow-up calls or email exchanges to the professor; (d) acting as a clearinghouse for sharing exams and projects among the adopting professors; and (e) disseminating new material as soon as it is ready for distribution.

Sharing Course Materials

Supplementary material, such as simulation software, the solution manual, electronic lecture slides, and lecture notes, is material that you might develop for your course to facilitate the class. As a self-publishing author, you can share this material with the professors that have adopted your textbook and professors that are considering adopting it with very little additional effort. Sharing this material will make it easier for professors to switch to your textbook and make it easier to keep the adoptions that you have. In each case, the supplemental material is most efficiently distributed by email since you should develop the necessary distribution lists from your marketing effort.

Simulation software. For textbooks in science and engineering, simulation software can provide an effective compliment to a textbook. Simulations can provide a "hands-on" experience for students that can greatly increase the student's understanding and working knowledge of the subject.

There are a variety of formats that simulation software can be provided for. For example, computer programs can be developed in standard programming languages, such as Basic, FORTRAN, C, C++, Pascal, etc. The standard versions of these programming languages do not have convenient graphical interfaces for them; therefore, students would have to develop their numerical results and transfer them to a graphical program to view the results. This is a less than satisfactory offering in the era of point-and-click.

Visual versions of most programming languages, such as Visual Basic and Visual FORTRAN, are available and allow the student to more conveniently display the results as they are calculated by the program. Using these programs, you can generate very attractive color displays with a menu driven format requiring no programming skills from the student.

There are also software packages, such as MatLab, that offer numerical solution functions and graphical display capability. These packages are really high level programming languages, but they are usually much more user-friendly than standard programming languages, such as FORTRAN.

Chemical engineering faculty have also created a variety of application-specific software; examples include Control Station by Doug Cooper and Polymath by Mordechai Schacem and Mike Cutlip, the latter being marketed by the CACHE Corporation.

You may also want to develop a windows version of your simulator in which the user clicks the appropriate boxes on a file page and based on their requests new choices and input data requests show up on the screen. After the simulator has been provided all the necessary input data by the student, the graphical result are displayed. You can develop some attractive and functional software that provides new experiences and insights for the students using the aforementioned software, but it will take a significant amount of time to learn how to use this developmental software to produce the kind of simulation software that you want. Disciplines other than engineering and science can develop software programs that assist the student to learn the material. These learning modules are, in effect, the same as simulators.

Solution manuals. If you have homework problems, questions, discussion questions, or projects in your textbook, you should develop a solution manual. If a textbook does not come with a solution manual, the adopting professor will have to put a lot of extra work either into grading his homework or into developing a solution manual for the teaching assistants to grade the homework. As a result, some professors insist on having a solution manual for a textbook before they will adopt it for their class.

The solution manual can either be a paperback book or it can be in an electronic form. The solution manual can be developed using your publication software and printed to paper to develop the master copy for the paperback version or it can be converted to an Adobe Acrobat PDF file for the electronic version. The paperback version can be produced using your local copy shop since you will not need a large number of copies. You should only need 20 to 30 hardcopies of the solution manual to start with. Most professors will be happy with an electronic version. The electronic version can be conveniently sent out by email, thus avoiding the copying and the mailing costs, so that it arrives faster.

The electronic version of the solution manual can be used to provide the solutions to the homework and unassigned problems to the students after their homework has been submitted. This can be done by posting a read-only PDF file on the web page for the course on a chapter-by-chapter basis. Adobe Acrobat 4.0 provides security protocols for generating PDF's that will prevent all but the most creative and industrious students from copying them.

Electronic lecture slides. Electronic lecture slides have become a popular method for classroom presentations. They can be shown to a class by using a laptop computer, which has files containing the electronic slides stored on them, that is connected to a special projector. Attractive lecture slides with a wide variety of artwork can be easily developed using user-friendly software. Moreover, since you will have access to the original artwork for your textbook, you can use this resource to develop quality slides that have the same graphics that are used in the textbook. For example, I developed a set of 400 lecture slides in about 80 hours of effort that covered a semester's worth of material for my undergraduate control class.

I like to use slides for my lectures because it provides a convenient framework to lecture from. That is, it provides an outline to follow and I do not have to spend a large portion of the class time drawing schematics and plots. In addition, the slides can be provided to the students. For example, the slides can be copied 6 to a page on the front and back of the page and supplied to the student, or the students can be given access to the electronic version of the slides and they can make their own copies. In either case, if they come to the lectures with the slides, they do not have to try to reproduce all the presentation material, including the artwork, and they can concentrate on developing an overview understanding of the material. That said, it should be pointed out that some studies have shown that hand written board presentations are more effective than slide presentations. This is probably true for presentations involving derivations since for board presentations the student would have to copy the derivation by hand. If you subscribe to the argument that students learn more by writing the lecture material, then do not make the slides available to them.

Electronic slides can be developed using several commercial presentation packages including Microsoft Power Point and Corel Presentation. Each of these comes with a number of slide formats, patterns, and colors. In addition, they are available with several options, including slides that are built piece-by-piece as you go through the slides and interesting transitions between slides. When you need to make additions or corrections, it is an easy matter to do so; therefore, electronic lecture slides are a work-in-progress and tend to evolve as you use them.

Lecture notes. Lecture notes contain the material for classroom board presentations that include organized text materials and graphical material. Providing professors with this material would greatly reduce the amount of work that they would have to do in order to develop their lecture notes. Even though most professors would not use the unaltered version of these lecture notes for their lectures, they could use them as a starting point for developing their own set of notes. In this manner, they can be sure that they have considered all the relevant topics and they can still insert additional material as they see fit and reorganize where necessary.

The lecture notes can be developed using publication software using the artwork from the book as needed. Therefore, the lecture notes can be converted to PDF files and distributed by email to the adopting professors and the professors that are considering the textbook for possible adoption.

Questionnaires

Questionnaires are a convenient means of obtaining feedback from professors and students as to their experiences with using your textbook in their class. Designing a questionnaire is not as simple as it might seem. One must be careful to phrase the questions so that the most useful information is obtained. In general, it is probably best if you ask both specific and general questions so that you get feedback to specific issues and you allow the responders to say what is on their mind. For example, a general question might be to ask what the reader likes or dislikes about the textbook.

Email is an efficient means of distributing the questionnaires. Once you learn that a department has adopted your book for their class, you should add the email address of the professors that teach the class in the adopting department to a distribution list. A separate distribution list should be developed for each semester/quarter so that the questionnaire is only sent to professors that are currently using your textbook for their class. A questionnaire for the professors and a separate questionnaire for the students can be developed using a standard word processor, such as Microsoft Word. Then send an email message to the proper distribution list with separate questionnaires for the professor and the students attached. The message in the email to the professor should request that they complete the professor's questionnaire and have their students complete the student's questionnaire and that they please return the questionnaires to you. In addition, you should also mention in the message how the results of the questionnaire will be used and why it is important to you to have that information. In this manner, you can send out one email and generate a survey from all the professors and students that are currently using your textbook. The professors that receive your questionnaire can forward the responses to you by email or they can make hardcopies of the questionnaires and return

the questionnaires by "snail-mail". Do not expect 100% participation, professors are very busy professionals. In fact, my limited experience with email distribution of questionnaires is that I received only a 15-20% response rate, i.e., only one out of five or six professors contacted will actually respond. Nevertheless, this sample can usually give you a clear idea of the strengths and weaknesses of your textbook and identify areas where you text can be improved. Clearly, when you receive the same criticisms from independent sources, it must be taken seriously. In addition, some professors may provide explicit feedback including the types of material that should be included and even specific descriptions of examples or problems.

Follow-up Calls to Professors

Many of the professors will not find the time to complete their questionnaire, distribute the questionnaires to the students, and return the results to you; therefore, it is advisable to contact the professors who do not respond by phone to solicit their feedback. The best time to contact them is after their semester/quarter is complete. Some of the professors that you contact may be reluctant to criticize a textbook to the author so you may have to probe them a bit to get an honest opinion. It is probably helpful to mention that it is important for you to learn what the professors using your text disliked about it if you are going to be able to improve it in the future. These discussions can be built on a sense of cooperation between the professor and the author if the communications are open and honest. Clearly, an author should guard against being defensive about criticism of his book if he expects to receive useful information. Remember that what you are hearing is just one person's opinion and do not try to change it. Instead make sure that you understand clearly what faculty adopters are saying. This can be difficult since most authors are emotionally attached to their books, but you must remain detached from the criticism if you are going to be able to factor out the important information in a critical or even heavy-handed assessment of your book. All feedback should be considered, but remember that when you start hearing the same feedback from independent sources, it is time to take it more seriously.

Clearinghouse for Shared Exams, etc.

Most professors put a lot of thought and effort into developing their exams. They have to decide what is important enough to test and how to test it. As a result, it can be difficult to create new exams each year that are stimulating and test the knowledge and creativity of the students. Since self-publishers following the approach presented here maintain email contact with the professors using their textbook, the self-publishers can serve as a clearinghouse for an exchange of exams between the adopting professors. In this manner, each participating professor can **anonymously** share an exam with the group and in turn receive copies of all the exams collected, which can be quite a resource of questions, problems, and ideas. While this resource should benefit the professors who participate, the collection of shared-exams is a great resource for problem types and approaches for the authors for future editions of their textbook.

The approach that I used was to send an email to all the professors using our textbook explaining the request and the value of such a resource and indicating that only those professors that send at least one exam would receive the collection of exams.

Therefore, all the professors had to do was reply to my email and attach one or more exams to the reply which should only take a couple of minutes if they have an electronic version of one of their exams. I had over half of the professors that use our control textbook respond affirmatively to this request and I received over thirty exams. Some of them were hard copies so I had them scanned into separate PDF files so that the whole collection was available electronically. At the same time I built a distribution list for those who chose to participate in the exam clearinghouse. In a couple of weeks after I had received all the exams, I sent an email using the exam clearinghouse distribution list to all the participants with the copies of the exams attached. During the follow-up calls, I reiterated the offer to participate in sharing exams and since it was after the semester was over, a number of them decided to participate thereby further increasing the size of the exam collection.

This approach is not limited to the exchange of exams. The self-publisher can promote the exchange of all types of materials and approaches used in conjunction with teaching the class. For example, the self-publisher using the same clearinghouse approach can promote an exchange of course syllabi, laboratory approaches and experiments, class projects, and homework problems. In addition, the self-publisher can establish and administer a forum on the internet for students to exchange their studying approaches, experiences, and anything associated with the course with students from other universities using the same textbook. The forum could be an opportunity for the authors to develop new insights into the attitudes and approaches of the students to their textbook and university study in general.

Dissemination of New Material

Since self-publishers are exposed to a wide range of ideas from the feedback on their textbooks from questionnaires and follow-up calls as well as from the collection of shared-exams, it is likely that they will develop new materials based on these ideas for their own classes. These materials should compliment the textbook while expanding and improving the materials used by the class. These materials may also be the basis for modifying the textbook for a new edition. As these materials are developed, it is convenient to distribute them by email to the professors using the textbook. This will serve to improve the materials of the professors using the textbook and may solicit feedback on the materials by those who use them.

Clearly, since the interactive authorship generates new ideas from an exchange of materials and from quality assessments of your textbook from your customers both of which can be used to develop new materials that can be quickly distributed, it is an effective means of improving the quality of your textbook while enhancing your ability of retaining adoptions.

Self-Publishing Economics and Logistics

The table below lists the net income for self-publishing and for using a large publishing company to publish a 500-page black and white engineering. In addition, all the factors necessary for calculating the net profit are listed: retail price, wholesale price, initial printing costs, initial marketing costs, net profit, and assumed market sizes. This table is based on printing 1000 copies of the text in the first printing of the book. The

larger the print run, the lower the printing cost per book, but the larger the initial capital investment, e.g., 2000 copies would cost about $5 per copy. An initial print run of 1000 copies is a reasonable initial print run based on compromise between these factors.

This table is also based on using a 20% discount rate for calculating the wholesale price. The materials of construction and the construction procedures were appropriate for the different textbook markets. You can easily see that increasing the cost of the printing of a textbook by 10% to 20% has a relatively small impact on the net profit of a self-publisher. Certain students sell their textbooks back to the bookstore at the end of the semester. The percentage of the books that are sold back to the books store has a significant effect on the profitability of a textbook and it will depend on the how the student perceives the utility of the textbooks for future use.

While there are number of assumptions in this table, with the market size and percentage of the market captured being the most important and the most uncertain, these results should be representative of a large number of textbook markets. In any event, note that the ratio of self-publisher income to royalty income ranges from about 5 to almost 7. In other words, if you choose to self-publish and you only do as good as a publishing company in terms of sales, you can expect to make 5 to 7 times as much as you would have if you had used a publishing company. The incremental effort required to perform the publishing activities is usually only 10% to 20% of the effort required to write the textbook. Market size, sale price, the percentage of returns, and production costs can vary widely depending on the particular textbook market, but you can easily used this table as a template to estimate the potential profitability of your own textbook project.

Based on these examples, consider how many books would have to be sold to recover the initial capital investment, i.e., the cost of printing 1000 copies and the initial marketing cost. For the engineering text, the number of sales required to recover the initial investment is 111. Therefore, it should not very difficult to at least recoup the initial capital investment.

EngineeringTextbook

Type of Binding	Hardbound
Number of Pages	500
Retail Sales Price	$90
Wholesale Price	$72
Printing Costs per Book	$7
Marketing costs per Book	$1
Profit per book	$66
Percent Returns	20%
Total Market Size (Books per year)	4000

Annual Profit for Self-Publishing

10% of the market	$23,000
20% of the market	$46,000
30% of the Market	$69,000

Annual Profit for 12% Royalty

10% of the market	$3500
20% of the market	$7,000
30% of the Market	$10,000

Conclusions

Self-publishing textbooks facilitates a service orientation for textbook publishing that should provide materials that assist students in learning and professors in teaching while providing the authors with new and diversified ideas for improving their textbooks. Due the efficiency associated with e-mail, Internet access, and powerful new software, the interactive professorship approach is a highly effective activity when you consider the results obtained for the time invested.

A more complete description and analysis of self-publishing university textbooks can be found in the following book:

<div align="center">

A Guide to Self-Publishing University Textbooks
(www.ferretpublishing.com)
By
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Abstract

The established approach to authoring a textbook today is based on contracting with a large textbook publishing company. That is the author develops the manuscript and sometimes the artwork and relies on the publishing company to produce, market, and deliver the books to customers. Publishing companies receive over 80% of the gross profits from these arrangements leaving the rest for the author. On the other hand, the author tend to provide 80% to 90% of the overall effort and easily exceed the investment by the publisher if you count the value of the author's time spent developing the manuscript.

With the advent of desktop publishing, another alternative exists for the author of university textbooks, i.e., self-publishing. That is, due to the availability of personal computers and the development of powerful publication software, university professors can effectively and efficiently eliminate the use of a publisher by becoming their own publisher. Self-publishing a successful textbook can increase the income from the book for the author by a factor of 5 to 7 compared with the traditional royalty from a publisher. The additional effort required for self-publishing amounts to 10% to 25% of the effort required to write the textbook depending on how involved in the publishing business portion that the author decides to be.

Self-publishing a textbook involves developing the manuscript and artwork, typesetting the book, working with a printer to manufacture the books, and marketing and fulfillment to the customers. A clearly written and well-organized manuscript that is relatively error-free, is easy to use, and provides the proper coverage of the material is a prerequisite for a successful textbook. It is probably more efficient to develop your

manuscript directly on the publication software that you have chosen for typesetting. In addition, the artwork for the textbook can be developed using software designed to develop schematics, line drawings, and digital versions of photographs and the artwork can be imported into the typeset pages of the textbook. While finishing the manuscript, you should choose the materials of construction and select the printer who will manufacture your inventory of books. When the manuscript is complete and typeset, an electronic version of the book should be sent to the printer.

Aside from the quality of the manuscript, marketing is the most important factor affecting the success of a self-published textbook. At about the same time as your manuscript is sent to the printer, you should begin your marketing effort by designing a brochure and having it printed so that you can begin sending the brochure to the proper university departments a few weeks before you expect your books to return from the printer. Marketing can be viewed as two primary activities: (1) getting exam copies into the hands of the professors that make adoption decisions and (2) making sure that these professors understand the key attributes of your textbook. The primary methods for accomplishing these tasks are mailing promotional brochures and telemarketing to the target professors. Other techniques compliment the primary marketing approaches and include e-mail marketing, Internet advertising, journal book reviews, displaying the text at conferences, and direct visits.

The self-publisher can also conveniently interact with the professors and student using his book due to the capabilities of the Internet and e-mail. The interactive authorship involves (a) sharing course materials; (b) sending out questionnaires to professors and students who are using the textbook; (c) using follow-up calls and email correspondence to the professor; (d) acting as a clearinghouse for sharing exams and projects among the adopting professors; and (e) disseminating new material as soon as it is ready for distribution. It is an effective means of providing services to your customers (i.e., the professor and students that use your book) and thereby improve your retention rate while developing quality new materials for future editions of your book.

Similar to other businesses, establishing a self-publishing business involves a number of financial, legal, and day-to-day business activities. One of the most important financial activities is raising the capital required for the initial printing and marketing effort. There are a number of issues associated with operating a self-publishing business including setting the retail price of your textbook, determining the discount rates, setting the terms of sale, choosing a return policy, managing your inventory, recording your expenses for documentation of your tax deductions, planning for your business taxes, and fulfilling book orders and orders for exam copies. Electronic versions of textbooks (e-textbooks) may become popular in the future due to several attractive features, but they must overcome security issues and a general lack of experience with this form of textbooks.

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