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THE FUTURE OF LEARNING CONTENT

Digital Textbooks, Open Content, Apple and Beyond!

by Rob Reynolds, Ph.D.

The Future of Learning Content:
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Contents

Chapter One
The Changes, They Just Keep Coming

Education as we know it is going to experience an extraordinary transformation throughout the current decade. This transformation will require an innovative response from both the learning content business as well the educational system that feeds it.

In other words, the way we teach and the way we learn is going to change. The curriculum is going to change. How we access content and what learning content actually looks like will change.

Things are going to change for institutional administrators. They are going to change for teachers and instructors. There will be big changes for students. Publishers and bookstores will be forced to evolve in significant ways if they want to remain relevant.

The changes will provide tremendous opportunities for everyone. They will also prove challenging and extremely disruptive.

And the reality is that, love it or fear it, the future of education and learning content is already here and already happening. My intent in this book is to help you understand what that future means for you and how you can take advantage of it.

So you won't have to jump to the end of the book to find out exactly how education and, consequently, learning content will change, I'm going to start things off by giving you a peek at some of the likely outcomes.

As you read this and other lists in the book, please keep in mind the two

all-important rules to apply when contemplating future outcomes. These have to do with overcoming both our preoccupation with what "should" happen in the future, and with our common myopia related to what is happening at this very moment.

Rule Number One

As we engage in our overview and analysis of the future trajectories in education and learning content, separate yourself as much as possible from what you think should or shouldn't happen. The future evolves as a natural consequence of multiple competing and complementary forces, some of which have been in place and exerting influence for decades or centuries. These forces are impersonal in their evolutionary unfolding and do not operate according to any of our individual notions about what should or shouldn't happen.

Rule Number Two

It's important to remember that discussions of future probabilities generally deal with long-term evolution as opposed to the snapshot, static details of the present moment. The future is about the "big picture" and takes into account a wide range of data and contributing elements, most of which are absent in short-term evaluations.

A good example of this can be seen by examining the growth of the digital textbook market in higher education. A current snapshot would tell you that digital textbooks represent approximately 3% of the total textbook market.[1] *At face value, that number seems to imply that digital textbooks aren't very important. What that snapshot wouldn't tell you is that this market segment has been doubling in size for several years and will likely continue that rate of growth for the next 3 years. So, we could say that the digital textbook market isn't that important, at only 3%, or we could realize that it will represent between 25%-30% of the market by 2015, and begin to comprehend that the shift to digital will radically transform learning content.*

With that reminder, let me kick things off with these ten realities that are likely to take shape in the U.S. education market by the end of this decade. These are the most likely outcomes given current market/education/technology trajectories and considering the evolution of those trajectories over the past ten years.

10 Likely Realities for the U.S. Education Market by 2020

1. The cost of education in general will continue to rise while the cost of learning content will decrease dramatically, dropping to at least 50% of current retail pricing.

2. Learning content will become increasingly disaggregated (broken apart) and content subscription services will be as or more common than the current content purchase models.

3. Open content, free content, and low-cost content alternatives will reach 25% of the overall textbook/learning content market.

4. Depending on the market segment, 60%-80% of all learning content sold will be digital.

5. Everything — reading, instruction, and assessment materials — will be personalized and aggregated from multiple sources. The notion of the homogeneous collection of content (traditional textbooks) will fade significantly.

6. All new learning content will be designed around mobile access — smartphones, tablet devices, and ultra notebooks. More than 90% of students will possess a mobile device capable of accessing all of their learning content.

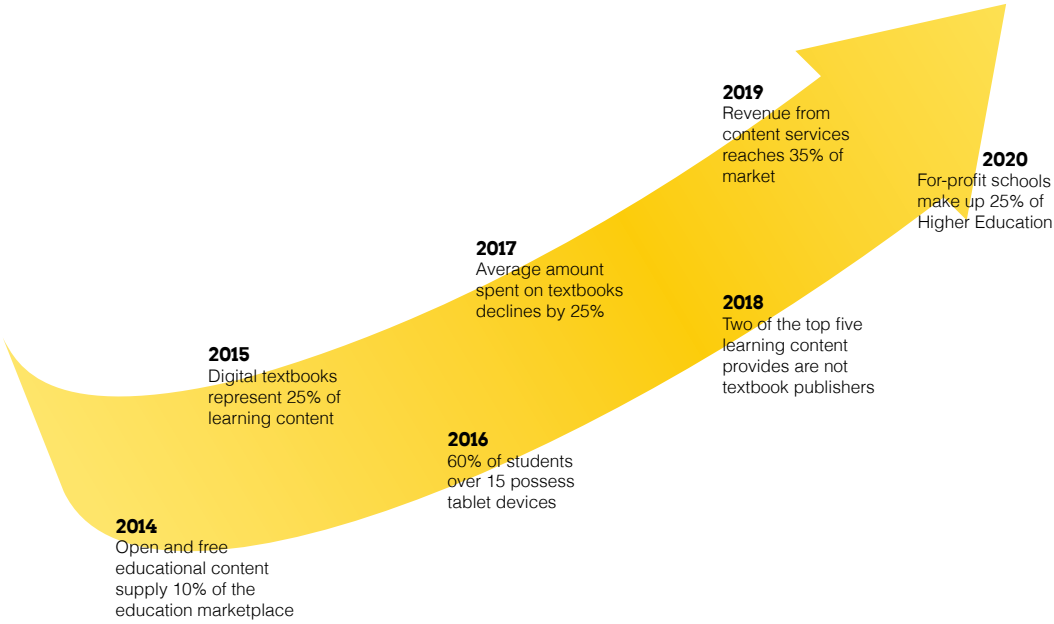
7. Interaction with content, applications, and information will occur primarily via touch and voice.

8. For-profit schools will reach 25% of the US higher education market.

9. Private, for-profit, and homeschooling will grow from approximately 10% of the K-12 education market to more than 20%.

10. Online learning will make up 50% of the courses taught in higher education.

Fig 1. The Digital Content Learning Curve



What Does That Mean for Textbooks and Learning Content?

Of course, as soon as someone like me tosses out a list like this, people either dismiss it outright (often because it does not align with how they believe things "should" play out), or they ask, "Well, what exactly does that mean for me?"

I'll spend a good portion of this book answering that last question for different participants in the education game — publishers, institutions, teachers, students, parents — but since my core focus here is on learning content, I'd like to append a shorter, narrower list that describes the specific impact of the coming changes on publishers and institutions.

In comic summary, the future of the publishing and learning content businesses are much like the line from an episode of Gilligan's Island, in which two of the female characters — Ginger and Mary Ann — switch identities. The confusion is eventually explained by Mrs. Howell like this: "Ginger isn't Ginger anymore, because Mary Ann isn't who she was, when Ginger wasn't who she is."[2]

Got that? Well, the confusion between Ginger, Mary Ann, and Mrs. Howell certainly isn't any more unsettling than the blurring of the lines taking place in publishers, institutions, and educational technology companies. Institutions are becoming publishers, publishers are branching out into formal education, and technology companies are attempting to do both. It certainly makes for a fascinating future and, more importantly, it's a future in which the ultimate winner is the consumer!

5 Likely Realities for Educational Publishing and Institutions

1. Learning content will become increasingly granular and disaggregated (broken apart into smaller chunks). This means that textbooks won't be textbooks anymore, but rather will transition into personalized collections of reading content, instruction, and assessment.

2. Learning content packages — driven by competitive growth in the open content, low-cost content, and self-publishing segments — will become significantly less expensive, and content subscription services will develop as an important source of revenue for publishers.

3. At least one of the five largest educational publishers in higher education will be an institution or organization that is not a traditional publisher.

4. Learning content providers — publishers and institutions — will generate increasing revenue from new services, and this new revenue layer will offset diminished revenues from open and lower priced materials.

5. Competency-based learning content will have a tremendous impact on the curriculum and on learning content providers. We will see increased emphasis on online professional certificates, and traditional publishing houses will be a major provider of these.

There Are No Deep Roots Here

But isn't this a pretty farfetched vision, you say? It seems like the good

old textbook and the system that surrounds it have been around a long time. How on earth can all of these things happen in the next eight or nine years?

There are two reasons, actually. First, these changes will happen because the seeds of change have already been growing in the education and textbook sectors for almost a quarter century. But the primary reason these changes can and will occur is because, contrary to popular belief and wishful thinking, there are no deep roots in the current system to prevent this kind of industry upheaval.

This lack of foundational roots, along with the tenuous and symbiotic relationship between the various participants in the learning content ecosystem, give this market a fragility that is analogous to that which exists within the Amazon rain forest.

In 1993, I took a group of university students on a tour of the different rain forests in Brazil, and this fragility was the lesson that surprised everyone most. After all, the Amazon rain forest boast tens of thousands of species of flora and fauna and features perhaps the greatest biodiversity of the planet. How could something so alive, so lush, and so rich be fragile?

The problem with rain forests such as the Amazon is that the soil is generally poor, with all the nutrients near the surface of a thin layer of topsoil. This means that the roots of the trees are shallow and there is little foundational anchoring for the entire system.

All the richness we generally associate with the rain forest is part of the canopy, which, at over 100 feet above the ground, is exposed to the sun and exists in a complex symbiotic relationship with the trees.

The lack of deep roots makes it relatively easy for farmers or industrial operations to clear land in the jungles. And without the trees, the remainder of the rain forest ecosystem also disappears.

In the same way, the education system and the learning content industries in America are much like the Amazon rain forest — they exist as part of a complex ecosystem that appears to be rich and stable, but that is actually quite fragile.

That's because there are no deep roots here. In fact, the American public education system and the modern textbook industry are such recent developments that radical transformation is far more likely than any kind of a sustained evolution along the current path.

Public Education in America Is Still Looking for its Identity

I'm always amazed when I hear people talk about public education in America as if it were some kind of inalienable right framed into the Constitution by our forefathers. In reality, public education as a practice at any level in America didn't begin until the 19th century, and our public and higher education systems as we know them today are less that 100 years old.

Here are some important dates and information to consider.

- What we know today as public education grew out of the Common School movement spearheaded by education reformers such as Horace Mann and Henry Barnard in the 19th century. The idea was to improve the socio-economic opportunities for all children and to provide a common language and societal understanding within an increasingly diverse population.[3]

- The Common School movement advocated free elementary education accessible to everyone and financed by public funds. This movement resulted in compulsory school attendance laws for elementary-age children. By 1918, such laws existed in all states, and all children were required to attend elementary school.

- The modern high school is entirely a phenomenon of the 20th century, and was born out the need for more skilled laborers in the work force. In 1910, less than 20% of 15-18 year olds in the U.S. were enrolled in high schools. That number ballooned to 73% by 1940, and reached a high point in 1971.[4]

- At the beginning of the 20th century fewer than 160,000 students were enrolled in higher education in the United States. While this number grew steadily for the first half of that decade, it was not until WWII and the advent of the GI Bill (1944) that higher

education as we know it today really began to take shape.[5]

- The half century after the G.I. Bill saw the expansion of community colleges; the development of the modern American research university and comprehensive state colleges; and the beginning of national, state, and institutional investments in financial aid for students in private as well as public institutions. The era was defined by increased college opportunities for men and women of all ages, incomes, and ethnicities. Enrollment surged from 1.5 million in 1940 to almost 2.7 million in 1950 to more than 17 million students today.

What began as solutions to ensure that the children of immigrants would have a common language and a shared sense of cultural identity, and to provide academic preparation for the elite urban professional class, has evolved over the past 100 years to become a cultural mainstay in America.

This rapid growth, however, is both recent and part of a rapidly shifting landscape that is tied closely to evolving socio-political and business realities in our country. In short, it would be a big mistake to think that our public or higher education systems are part of some long-standing and stable foundation.

The Modern Textbook is a Recent Phenomenon

If our education system is relatively immature, it's safe to say that the textbook and learning content industries are still in the earliest stages of infancy. The construct we know as a textbook may have been in existence in the United States since the 17th century, but modern textbooks as we know them today are part of an industry that is less than fifty years old!

Here is the basic timeline of that industry as it has developed in the United States:

- Rapid growth and evolution in both the public and higher education systems by the middle of the 20th century led to

significant curriculum changes. More specifically, educational curricula evolved to address the need for increased vocational learning in public education, and to provide foundational training for a growing diversity of professional fields in higher education.

- A dramatic increase in the number of students, along with the diversification of traditional curriculum, led to a heightened demand for collections of course reading materials. This demand led to the creation of the first modern textbooks for general education courses in the 60's and the rise of the education publishing industry.

- The textbook market and the retail supply chain supporting it — including institutions and bookstores — evolved swiftly in the 70's, which prompted the first market acquisitions and consolidations.

- The next decade saw the evolution of the used book market from a local and regional business level to one with coordinated national enterprises.

- In the 90's, we witnessed the proliferation of textbook "bundling" practices by publishers, who were producing an increasing number of ancillary materials — including CD-ROMs and other digital content options — with their most popular textbooks. Equally important in this decade was the development of the LMS (learning management system), which represents the true rise in the digital distribution of learning in the U.S.

- During the last decade, the number of major publishers in the U.S. (K-12 and higher education combined) was reduced to five. Digital course packs and e-textbooks emerged as representing important revenue streams and a downturn in the national economy in 2008 prompted the sudden explosion of the textbook rental market. In addition, edition lifecycles for textbooks shrunk as a defense mechanism against used books, and the first low-cost textbook

alternative companies emerged.

- Today, in spite of the consolidation among major publishers, there are more content players than ever in the learning content industry. With the average retail price of a textbook in higher education reaching north of $104, and with the overall market for learning content in U.S. public and higher education topping $12 billion annually, there is a growing wave of new entries in the space. This is particularly true in the realm of digital textbooks, which have reached a market share of 3% in 2011.[6]

All in all, it should be clear that we've ventured quite a ways from the *New England Primer* and the *McGuffy Readers* of the 17th-19th centuries. Indeed, while there may exist some affinity between those tomes and our modern textbooks — they were both bound collections of educational content after all — the modern textbook industry actually represents a new market in the United States, one that has evolved so rapidly it lacks any sense of insulated stability.

So, What's Next?

That's a great question! As we've seen, any discussion of learning content in the United States is going to deal with new and rapidly evolving markets that show few signs of foundational stability. Things will continue to change in both our education systems and the textbook industry precisely because there are no deep roots to keep either of them from changing.

So what can we expect? Well, when we talk about specific directions for change it's always best to look at the prevailing winds that will drive it. With that in mind, in the next chapter I'll identify the primary forces driving the direction of learning content in the United States, and I'll also examine the different probable market trajectories based on those forces.

Notes

1 Reynolds, R.. “Digital Textbooks Reaching the Tipping Point in U.S. Higher Education — A Revised Five-Year Projection.” The Xplanation. MBS Service Company, 19 Apr 2011. Web. 7 Jan 2012. <http://blog.xplana.com/reports/digital-textbooks-reach-the-tipping-point-in-the-u-s-higher-education-a-revised-5-year-projection/>. Revised projections are provided in Chapter 7 with additional references.
2 The quote is from Gilligan’s Island Season 3, Episode 24, “The Second Ginger Grant.”
3 Spring, Joel. The American School, From The Puritans To No Child Left Behind. McGraw-Hill Humanities/Social Sciences/Languages, 2007. 81-86
4 “Historical Summary of Public Elementary and Secondary School Statistics: Selected Years, 1869–70 through 2007–08.” National Center for Education Statistics (NCES) Home Page, a Part of the U.S. Department of Education. Institute of Education Sciences. Web. 07 Jan. 2012. <http://nces.ed.gov/programs/digest/d10/tables/dt10_035.asp>.
5 James B., Hunt Jr.. “Political Ideology Definitions.” AMERICAN HIGHER EDUCATION: How Does it Measure up for the 21st Century. N.p., 2011. Web. 7 Jan 2012. <http://www.highereducation.org/reports/hunt_tierney/hunt.shtml>.
6 The average price for a new retail textbooks is from Kelly Gallagher’s presentation, “Overview of College Textbook Market: Academic Year 2010,” from the Book Industry Study Group event, Making Information Pay for Higher Education, February 9, 2011. The estimated general size of the overall education market combines the roughly $8 billion Higher Education textbook market with the $4 billion plus K-12 market.

Chapter Two
A Textbook, What Is It Good For?

There is broad support for the notion that textbooks cost too much and yet few people really understand the intricacies of the textbook publishing industry, including its relationship to our educational systems, and why the products cost what they do.

Indeed, textbook publishing is one of the more misunderstood industries in the U.S. This is a natural consequence of being so similar to the rest of the publishing world and yet, at the same time, being so very different. It is also the result of contending with a closed, centralized industry that resulted in a de facto collaborative monopoly for the better part of fifty years.

Within the world of learning content, textbooks have long been the center of the universe. This is because they have evolved as such an integrated part of both pedagogy and curriculum throughout our educational system, and because textbook publishing has represented the lion's share of commercial potential with regards to content. This also means that the textbook publishing industry has more to lose than any other market player over the coming decade. At the same time, one can argue that textbook publishers are also in the best position to seize the opportunities that will arise from the coming changes.

The bottom line is this: if you want to know how the learning content world is going to shake out over the coming decade, first and foremost you need to gain a clear understanding of how the textbook business really works, what its strengths and weaknesses are in the present day education market, and how it impacts education both directly and indirectly.

A Textbook, What Is It Good For?

Textbooks as a product model have served and continue to serve an important role in the U.S. education system. This is particularly true in core subject areas and in the general education courses required for a higher education degree.

So we can operate with a common vocabulary, let's start with a general definition of textbooks. Textbooks are collections of study and reading material related to a specific discipline or course. There is more to a textbook than its content, however. In particular, textbooks in the U.S. have, from the beginning, combined their content with either an implied or explicit philosophy of teaching and learning. This embedded pedagogy – how to teach and how to learn the material – has informed classroom instruction in the U.S. and has evolved as an integral part of curriculum planning and delivery.

As I discussed in the previous chapter, textbooks in the U.S. have their deepest roots in frontier expansion and the need to provide essential and common literacy and arithmetic skills to children across the United States. The oft-cited examples of the early textbook movement are *New England Primer* (18th century) and the *McGuffey Readers* (19th century). Another work we should add to this list is the Noah Webster's three-volume work, *A Grammatical Institute of the English Language*.[1]

As a teacher, Webster had seen the effects of poor teacher training, overcrowded one-room schoolhouses, and the use of European textbooks that lacked important American contexts. As a result, he created a speller, a grammar, and a reader with the specific goal of delivering an American training to American students. The speller, which sold 60 million copies by the end of the nineteenth century, was designed specifically for easy instruction and the support of progression through grades.

With regards to easy instruction, Webster and others were trying to address the reality that most teachers in the new country had inadequate or no real training. In order to provide a common knowledge set that could essentially be passed on with or without the help of a qualified instructor, textbooks focused on the memorization of important facts, figures, and rules. These were often presented in a catechetical style — a teacher reads a question and a student recited the answer, both of which were found in the book — and Webster's grammar couched all of its answers in this question and answer format:

Q: What is Grammar?
A: Grammar is the art of communicating thoughts by words with propriety and dispatch.

Q: What is the use of English Grammar?
A: To teach the true principles and idioms of the English language.2

This catechetical approach to learning content was designed to mitigate the risk of poor teachers. With these products, in fact, the role of the teacher was reduced to that of classroom organizer and behavior referee. As Ruth Elson points out:

> In many classrooms the memorization technique was reinforced by the monitorial system, whereby older students were designated to hear the recitations of younger ones. It was a method attractive to taxpayers, since one teacher with the aid of monitors could handle an enormous class of many grades. But the monitor could only be trusted to see whether the student's memorization of the textbook was letter perfect. Questions given as teaching aids in the books themselves clearly expect this method. The typical form of a question is: 'What is said of...?'[3]

Learning content designed for memorization and recitation under the watchful eye of a monitor gave way to a more evolved, object teaching design which was endorsed by the school and teacher reforms advocated in the Common School movement.

An early example of this object teaching approach to learning content can be found in Warren Colburn's book first published in 1821, *First Lessons in Arithmetic on the Plan of Pestalozzi*.[4] In this textbook, the idea was that the student already possessed an understanding of quantity through experience, so what was needed was a series of questions that would help him or her unlock the understanding of that experience.

1. How many thumbs have you on your right hand? How many on your left? How many on both together?

2. How many hands have you?

3. If you have two nuts in one hand and one in the other, how many have you in both? (1)

This shift in the approach to learning was reinforced by the teacher

training movement driven through the Common School movement. In particular, teacher training expanded rapidly through the establishment of normal schools and a preferred method of instruction taught at these schools was object teaching.[5] This was further reinforced by the commercialization of the textbook industry that looked to take advantage of a demand for learning materials spurred by school reform efforts.

In the K-12 market, at least, this has become the relationship and traditional cycle of evolution with regards to learning content. National or regional school or educational reform efforts emerge and these are necessarily embraced by teacher training institutions in order to ensure that future teachers are relevant and current in their methods. In order to support new reforms, and to enhance their chances for adoption, the textbook industry embeds the new or evolved pedagogy into its books. In this way, the government, educational institutions, and the textbook industry have worked together independently to make textbooks an integral component of K-12 learning. With the passing of each decade, textbooks and their ancillary materials have become more deeply embedded as a core component of the education solution that can no more be left

3 FACTORS THAT LED TO THE IMPORTANCE OF TEXTBOOKS IN AMERICAN SCHOOLS

Fig 1. Forces Driving the Integration of Textbooks in K-12 Learning

out of the equation than the teachers themselves.

In higher education, textbooks have also become integrated into actual instructional and learning design of departments and institutions, but the path leading to that integration is different than the one we have described in public school education. In the university sector, the reform analogous to the Common School movement occurred through the changes introduced into higher education by Harvard University's president Charles Eliot (1869-1909). Among Eliot's principle reforms were the professionalization of the professoriate and the standardization and legitimization of professional degrees for doctors, lawyers, and other learned professions.

One result of this reform was a natural tension between the notion of the university as a utilitarian enterprise designed to support the economic growth of the U.S. and the ideal of the university as a place of higher learning that championed general enrichment on personal and societal levels. The resolution of this tension over the ensuing century has been the general education or core curriculum, the course set all university graduates must take regardless of their degree choice. And, while the required courses vary from institution to institution, the general education requirement has become a mainstay of higher education in the U.S. and its courses account for the largest enrollment numbers.

If general education requirements drove enrollment for a common set of specific courses, the GI Bill provided the foundation for an explosion of enrollment in higher education from 1948-1970. This broad enrollment increase went hand in hand with a growth in professional degrees and the overall course catalog for universities and colleges.

These two factors, the general education curriculum and the enrollment and program increases precipitated by the GI Bill, led to the parallel growth of the textbook publishing industry for higher education. In particular, the swelling ranks of university students meant that textbooks targeting the general education courses now had impressive markets in which to sell.

Of course, the increase in course sections taught in the general education level also led to a rise in inexperienced faculty and teaching assistants. As a result, throughout the 60's, 70's, and 80's, textbook companies added layers of instructional support and guidance to address the training gap and to make their products more attractive to adopters (instructors and institutions). In the end, just as Webster and Pestalozzi had attempted to introduce instructional quality into schools by mixing pedagogy with content, higher education textbook publishers and authors began integrating their products more deeply into institutional

planning and outcomes.

What's In A Textbook (Or How Sausage Gets Made)?

Of course, if you really want to understand the textbook business, you need to have a good understanding of how textbooks are actually created. In fact, this is one of the areas in which we see significant divergence between the trade publishing industry and educational publishing. I'll start with an overview of higher education textbooks, and then discuss the salient differences between these and the products created for the K-12 market.

Naturally, it all begins with an author or a group of authors who can write the content for the textbook. Unlike in trade publishing, where authors submit manuscripts to agents who, in turn, pitch projects to publishers, textbook authors are generally discovered, courted, and cultivated based on a variety of factors. In general, textbook authors are selected based on their academic pedigree, their current position and ability to influence large adoptions (program coordinators at large universities, for example), general standing in the teaching community, and their writing history.

Particularly in higher education, lead authors are viewed as important brands in their own right, and publishers will attempt to generate a small list of titles related to these brands in order to maximize their investment and to lock in the author's commitment to the publisher.

Potential authors are often cultivated by hiring them first for non-royalty projects such as writing quiz banks or other ancillary materials. Those who prove reliable, who are good writers and have other attractive qualities, are then encouraged to submit a textbook proposal.

Once a proposal is received from an individual author, the editorial team will generally brainstorm about what other authors they might add to the team. The purpose of this is to extend the potential adoption reach (two authors, each from sizable institutions in different parts of the U.S., is a great combination), and to allow different team members to write to their particular areas of strength of specialty.

Once the author team is formalized and a basic proposal has been put

together, contracts are written and the real work begins. In higher education, most textbook authors work on a royalty basis and first-time authors are offered a royalty of 10%-12% on average. In competitive signings, those where multiple publishers are vying for the same author and project, the royalty may go higher.

This royalty is the total amount carved off from the net sales of the book and distributed among the author or authors. In some instances, an author may receive a grant, or one-time stipend, as a reward for signing with the publisher. This amount is usually modest, however, as the goal of the publisher is to "borrow" as much labor as possible from the author(s) during the creation process without having to pay for it until after the product is published and sold.

Now that the authors are signed, the next step is to create a complete textbook project proposal and a sample chapter. This will allow the Acquisitions Editor — the editor responsible for signing new projects and assisting with their development — to create a more accurate budget, and will also allow the Developmental Editor and the Marketing Manager to create a sample that can be reviewed and tested by actual instructors and students.

Keep in mind that at this stage, even though the textbook project has been signed, it has not received full budget approval. This approval won't come until the editorial and marketing teams have completed a thorough competitive analysis, conducted a market survey using the sample chapter, and collected anecdotal comments from pilot users. The presentation will also include projected unit sales based on market research. With that information in hand, the Acquisitions Editor or Publisher will conduct a review with the Editor-in-Chief and/or other executives, and a decision will be made on the viability of the project. In other words, the project will be approved for funding or rejected.

If the project is funded, the authors will gather with the editorial staff for planning sessions and the timeline for the project will be finalized. As a rough rule of thumb, from signing to actual delivery of the product to bookstore shelves or e-book sites, the project will take between 2-3 years to complete. This length of time is determined by the writing schedule, the number of marketing reviews required, the number of pilots, and the complexity of any associated technology. Remember that, depending on the particular textbook project, there may be 3-4 ancillary packages, a video script, and other technology components that have to be authored and produced in addition to the textbook.

During the actual writing and creation process, the author(s) will work closely with the Developmental Editor and the Assistant Editor for the

discipline group. As the project moves through its various phases, authors will participate in evaluating feedback from focus groups, hosting pre-launch marketing presentations at discipline conferences, and provide feedback on design and layout for the project.

Final manuscripts are sent out to Copy Editors, the completed textbook and art manuscripts are handed off the publisher's production team, and, eventually, everything is given over to the compositor to create the final, press-ready book files. These files may include an ePub version of the book or, in many cases, a press-ready PDF is sent to offshore vendors for XML markup.

At the end of the process, after 2-3 years of labor and waiting, a new textbook is launched into the market. By the time it is actually published, multiple writers, editors, production specialists, technology experts, and marketing specialists have contributed to the project. In addition, the product has been reviewed by numerous faculty members and has been used in significant pilots in order to test its usefulness.[6]

How Does the Business Work?

Of course, knowing what goes into a textbook is only one piece in understanding the industry. You also have to understand how the textbook itself fits within the overall business models for publishers.

Managing the Catalog

Let's begin by looking at a the publisher's catalog or list of textbook titles for sale.

Large publishers break down their content holdings, and company structures, by discipline area, discipline, and course. At a high level, for example, we might have a large publisher with a content organization structure that looks roughly like this:

- Science, Engineering, and Mathematics (Hard Side)
- Humanities, Social Sciences, and Languages (Soft Side)
- Business and Economics
- Career Education

Within each of these super headings, the organization is broken down further. Languages, for example, is often broken into separate groups for the primary languages (in terms of units sold — Spanish, French, and German), as well as a separate bucket for lesser taught languages.

It is inside of each of these areas that the actual catalog of titles for a publishing company emerges. Textbook projects are signed and produced for the major course areas within each of these discipline groupings, that is, those course areas with national enrollments and adoptions large enough to warrant representation in the catalog.

The goal of a strong catalog for a major publisher has always been to provide as much direct competition with rival publishers as possible, as well as clear choice and product differentiation within its own list of titles. In a major course area, it is not uncommon for a publisher to have 4-5 different textbook products, each with different author.

McGraw-Hill, for example, has as many as five Introductory Spanish books in its catalog at any given time. Naturally, all of these products have the same grammatical content, similar scope and sequence for presenting content, and roughly the same vocabulary. They differ in pedagogy, breadth of material covered, reading materials, and approaches to culture.

For the publisher, this product differentiation within the catalog is critical. It allows sales representatives to appeal to a wider set of possible teaching preferences, and to respond to similar differentiation by market competitors.

Managing the catalog extends beyond ensuring that discipline and course lists are competitive. It also means keeping up with timelines so that all product lines remain fresh and new titles are introduced at the right moment.

New products, in fact, are the lifeblood of most textbook publishers. After all, the first year of a first edition of a new textbook title is the only time the publisher will ever have a guaranteed sale of a new product — there is no used market or previous edition to compete with. For this reason, one of the important success milestones for any editorial group is new project signings. These new signings represent future sales projections, new authors who represent strategic adoption opportunities, and a diminishing of revenue leakage to used books (traditionally around 35% of total textbook sales).

Managing Cash Flow

In addition to managing the catalog to optimize competitiveness and the sale of new textbooks, publishers must also manage their costs in a way that minimizes risk.

With regards to cost control, publishers attack the problem from a variety of angles. One strategy over the past decade has been to look for cheaper printing alternatives in order to drive down the costs associated with paper and binding. Publishers have utilized printers from China, Indonesia, and India to get better deals, but have also struggled with printing and shipping delays, as well as with various quality issues.

Another strategy for controlling costs is the increased use of contract labor. Many tasks completed formerly by in-house staff have been moved outside the company where rates are lower and benefits do not have to be paid. As a result, Developmental Editors, Copy Editors, Project Managers, and Designers are increasingly outsourced positions.

Of course, one of the best ways for publishers to control costs is by not having to pay their primary talent — the authors. By having authors work against future royalties, publishers are able to enlist smart, energetic, and vested partners for several years without having to pay them out of their operating expenses.

Forecasting Success and Borrowing Money

Managing costs is certainly important for publishers, but equally important is their ability to create financial forecasts that are highly accurate. This allows them to assess the real value of new projects and to manage their net revenues tightly.

As a general rule, all major publishers have strong track records when it comes to forecasting product results. While the reliability of their forecasts have eroded somewhat over the past three years, their underlying models still provide a good deal of stability for the companies. This accuracy is derived from proprietary in-house software programs that take all of the information about products and their variables and translate it into probable outcomes. The accuracy of this software is based on the mountain of historical data the publishers have and against which they can factor their projections.

Forecasting proper budgets and outcomes for new projects is particularly important because it is based on these forecasts that the publishers actually loan the money to their divisions to cover production and marketing costs.

The decision to green light a new project for funding typically focuses on these pieces of information:

- PLANT COSTS
  The largest costs associated with a textbook project are editorial labor, production costs, and media development. The actual printing and paper costs represent a smaller portion of the overall budget.

- ESTIMATED SALES REVENUE
  Sales revenue is broken out by product component — textbook, online assessment component, etc. — and by year within the life of the edition — generally a three-year period. 70%-80% of the revenues will be generated in Year 1 since there is little leakage to used product sales. By Year 2, the revenues drop precipitously, and by Year 3 the projections for new revenue are inconsequential.

- NET RETURN
  This number represents the sales-revenue-against-plant cost and is presented both in terms of estimated net revenue as well as a simplified number that represents the factor of return-related-to-plant costs (such as 6X or 10X). This number actually represents the "bottom line" when it comes to decision making, and in order for a project to receive funding, it should promise a return of 5X-6X plant investment.

What Are the Top 10 Obstacles for Textbook Publishers in the Future?

While the overall market for learning materials in the U.S. will continue to grow, traditional textbook publishers are facing, for the first time, significant barriers to their success and expansion. In fact, current market disruptions and new forms of competition threaten to undermine both the long-held assumptions and profit margins of these companies.

In this section we will look briefly at the top 10 disruptions to the textbook market, as well as the challenges to the industry's current business models. You will note that I do include piracy in this list. While piracy remains a huge internal preoccupation for traditional textbook publishers, the reality is that publishers already have mechanisms in place to combat the piracy of print titles, and these keep the problem at a manageable level that can be predicted with some accuracy. While the transition to digital textbooks will force publishers to reevaluate their positions on DRM (digital rights management), current technology and workflows have proven that digital content certainly poses no greater risk of piracy than its print counterpart, and many would argue that it is less prone to such activity.

1. Textbook prices

Make no mistake — the single biggest threat to the traditional textbook industry is the price of new textbooks. In 2011 the average retail price of a new college textbook exceeded $104. To be clear, the continued increases in textbook prices are driving new product purchasing options such as rental and digital licensing, and are also leading to increases in online comparison shopping, textbook sharing practices, and piracy.

2. Publisher cash flow

In spite of efforts to control project costs, publishers struggle with cash flow because of inconsistent revenue flow throughout the calendar year. Their sales seasons and resulting revenues are heavily skewed to the traditional semester start dates on the academic calendar — August-September and December-January — and lower-than-forecast results can reduce operating capital dramatically. This, in turn, affects staffing, product investment, and innovation. The risk to cash flow within the publishing industry also points to the current limitations in the industry with regards to actual revenue channels. Publishers only have a few options for offsetting low revenues with sales in another company product channel.

3. Low ceiling in industry for annual revenue growth

While textbook publishers have shown steady and dependable growth over the past three decades — the industry has delivered fairly dependable yearly returns of 4%-8% — their results have not matched those in B2B (business-to-business) information publishing sectors. The promise of an integrated publishing empire has existed for some time with the McGraw-Hill companies and, for a brief time, with Thomson Publishing. Thomson became frustrated with lower revenue growth from its educa-

tional publishing divisions in 2006 and put them up for sale. It took the profits of its sale of the education assets to Apax Partners and reinvested them by purchasing B2B publishing icon Reuters.

This same story has been playing out with McGraw-Hill for a number of years. In 2011, company CEO Harold "Terry" McGraw III finally announced that McGraw-Hill would begin evaluating options for either spinning off its education unit as a separate company or selling it outright. The reason for the move is that the business, while an important part of the McGraw family's personal tie to publishing, has become a drag on the double-digit growth and profit of McGraw-Hill's financial unit.

4. Changes in the textbook distribution/sales model

In golden days gone by (golden for the textbook publishers), the creation, sale, and distribution of textbooks was fairly closed and tightly controlled. Reps presented product to instructors who adopted them, and those products were then shipped by the publisher to a campus bookstore where students would buy them. This model suffered its first major disruption as distributors and retail chains such as Barnes and Noble and Follett leased and managed a growing number of institutional bookstores. Next, new technology products were introduced into the educational product mix, and the number of educational products created outside of the publishing industry grew quickly. While new distributors and technology proved unsettling, it was the advent of e-commerce and the rise of online shopping that has proven the most challenging. Put bluntly, as more and more students purchase and access learning content online, textbook publishers are losing their ability to control student product decisions through the adoption process.

5. The shift to digital content

No one denies that the transition to digital textbooks is occurring, or that it is happening at a brisk pace (the topic of Chapter 5). The challenge in this transition for publishers is twofold. First, it could lead to lower yearly revenue for publishers based on current business models. E-textbooks are sold at a lower price than print textbooks and generate less revenue per unit sale. As e-textbooks grow in market share, it is possible that total revenues for publishers could fall.
Second, e-textbooks are not replacing print product but rather augmenting it. This means that publishers are supporting two workflows — digital and print — which means higher operating costs and lower profit margins.

6. State funding for open textbook projects

States and institutions have tighter budgets than ever before, which has led to innovative thinking across the board. Such thinking, increasingly focused on the costs of education, is contributing to a heightened interest in open textbooks in particular. We now have two states, Washington and California, who are addressing the cost of learning materials through legislation targeting the creation of open textbook libraries for students.

7. Competition from digital-first publishers

The receptiveness of the education market-to-digital content, in particular, has given rise to new forms of competition. In particular, digital-first content publishers such as Flat World Knowledge and Textbook Media are having a noticeable impact in the market. By eschewing the need for a print operation and the operational overhead associated with it, these publishers are offering edited and peer-reviewed textbook content at a fraction of the price of traditional textbooks in the same disciplines. In addition, these publishers are able to offer better author royalties and partnerships, and greater institutional flexibility with regards to content customization.

8. Competition from the direct-to-consumer market

I have already mentioned the changes in the distribution/sales model in textbook publishing. Amazon, for example, represents more than an alternative channel for buying textbooks, however. It is indicative of an entire incursion into the educational content market by direct-to-consumer players.

For context, remember that textbooks have long been a prescribed sale. Students, the end users, have had no choice traditionally except for the decision whether to purchase a new or used book. In the past two years, however, e-textbook providers such as Kno and Inkling, both creating derivative or enhanced versions of popular textbooks, have begun providing students new choices when it comes to the textbook product they buy. We are seeing similar choices added to the menu by Amazon and Apple, with their ability to leverage their respective consumer tablets to influence e-book purchases.

There are two important challenges coming from these direct-to-consumer companies and their entrance into the educational publishing space. First, this marks a significant turn with regards to customer expectations and educational technology and content. In the past, there existed no real crossover between the consumer and education markets,

so educational technology could evolve on its own path, unaffected by the consumer market and product expectations generated there. With e-books, however, consumers are now coming to the market with pre-existing expectations born in the consumer market. Textbook publisher content and e-book technology must meet those expectations.

In addition, as these direct-to-consumer players gain market share, they become threats to introduce their own content or to convert their popular products into publishing platforms for instructors and students.

9. The growth of the textbook rental market

Textbook rental has been around for more than a decade but did not shoot to prominence until the economic crisis that startled the U.S. in late 2008. This crisis resulted in heightened consumer awareness with regards to textbook costs and shone a favorable light on rental companies such a Chegg, who had launched their textbook rental service in 2007. Along with competitors such as BookRenter and rental services from retail chains like Barnes & Noble, the rental market exploded in 2009-2010 and reached a market share of approximately 5%.[7]

The rental market is problematic for textbook publishers for a number of reasons. First, it is a direct attack on current textbook prices. It's mantra is that textbooks do indeed cost too much and rental is the best way to survive the tyranny of the publishers. Rental also hurts traditional textbook publishers by adding to the size of the used textbook market. While rental companies purchase some new books from publishers, they more often purchase used books from different distributors and rent these. A third pressure from textbook rental companies comes in the form of e-textbooks. While these businesses started by targeting print books, they have now moved into e-textbook sales, which helps speed up the transition to digital content in education and introduces yet more direct-to-consumer interference with the traditional supply chain in educational content. Finally, textbook rental companies pose a direct threat to textbook companies because, in their aggressive pursuit of new revenue streams and greater market share, they are broadening their lineup of services to include study aids and assessment tools — territory historically occupied by the publishers.

With the actual rental opportunity as a short-term business strategy with a likely ceiling around 10% of the learning materials market (due to the growth of digital), publishers should expect the leading rental companies to continue to branch out into other parts of the industry — self-publishing, digital publishing in strategic disciplines, and online marketplaces that challenge both traditional campus bookstores and Amazon.

10. Increased business in the for-profit sector

The for-profit sector was the fastest growing segment in education over the past decade. By 2010 it accounted for more than 15% of the higher education market and was one of only two segments in U.S. higher education that had shown any real growth according to the Carnegie Classification report.

For-profits are fundamentally different from their traditional counterparts — public and private 2-4 year universities — in that they have centralized management for both course and program development as well as textbook selection. As a general practice, for-profits design courses, select all the materials for those courses, and then hire instructors to present information and manage the class. The move away from textbook adoption by individual instructors and departments allows for-profits to put out RFPs (request for proposal) and handle textbook selection and pricing negotiations through their procurement or administrative offices. This results in lower textbook prices for the institutions and slimmer profit margins for the publishers. The size and rate of growth for these institutions, however, make it impossible for publishers to ignore them.

Like textbook rental companies, for-profits are also speeding up the transition to digital textbooks. These universities have widely distributed, multi-campus operations and focus heavily on online learning. As a result, digital textbooks are more cost effective to distribute and are the superior option when it comes to designing online courses and integrating reading into the overall learning process.

Finally, in the coming 2-3 years, we will see a number of larger for-profits begin to publish their own content – the University of Phoenix already does this – and move away from the dependency of publishers' textbooks.

Yes, there is no doubt that changes are coming to the textbook industry. And, the challenges listed above are by no means the only big obstacles. The lack of truly unique content will lead to a fairly rapid commoditization of e-textbooks in the next five years (meaning, essentially, that one algebra textbook will be viewed as that same as any other). Textbook publishers will also face a general erosion in the security of the "prescribed purchase" that has long protected them from the uncertainties of the direct-to-consumer market. Finally, these same publishers face a major risk with regards to the increased speed of change within the industry. After decades of practicing slow evolution and fast-follower strategies, it remains to be seen whether or not they can respond to the

need for real and dynamic innovation.

Notes

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6 The K-12 authoring and book production process differs from the higher education model in that it is what we common refer to as a "managed" process. That means there are no royalty authors and, instead, editorial teams work with contract (work-for-hire) writers to jointly compose the products. The big names generally associated with these books as authors are often influential leaders or thinkers in the field, but do not necessarily actually create the manuscripts. The exception to this are "franchise" products created by individual authors and licensed to publishers. A great example of this model is Rob Larson (http://www.larsontexts.com/lti.html), the Penn State professor who has created an entire catalog of popular math products for the K-12 market.
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Chapter Three
The Three Winds of Change

I hope by now that the two initial ideas I presented are clear – that big and disruptive changes will come to the learning content market by the end of this decade and that the current textbook publishing market, its processes and business models, face tremendous challenges.

If the textbook publishing industry faces new obstacles specific to its historical assumptions and business models, our overall education model, including the broader learning content and technology markets, is looking at undergoing definite upheaval. The forces behind this upheaval can be traced to three major shifts in our society, and these shifts are cultural, technological, and economic.

I call these three societal shifts the *three winds of change*, and in this chapter I want to step back and take a look at the dynamics behind them. In order to anchor our perspective and understanding of where we're going, I'll discuss these cultural, technological, and economic forces in terms of movement — a transition from one state to another. Here are the three forces we will examine:

- The Evolution from Centripetal Learning to Centrifugal Learning
- The Move from Content Broadcasting to Content Nanocasting
- The Shift from Content as Product to Content as Service

The Evolution from Centripetal to Centrifugal Content Consumption

I want to begin this section by sharing three experiences or memories from my past. Each of these provides an illustration of the bygone era of centripetal content consumption.

Let's begin in the fall of 1974. I was a sophomore at Round Rock High School in Texas and my English teacher had placed us into groups for a research and presentation project. My group's topic was child abuse and, in spite of the importance of the topic, we were having a heck of a time finding any good resources.

Our school library was small and none the articles we could find in the old *Periodical Guide* were available in our particular library. One of the team remembered a television special that a local Austin TV station had done, but when we called them they politely explained that they could not share the content with us in any format. Finally, short of resources and with no good prospects in sight, I did what I probably should have done in the first place — I asked my mother for help.

And that's when we hit the jackpot.

It seems that my kindergarten teacher, Jeanette Watson, had made her way to become the Director of the Office of Early Childhood Development in Texas, and her office had done extensive research on our topic for a series of speeches she had delivered. After a call from my mother, Ms. Watson had her staff make copies of their research and of her speeches and she brought them to our house. She expressed her regret at not being able to come to my school and watch our actual presentation.

Needless to say, we ended up with the showcase presentation of the term.

Now, jump forward with me ten years. I had traveled to Argentina as a graduate student and was living on the south side of Buenos Aires. One of my fond memories of that time is that of my daily interaction with the gentleman who ran a newspaper stand several blocks from the house I was renting.

As my area of study was Argentine literature, I had become obsessed with collecting every book review, literary supplement, and cultural op-ed I could get my hands on. At the time, the primary source for such

materials was in the different daily newspapers available in Buenos Aires. Beyond the occasional item in the normal daily editions, I knew there would be a gold mine of material in each paper's weekly culture or literary section — *Clarín* on Thursdays, *El Diario*, *La Prensa* and *The Buenos Aires Herald* on Sundays.

Each day, the proprietor of the stand would be waiting for me — *"profesor,"* he called me — with my papers already folded up and packaged. We would share a brief conversation about the weather, fútbol, or the latest inflation figures, and then I would steal away to my favorite cafetería and order a *café con leche* along with *medialunas*. Armed with such rich sustenance, I would carefully page through each of the three to four newspapers, browsing through all the content and reading culture, art, and literature pieces in depth.

To be perfectly honest, I didn't know what exactly would prove important in my academic future, but I did understand it would be hard to obtain this content again. So I bought my papers, drank my coffee, and created collections of clippings that might prove useful some day. Five years later, when I started writing my dissertation, I was able to pull invaluable research from that collection, research that would have been hard to replicate even with the considerable resources available through the University of Texas library.

Now fast forward again, this time to 2003. This was the year I began blogging about educational technology. I had left my IT position at the University of Oklahoma to work on a textbook project for McGraw-Hill, and I thought it would be a good idea to stay in touch with university issues by writing about online teaching and learning.

I knew I needed to find out who else was writing about the topic so I began an in-depth Google search to find out who else was writing on the topic and to determine which news sites would be the most valuable.

My next step was to create a site for sharing the ideas I wanted to write about. The first iteration was an actual Web site I created and hosted. My idea was to create some kind of a real portal others would bookmark and visit frequently, hoping to become a central point of information and dialog (i.e. a centripetal force). Unfortunately even with nice templates and good CSS, my basic site was not capable of any real amount of dynamic content publishing.[1]

As I went back to the drawing board on my site design it suddenly dawned on me that I should actually think about my portal from a different point of view — that of the information consumer rather than the information producer.

In other words, what would I want this site to be as someone who was trying to sort through many different sites daily to find the information resources that interested me? This was easier than it might sound, as I had already been using RSS feeds for a couple of years and was addicted to the local FeedDemon application on my laptop. At this time, I was subscribed to 75 news sites and personal blogs by educators and educational technologists, but I seldom if ever visited any of the actual Web pages!

What I realized, as I considered my information consumption behavior, was that my information processing and research capabilities grew in proportion to my decreasing dependence on bookmarking each actual Web page and visiting them. In other words, I was developing an extensive research and colleague network over the Internet by changing my focus from a "pursuer" to a "receiver" of information.

Most importantly, I had begun to understand that what I was experiencing in my research was really a key component of the Web — information there was centrifugal by nature, moving ever outward to be discovered, consumed, shared, and re-mixed.

With that realization, I quickly shifted my Web site concept to that of a news blog, one that was designed to ride the centrifugal wave and eschewed the need for anyone to come and visit my actual URL.

The purpose of these three stories from different periods of my life is to show the cultural and technological trajectory from centripetal to centrifugal motion with regards to information processing and consumption.

Prior to the Web, we lived in a world of physical and static information repositories — print newspapers, libraries, reference books, and learning institutions — to which we were required to travel in order to obtain the information we needed. Knowledge in this paradigm existed as a magical, if arbitrary, center that pulled people to it with centripetal might.

If you were looking for a job, you needed to buy a copy of your local newspaper and search the classified ads. In order to find out important data about an industry, you needed to call or drive down to your local library. If you were looking for more arcane information, how to make a Rob Roy, for example, you needed to know a local mixologist or have handy a copy of the *New York Public Library Desk Reference*.[2]

In fact, our entire notion of important information was that it was stored in sanctioned locations or entrusted to experts only the fortunate could access. Those who were lucky enough to attend college had the blessed

opportunity to sit at the feet of knowledgeable sages, and the information they acquired from these experts increased their potential value as working citizens.

This centripetal management of information fit particularly well with our educational models for information. Textbooks were authorized repositories of the information students needed to learn in a specific course. Instructors served as subject matter experts, in many cases the ultimate authority (at least locally), and were viewed as scarce commodities.

To be clear, this was the overwhelming characteristic of information controlled by centripetal flows — it was a scarce commodity that resided in sanctioned and centralized locations that required some form of pilgrimage for access.

The advent of the Web, obviously, has produced a dramatic shift in information flow and cultural behaviors over the past decade. It has demystified our earlier notion of information scarcity and the concept of the lone expert, and replaced them with the realities of information abundance (overabundance for some) and crowdsourcing. It has also altered the way we package, find, and retrieve information. The last version of the *New York Public Library Desk Reference* was published in 2002, and has been replaced by access to Google and Wikipedia.

Here are several key realities of the centrifugal information age that have changed and are changing the way we live and learn:

What we need to know is not finite

Part of the collateral damage tied to the move away from thinking of information as a scarce resource has been the consequential realization that important information is not really finite at all.

The *McGuffey Reader* and Webster's *Grammar* were designed to be authoritative and relatively complete compendiums of information for learners of a particular age or level. This model has continued as textbook authors and publishers have partnered with our educational institutions on into the 21st century. *Gardner's Art through the Ages* and Brealey and Myers *Principles of Corporate Finance* are the key reference resources presented neatly in single tomes. Moreover, they are still presented to students as "everything you need to know about..."

As I mentioned, this learning content is created to mirror the continued endorsement of the centripetal information model by our educational system. In our K-12 institutions we remain focused on the elusive

concept of a finite body of knowledge every student needs to know and against which every student must be measured. The reality is that such a static body of knowledge is as outdated and useless as the old *New York Public Library Desk Reference*.[3]

Borrowing from the popular *Did You Know?* video by Karl Fisch and Scott McLeod, "We are currently preparing students for jobs that don't yet exist, using technologies that haven't yet been invented, in order to solve problems we don't even know are problems yet."[4] And, as Google's former CEO Eric Schmidt said in a 2010 interview, we are now creating as much information every two days as we did from the dawn of civilization up until 2003.[5]

Translation — information is completely dynamic, expanding at rates we can't comprehend or manage entirely, and is not something we can pretend to package neatly into static repositories that represent "everything you need to know about..."

Finding, filtering, and managing information is more important than knowing it

An important result of the explosive, outward movement of information in today's world is a shift in importance from generally knowing information to being able to find, filter, and manage the right information at a specific time. The centrifugal information age places a premium on search skills, personal information networks, and the ability to synthesize and reorganize new data quickly.

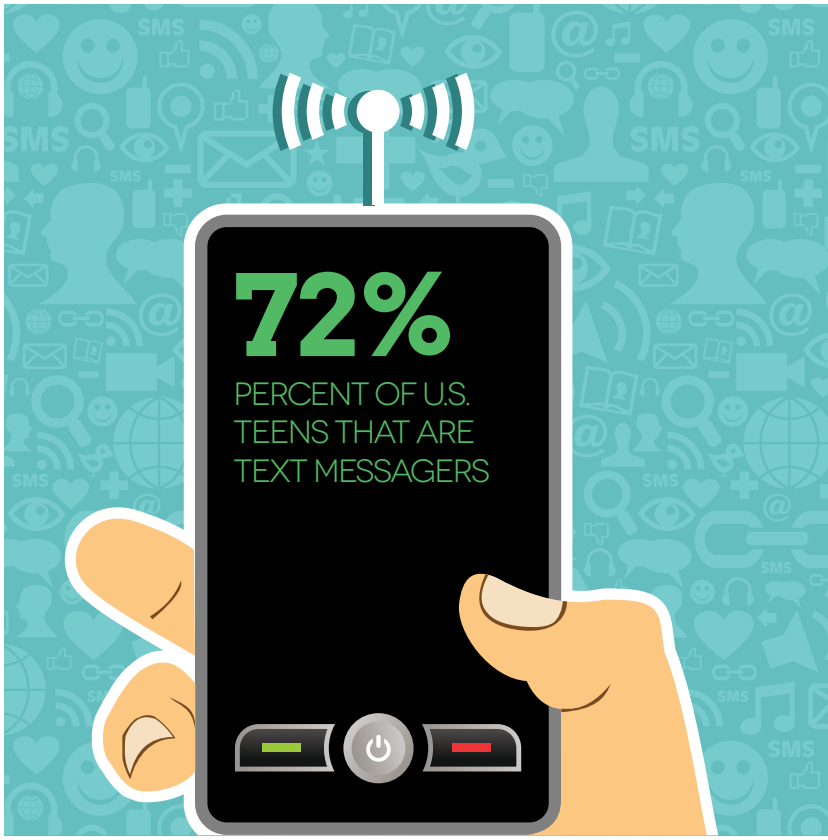
We see a prime example of this shift in the use of social networks and content aggregation applications such as Flipboard, Zite, and Google Currents. The challenge for users in the 21st century lies both in the amount of information they need to process as well as the different channel types they must manage. Important information is found on traditional media sites, social networks, social media sites, microblogs, and a host of media applications. Applications like Flipboard allow users to filter the abundance of content, different types from different sources, by personal usage, the weighting of sources, and contextual need.

Of course, the tools of the centrifugal information age are only as good as the skills of those who manage them, and our schools and universities are challenged increasingly to focus less on what learners need to know than on how they can find and manage the information they need to be successful over the coming decades.

Information and content are naturally social

Fig 1. Cellphone Purchases

Fig 2. Cellphone Usage

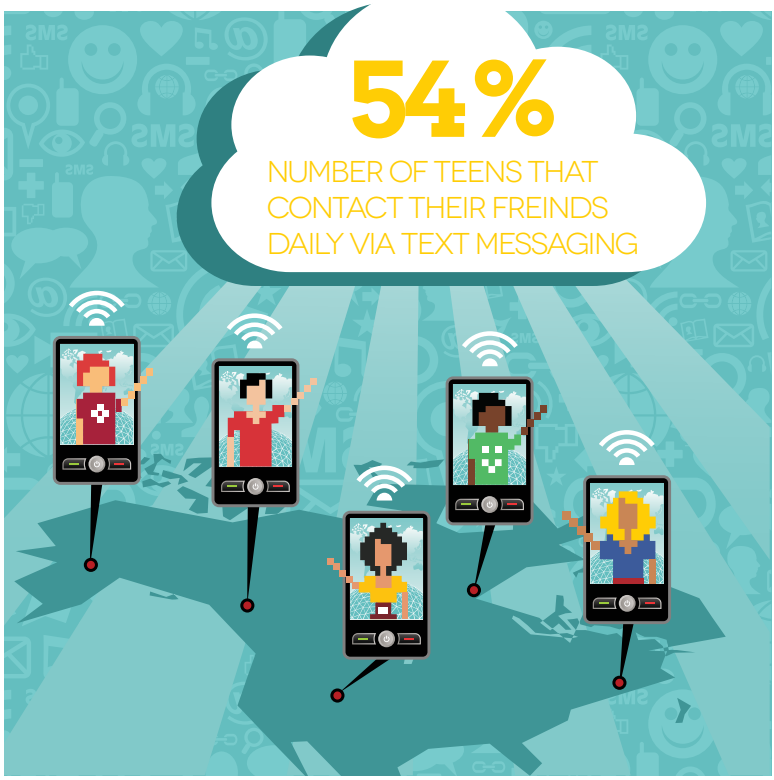


One of the ironies of the educational curriculum debate over recent decade has been the idea of promoting knowledge transfer between courses and disciplines.

Not surprisingly, we discovered that students who focused intently on mastering specific writing skills for an English course did not naturally transfer those skills to the writing of their term papers for history or engineering. I say "not surprisingly" because the system in which students were learning to write was promoting it in the same manner it presented other knowledge and skills — as isolated sets of information applied to a specific task or need. In a centripetal information model where knowledge is presented in static packages that are limited to specified locations, one of the most obvious outcomes is that learners will find it difficult to transfer the information outside of the center.

What we learn from the Web and the centrifugal information age is that, by definition, information networks are dynamic and social — that

Fig 3. Cellphone Usage

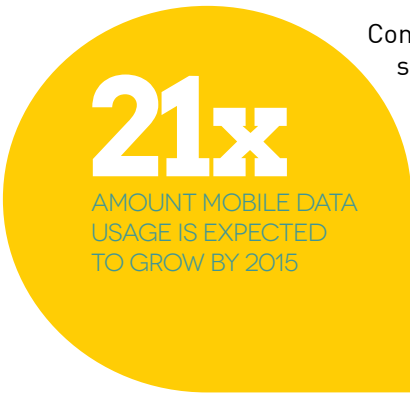


is, connected. People are connected to people and share information through those connections. Information is related to other information and users inherit those natural connections when they access any piece of information. This is why Twitter is used by a growing number of people as the filter for their news, and why YouTube and Facebook oversee the video and photo popularity controls of the world. They are designed around the understanding that information serves to connect and that people want to take it with them into all the compartments of their lives.

Information is mobile

In a nation where 83% of adults own a cell phone and 35% own smart phones, it is no shock that there is an almost insatiable desire among consumers for distributed information.[6] Add to our mobile phone fascination a growing obsession with tablets and it is impossible for content and information companies to be successful without a strong mobile strategy.

In an age of centrifugal information the natural pattern of distribution has translated most noticeably into a plethora of apps — more than 500,000 in the Apple store alone with more than 1 billion downloads per month. More than simply representing a different kind of software format or an alternative to Web browsing, apps are important activity and information filters that allow us to access and process the content and information we want wherever we are.[7]



Content aggregation and customization apps, social networking and social media apps, and social productivity apps such as Evernote and Dropbox are the new kings and queens of the content hill.

This shift to centrifugal content consumption is already manifest in education but will have far reaching implications with regards to learning content and our educational systems throughout the current decade, such as:

- CONTINUED GROWTH OF ONLINE LEARNING
  While the centripetal learning model is still alive and well — students continue to flock to artificial locations to acquire "prized" information offered up from static containers — the overall model

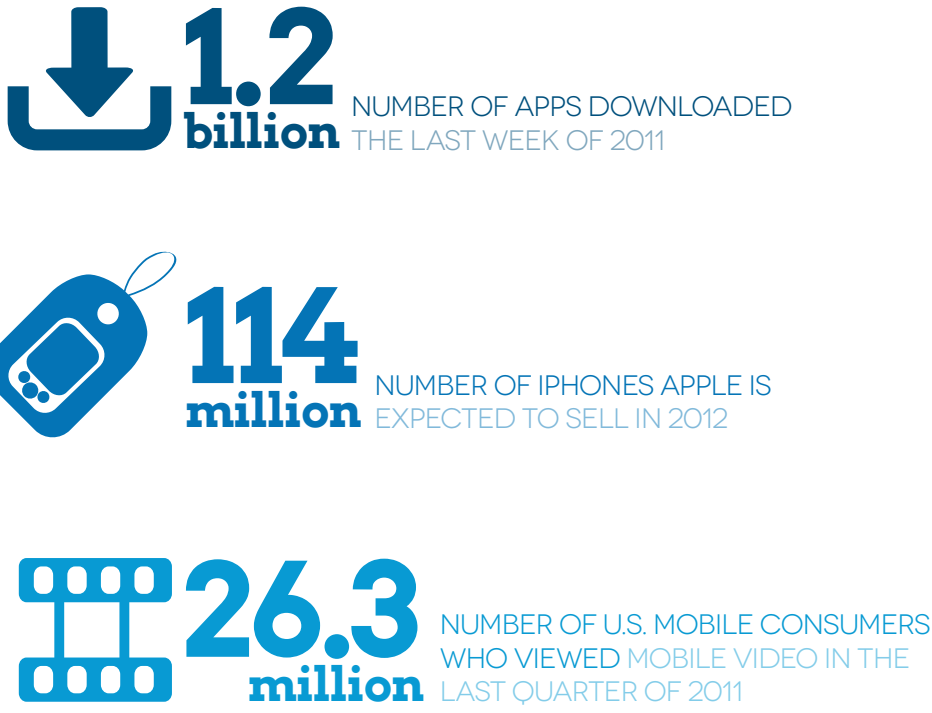


Fig 5. Tablet Purchases and Usage

is becoming increasingly distributed. Online courses in higher education grew at a rate of approximately 20% per year through the last decade and has continued to post double digit increases this decade.

This shift toward distributed learning will continue for a number of reasons. First, online learning is less expensive from an institutional perspective. Online courses do not require physical classrooms and they allow schools to obtain greater labor efficiency from their instructional staff. Second, online learning allows institutions of all kinds an opportunity to reach a wider base of potential students. As a prime example, look no further than Columbia College in Missouri. An institution located in the same town as the state's primary higher education institution the University of Missouri,

Columbia College has transformed itself through distributed education with more than 14,000 online students all over the nation.[8]

Another reason online learning will continue to grow is because it is tied closely to the growth strategies of both community colleges and for-profit universities. The latest listing of the Carnegie Classifications of institutions showed significant growth in the for-profit sector from 2005-2010. The number of for-profit schools as a percentage of all higher education institutions jumped from 20.7% to 26.2% over the five-year period. The number of for-profit students as a total of all higher education students grew from 5.1%-9.1%.[9] And, while community college enrollment increases slowed in 2010 to 3.2%, huge surges in previous years — 17% between 2007-2009 — put these schools ahead of other public and private institutions in higher education.[10] The key here is that these two sectors of the education market, the two with the most dynamic growth, are also the two sectors most heavily invested in promoting online learning.

Perhaps the biggest contributing factor in the continued growth of online learning, however, is the coming revolution of the markets for certificate training, professional development, and personal improvement. In December 2011, MIT announced its new MITx program, an online certification program that will indicate mastery in specified subject areas. These "courses" will be offered for a moderate fee and will be the first of a new revenue channel for public and private universities. Such programs will allow institutions to leverage content that already exists and reuse it with little formal faculty involvement. Translation — it will be less costly to create and maintain than traditional courses.

Certification programs like the one from MIT will push more content online and push it outward, centrifugally, to learners all over the world. These programs will only be one example,

however, of the many informal online learning opportunities that will continue to emerge in the coming years. With more and more emphasis placed on new knowledge acquisition, certificate and informal learning programs will be a major area of growth not only in online learning but for the entire education industry.

- MOBILE CONTENT ACCESS
  Naturally, as learning becomes more distributed and personalized, consumer demand will necessitate that it satisfy the basic requirements for other types of content and information. Namely, successful learning content will necessarily be widely accessible across major mobile devices and platforms.

  This requisite mobile access will also support a variety of workflows and preferences with regards to content access points. By the end of the decade, all major educational technology and learning content channels will be mobile-first. This includes LMS (learning management system) and assessment platforms, course packs, e-textbooks, and social learning networks.

- THE DISAPPEARANCE OF TRADITIONAL CONTAINERS
  Finally, the shift from centripetal to centrifugal learning and content forms will signal an end to container-based content as a core component of the learning content. Pre-defined containers such as textbooks and courses that are designed for homogeneous cohorts and predetermined outcomes will give way to individualized, adaptive, and just-in-time content packages for teaching and learning.[11]

The Move from Content Broadcasting to Content Nanocasting

In addition to the wider and more diverse distribution of content, a

complementary force is pushing content in the direction of disaggregation and fragmentation. The universal rule is that as content and learning are pushed outward, they become more granular, specific, and individualized. This fragmentation will lead to new product and business models.

By way of explanation, allow me to take another brief stroll down memory lane and recount my history with television.

People of a certain age group, like me, will remember a time when TV programming came to an end each evening. There would be some kind of an official sign-off, perhaps the playing of the national anthem, and then the splash of a test pattern or just static on the screen until regular programming resumed the next morning.[12]

This was the same routine on all three channels — ABC, CBS, and NBC. And with regards to the programming on those three channels, there was little in the way of content diversity or special programming. Shows fell into broad standard categories like comedy, drama, western/action, variety show, and news, and each family had its favorites ("Gunsmoke" on Saturday nights and "Bonanza" on Sundays were common in our household). While there were certainly numerous program changes from year to year, the quantity of content, the general breadth of topics, and the schedules were basically static.

This was content broadcasting at its finest — carefully and narrowly defined content being distributed through limited, controlled channels.

Of course, as we all know, that simpler, choiceless world came to an end with cable television. In the beginning, cable channels were nothing more than super stations at the local or regional level. In my neck of the woods, the first such channel we gained access to was out of San Antonio, KENS Channel 5. I remember this well because it was through this station that I was introduced to "Project Terror" and its regular Friday night double header of scary movies.[13]

These stations, like KENS and Ted Turner's WTCG (later renamed WTBS), were the beginnings of our modern day cable TV industry, and by the 80's had introduced us to the realities of narrowcasting — the packaging of specific content to targeted groups with common and specialized interests. Suddenly, we had movie-only channels like HBO, and things really tilted toward interesting when, in 1981, MTV launched a music channel targeting a younger demographic (kicking things off with "Video Killed the Radio Star" by The Buggles).

Suddenly, we could choose between entire channels dedicated exclusively to sports, news, and cartoons. But this was only the beginning of

narrowcasting. Before long, industry deregulation and the rise of satellite services had led to a veritable explosion of specialized content. By the 90's, the number of narrowcast options had grown into the hundreds. There were not only multiple 24 hour news channels — there were dedicated news channels for conservatives and liberals. I still remember going to a colleague's home in the early 90's and having him walk me through the array of channels he could access via his satellite dish. He had several hundred to choose from and the only thing I could think was, "Even if you could find the time, how on earth are you going to keep track of all of it?"

This was a silly thought — because that clearly wasn't the point of having all those channels — but the thought was rooted in my earlier experiences with broadcasting. Back in those old days, a person really could stay apprised of everything that was broadcast on TV. And, if DVR technology had existed when we only had three channels, I imagine it would have been fairly easy to keep up with pretty much everything ABC, CBS, and NBC had to offer.

If media broadcasting could be described as the world of one-size-fits-all in which a single set of homogeneous programming was intended to satisfy and edify an entire population, by the 90's we had reached the age of each-size-fits-a-few. We had arrived at the doorstep of the golden age of content narrowcasting.

And then another shift occurred. Just when we had achieved an uneasy balance between content providers and cable and satellite companies, and at a point when the technology market was focused entirely on better DVR experiences, everything started going digital. This meant content, television sets, core broadcast technology, and distribution channels all began forecasting and evolving into their own version of the digital media future.

This shift to digital TV content coincided, quite naturally, with the explosion of the Internet and new Web-based media channels. The point-of-no-return occurred in 2005 with the launch of YouTube.[14] Even though there were other nascent services available for uploading and sharing videos at the time — Google Video and MySpace, for example — YouTube rapidly emerged as the undisputed champ, and also crated a template for a more democratic future of media content.

The YouTube template included such disruptive features as:

1) a focus on user-generated content;

2) user-controlled content aggregation tools for creating private chan-

nels;
3) the promotion of distributing and embedding content outside the main portal;
4) a focus on content sharing and promotion tools; and
5) intelligent search designed for billions of pieces of disparate content pieces with millions of owners.

Even more importantly, YouTube shifted a significant amount of user attention from the traditional TV display to Internet viewing.

This shift to Internet consumption gave rise to a new group of companies ready to make the leap from traditional analog collections of content (i.e. broadcast and cable channels) into models of pure digital distribution of disaggregated video. With solutions like Hulu, Netflix, and YouTube, I can now watch my own personal mixture of shows and movies online, on my mobile device, or, naturally, on my television set.

That's right, the popularity of Internet content streaming is gradually revolutionizing the television display market as well. Today, you can go into your local Best Buy and purchase any number of flat panel television sets that support WiFi and/or ethernet access to the Internet, that come with built-in support for popular Web video apps such as YouTube and Hulu, and that also provide full Web browsing. In 2012 we will see another big jump forward in the integration of Internet apps/video and television sets, with all popular models featuring this capability (along with 3D) by the end of the year.

The most common experience for television consumers is becoming entirely customized and highly personal. We have finally moved from one-size-fits-all to a-unique-size-for-everyone. And that is the difference between broadcasting, narrowcasting, and the new era of nanocasting. In this age, it's all about intense personalization and customization at the individual level.

Of course, TV is just one example of the shift to nanocasting that is affecting all areas of media content. Between iTunes, Pandora, and Spotify, the entire music experience has become disaggregated at the song level and transformed into a series of personal mashups. News information is aggregated via RSS feed readers by some, but a new suite of apps like Flipboard and Zite have turned the daily news into something much larger and way more personal than newspapers could ever be.

Not that the news sites aren't playing aggressively at this game too, mind you. Venerable classics like The Wall Street Journal encourage readers

to create their own custom content pages, and most major newspapers allow users to create custom mobile feeds so they can receive the information that interests them most.

Indeed, we are moving rapidly to a model that removes almost all vestiges of content broadcasting. The new model, in which content is disaggregated into its smallest possible parts so it can be reassembled by users according to their personal tastes, means big changes to both the way we create and distribute content as well as the business models we attach to that content.

With regards to content itself, nanocasting translates as disaggregation. This means breaking content down into its smallest usable or meaningful parts. Once this occurs, tools are provided for end users — readers, listeners, viewers, learners — to reassemble the content according to their own personal needs or preferences.

In television, nanocasting means assembling personal channels with specific episodes of selected shows or events. In news, it signifies receiving information primarily on the topics or companies of individual interest, and having that information constantly updated and presented in a format that allows further customization of display and quantity preferences. And in music, this results in playlists that are as unique as a given feeling or experience on a particular day.

But nanocasting is about more than how we disassemble and reassemble content — it also leads to a transformation of content business models. Nanocasting requires content providers to come up with meaningful pricing for fragments of content such as individual songs, news articles, or TV episodes. Nanocasting necessitates more granular implementations of advertising. Finally, nanocasting eventually leads content services to take a long, hard look at subscription models.

By now, you've probably already jumped ahead of me to the punch line for this section — nanocasting content is the obvious endgame conclusion in the learning content space. To repeat what you've already concluded, nanocasting will reshape educational publishing and learning content in general because:

Textbooks are so easy to disaggregate

Unlike novels and other trade books, textbooks, by definition, are collections of learning content devoted to granular topics. Their tables of content are designed purposefully for disaggregation. Many publishers already provide custom publishing services that take this down to

the chapter level, but the product easily supports an even smaller component of content — the key learning concept.

Learning content is already optimized for nanocasting

Not only is textbook content already structured in a way that makes disaggregation easy, it is also already categorized and can be easily tagged to support enhanced discoverability and easier reassembly or mashup.[15]

Learning content is tailored to intelligent search technology

A big issue associated with nanocasting is the incredible amount of content users have at their disposal. Too many choices can make content libraries unusable if there isn't a simple way for people to find what they want or need. Fortunately, much of the learning content that will be aggregated by content companies is either text content or at least text-based in some way. This means it is ideal for new search technologies and big data solutions that are designed to manage and make sense of large stores of unstructured data (like the page of a textbook).

The necessary technology standards are already in place

Of course, nanocasting learning content implies that there exist the proper content standards that will make it possible to assemble content from disparate sources and reassemble it into seamless new packages. Just as music and video arrived at standard formats to support nanocasting, learning content has already embraced standards for assessments, text, and content packaging to go along with other media standards. SCORM, LTI, Common Cartridge, and ePub3 are just some of the common formats for sharing and consuming educational content.

Consumers of learning content are demanding/will demand it

Finally, with learning content as it was with music, video, and news, nanocasting is a product of customer demand. And that certainly exists in education. Instructors have long demanded the ability to assemble their ideal packages of learning content across different textbook publishers. Institutions are insisting on more personalized and adaptive learning experiences for their students. And those same students are clamoring to have the same experience with learning content that they have with every other form of media in their lives — one that is

personalized and meaningful at the level of the individual.

If nanocasting is to have a big impact on the learning content space, what are some concrete ways this trend will play out by the end of the decade?

Here are a number of scenarios and/or product evolutions I'd bet on:

- THE NOTION OF THE TEXTBOOK WILL BE DEEMPHASIZED
  As I have already said, the print book paradigm made sense for textbooks in the formative stages of the industry because that was an existing model that could support the need for collections of reading content. We are now to a point, however, where education has changed, the types of content needed for instruction has changed, and the methods of consumption and distribution are completely different. In fact, if anyone presented today's needs for learning content to a product committee, the last model they would choose is a book. The need to combine text, media, and assessment in adaptive collections has already led major publishers such as Pearson and Cengage to design new models of content delivery that remove the textbook as the "hub" of their product offering.[16] Over the next five years, while textbooks will certainly maintain a high profile — just as broadcast channels and CDs/albums still do — publishers will make concerted pushes to market and sell alternative collections of, and access to, their content. They will do this to combat perceived pricing related to textbooks, to strengthen their position related to enterprise sales, and to take advantage of a myriad of new business models and content aggregation services.

- CONTENT AGGREGATION SERVICES WILL FEATURE CONTENT FROM MORE THAN ONE PUBLISHER
  Yes, content aggregation services will appear in the near future and they will have a major impact within educational publishing and learning content in general. The jury is still out on whether we will have a service endorsed or owned by several publishers — similar to the Hulu model in television — or an independent

service managed by a large content player (Amazon, Google, or Apple) or a new educational technology company. However, this is one inevitable outcome of the current trends and the ruling service(s) will feature granular content from multiple publishers. This holy grail for instructors and institutions will also feature content from various open textbook initiatives and, eventually, user-generated or self-published content. While many inside the publishing industry argue that this will reduce revenues, it will actually provide them with broader distribution of their content to larger audiences and allow them to make sales that were previously not possible because of the current "buy only my content" approach.

- CONTENT AGGREGATION SERVICES WILL FOCUS ON TOOLS FOR CONTENT DISCOVERY, CUSTOMIZATION, AND PERSONALIZED LEARNING
  As I point out in the section on content as a service (CaaS) later on in this chapter, there will be a big shift in content revenue generation this decade from products to services. This is particularly true in the area of learning content, where free or open content will represent a growing portion of the market in coming years. Content aggregation services will distinguish themselves with robust tools for content discovery, easy customization and publishing services, and dynamic or adaptive aggregation capabilities that provide learners the precise content they need based on their personal preferences, learning context, and choice of learning topic.

- CONTENT SUBSCRIPTIONS WILL BECOME COMMONPLACE
  One obvious result of taking learning content apart and making it available through aggregation services will be the emergence of subscription services. Subscription services already exist in publishing for reference material and enterprise customers like libraries but not for textbook or core learning content. With content aggregation as a popular service, however, subscription

models will become more popular. Interestingly, content subscription will allow traditional publishers to look beyond their traditional customers and reach a more global learning community that will now be able to discover their content in a way, and at a price, that makes sense.

- ADAPTIVE LEARNING WILL RULE
  Personalized learning isn't simply about manually creating custom collections of material. It also means having services that provide dynamic, just-in-time personal collections of learning content based on changing contexts and/or preferences (think Flipboard or Pandora). At the same time, personalized learning also signifies content collections that adjust to personal usage patterns, performance on assessments, and other real-time user analytics. This is the future of learning content — it must be smart and it must be smart in a way that reflects the needs of the individual learner.

- PUBLISHERS WILL RETHINK THEIR CONTENT DIFFERENTIATION STRATEGIES
  This is an inevitable outcome of nanocasting but also a huge challenge for traditional textbook publishers. The old notion of needing multiple textbooks in the same course area for product differentiation will be challenged. It will be increasingly difficult to justify the cost of producing five textbooks in the same course area, particularly when all of them contain the same core learning content. It will also prove hard to separate one publisher's key learning concept on quadratic equations from another publisher's similar content without beginning to redefine the actual pieces of content that will make up the key learning concept. Ultimately, this will likely lead to a redefinition of core learning content in general. Premium key learning concepts will likely consist of text, media, other resources, and assessment.[17]

The Shift from Content as Product to Content as a Service (CaaS)

The ultimate effect of the shifts toward distributed and granular content is that the primary business model for learning content — content as a product — will give way to new ways of doing business.

Over the coming decade, we will see the learning content industry transition from a "content as a product" model to "content as a service" (CaaS). That doesn't mean learning content publishers and libraries won't continue selling packages of content. What it does signify, however, is that total market revenues will shift and content services models will become the high-growth sector of the market.

The biggest reason for this shift is, quite simply, that the economic value of learning content will continue to diminish in the future because technological advances will generate an abundance of supply as well as disruptive competition from non-traditional content sources.

The diminishing economic value (and lower prices) of learning content is easy to understand. For the past forty years, educational content providers have built an empire based on siloed content with an emphasis on content ownership and controlled distribution. This model flourished within the higher education systems and public school systems that evolved in a symbiotic manner with the textbook companies. New digital technologies, however, have led to completely new learning content channels — OERs, low-cost alternative e-textbooks, institution-created content — and all of these are aimed squarely at the high costs of traditional textbooks.

As more and more quality learning content is available at lower and lower prices, traditional textbook publishers will respond in kind. In addition, continued advances in content search and discoverability will further expose what is the weakest link in the traditional publisher's content chain — an overabundance of duplicated content with little significant differentiation. The result over the coming decade will be content packages with decreasing prices — average college textbook prices descending from $104 retail to $50-$60.

How will anyone make money with such changes? Actually, the overall learning content market should grow in terms of overall market revenue potential during this phase. We are already beginning to witness a rise in the value of content services, and over the next several years we will

see intensified competition in this area from textbook publishers, major technology companies, and a host of new startups.

In other words, learning content will follow the same path other media has over the past decade. This is a shift that has led to the rise of iTunes and Amazon in video and music, and that has spawned new business models from the likes of Pandora and Spotify. It is also the disruption within the news industry that has given us exciting new consumption models from Flipboard, Zite, and Google.

Taking our cues from other media markets, and considering the unique elements of the education space, here are key services and business models that will generate new revenues and offset the lower cost of learning content:

- CONTENT AGGREGATION
  The future of learning content is about more content coming from an increasing number of sources. And, just as iTunes and other media services allow users to construct their own personal collections of music from different albums and music labels, an important service in the learning content industry will be similar services that provide users the ability to take pieces of content from many different sources and recombine them into their own services.

To be clear, this is quite different from the traditional custom publishing services provided by textbook publishers. Those services promote a publisher's own textbooks and ancillary materials, and only allow the deconstruction of textbooks at the chapter level.[18] The new wave of content aggregation services will feature content from most commercial publishers, open textbooks repositories, and free and open educational initiatives.

This ability to aggregate content easily from many different sources will feature deep, genome-type tagging as well as adaptive features that allow companies to generate revenues from both individual and enterprise users.

- CONTENT PUBLISHING
  An offshoot of content aggregation services will be powerful content publishing services. Again, as the notion of learning

content becomes increasingly granular and dynamic, the heavy investment in pre-configured content containers such as textbooks will lessen. In its place will be micro, self-, and just-in-time publishing services that offer users — instructors and students — the ability to publish dynamic content packages into the format or display of their choosing. Such options will include, print, online, mobile (apps and Web), as well as different file formats.

- CONTENT DISTRIBUTION
  Of course, content aggregation and publishing are only valuable if someone provides distribution capabilities to complement those services. In today's evolving landscape, learning content distribution equates to support for major retail channels — Amazon Kindle, Apple iBooks, Google Books, Barnes & Noble — as all major technology platforms and environments. On the tablet side that means the iOS and Android smartphones and tablets as well as "custom" Android environments like the one sported by the Kindle Fire. Beyond devices, content distribution also signifies broad integration support for LMS platforms.

Moving forward, learning content customers, whether that content is commercial or free, expect to be able to access that content whenever and wherever they choose — the channel, device, file format, and learning workflow that suits them best.

- CONTENT INTELLIGENCE
  Of course, none of these new services would be possible without the shift to digital and our ability to enhance traditional learning content to make it discoverable and adaptive. This, in turn, opens the way for a whole new group of content services and companies that target content discoverability, dynamic aggregation of content, and adaptive content.

In addition to pure adaptive companies like Knewton, there will be a sizeable market for companies servicing the enterprise market and retrofitting massive amounts of legacy publisher content for increased intelligence. Also, expect to see increased emphasis placed on semantic

tagging and for content companies to leverage big data solutions with user feedback loops to drive an individualized learning experience.

The good news is that these types of capabilities and services are easier to accomplish with educational content because of the formal organizational structures that already exist through course syllabi and book tables of content.

- CONTENT ANALYTICS
  One of the most significant content services in the coming decade will be in the area of content analytics. In education, all parties — students, instructors, and institutions — want to be able to measure user engagement and content efficacy. At the end of the day, we want to know if anyone actually learned something (and if it was what we hoped they would).

Being able to tie user engagement analytics from non-assessment learning content to actual assessment and other learning outcomes could prove to be the holy grail for content companies. It will definitely usher in a new era of content evaluation and, for the first time, provide both publishers and consumers with real data points about the efficacy of learning content.

Notes

1 I would be remiss if I did not make an important reference here to the important early education bloggers who helped launch a new form of information gathering and dissemination in education. Bloggers like George Siemens, Alan Levine, Stephen Downes, and D'Arcy Norman provided great examples for my own blogging efforts. My biggest encourager when I first started blogging was Laura Gibbs (http://bestlatin.blogspot.com/ and http://mythfolklore.net/). For more information on Educational Blogging, particularly from the referenced time period, I recommend this article by Stephen Downes: Downes, S. (2004). Educational blogging. Educause Review, 39(5), 14-26. Retrieved from http://www.educause.edu/EDUCAUSE Review/EDUCAUSEReviewMagazineVolume39/EducationalBlogging/157920

2 Fargis, P. (2002). The New York Public Library Desk Reference. (4th ed.). New York: Hyperion.

3 As great examples and explanations of the information changes from the 19th century to the present day, I recommend the following videos. "Did You Know? Shift Happens" by Karl Fisch and Scott McLeoud (http://www.youtube.com/watch?v=ljbI-363A2Q), and RSA Animate – Changing Education Paradigms (animated version of a talk by Sir Ken Robinson – http://sirkenrobinson.com/skr/rsa-animate-changing-education-paradigms)

4 Fisch, K.. "Did you know 2.0." YouTube. 2007. Web. 1 Feb 2012. <http://www.youtube.com/watch?v=pMcfrLYDm2U>.

5 Siegler, MG. "Eric Schmidt: Every 2 days we create as much information as we did up to 2003." Tech Crunch. Tech Crunch, 2010. Web. 1 Feb 2012. <http://techcrunch.com/2010/08/04/schmidt-data/>.

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7 "Apple's Mac App Store Downloads Top 100 Million." Apple

Press Info. Apple, 2011. Web. <http://www.apple.com/pr/library/2011/12/12Apples-Mac-App-Store-Downloads-Top-100-Million.html>.

8 Columbia College Web site – <http://www.ccis.edu/about/factsheet.asp>.

9 Jaschik, Scott. "The Growth of For-Profits." Inside Higher Ed. 18 Jan 2011: http://www.insidehighered.com.

10 Times Staff, . "Enrollment Growth at Community College Begins to Ebb." Community College Times. 2011. Web. http://www.communitycollegetimes.com/Pages/Campus-Issues/cc-enrollments.aspx.

11 Reynolds, Rob. "Content without Borders, Education without Containers (Part 1) ." The Xplanation. MBS Direct, 7 Dec 2009. Web. <http://blog.xplana.com/2009/12/content-without-borders-education-without-containers-part-1/>.

12 See video example – <http://www.youtube.com/watch?v=QMZ_rQKAy7c>

13 <http://www.youtube.com/watch?v=gRHjD7rIGiM>

14 Note that the "point of no return" for the music industry came with P2P sites and iTunes which resulted in the disaggregation of the album and a focus on buying and sharing individual songs.

15 K-12 content has the added advantage of being mapped to Common Core and state standards.

16 In the new paradigm, major publishers are creating "super packages" that combine assessment, textbook content, media, and learning outcomes. These are housed in high-end platforms like Cengage's MindTap or Pearson's MyLabs platforms and are marketed as all-inclusive, premium content solutions. Naturally, these products allow publishers to sell digital content packages with no used print market and to offer them at a price point that is higher than the current retail price for a new print textbook.

17 There are already some early examples of these types of product on the market. Perhaps the best example is Soomo <http://soomopublishing.com/>

18 We see the basic framework for this type of service in Macmillan's

DynamicBooks project. <http://dynamicbooks.com/>.

Chapter Four
Along Came a Tablet

While we're definitely living at the center of a major sea change in educational content, it certainly feels like familiar territory to many of us. The era of digital textbooks and the promise of reusable digital objects that will transform learning content are events that have been hyped as imminent since the late 90's.

Why didn't the revolution happen before 2011? For starters, as often occurs on the innovation curve, the vision of the inevitable was seen before the demand and technology for it actually existed. Specifically, it took more than a decade for us to realize the proper nexus of devices and software to make the vision reality.

In the end, it seems that all we needed was a decent tablet.

The Separation of Devices and Software

I remember becoming aware of e-reader devices when I read an article about NuvoMedia's Rocket eReader in 1999. The first e-reader I ever played with, however, was the GemStar.[1] The year was 2003 and I was a product manager at McGraw-Hill. I had recently become involved in a project to place a selection of our company's textbooks on the device for a K-12 pilot in Texas.

As I held the device and scrolled through different content samples using the e-reader's button controls, I was struck by two immediate thoughts.

First, this type of device would someday be the solution for K-12 textbooks — it would address a number of publisher costs and get rid of the ridiculous weight students were lugging around from class to class. At the same time, I also recognized how limited the product was and how far I thought it needed to evolve before catching on.

I'm certain the latter thought was directly related to a software project I had just begun in which we were designing and building a prototype for an interactive e-reader application integrated with a learning management system. The application was being constructed from scratch using ActionScript, and our goal was to utilize the Flash framework to deliver some nice bells and whistles for interactivity.[2] When we gave an early demo, what garnered the most attention were the embedded videos and interactivities, and the slick back-and-forth toggle between the LMS and the e-reader.

As an instructor, my philosophy had always been that textbooks were only valuable as an integrated learning tool. This was how we could make them relevant and increasingly viable in the age of technology. Besides, I argued to those attending the demo, we were now squarely in the age of the laptop and wireless Internet access. E-reader software like this was the future!

To be honest, as much as I believed in the project, there was also a certain amount of self-promotion wrapped up in my speech. I knew we had passed through the first wave of e-book experimentation in the textbook industry and had failed with flying colors. Between 2000-2003, the major textbook publishers had invested in early e-book programs for primary front list titles at a cost of up to $50,000 per book.[3] Their investments were mostly a defensive strategy to ensure they didn't lose out on market share by falling behind in technology, and they quickly discovered that there was no real market for e-textbooks in the broader education

industry in the U.S.[4]

But this failure provided abundant user feedback and opportunities to evaluate what kind of products and technology would work for the demand that did exist. That's right — in spite of the failure of the first wave of e-textbooks, publishers did discover that there was an opportunity for e-textbook and hybrid product revenue streams within particular disciplines.

In order to seize that market opportunity, the textbook industry opted for a two-pronged strategy that would last almost until the end of the decade. On the one hand, they would produce inexpensive e-textbooks using some form of standard technology that could complement their existing publishing formats. This meant fairly wide scale adoption of Adobe's PDF format, as it was a natural output already provided by compositors.

This "basic" solution would allow textbook publishers to remain competitive and not lose adoptions because they did not have digital alternatives while, at the same time, not increasing their product costs significantly. In general, companies viewed these e-textbooks as products that could be bundled with print or assessment products and often given away as an incentive for adoption.

In a parallel initiative, publishers also began partnering with a variety of "boutique" educational software companies to create rich, interactive digital textbooks that had good market value in disciplines like world languages, science, and math.[5] These products carried a higher cost, which varied depending on the level of complexity, and sold in more expensive bundles or as separate products.

What is most significant about this strategy is that it was based on an assumption that the primary educational hardware devices would remain the desktop or laptop computer. It also assumed that the only way to deliver the optimum user experience with regards to e-textbooks was through rich but "heavy" software applications that focused on the unique requirements of the educational market — embedded interactivities and media, rich hyperlinks, smart glossaries, clickable indices, and deep linking within LMS applications. It is the work by publishers and software developers in this phase of boutique e-textbooks that marked the beginning of an ardent race to design and build the ideal digital reading and learning experience framework.

I should say that I had pretty good seats for this particular phase of the learning content game. Between 2004 and 2009, the year this phase came to a more or less official end and the education world began a new tectonic shift, I was a principal in an educational software company

creating rich e-textbooks for publishers, a product manager and then an executive for a major textbook company, and an entrepreneur trying to market ideas for the next wave of learning content.[6]

What I observed and learned, and why the products and platform designs of this era were ultimately unsuccessful, includes the following:

- A LACK OF ATTENTION TO STANDARDS
  Neither textbook publishers nor software vendors had any real interest in promoting format standards as they viewed this as potentially hindering their ability to move quickly with products and gain market share.

- A DISDAIN FOR HARDWARE
  Again, the assumption was that "hardware" would be defined indefinitely as a laptop or desktop computer. This meant that the solution needed to be software based.

- THE DECISION TO "LOCK IN" ON CLOSED TECHNOLOGY
  With Adobe's acquisition of Macromedia and the rollout of their new Flex development framework for Flash, e-textbook software developers went all in on that particular technology platform. Its object-oriented capabilities aligned it more closely with Java, and that, along with Adobe's backing, gave companies a new sense of legitimacy. In addition, using Flash-based technologies aligned nicely with the textbook publishers' adoption of Flash as a common format for their media and interactivities.

- A LACK OF ABILITY TO SCALE
  In spite of an upgrade in the general technology employed, the solutions were not architected to scale to meet large-scale use (both in terms of the number of e-textbooks and users). The focus, for the most part, was still on the top product layer with heavy, rich application features as opposed to sophisticated backend systems.[7]

- HIGH PRODUCTION COSTS
  This era of e-textbook development was extremely profitable for the software vendors providing e-textbook solutions. Preying on the competitive demands of the market, the needs of different editorial groups, and the lack of successful enterprise initiatives from within the different publishers, software vendors charged a premium for their products. Prices generally ranged from $2,500 to $50,000, depending on product complexity, and profit margins ran extremely high.

- EXTERNAL TO PUBLISHER TECHNOLOGY PLATFORMS
  One of the biggest problems with the e-textbook platforms in this time period was that there were so many of them and they all existed outside the confines of the technology platforms developed by major publishers. During this time, major publishers were required to support integrations with multiple boutique e-textbook vendors, each with its own separate framework.

- NOT OPEN TO INSTITUTIONAL DEVELOPERS AND EDUCATIONAL TECHNOLOGISTS
  Perhaps the biggest shortcoming of e-textbook products during this era was their lack of support for institutional developers and educational technologists. Again, the technologies being used were closed, and the business models did not lend themselves to fostering relationships at the institutional level. This was particularly problematic as open source LMS platforms like Moodle and Sakai gained increasing traction.

Combined, these factors spelled out the inevitable failure of the heavy software approach to e-textbooks. And, while the arrival of the iPad and tablet devices hurried their demise, the e-textbook platforms developed during this phase would have met their demise just the same. It was only a matter of time until textbook publishers became more focused on developing their own technology solutions. More importantly, the high product costs and lack of interest in standards would ultimately result in obsolescence in a world that was increasingly focused on open and shared formats for publishing.

Along Comes a Tablet

In hindsight, it all seems so clear and inevitable.

Amazon introduced a new era of e-readers with the first Kindle in 2007. Apple ushered in a new age of computing with the iPad in 2010. These events led to the irreversible shift of reading content consumption to mobile and touch-centric access.

We should have all seen and embraced this inevitability when Apple introduced the first iPhone in January 2007. Unfortunately, many of us were too busy criticizing Apple for thinking it could play in a market dominated by the likes of Nokia, Samsung, and RIM. The iPhone was too slow, it wasn't optimized for corporate e-mail, and it lacked a real keyboard. At best, it was a cute consumer add-on to help the Cupertino company with their iPod and music sales. It could never compete in the enterprise space.[8]

And, we should have taken serious note when Amazon released the original Kindle later that same year. Those of us in the learning content business, however, could only see its lack of support for color, the absence of page numbers, and the small screen size. This type of device might be fine for novels but it would never work for textbooks.

Indeed, we should have recognized the inevitable with subsequent releases of the iPhone and the Kindle. The idea of the touch screen was gaining serious traction and, with the large-screen Kindle DX, Amazon proved it was willing to innovate and invest in the future. But, while there were any number of enthusiastic pilots and small college programs for the iPhone, there was no rush to move aggressively into the mobile space. Mobile apps were a nice-to-have technology but not core. As for the Kindle DX, it had received criticism for its troubles with accessibility and its lack of integration with other educational technologies.

Yes, in hindsight it all makes so much sense now. When Amazon and Barnes & Noble started going head to head in late 2009, and as the trade e-book business began to grow rapidly, we should have been ready with standards-based content and long-term strategies for mobile learning.

Alas, or thankfully, it took the release of the iPad to wake everyone up.

By now we are all relatively familiar with the statistics.

- 15 million iPads sold in 2010[9]
- 45 million iPads sold worldwide in 2011[10]
- 82 million iPads sold globally predicted for 2012[11]
- 28 million iPad users in the U.S. by the end of 2011, and almost a third of all U.S. Internet users will be using some kind of tablet in 2013, with more than 75 million tablet owners.[12]

Of course, Apple's success is only one part of the story. The 2011 holiday sales success of Amazon's Kindle Fire tablet — approximately 5.5 million sold from the time of its announcement in late September 2011 through the end of the year[13] — is a strong reminder that, like smartphones, tablet devices will grow as a broad market segment with participation from a number of major companies.[14]

With this in mind, it's not surprising that an MBS Direct survey of college and university students this past fall found that 14% of students surveyed had already acquired some form of tablet device.[15] Based on consumer trends and considering the likelihood of purchase within specific demographics, I project that 25% of incoming first-year students will have tablet devices by fall 2012.

And this is still the barest tip of the proverbial iceberg. By the end of this decade, I expect more than 75% of all learning content — textbooks, media, interactivities, Web pages — will be read on tablets or similar lightweight mobile devices.

Yet, even these impressive numbers don't truly address the real impact tablets will have in education. That's because the tablet represents more than just another novelty gadget or a different size of display. Tablets are more than laptop alternatives or oversized smartphones. In reality, they are personal computing devices that could actually make learning personal again.

Here are five reasons why tablets will likely prove to be the most disruptive learning technology since the personal computer:

- TABLETS ARE A PERSONAL AND INTIMATE TECHNOLOGY
  Because we can touch them, and because they take on our personal preferences and personalities in a myriad of ways, tablet devices are more "personal" that desktop or laptop computers. They go with us more places and they fit more neatly into a wider number of usage scenarios. This personal nature of the devices

translates, I believe, into new avenues for situation-based and distributed learning opportunities.

- TABLETS WILL CHANGE THE WAY WE INTERACT WITH INFORMATION
  A big part of the personal or intimate nature of tablets is the way we interact with them — via touch. The lack of an intermediary device such as a keyboard or mouse introduces a new and more direct paradigm for information access and interaction. In addition to touch, the next two years will also see the integration of voice-based search such as exists on Apple 4S iPhone devices with its Siri application. The combination of touch and natural language voice query will challenge and ultimately upend many established conventions in education and research. It will also alter the curriculum and introduce new areas of debate regarding cultures and the technology divide.[16]

- TABLETS ALTER CONTENT FORMATS
  One of the biggest impacts of the tablet, whether directly or indirectly, is the influence this form factor has had on content standards. Beginning with Steve Jobs' announcement that the iPad wouldn't support Flash and that Apple was moving to HTML5, the tablet movement has already led to the lock-in or promotion of a variety of content standards. These standards are important because they allow consumers to purchase content once and play it on the device of their choosing. With regards to learning content, ePub3 is likely the next big standard to have an impact, as it will provide digital stability across the textbook publishing industry and also provides an avenue for the coming content aggregation businesses and for interactive reading content.

- TABLETS WILL HELP PROMOTE ACCESSIBILITY
  For anyone who has used the built-in accessibility features on a tablet, this seems fairly obvious. Tablets, more than the devices before them, will help ensure that digital learning content and

> applications are available to all users. I think there can be little doubt that, throughout the current decade, we will see a shift from accessibility software as device-agnostic to accessibility software as device-specific (meaning tablet-specific).

While the tablet in general will become ubiquitous throughout the U.S. education systems in coming years, I will be the first to admit that not all tablets are created equal. In fact, the tablet movement in learning will consist, roughly, of two separate components — consumption-only and consumption-plus-production. The differences between these two are both price and pedagogy.

Consumption-only tablets

Consumption-only refers to tablets that are optimized for content consumption (text, Web, media) but are not necessarily as strong when it comes to true productivity. The Kindle Fire, for example, is an Android-based tablet with a user interface and workflow designed to make it easy for users to access and view media content and e-books. While it supports apps, its size and interface provide an awkward feel with regards to e-mail or text composition. Also, its lack of storage memory and its reliance on the cloud or WiFi mean that it is not that great for offline work. The upside is that the Kindle Fire only costs $199 and should be a great device for reading enhanced e-textbooks. The same will be true of One Laptop per Child's XO3 and Datawind's Aakash. These devices will be in the sub-$100 class and, while not being high-performance machines, will prove more than adequate for learning content consumption.

Consumption-plus-production tablets

Currently, this category belongs to Apple, although Microsoft could end up being an important player as well if their Windows 8 devices arrive as expected in 2012. In this category, the emphasis is on performance, local storage, app power and versatility, and overall productivity. While consumption-only tablets are ancillary personal devices, the tablets in this category can actually function as laptop replacements and are optimized for content creation as well as production. These devices work extremely well for e-textbooks but are also excellent for LMS access, presentations, video production, and composition.

In the end, tablets probably matter most because they are the final weight to tip the learning content scales in the direction of digital. In the United States, 46% of adults already believe tablets will replace laptops.[17] With that kind of public consensus for a technology that is only

two-years-old, along with its ready acceptance in the education space and the current onslaught of tablet pilots and programs, learning content publishers have found the perfect technology nexus for realizing the future of digital content.

Notes

1 Lebert, Marie. "eBooks: 1998 – The first ebook readers." Project Gutenberg News. Project Gutenberg, 2011. <http://www.gutenbergnews.org/20110716/ebooks-1998-the-first-ebook-readers/>.
2 Looking back, this certainly seems primitive, but in 2003 it was bleeding-edge work. This was before Flex and true object-oriented capabilities for Flash (and, as a result, before good Java integration). The team working on the project was certainly top notch. It included Ryan Sarver, now a platform lead for Twitter (https://twitter.com/rsarver), and Keith Peters, ActionScript/Javascript/Animation guru and prolific author (http://www.bit-101.com/blog/).
3 The early days of educational e-books featured dotcom startups like Rovia, early custom-coded XML projects, hybrid (CD-ROM-Web) products, and pilot initiatives with Adobe and Microsoft.
4 By "no market" I mean there is no real measurable revenue that could be tied to or projected for e-books as stand-alone products. At best, publishers believed they might become a valuable part of their important custom publishing initiatives. In the case of McGraw-Hill, for example, e-book growth for its Primis division (now McGraw-Hill Create) was seeing strong growth in e-books during this time. In spite of the growth, however, the revenue represented was insignificant. The other opportunity publishers were able to see was in career colleges and the new for-profit space. The University of Phoenix was a primary focus point.
5 The company I co-founded in 2004, Xplana, was one of these boutique providers. Xplana, along with VPG and a few others, published a large number of e-textbooks in specific disciplines during this phase. These e-textbook products emphasized rich media, embedded activities, and a page fidelity view of the book. The companies targeting this business generally provided a la carte menus for conversion, hyperlinking, and the inclusion of rich assets. The cost of these e-textbooks for publishers ranged between $2500-$50,000 per title, and the margins for the vendors were attractive.

6 My personal journey in the textbook world began as an author of ancillary materials while I was still teaching at the University of Oklahoma. After leaving the university to focus on a large textbook project for McGraw-Hill, I subsequently joined the company as a Sr. Product Manager. A year later, in 2004, I co-founded Xplana and spent the next two years building that company. In 2006, I re-joined the corporate publishing ranks as a Director for Thomson Learning/ Cengage. During my time there, which ended in a stint as VP of Digital Solutions, I managed and oversaw a wide variety of digital product solutions and participated both in the sale of Thomson Learning to Apax Partners as well as the acquisition of Houghton Mifflin Higher Education. In 2008, I rejoined my partners at Xplana to prepare the company for investment of acquisition, which occurred when we were purchased by MBS Textbook Exchange in 2009.

7 The exception here, at least to some extent, was VitalSource. They were the first company to create a platform designed with a heavy emphasis on enterprise partnerships. Their initial market push focused on helping major companies reach the career college market but they quickly moved into other market segments. VitalSource was successful during this time because of its strong back office and production tools. With regards to its e-reader, the company was hampered to some extent by its use of the .net platform, which required a download that resulted in frequent customer complaints.

8 I still remember an event while I was at Cengage in which two project managers engaged in a smart phone duel at a dinner in Boston. One had an iPhone and the other a Blackberry. The Blackberry owner was dismissive of the "cool" iPhone and kept challenging its owner to race through various tasks in order to show which device was faster and easier to use. At the time, the consensus at the table was that we would all be stuck with our Blackberry devices while students would end up with iPhones. Thank goodness we were wrong and I now have my enterprise-approved iPhone.

9 Paczkowski, John. "Apple's iPad 2 Event by the Numbers." All

Things D. Wall Street Journal, 2 Mar 2011. Web. <http://allthingsd.com/20110302/apples-ipad-2-event-by-the-numbers/?mod=ATD_rss>.

10 Pettey, Christy. "Gartner says apple will have a free run in tablet market holiday season as competitors continue to lag." Gartner.com. Gartner, 2011. Web. <http://www.gartner.com/it/page.jsp?id=1800514>.

11 Etherington, Darrell. "Survey says Apple on track to sell 190M iPhones, 81M iPads in 2012." GigaOm. Web. <http://gigaom.com/apple/survey-says-apple-on-track-to-sell-190m-iphones-81m-ipads-in-2012/>.

12 eMarketer, . "One in three online consumers to use a tablet by 2014." eMarketer.com. Web. <http://www.emarketer.com/Article.aspx?R=1008701>. See also, Mitchell , Amy. "The Tablet Revolution and What it Means for the Future of News." Journalism.org. The Pew Research Center, 2011. Web. <http://www.journalism.org/analysis_report/tablet>.

13 Kafka, Peter. "Time to Stoke Those Kindle Fire Sales Estimates." All Things D. Wall Street Journal, 9 Jan 2012. Web. <http://allthingsd.com/20120109/time-to-stoke-those-kindle-fire-sales-estimates/>.

14 At CES 2012, more than 30 new tablet devices were on display, and Microsoft made a big splash with its Windows 8 operating environment (what will be driving its tablets later in the year). For all the early hype, the general tablet market will ultimately be dominated by the major brands – Apple, Google, Microsoft, and Amazon. There will be a second tablet market, however, the low-cost education-focused division, that will feature the XO-3 from One Laptop per Child (http://one.laptop.org/), and the Aakash by Datawind (http://datawind.com/)

15 Resch, Griff, Ed. "2011 Textbook Market Survey." MBS Direct. 15 Oct 2011. Survey. This survey has now been administered for 5 consecutive years. The survey is administered to 1000 students at 2 and 4-year colleges, and targets student purchasing trends as well as the use of digital technologies for learning.

16 This statement grew out of a conversation I had back in September

2011 with Dr. Tanya Amankwatia from DeSales University. During a presentation, Dr. Amankwatia asked me if I thought such voice-based technologies would not only change our notions about literacy but champion kids from oral cultures as well. I think the latter is a likely outcome and it also points to a whole range of desirable skills for future learners and professionals.

17 Indvik, Lauren. "Tablets Will Replace Laptops, Say 46% of Americans." Mashable. Mashable, 10 Jan 2012. Web. <http://mashable.com/2012/01/10/tablets-laptops-study/>.

Chapter Five
Open, Free, Low-Cost, and Other New Content Realities from the Wild West of Digital Publishing

While tablets are transforming education in one way, the increasing abundance and quality of open, free, and low-cost learning content is pushing a different kind of radical change.

In this chapter I want to discuss the impact, actual and potential, of all non-publisher content that has come into play in the last decade. This includes low-cost alternative digital textbooks, free Web content, open textbooks, open educational resources (OER), and OpenCourseWare (OCW) projects. To aid with clarity and avoid misunderstandings, I am defining open textbooks as textbooks that are made available through open licenses, such as Creative Commons, and that allow instructors or institutions to reuse the content freely. Open educational resources are similar, but they generally refer to a broader range of content forms and types in which users have the specific ability to remix or modify the original content according to individual needs.

I think anyone exploring the Web in its earliest days could see, even in its primitive and still disconnected state, that the medium would eventually lead to an explosion in the information available to us. And, as we have watched it evolve, nowhere has that growing availability of information and resources had more impact than in education.

Not that the impact has always been positive. The plethora of information sources has brought with it a heightened need to develop discernment about what constitutes reliable resources and to provide instruction regarding plagiarism. It has also generated a surplus of unsuitable

content that has challenged institutions to balance censorship with instructional needs.

On the other hand, the Web has given instructors and instructional designers an incredible fountain of free content that can be used in our courses. As an example, we can choose a course such as Introductory Spanish and navigate to YouTube to search for video resources. A general search will yield hundreds of videos created by instructors, and if we drill down into specific grammar of vocabulary topics, the number of resources grows into the thousands.

And that's only on one resource site!

Of course, I could also go to the MERLOT repository at the California State University system and find another collection of activities and Web sites. Or I could simply enter a Google search and find all the tremendous resources at Barbara Kuczun Nelson's site or at Study Spanish.com.[1] Best of all, I could peruse all of these sites and resources quickly and use them to assemble several excellent collections of learning material.

This abundance of free and easily accessible resources is an underlying cause for the tension around the price of learning content in US education. Since there is so much good content available for free, why are students paying so much for textbooks and other learning materials?

It's a good question, and the standard answers from across the spectrum have been:

- We lack the proper mechanisms for aggregating and delivering all those growing resources in cohesive packages.

- Those resources are available but they do not all carry the same permissions for reuse, so creating open courses or textbooks with them is problematic.

- Yes, there are many available resources but their quality is uneven and it is difficult to curate them into usable packages that have a high degree of validity.

Over the past several years, however, those answers have lost credibility as new Web technologies have made it easier both to discover and

evaluate content through community interaction and to aggregate resources from disparate origins into reusable digital content collections.

These technologies, along with initiatives by foundations and state and federal governments, are bringing free and OER into the mainstream and leading to some interesting shifts in competition throughout the learning content industry.

True or False

I would like to begin our discussion of open, free, and low-cost digital content with a little game of "True or False." This is a good way, I think, to help us debunk and explore some common assumptions about the learning content market, including various familiar notions about textbook pricing.

By common assumptions, I'm not simply referring to those held by the uninformed but ultimate consumer – the students. I'm also addressing the misperceptions of journalists, financial analysts, publishers, administrators, and instructors. These are the groups of people I converse with and who contact me regularly to gain a better understanding of the industry. They are intelligent folks, and many of them have a deep understanding of at least one part of the learning content market.

The problem is that many of the business models in the learning content industry, along with the various vertical markets, are different than those of the traditional consumer market, and it takes an understanding of the current models as well as their historical roots in order to understand completely what business as usual in the textbook industry is really all about.

Now that you know why we're playing the true-or-false game, let's get started.

I want you to read each of the statements below and then, without jumping to the answers, decide whether you believe the statement is true or false.

True or false:
Textbook publishers have a monopoly on the learning content market and hold institutions and students hostage

when it comes to the price of learning content.

False — Textbook publishers, particularly the large ones, do own a major share of the market. However, the competition between major publishers is intense, and there are an increasing number of small publishing competitors who compete aggressively for the same consumer dollars. Moreover, institutions have a number of options available to them when it comes to combating textbook pricing. For example, many educational institutions are now putting out RFPs (requests for proposal) for learning content which force publishers to discount their prices in exchange for multi-year commitments from the institutions. On top of this, educational institutions and departments are beginning to create their own content and/or are looking at low-cost alternative publishers.

The reality is this — institutions, departments, and instructors now have the power to lower the cost their students have to pay for learning materials. Doing so, however, may require commitment to change, a little work, and/or some tough negotiations. By the way, textbook publishers know they are vulnerable to these tactics and, intelligently, continue to refine their products in ways that make institutions and instructors reticent to change for the sake of lowering prices.

True or false:
As long as other major publishers do the same, a textbook publisher can keep raising prices without any real concern of losing market share.

False — The textbook industry is not the airline industry. In the airline industry, the cost of entry into the market is so steep that the major airlines are fairly impervious to new competition. If Delta Airlines decides to increase prices $10 each way for its domestic fares it can do so, and as long as the other airlines match its price the new fares will stick. While there are fare "wars" during particular seasons, none of the major airlines can afford to cut fares too steeply because it would ruin their profits, and any temporary market share increase would be more than offset by the declining profit margins. But fare pricing competition pretty much is limited to the majors.

Textbook publishers, on the other hand, have multi-level competition. There is competition from within the commercial learning content market as well as from the institutional and public sectors. In other words, major textbook publishers have to worry about more than just the three or four other players at the top.

The recent evolution of technology, digital publishing, and textbook for-

mats has made it possible for anyone, or any group, to publish their own content and/or to aggregate valuable content created by others. This is why states like California can weigh the possibility of creating their own textbook content to drive down the costs of public education. It is also why more and more educational institutions and departments are looking at publishing their own content as well.

The reality is this — As the prices of textbooks continue to rise, an increasing number of low-cost alternatives will be produced, and these new alternatives will, in turn, force major publisher into more low-cost campaigns. And major textbook publishers have already seen market share declines in some disciplines as alternative competitors and the easy availability of open content, along with changes in purchasing behavior, have made a noticeable impact.

True or false: Low-cost or open textbooks and learning content cannot have the same quality as the content produced by major textbook publishers.

False — The advantages major publishers have when it comes to content creation are process, scale, and resources. Their content is highly polished by the marketing review process, the editorial treatment, and the attention to design and production. Publishers can also afford to create extensive (and expensive) ancillary packages, instructor manuals, and assessment programs.

But now alternative or low-cost publishers, like Flat World Knowledge, CK-12, and Textbook Media, are providing polished textbook products at reduced prices by focusing on the core textbook product without investing heavily in expensive media ancillaries. In the case of Flat World Knowledge, they combine textbooks written by reputable authors with tools that encourage instructors and departments to customize their products. And this is a growing sector of the industry. It combines an editorial process with a digital-first strategy to deliver high-quality products at a fraction of the price of competitor textbooks.

When it comes to instructor-generated content, we have to realize that these instructors have the same credentials and abilities in many cases as the authors signed to write major publisher textbooks. This ability, along with the consumer digital publishing tools available today, make it possible for instructors to create high-quality learning content. And, while the self-publishers may lack the editorial support of the textbook publishing company, given the ability to use crowdsourcing and to constantly revise their materials self-publishers can ensure that their

content has equal instructional value to that produced by publishers.

The reality is this — If quality is defined by heavy design, glossy images, and high-end video, major publishers have a huge advantage, but as the definition of quality simplifies and refines, that advantage slips away. The market for core content that can be easily supplemented by institutions and instructors is heating up. Traditional publishers will play in this market, but they face tremendous challenges as the definition of quality increasingly becomes one of strong pedagogical design with clear concepts and organization.

True or false: It's cheaper to produce open or free content compared to the costs of creating commercial learning content.

True — At least if we're talking about creating digital-first or primarily digital content. And, to forestall unnecessary debate, I am not talking about actual or absolute costs but rather the amount of product-related funding required to produce content in the different systems.

It is less expensive to create open textbooks and OER. Generally speaking, the author costs are either donated or paid for in some way that falls outside the actual content production budget. In addition, open textbook and OER programs often exist in partnership with government or institutional systems, or with non-profit organizations and foundations, the result being that the costs of digital hosting, publishing, and distribution are shared. Such is the case of the Washington State Open Course Library (OCL), which received funding from the state legislature, the Gates Foundation, and the Washington State Board for Community and Technical Colleges.

Because open textbooks and OER stress learning value over commercial value, they are not subject to competitive pressures from other publishers. Consequently, their creators can eschew fancy design and expensive media and instead use simple presentations and media available via Creative Commons. In addition, open textbook and OER initiatives are not cluttered, or compromised, by the need to turn a profit. In other words, there's no reason to build in extras to cover the costs of marketing, sales, and other for-profit necessities.

Certainly, open content and OER must also be edited and updated periodically, so there are some costs required for sustainability. This may also include management costs related to quality control and collection oversight. But the overall cost requirement of open content and OER is a fraction of that incurred by major publishers.

For instance, Washington State will have 81 courses available in its Open Course Library by the end of 2012. These courses will cost students a maximum of $30 per course, a savings of 60%-75% off traditional publisher prices.[2] And this price includes textbook materials, media, assessments, and instructional content.

The Twenty Million Minds Foundation, which has a goal of creating free textbooks, proposes a similar initiative – this foundation plans to offer free textbooks for the top twenty-five courses taken by undergraduates. The first of these textbooks, Collaborative Statistics, was released in 2011.[3]

The reality is this – While the courses and textbooks in the open and free arena are not as slick and elaborate as their high industrial counterparts, their pedagogical value is solid, perhaps more so in most instances. In fact, their entry onto the scene has caused many in the educational space to assert that cluttered textbooks with their many add-ons do not increase but rather hinder their pedagogical value. What most educators esteem is good instruction and universally available learning opportunities for students. The learning content produced for the open and free initiatives mentioned here and others, like Connexions[4], certainly meets this standard.

True or false:
Digital textbooks from traditional publishers always have lower prices than new print textbooks and are a good strategy for saving on the price of learning content (from a consumer perspective).

False — This statement is not true if we are talking about an actual apples-to-apples comparison. In reality, digital textbooks are licensed or rented versions of the print textbook. The "cheaper" digital textbooks that are commonly promoted and purchased are priced lower because the length of ownership, or access for the product, is less than it would be if the user bought a print textbook.

E-textbooks from publishers generally come with standard licenses of 180 days, 365 days, or perpetual. As you might surmise, the shorter the length of the license, the lower the price for access to the product. For 180-day licenses, for example, it is common to see retail prices that range between 35%-50% of print retail. As the length of the license purchased increases, however, the price of the product moves closer to the price of its print counterpart. In other words, the more the ownership of a digital textbook resembles the ownership of a print textbook, the closer in price point the two will be.

This is why we have reports like the one coming from a Daytona State College study in which some sections of their e-textbook pilot program reported a savings of as little as $1 for digital over print.[5] In cases like this, we not only see student disappointment at the beginning of the semester over the price of digital textbooks but we see it also at the end of the semester when they can't sell the textbooks back..

Naturally, as with all things in the textbook industry, there are other nuances involved, particularly as they relate to larger institutions. In the case of Indiana University's e-textbook program, for example, university officials have negotiated effectively with publishing companies to provide digital textbook access for students during their studies at the institution for much lower prices than print.[6] In this instance, publishers are willing to provide their products at lower prices because of volume guarantees and the length of the institutional commitment. While this type of negotiation has been less common within the ranks of public colleges and universities, it has become a more standard practice in the for-profit space.

The reality is this — Digital textbooks from traditional publishers are not necessarily the answer to the rising cost of textbooks because they are still tied to the cost of their print counterparts. Institutions, however, can help students realize significant savings with digital by negotiating directly with publishers or through content distributor partners.

True or false:
Free and low-cost textbook initiatives – open and commercial – stand little chance of gaining significant traction against major textbook publishers because of the sales and marketing efforts of the large companies.

False — Smaller commercial efforts by companies like Flat World Knowledge CK-12 are making inroads against major publishers by focusing on specific disciplines and addressing underserved portions of the textbook market.

For example, individual choice (IC) adoptions account for as much as 20% of sales revenue in many disciplines. In contrast to department or institutional adoptions, IC sales represent individual instructors who make independent decisions about the learning content they want to use for a course or courses. Understandably, focusing on departmental adoptions that represents the sale of 500-1000 textbook units is more efficient and profitable than trying to reach scattered instructors who only account for 25 copies each with their lone courses. Smaller publishers, however, design their marketing and sales, as well as their content and technol-

ogy, on these IC faculty members with great success.

We also have to remember that faculty members and institutions select – prescribe – the vast majority of learning materials. Unlike a student's backpack or computer, required learning materials are specified and there isn't much in the way of alternative selections. This is particularly important when it comes to institutional initiatives or projects like Open Course Library at Washington State. Ultimately, institutional mandates can and do trump big-publisher marketing.

Finally, brand is critical when it comes to marketing learning content. And, in many cases, institutions have much bigger brands than publishers do. As evidence of this fact, take a look at these year-end statistics from MIT's OpenCourseWare (OCW) project:

- 18.6 million visits (+1.2 million over last year) 10.2 million repeat visits, 8.4 million new visits
- 9.8 million visitors (+200K)
- 1.92 visits per visitor (+0.10)
- 101.4 million page views (+3.1 million)
- 5.42 pages per visit (-0.21)
- 1.8 M zip files of course content downloaded (-.1 million)
- 11.4 million YouTube views (+4.1 million)
- 12 million iTunes downloads (+0.2 million)7

The reality is this – Moving forward, the success of digital learning content is as much about discoverability and institutional mandates as it is about marketing and sales. Open and free content will be successful only if users can find it and access it easily. Alternative publishers can compete with major textbook publishers if they can leverage effective marketing and publishing tools to promote individual choices and the personalization of content. And large publishers will increasingly try to push their way into long-term institutional (enterprise) contracts in order to gain market share and stabilize revenue projections.

True or false: Publishers aren't interested in promoting digital textbook sales because these products fetch a lower price, which means diminishing revenues.

False — Publishers generally believe that the increase in digital textbook sales, while yielding lower revenues in one market segment, will raise

company profitability by eliminating used textbook sales.

Additionally, the sale of digital textbooks allows major publishers to focus on their digital bundles – adaptive assessment packages, textbooks, media, and learning outcomes – which are unique to their brands and sell at a higher price point than print textbooks.

Finally, textbook publishers realize that over the next few years they will be forced to transition to a digital first product design and production workflow. This transition has already begun and it is in the publishers' best interest to make this shift as quickly as possible in order to realize the cost efficiencies and profit margins associated with digital content.

The reality is this — Digital textbooks and digital content bundles and services are the future of the commercial textbook. Textbook publishers know this and are invested in making the transition rapidly in order not to lose market share to digital-first competitors.

Open Textbooks, the Khan Academy, and OpenCourseWare as Models for Free Learning Content

In addition to the appeal being free or low-cost, open and free content affects the learning content market in other ways as well.

First, this content is primarily digital. As its use escalates in education, open and free learning content will push the market more aggressively away from print. Second, open and free learning content is usually self-published. Removed from the constraints of corporate process, individual instructors are able to create and release more content at a faster rate than can traditional publishers. Finally, and perhaps most important, open and free content is being used and adopted at an increasing rate. As I explain in the next chapter, open and free content should account for approximately 10% of all learning content in US education by the end of 2013.

Once we realize the coming impact of free, low-cost, and open educational resources in the learning content market, we can allow ourselves to search for models of likely growth and evolution. I will describe briefly five such models in this section. These models are not intended to be

exhaustive but are rather examples of why this non-traditional learning content can be so disruptive to the traditional market.

Open Textbooks

The creation, use, and popularity of open textbooks continues to grow and is indeed having an impact in both the K-12 and higher education sectors. These initiatives vary from state-funded projects such as The Orange Grove in Florida and the Open Course Library in Washington State to non-profit educational organizations like CK12.[8] In addition, open content repositories like Connexions and MERLOT boast open textbooks as well.[9] In the case of CK12, which is focused on K-12 adoptions, the organization provides standards correlations as well as both student and teacher editions of their products.

Government-Funded Open Content Initiatives

In addition to textbook-specific projects around open content, there are also government initiatives related to the creation of course resources. In addition to Washington State's OCL, the federal government also announced funding in 2011 for the creation of open course content at the community college level.[10] With California and Texas also considering legislation to fund open content in order to reduce the cost of learning content for students, we should expect to see this sector grow and have a long-term impact.

OER and the Khan Academy

The basic premise of OER has been around for centuries – people have long been sharing, reusing, modifying, and remixing learning content. The advent of the Web, however, brought about a more formal concept of OER with open licensing and publics initiatives that garnered both media attention and broad support. This modern OER movement began in earnest with MIT's OpenCouseWare (OCW) announcement in 2001.[11] Over the ensuing years, the OCW movement would attract participation from more than 250 universities worldwide.

Also, individual instructors have used the Web to create and share an vast body of reusable content including syllabi, readings, animations, images, and video. With the evolution of Creative Commons, content creators now have an easy yet sophisticated system for licensing their content for reuse.

While the web facilitated the growth of OER, however, it was YouTube that prompted an outright explosion. The reasons are not difficult to

comprehend. First, YouTube made it easy to create and upload video from any device. The site also provided ubiquitous sharing with its embed codes. YouTube also allowed users to create channels, which are the kind of organized collections that make finding and reviewing clips easy. Of course, discoverability within YouTube is as good as it gets since the site is powered by Google's search engine. And finally, YouTube gives its users tools for editing and remixing its videos.

Is it any wonder that Salman Khan chose YouTube as his vehicle for creating his simple yet powerful library of OER tutorials on subjects in math and science? For someone wanting to create effective video tutorials quickly and to upload and distribute them effectively, YouTube was the obvious choice.

Of course, as Khan's library grew, it attracted considerable attention. He received funding from the Gates Foundation and Google and, as a result, has expanded the Khan Academy in two directions. First, he has added additional content partners such as Smarthistory and its founders Beth Harris and Steven Zucker. This has expanded the tutorial library to more than 2700 items. In addition, the Khan Academy has added a series of analytics tools that measure student engagement and success.

The Khan Academy is certainly an important OER model as it demonstrates the effectiveness of video content and the importance of building content in granular modules that can be easily assembled into curriculum components. Its addition of analytics tools allows Academy content to be integrated more easily into formal education environments. Equally important, the ability to earn badges for subject competency is a nod to gaming mechanics and is sure to make the curriculum more appealing to students.[12]

OpenCourseWare

One need only peruse the 2011 statistics for MIT's OpenCourseWare listed earlier in this chapter to see how this concept has grown in a decade. Whereas the Khan Academy approach focuses on disaggregated content that can be reassembled or accessed in any order or custom collection, OCW is, by definition, aggregated into course structures.

Another defining characteristic of OCW is that it is brand-drive and dependent on the reputation of the institution and faculty providing the content. This means that the content is uneven in quality and, depending on the sponsoring university, there is not necessarily a standard set of resources that accompany each course.

OpenCourseWare is generally limited to lecture-based courses in terms of pedagogy. Its broad availability of video lectures by respected faculty at leading institutions is still an invaluable set of resources for study and learning.

Two things are certain. First, the era of open content is really just beginning. Open textbook initiatives will continue to sprout at both the state and national level. In addition, OER and OCW projects will also evolve in terms of content quality and suitability for aggregation and sharing.

A second reality is that as open content resources continue to evolve, we will see more tools like the Khan Academy's analytics engine. And as open content is able to deliver a meaningful measurement of learning, it will be increasingly evaluated as it should be — by its ability to assist students with learning.

Notes

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11 "A Short History of OER." OER Commons. N.p., 01 May 2011. Web. <http://wiki.creativecommons.org/Free_to_Learn_Guide/A_Short_History_of_OER>.

12 Another example of open content aggregation, one with a notably different business model, is Soomo < http://soomopublishing.com/>. The Soomo model is to curate open resources as supplemental material for its interactive, Web-based textbooks. Soomo's subject matter experts curate the best of open Web resources and create instructor mediation and assessment content for its core learning content. The company then wraps all of this with analytics and contextualized reference tools such as pop-up vocabulary definitions for a complete product. Soomo calls this a Web-based textbook replacement and sells it as a low-cost alternative for $50.

Chapter Six
Going Digital - The Future of Learning Content

A Thought Experiment

Let's conduct a little thought experiment. Imagine, for a moment, that you live in a world that has never had textbooks. You are a member of a group that has decided the world needs textbooks and has come together to figure out how to bring about such a thing. The purpose of your group is to determine the best way to put together learning content to help children and adults learn. Every technology, old and new, is at your disposal, and your only guidelines are that your solution:

- Must present the broadest possible curriculum of learning content
- Must support a wide a variety of content forms
- Must promote the best learning experience available for individual learners
- Must allow learning to occur with a minimum of expense
- Must adapt to the specific needs and interests of a diverse learner population
- Must offer a mechanism for measuring both learner engagement and progress
- Must provide ubiquitous access with consistent user experiences across different hardware environments
- Must provide learners with the ability to continue learning over an extended period of time (let's say, their entire life)
- Must present a mechanism that allows both learners and mentors to add new content easily and quickly

Given these guidelines, and with no existing textbook industry as a historical reference, what are the chances your group would come up with the concept of a traditional book as the core product model for

learning content?

I would suggest that the odds are just south of slim to none. Here are three reasons why:

One - You would want a model that is dynamic and open ended by nature, and books, by definition, are static and closed.

This doesn't mean that books can't be customized or have content added to them but rather that books are finite collections of content with clear end points.

Two - You would want a model that supports, and even encourages, non-linear navigation and consumption.

Books are linear. They are based on a model that assumes a straight trip from point A to point B. Learning is organic and, at best, circuitous. Learning is typically free form and doesn't lend itself naturally to connecting pre-defined dots.

Three - You would want a model that does not have print, or even written text, as its hub. This is because you would consider the hub to be the learning content itself, not the container that packages the content.

Printed text would be equated with video, audio, and other media as valuable as information reinforcement and for reference.

When textbooks were first produced, the book construct was the ideal container for learning content because it was the best – actually the only – technology for the job at the time. That is no longer the case. And, because of the growing technological trends driving the evolution of learning content, it's no longer farfetched to anticipate that the textbook will no longer be the definitive model for learning content consumption by the end of this decade.

So Where Are We Headed with Learning Content?

As with any journey, before you can focus on the destination you must know where your starting point is. Your GPS can't map your route to a

point, no matter how clearly specified, unless it knows where you are now.

With that in mind, I want to lay a solid foundation of understanding from which we can successfully navigate our way to design the future of learning content. The following statements describing where we are now need to be understood before the route can be charted. Each of these present realities will be discussed in detail:

One – Learning content remains, for the most part, a prescribed purchase.

Two – The learning content created for the majority of formal education courses is not unique.

Three – There are two different digital textbook market channels — B2B and B2C — and the enterprise space is where most of the money is being made currently.

Four – Publishers shoulder a disproportionate share of the blame for the high cost of learning content in education. [1]

Five – The size of the learning content market in education is becoming increasingly difficult to estimate.

5 Present Realities of Learning Content

One – Learning content remains, for the most part, a prescribed purchase.

This is, perhaps, the most significant difference between the educational publishing market and its trade counterpart. In education, the end consumer, the student, is not the decision maker when it comes to what content he or she will use for a course or program of study. There is an intermediary – a state, district, institution or instructor – who selects the content that the student must purchase and use. The only choices students can make is whether to purchase print or digital, and, if

print, whether to purchase new or used. But even that limited choice is increasingly being pulled away as more and more instructors are requiring students to use digital resources only in order to optimize support capabilities and to ensure that all students have the same access to the content.

Two – The learning content created for the majority of formal education courses is not unique.

In the trade world, publishers look for authors who have original ideas for fiction or non-fiction. Each work, in turn, has a uniqueness about it that gives the product a higher potential commercial value. But when it comes to learning content, particularly in general education and the core curriculum, there is very little "original" content produced. Publishers are not looking for authors who can add original contributions to biology or algebra textbooks. Rather, they need authors who can write solid explanations, who will present well at conferences, and who have the potential to develop a strong personal brand to carry the popularity of the work.

In other words – and my apologies to my colleagues in academia and publishing – one textbook is pretty much the same as another in these areas. Consequently, the commercial success of textbook products is more dependent on process and marketing than on content originality. This also points to the fact that, while the market supports many different introductory Spanish textbooks in the market, from a content perspective the abundance of such books is entirely unnecessary.

Three – There are two different digital textbook market channels — B2B (business to business) and B2C (business to consumer) — and the enterprise space (B2B) is where most of the money is being made currently.

First, it is critical to remember that textbooks are a prescribed purchase. Students do not choose which textbook to buy but only, in limited situations, which format. Since the release of the iPad a new market vertical has developed, that of the direct-to-consumer digital textbook.

This direct-to-consumer market has been driven by e-textbook start-ups like Inkling and Kno, rental leader Chegg, college bookstore giant Barnes & Noble, and the publisher consortium initiative Coursesmart. And now we are seeing a new player – Apple's iBooks2. The iBooks2 solution features rich interactive textbooks that are sold directly to K-12 students and their parents. This market, while still relatively small, is

significant because it represents the first real wave of non-publisher initiatives to reach student consumers directly with digital textbooks. In the case of Inkling, Kno, and Chegg, their message has been about iPad access and enhanced functionality or resources, and their marketing has been hip and aimed at an 18-24 year-old target audience.

Coursesmart, founded by publishers initially to provide free digital desk copies to instructors in an effort to lower publisher marketing costs, touts its market leading product inventory. Barnes & Noble College stores seek to leverage NOOKstudy as a preferred alternative to a captured audience. The Apple solution, which I will discuss in detail in the next chapter, targets K-12 students.

Indeed, these companies have generated increased digital sales and, perhaps more importantly, a tremendous amount of media attention on e-textbooks. But for the time being, however, their success is still capped by an inability to control the prescribed sale process in the education market, a lack of integration capability to compete in the enterprise market, and a dependency on publishers for their content. This sector, however, does have the potential to separate institutions and distributors from consumers over time and to create entirely new content purchase and workflow models in the industry.

A part of the market receiving much less media coverage but representing a far greater portion of the digital textbook market is the enterprise (B2B) digital textbook sector. Market leaders in this area are Ingram (VitalSource), MBS Direct (Direct Digital), Follet (CafeScribe), Coursesmart, and ProQuest (eBrary). These companies are print and digital content distributors. They are able to leverage their historical relationships with educational publishers, as well as a broad suite of technologies and service units, to serve the direct-to-institution market. These companies form multi-year enterprise partnerships with institutions and deliver products that are deeply integrated into institutional systems – from LMS platforms to libraries. The institutions, in turn, promote prescribed sales of digital content through these channels.

Because the B2B players are able to provide catalogs of digital content from a wide variety of publishers and are able to lock in broad digital distribution agreements with institutions, they can achieve high levels of "sell-through" – the percentage of new copies sold that are not returned to the publisher, which with digital is 100% – and carve off significant chunks of digital textbook distribution market share.

Four – Publishers shoulder a disproportionate share of the blame for the high cost of learning content in education.

I was an outspoken critic of textbook prices when I worked for a publisher, and I have continued that criticism as an entrepreneur and product designer. Some major publishers have raised the prices of frontlist textbooks – new editions – between 5%-10% annually over the past five years. The rising price of textbook products has outstripped tuition and cost-of-living increases while the total number of textbook products sold has remained flat or declined. In other words, they are selling the same amount of product for more.

And note that one of the main accommodating reasons why textbook product prices are as high as they are is because institutions and instructors have been willing to pass along this cost to their students who have no choice in what textbooks they purchase. There would be no blame for the real decision makers if major textbook publishers were the only options for learning content in education. However, this is simply not the case.

The reality is that there are established, low-cost textbook alternative products available in many general education or high-enrollment disciplines. Of course, choosing one of these alternative products would require institutions and/or instructors to change the way they approach their decision as to what learning materials their students will have to purchase and many have not been willing to make that change, regardless of how slight it might really be given the proven validity of these products.[2]

We should also keep in mind that, unlike the case in previous decades, the tools for self-publishing and distributing high quality learning content are now readily available to faculty. Institutions and instructors truly concerned about the cost of learning have ample and affordable technology at their disposal for addressing the situation directly. This is already happening in the for-profit sector, and I expect it to become an increasingly common practice as well in the public education sector throughout this decade.

Five – The size of the learning content market in education is becoming increasingly difficult to estimate.

One of the most common questions I receive is about the size of the textbook industry. In the past, this was a relatively easy question to answer. Prior to 2005, for example, most digital content was given away freely with the price of the textbook, so measuring the market was simply a matter of estimating the textbook revenues of major and second-tier publishers, and then adding a bit for good measure.

In recent years, however, the size of the industry, both in higher education and K-12, has become much less straightforward. Consider these emerging factors:

- *There are more learning content sources that ever before and the list is expanding rapidly.* With the overall market opening up to participants outside the traditional publishers, there is an increase of private equity and venture capital funding that translates to new learning content companies and business models.

- *Textbook publishers are generating increasing revenue from non-textbook products.* Major publishers are generating up to 20% of their annual revenues from digital products, but digital textbooks only account for approximately 3% of textbook sales. Some of this digital revenue exists as part of textbook bundle purchases, but there are new streams that lie outside the textbook product line.

- *There are more distribution channels than ever before and they are generating significant amounts of unmeasured revenue.* When we talk about the size of the textbook market, too often we are measuring the revenues of textbook publishing companies alone, which only account for a small portion of the retail markup margin placed on their products by retail providers. In the textbook industry, the retail markup ranges between 20% and 30% across different product verticals and represents more than $1 billion in revenue. With the shift to digital, there will be more distinct products sold and more distributors, all of which will account for even more revenue in this market.

- *There is a significant amount of "textbook" content sold that does not come from educational publishers or learning content providers.* Market estimates must also account for all trade publishing content that is sold to educational institutions but that is not counted as part of textbook content revenue in most market estimates. Examples range from novels to how-to books to other academically relevant materials.

- *There is, for the first time, a measurable direct-to-consumer market emerging.* This is increasing the revenue generated from retail markup, but it is also introducing a whole range of new, add-on products that are accounting for additional market revenue. These products include study tools, tutoring services, and ancillary content for textbooks (but not created by traditional publishers).

- *Many textbook market size estimates do not account for revenues for both new and used content sales.* Just to be clear, all market sizing and revenue projections in this chapter encompass both the sales of new and used print products.

How Big is the Learning Content Market for Higher Education and K-12?

Taking into consideration all of the market sizing factors discussed above, here are the market size estimates I am using for my projections about digital content in this chapter.

First, with regards to the overall higher education and K-12 markets, the estimates are as follows: the higher education learning content market is sized at an estimated $8.7 billion annually, and the K-12 sector represents an estimated $4 billion in total annual revenue.[3]

Breaking those numbers down further, here are estimates related to new and used learning content revenues for the near future: the total annual revenue for new learning content sales in the combined higher education + K-12 market is approximately $9.2 billion, while the used content market is an estimated $3.5 billion. In addition, with overall annual market growth projected conservatively at 0%-2% over the next 5 years, the total market size will top out close to $13.5 billion between 2013-2015. As newer, and important, subsets of those revenues, digital textbook sales in the US represent approximately 3% of the market and rental has reached almost 6%.

Within higher education, online learning accounts for approximately 11.5% of learning materials sold, and we see online learning growing not only in traditional markets but in segments that are relatively new. More

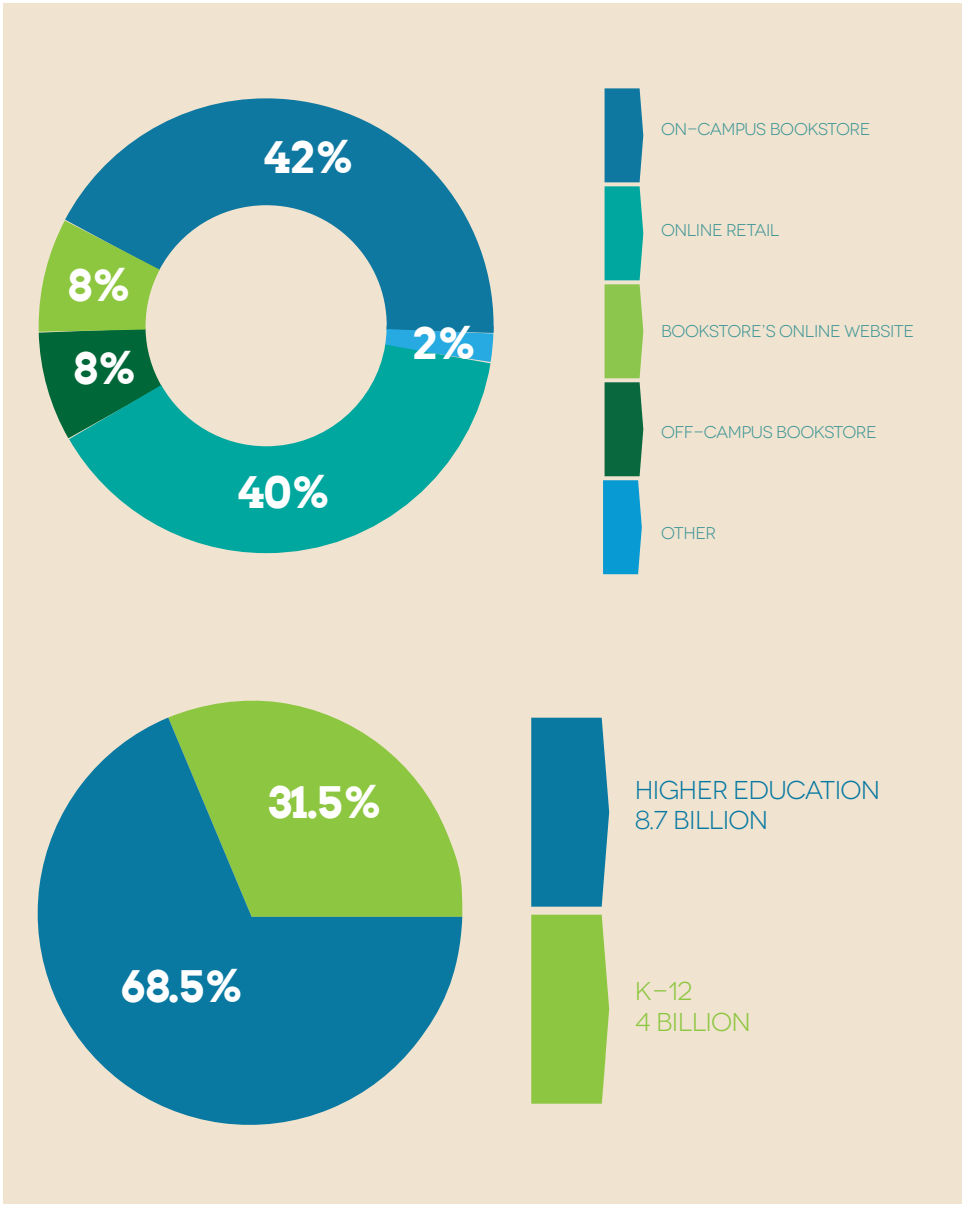

Fig 1. Combined K-12 and Higher Education Markets for Learning Content in the US

Fig 2. Breakdown of the Total Textbook Market in US Higher Education

and more students are buying their learning content online instead of in the traditional campus bookstore, and content sharing among students is becoming more prevalent.[4] Online learning and online purchasing are major factors pushing the expansion of digital content.

Basic Projections for Digital Learning Content in the Current Decade

As I have stated throughout this book, learning content in the US is shifting quickly and irreversibly from print to digital. This isn't to say that

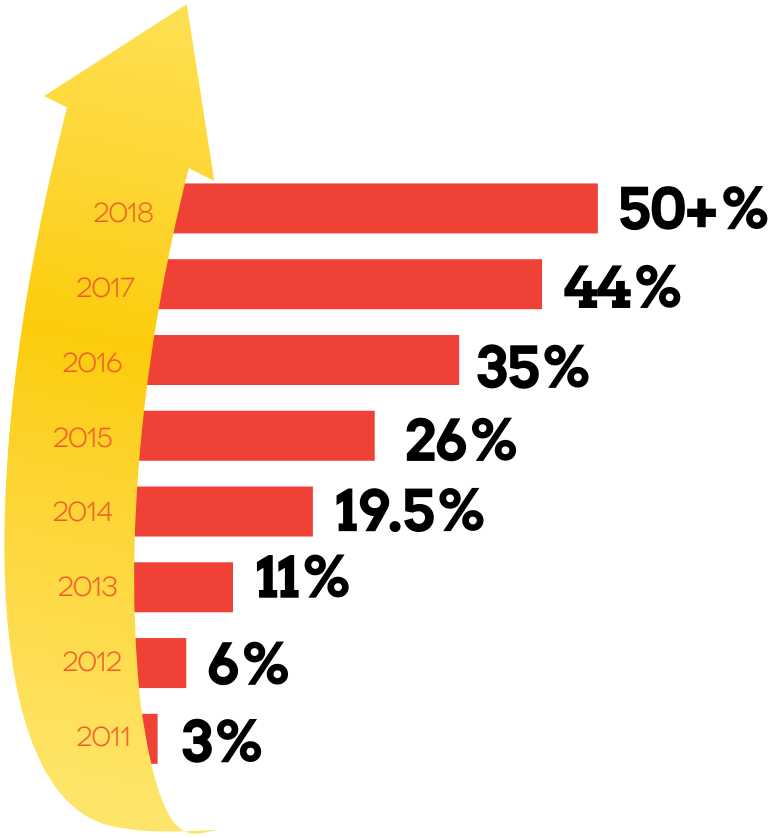

Fig 3. Digital Content as an Estimated Percentage of Sales Revenue Related to New Learning Content in the Overall US Education Market

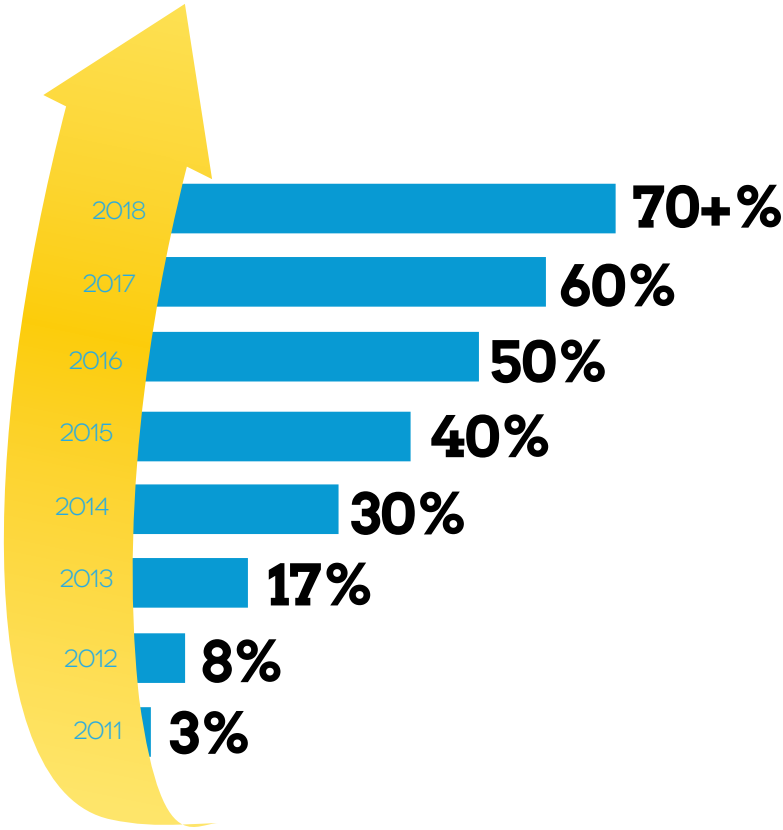

Fig 4. Digital Content as an Estimated Percentage of the Overall US Education Market Including Open and Free Learning Content

print materials will disappear but rather that print will become a smaller percentage of the overall education market. As print products decline in unit sales and revenue generated, they will be replaced by a wide variety of digital products that represent both existing and new revenue streams for content providers.

With regards to textbooks and related learning content, digital grew to 3% of new content sales in 2011[5] and will continue increasing over the next four years until, by the end of 2015, digital content sales will represent approximately 25% of the combined higher education and K-12 markets regarding new content. This translates to market revenues of approximately $2.5 billion in 2015 for digital content.[6] By 2020, digital content will account for at least 50% of all education content in the US, for an annual revenue total exceeding $5 billion.[7]

Next let's look at five-year projections for the digital learning content market in the United States. We'll start in December 2011, when it is estimated that digital textbooks and related content comprise 3% of the market. By December 2012 the market share of digital jumps to 6%. Based on industry information and current market trends, I estimate an average yearly increase in sales growth of approximately 80-100% over the following 3 years (2013-2015), with digital assuming 26% of the market by the end of 2015. Growth of digital is then expected to taper to approximately 25-40% annual growth for the ensuing 5 years (2016-2020), with the growth rate decelerating each year. By the end of 2020, digital content should command 50% of the learning content market.

While the numbers above point specifically to estimated commercial market share and sales revenues related to digital learning content, they do not include the increased use of open textbooks and open educational resources. Factoring in these content channels, the estimated percentages of digital vs. print learning content usage are even more telling.

What Are the Big Trends to Watch?

Yes, we will see big growth in digital learning content and it will transform the industry in subtle and not-so-subtle ways. But how will the remainder of the decade play out in terms of evolving trends and business models? Here are seven areas we all should keep our eyes on:

1. The amount spent by students on e-textbooks and digital learning content will decrease dramatically.

Over the coming years, publishers will come under increasing scrutiny and pressure because of their pricing practices. Through the coming decade, low-cost alternative publishers will continue to enter the marketplace. These products with low price points, along with open content and unanticipated new models for business, will reduce the average amount spent by students annually on learning content to 40 - 50% of what they would have spent had they not had the new alternative. Major publishers, forced to provide content at lower prices or with different low-cost business models to remain viable, will create new revenue streams with enterprise services (B2B) for institutions and a la carte services for individual consumers (B2C).

2. Self-published materials, both in terms of the actual

quantity and the platforms that support this activity, will become a significant percentage of the learning content market.

Self-publishing in education will be big, but it will impact the education market in a much different way than it has trade publishing. Self publishing in the trade space has led to more content; self publishing in the educational space will lead to less. In trade publishing each book or product is unique. Each item published is for the individual author and his or her unique creation, whereas books and other learning products for the educational market are seldom unique. For instance, if you've written a book about the Pythagorean theorem, I can also write a book about the Pythagorean theorem without having to worry about copyright infringement. But if you wrote a science fiction novel about a colony on Mars and then I write a science fiction novel about that same colony you can sue me. In education, as more individual authors self-publish content in their areas of specialty, a large, general library of free and low-cost content will result. This collection can be re-mixed, shared, and used in bits and pieces. We should expect new tools such as Apple's iBooks Author app to give us a wealth of high quality, free content as opposed to big catalogs of commercial content.

3. In addition to content publishing, we will see the appearance of learning content aggregators that will target the enterprise education sector and pursue different business models (such as subscription services).

The almost exponential growth of digital learning content, in so many formats and from so many authors, will give rise to major content aggregation and distribution services. This will simplify the user experience. Users will be able to take advantage of new, subscription-based business models that will be attractive to both institutions and individual consumers. These services will allow users – instructors and students – to disaggregate collections of content, choose the pieces they want, and to remix them into their own "albums." They will also provide generic e-commerce solutions. These will not necessarily be tied to the closed systems promoted by major commercial players such as Amazon and Apple. The result will be that users can go to these "libraries," obtain what they need, and play the content anywhere. Just as important, these services will offer partnerships to institutions that allow them an easy outlet for marketing and distributing their digital learning content.

4. Learning institutions will become major publishers.

The increasingly competitive landscape in education is elevating brand and institutional uniqueness to higher levels of importance. One of the ways we'll see institutions promote their brands and uniqueness in the next several years is through the publishing of their own content. Some large for-profits are already pursuing this path. For-profits have found they can promote their brand and reduce learning content costs for students while gaining better margins on content sales. We will see more and more institutions – for-profit, public, and private – follow suit. Some will begin offering their content for sale in the same retail channels as publishers. In the K-12 space, we should expect institutional content to be particularly important for private schools and charter schools. With fierce competition for students and measurements of student achievement, it won't suffice to offer the same textbooks on the same iPads that every other school uses. To help gain promotional advantages, schools will increasingly supplement traditional learning content with their own branded materials in a way that champions their own values and learning goals.

5. Measuring student engagement and activity regarding digital learning content will be critical at the enterprise level and will be one of the largest service revenue generators for publishers.

The killer app for learning content will be analytics and other functionalities that allow instructors and institutions to measure student engagement. We're already seeing sophisticated analytics tools for measuring user engagement with regards to reading content and assessments. As this product market matures in the coming years, we will see student engagement mapped more precisely to learning outcomes and integrated statistically with more specific assessments. Students will be able to work completely through a designated module of learning content – reading, watching video, clicking on animations, and taking quizzes – and instructors will be able to track their attentiveness and understanding. In addition to tracking this performance and quantifying it, the platforms will dynamically offer alternative content or new sequences based on readiness.

6. The transition to digital content within the learning content industry will give rise to a multi-billion dollar sub-industry that focuses on consulting for the education sector.

Analytics may represent a big opportunity for platform design and functionality, but the biggest revenue generator in the learning content industry will be consulting services. The transition to digital will pres-

ent a wide array of unprecedented considerations for institutions and their respective constituents. They will need increasing assistance with curriculum and pedagogy. They will need services for content publishing and distribution. They will need services for content design. They will need consulting services for hardware management. As the use of digital content grows, institutions and instructors will increasingly appreciate the difference between digital learning content and print. Digitization changes the way we can teach and the way students can learn. This, in turn, will give rise to a sub-industry of consultants that will account for more than $1 billion by 2016-2017.

7. The textbook, as a specific form for containing and delivering learning content, will be de-emphasized and will morph into forms more appropriate for digital.

Books will continue to be important as a general construct in our society, but textbooks will cease to be the primary learning content container by the end of this decade. The textbook container will be replaced by new digital constructs that focus on three features. First, learning materials will be designed for organic learning. This means that learners will be able to work through content in non-linear, exploratory fashion while still achieving desired outcomes. Second, the new constructs will be highly personalized. To date, educational publishing has focused on institutional customization – custom creating a product for institutions and instructors but not personal products for individual students. The new learning content containers and tools will be able to provide a unique product for every consumer. Third, future learning content containers will be less text-dependent and more interactive. Touch screens and natural language voice applications will require much less text entry. Traditional reading will evolve into the more general field of information consumption and comprehension. As a result, learners will interact more directly with information on their screens and will evolve from passive to active participants in the comprehension process.

By 2020, we will have witnessed perhaps the single most transformative decade in learning, and the revolutions in learning content will certainly be major contributors to that transformation. The future will be digital, it will be granular, and it will be personal. That, in turn, translates into new business opportunities and exciting new product models.

Notes

1 While I am not particularly sympathetic with publisher product or pricing models, they can only be viewed as truly unfair if there is no suitable alternative.
2 For example, institutions and instructors can adopt a digital Hermanson's Accounting Principles textbook (8th ed.) for $19.95 < http://www.textbookmedia.com/Products/ViewProduct.aspx?id=3215>. This is a product by respected professors and is a proven product that was adopted by hundreds of instructors and institutions when it was formerly part of McGraw-Hill's catalog. Another option would be the Principles of Economics textbook (2nd ed.) by Timothy Tregarthen and Libby Rittenberg, and available at Flat World Knowledge for free (online access only with no ancillary materials) < http://catalog.flatworldknowledge.com/catalog/editions/599>. Both of these textbooks are proven products and, even with all ancillaries, retail for approximately $50, compared to the $125-$150 price of similar textbooks sold by major textbook publishers. It is also important to note that traditional publishers are also providing lower-cost alternatives in many disciplines. A prime example of this is Cengage's 4ltr Press imprint < http://4ltrpress.cengage.com/>, with wholesale prices of its books at $45 (which translates in retail prices between $55-$60).
3 Total market size data from Eduventures http://www.eduventures.com/>, Bowker <http://bowker.com/>, and the Association of American Publishers <http://www.publishers.org/>, as well as interviews with industry representatives.
4 This is based on data from the "2011 Textbook Market Survey," a joint, longitudinal research project by MBS Direct and administered by MBS Direct and ResearchNow. This survey has now been administered for 4 consecutive years. Each year the survey is administered to 1000 students in 2 and 4-year colleges, and targets student purchasing trends as well as their use of digital technologies for learning.
5 For these market estimates, I conducted interviews with

representatives from leading textbook publishers and digital content distributors. These interviews reveal year-over-year increases between 80%-100% for the past 12 months. In addition, MBS Direct, representing approximately 1000 client institutions (higher education and K-12) and digital content from more than 75 academic publishers, showed increases in digital textbooks sales of more than 80% in 2011. This research has been repeated consistently over a three-year period and is measured against reports and other data from organizations such as AAP http://www.publishers.org/ and BISG http://www.bisg.org/>.

6 This is based on total estimated US education market revenues of $10 billion.

7 A major variable in this equation is the rate of overall market growth compared to declining industry revenues related to new and used print products. The assumptions inherent in this projection are: 1) the transition to digital will result in new product models and revenue channels that will increase overall market revenues related to new content sales; 2) this growth in new product revenues will be offset by revenue losses related to a declining used print content market; 3) the overall result will be a slight growth in the total learning content market by the end of the decade.

Chapter Seven
An Apple a Day or a Trip Down the Amazon?

The Announcement

I was having one of those mornings. I was in another big city, trying to navigate my way through unfamiliar highways and running behind schedule. I had an interview with a technology correspondent from *The Economist* at 8:30, needed to log on for the Apple announcement at 9:00, and then, after following as much of the announcement as possible, was expected to give an analysis of the event as part of my presentation to a gathering of K-12 and higher education administrators at 10:00. More than anything, I just needed to find a Starbucks so I could get connected to the Internet.

The good news is that I had been in training the entire week. Everyone had been writing about the Apple announcement and, as an expert on the textbook industry, people expected me to have insight.

With regards to event specifics, I knew the same thing everyone else did – Apple was going to make an announcement that involved education. It was rumored the company would roll out a new suite of authoring tools that would facilitate a new kind of self-publishing. Some believed we would see a catalog of books actually published by Apple. And there were whispers that they were partnering with major publishers such as McGraw-Hill.

Everyone lined up to give an opinion that week. Some said Apple would disrupt education and textbooks the same way it had the music industry. Others were dubious. They predicted Apple would roll out impressive concepts but that the real impact would only be evolutionary at best.

I had been studying and analyzing potential textbook publishing scenarios involving Apple, Google, Amazon, and Microsoft for several years. And looking at Apple's historical efforts in the education space, it seemed most likely that the company would launch a series of products that had the potential to be transformational but that would be designed single–mindedly to promote the sale and use of Apple products and the company's total ecosystem.

In other words, I was certain that Apple would do what it has always done

in education (and in other markets) – it would try to create a bottom-up phenomenon by generating a groundswell of consumer demand for a new concept. The massive adoption of the solution at the consumer level would drive the eventual, if grudging, adoption of the concept by the enterprise market.

This had worked to perfection with the iPhone. When launched, it was a high-end, fanciful consumer gadget. Analysts agreed that Apple would probably never be able to crack to business phone market with this device. What no one foresaw, however, was the incredible popularity of the iPhone. That popularity, combined with the gradual evolution of the device's software, has allowed Apple to become a major player in the business phone space.

It has been the same with software products such as Final Cut Pro and GarageBand. The Apple strategy has been to provide the best experience possible for a large number of consumers who, over time, will garner a deeper penetration of other Apple products within a given industry. This has worked in video editing, audio recording, design, and other markets.

The most important factor here is time. Like other tech titans, Apple knows it only needs to create a "big enough" impact at launch. If the product is designed properly, the rest will take care of itself. Of course, the company will reinforce the product's success potential by integrating other product verticals and pushing the simplicity and efficacy of its entire ecosystem.

This certainly isn't unique to Apple. Amazon launched the Kindle to not much more than a good bit of curiosity in 2007. Many called it a gimmick to pump up slow e-book sales. Most believed it represented a narrow niche at best. After all, e-books represented way below 1% of the trade publishing market. Still, Amazon wasn't deterred. It had time on its side. It kept pushing the product until it released the larger Kindle DX in 2009. And then Barnes & Noble helped legitimize the space by rolling out the Nook later that same year. By Christmas 2009, the e-book and e-reader niche had expanded considerably.

Now we all know the results. By the end of 2010, e-books represented more than 9% of trade sales and have soared to approximately 20% of all trade books at the end of 2011. New projections announced at the 2012 Digital Book World Conference show that e-books will represent more than 50% of trade books sold by the end of 2014.

And the Kindle? It's doing just fine. Amazon upgraded the line in 2011 to include its Kindle Fire tablet, and that device sold 5.5 million units by the end of the year.

All it took was time.

All of that, along with various logistics about getting to different meeting places, airports, and hotspots, was running through my mind that morning. And as I reviewed what Apple was announcing, I understood that they were indeed sticking to the company script.

When the smoke had cleared, here is what the company presented.

- A revised version of iBooks (iBooks2) that supported complex layouts and interactive media

- A partnership with major K-12 publishing companies to provide some of their products in the new iBooks2 reader, along with a new, direct-to-consumer business model and pricing (pilot pricing of $14.95 per textbook)

- A slick, templated authoring app for creating interactive books – iBooks Author

- An updated and *appified* version of iTunesU that provides easy access to a course library and extended tools for actually managing those courses

The items presented were beautiful and the presentation was full of hyperbole. Reactions from supporters and detractors alike were, needless to say, quick in coming. Here are the main points made on both sides:

Supporters said:

- Apple's new e-textbooks are truly engaging and can change the way students learn.

- The iBooks authoring tools are intuitive and powerful. They will lead to an explosion of self-published learning content.

- iTunesU is now living up to its full potential and the availability of rich content plus meaningful tools for teaching will attract a significant number of new higher education institutions.

Detractors said:

- It is a closed ecosystem and too focused on Apple hardware, which is more expensive.

- iBooks2 and iTunesU lack any kind of community or sharing features, a critical component in the educational technology space.

- The authoring tools are nice but the license agreement gives Apple a 30% share of any sales, and the product produced by the authoring tools can only be distributed through iTunes.

- The fact that Apple launched their e-textbooks in partnership with major publishers means the industry won't really be disrupted.

In reality, all of these statements are mostly accurate and most of them are fairly obvious. Of course Apple is promoting a solution that will advance its ecosystem. The products are optimized for its hardware and have little value outside of its ecosystem. The company wants to sell more products and this is a great avenue for doing so. It is a good business strategy and has certainly worked for Apple in the past.

The iBooks2 solution is impressive but still very much stuck in the traditional textbook model. Each of its "new" learning products still has as its point of reference a print textbook. The result is that these e-textbooks are not really revolutionary at all because they can't be divorced from their original design.

The iBooks Authoring tool is truly amazing and will lead to an abundance of self-published content, regardless of whether or not it only supports Apple's ecosystem. It is, quite simply, the easiest way for anyone to create sophisticated e-book content.

What perhaps strikes me as most interesting in the reaction to Apple's move into the educational space is not about what is being discussed but

what is not – Apple's target market. Apple's new market move focuses on the K-12 consumer – the student and his or her parents.

Apple's strategy to limit itself to this market is important for a couple of important reasons. First, without enterprise integration capabilities, the products will have a hard time fitting into district and school technology initiatives in the public school arena. Second, it will be cost-prohibitive for most public school systems to fund Apple tablet or laptop programs. These shortcomings, along with the lack of support for content standards and the small number of e-textbooks actually available through the new platform, are why Apple did not target the public K-12 or higher education markets with its announcement.

Indeed, Apple went for a market that has gone largely untapped by its previous efforts, as well as those of major publishers. It is a market that includes private K-12 schools, some charter schools, and homeschooling. It is a market in which students and schools often purchase books on a year-by-year basis instead of the multi-year adoption model employed by public schools. It is a market in which parents and students often purchase learning materials directly.

That is to say – it's a perfect market for a new education initiative. Side stepping institutions and districts means no bureaucracy and little in the way of politics. There's also already a high incidence of tablet usage and a growing number of pilots in this space. Just as important, this market allows Apple to do what it does best – promote and sell products directly to consumers. If enough consumers opt in, Apple can leverage it to then become a player in public schools and higher education.

But that is for later. No need to deal with the complexities inherent in those markets just yet.

But Don't Just Listen to Me

I would like to close this chapter with some thoughts from two other experts within the publishing and educational technology industries.

Kathy Masnik is Director of Product Management for CourseSmart, and has been working for large educational publishers and e-textbook distributors for twelve years. Here is her reaction to Apple's announcement and how she believes it will affect the digital learning content landscape.

General Impact:

At a very high level, it helps the e-textbook and educational media market to have big players like Apple and Amazon entering the game. Apple's recent announcement shines a spotlight on the digital transformation that is occurring within education and will raise awareness about new digital materials that are available.

In addition, the strong competition that will play out among the e-textbook providers will drive each company to build better and better educational content experiences. In the end, students and teachers will reap big educational rewards from the improving product offerings.

For other e-textbook providers:

While I think e-textbook providers like Apple and Amazon will compete strongly on e-textbook pricing, smaller players like CourseSmart MBS Direct Digital, and VitalSource continue to compete in the same space by offering services tailored to the needs of educational institutions. These smaller companies are wholly focused on the academic space and have a strong understanding of how educational institutions review, select, purchase, and consume educational content and textbooks. They have already developed technology and services to integrate with university purchasing systems and Learning Management systems. This approach is much more specialized e-textbook solution than that of Apple or Amazon. By tightly integrating with the systems of academic institutions, these smaller companies will continue to hold on to market share and compete successfully against the larger non-specialized players.

For Publishers:

Unfortunately, the road ahead will only get more difficult for the large textbook publishers as pressures in the market cause them to lower their product pricing and consider radically different business models. Companies like Apple and Amazon will begin a race to the bottom, trying to each cut the profit margin down on e-textbook sales in order to grab market share.

In addition to price pressure from competitors, I believe the publishers will be pressured to lower prices from other areas of the market. We are now seeing government legislation designed to regulate the price of educational materials in the K-12 market space. Higher education customers are already beginning to vote with their wallet by choosing less expensive content formats, such

as rental, digital, and free content. Recent pilots at schools such as University of California and Cornell University are testing models where e-textbooks are included with the cost of a student's tuition (http://www.teleread.com/paul-biba/5-colleges-to-test-bulk-purchases-of-e-textbooks-to-cut-costs/). All of these factors are signs that the traditional textbook publisher must change their development and pricing model if they are to compete in the new digital world of educational content.

The comments made by Steve Jobs before his death further reinforce the writing on the wall for the textbook publishing industry. He believed it was an "$8 billion a year industry ripe for digital destruction." While Apple will help further this destruction, it won't change the market single-handedly. Rather a combination of government, student and university demand, and market competition that will eventually cause a seismic shift in the world of textbooks and educational content.

And those of us who have been working tirelessly over the past 12 years to cause this seismic shift are now frantically waxing our surfboards and running down the beach so that we can ride the tidal wave of digital educational content that is to come.

Dr. Laura Pople is a digital strategist for higher education publishing companies and has worked as both a Sr. Editor and Technology Director for major educational publishers. Here is how she views Apple's latest move into education, as well its impact on publishers.

Full fathom five thy father lies:
Of his bones are coral made:
Those are pearls that were his eyes:
Nothing of him that doth fade
But doth suffer a sea-change
Into something rich and strange.
—William Shakespeare, The Tempest

Had I been so inclined, in the 1970's I could have read the entirety of Shakespeare's The Tempest in an electronic form from the Project Gutenberg's collection. Today I can download The Tempest to my computer or my Amazon Kindle. In fact, Michael Hart, the founder of Project Gutenberg, is often credited as the founder of ebooks in 1971. If you perform an online search for a timeline of ebooks, you can see that compilations of written material have been available online for decades and in specialized e-reading hardware since the last century

Given a history of over 40 years, is it reasonable to view Apple's highly anticipated release of iBooks 2 and iBooks Author as revolutionary? Arguably the e-textbook does not enjoy nearly as long a history as ebooks. But even e-textbooks have a respectable history. Although sporadically available throughout the ebook history, with the advent of Adobe's pdf format in the 1990's, textbook material - even visually complicated and pedagogically rich material - could be distributed and consumed electronically.

Against this backdrop, Apple's recently announced foray into textbooks authored and delivered electronically through their ipad tablet seems less revolutionary and more evolutionary. Ebooks have been around forever it seems. And that really, I believe, is Apple's point. Although the technology has existed for ebook delivery for many many years, the e-textbook has not really matured in any significant way nor is there a mandate for it from within education. When a company like Apple enters the market, and does so in the manner they propose, they could change that. So what we'll see if perhaps neither evolutionary or revolutionary, but rather a sea change.

If Apple is able to penetrate the K-12 market, as their announced intention conveyed, with nominally priced electronic textbooks delivered on a familiar and increasingly popular tablet, they will begin to drive the public's perception that e-textbooks SHOULD be available for students. They will begin to change the learner's attitude toward e-textbooks. And as that attitude changes, so does their consumption behavior. No longer will the e-textbook be simply a lower cost alternative among many others; most of which are more familiar to them. The e-textbook will become an expected component of their learning environment and their expectations will help develop the market for this kind of offering.

Moreover, Apple is facilitating the authoring e-textbooks. Even though they are putting authoring and producing an e-textbook in the hands of anyone with an inclination to create a textbook, I don't believe this heralds the demise of traditional publishers.

What I believe Apple's authoring opportunities will do is encourage a re-envisioning of what electronic textbooks will be. Actual and potential authors who use iBooks Author to dabble in authoring will get a taste for a new way of putting textbook content together; weaving a different narrative, and utilizing a richer array of pedagogical material in their content delivery. The need for accuracy, and responsible, comprehensive, thoughtful treatment of the subject matter doesn't go away. But how that material is presented,

and the resources brought to bear on core subject material can and will change. When Apple lets educators into the authoring sandbox in an egalitarian way, some educators will take the challenge (or the opportunity) and create e-textbooks that students can use. But in many cases, the considerable work involved in creating a valid textbook will deter potential authors from doing more than experimenting with their ideas within the iBooks Author interface. This very experience, however, will help educators develop a better understanding of how e-textbooks should be developed and they will then communicate their needs and expectations to more traditional publishers of educational content.

By giving educators, parents, students, and really anyone within society with an interest in disseminating information the tools for easy development of textbook content, Apple has invited grassroots creativity in rethinking educational content. And the fruits of that creativity? New and innovative e-textbook development, often through the channels already well-established for content development and vetting.

Does this move by Apple eliminate traditional publishers and their authors from the equation? I can't see how. Publishers and authors bring a valuable expertise to the table. But the demands placed on them for content presented in new ways by an increasingly e-first society will facilitate a dramatic step away from e-textbooks as simply electronic page fidelity versions of print textbooks.

A final word about the Apple announcement. Although their numbers are impressive when you consider the penetration of the iPad into the tablet market – and this announcement is guaranteed to boost sales even more – there is still a "have" and "have not" class issue in play which is seemingly disregarded by Apple. Not every learner has an iPad, or even their own computer. The education system in this country, and globally, needs to support learners from every walk of life. And while I do envision a sea change in society's perception of textbooks because of companies like Apple pushing the e-textbook envelope and holding the industry accountable for meeting the expectations developed by easily available textbook content on devices like the ipad, we cannot abandon any learners in our zeal to meet that sea change. Although a textbook sea change is likely not a sea change that the Bard envisioned when he introduced that term, I expect interested students will be able to interactively investigate his use of that term in a Critical Analysis of Shakespeare's Writings e-textbook in the future.

Apple and Amazon Are the Ones to Watch

Leading up to Apple's education announcement, I had written and tweeted that the most important long-term outcome of the event might be the reaction it elicited from Amazon. One immediate response from Amazon was to remind its users that it too is in the textbook business – the company placed an ad for its textbook department on its home page.

In the coming months and years, however, the real battle between Apple and Amazon with regards to learning content will take place in the self-publishing arena. At stake for both companies is a leading share in the growing low-cost textbook market and the open educational content race. For both Apple and Amazon, this represents an opportunity to create a strong grassroots following within the overall education space, it increases long-term customer loyalty, and it translates to more content that can be sold and distributed through their e-retail ecosystems.

What we can likely expect in the immediate future is an emphasis on their respective authoring tools and an insistence on their proprietary publishing formats. We will see rich functionality at the expense of standards.

And while Apple and Amazon certainly have the lead in the overall self-publishing race, there is plenty of competition and a sizeable set of obstacles that could derail their ambitions. Here are a few of the issues they face.

Their current self-publishing model is still focused on a specific container and not the actual contents

This is a problem with any textbook initiative today, be it digital or print. As Tom Vander Ark, partner in Learn Capital says, "'Textbook' is both a misnomer and a dated concept." [Kamenetz]. Yes, sophisticated and easy-to-use self-publishing tools are good, but they are limited if designed too explicitly around a textbook construct. In order to be widely successful in education, self-publishing tools will need to support flexible, non-linear content organization and presentation.

They are competing in a diverse market that already has many entrenched content authoring tools

The reality is that educators are already self-publishing an inordinate

amount of learning content. They are doing so using a broad array of tools, and some of these tools have gained deep traction in the space. These include Microsoft PowerPoint, YouTube, GoogleDocs, WordPress, Audacity, Camtasia, and others.[1] Introducing new authoring platforms, regardless of how robust and user-friendly they might be, can be difficult, particularly if their use requires authors to learn new skills or creation workflows.

Standards are important in education

This is not an altruistic statement but rather a business reality. Content standards in education are tied to interoperability, which was initially driven by the government and is now embraced broadly in higher education and K-12 technology. Moreover, standards in learning content are critical in the broader learning community, which includes professional and corporate training. In order to gain significant traction across a larger portion of the education market, both Apple and Amazon will need to build some form of support for content standards into their platforms. This means compatibility with SCORM or Common Cartridge packaging standards, file formats that can be reused in broader ecosystems, and support for accepted reporting formats.

Integrations will matter

While I am a proponent of the direct-to-consumer sale of learning content, and despite the fact that the direct-to-consumer channel is growing, the role of instructors, institutions, and districts will not disappear in the current decade. In particular, institutions will continue to drive and own the technology strategies and platforms that support their learning initiatives. E-textbook initiatives and the devices associated with them – tablets, smartphones, and laptops – must fit within those strategies and platforms in order to gain institutional support. This means that the digital content must be accessible through learning management systems. And just as important, user data and learning analytics associated with that content must be compatible with institutional reporting tools.

What's it all mean? First, Apple has definitely made the first move in the race for a big piece of the learning content market. Amazon will respond sooner rather than later, but for now Apple has a lead.

Second, Apple and Amazon's e-book platforms, regardless of their direct usage in education, will continue having a tremendous long-term impact in the sector. After all, these two companies already control general consumer expectations when it comes to the e-reading experience. That consumer experience, in turn, creates a baseline expectation for educa-

tion products focused on e-reading.

Finally, we shouldn't forget that the endgame for the two companies is slightly different. What is more of an end for Apple is more of a means for Amazon. Apple wants to promote digital content as a reason for consumers to buy its hardware, while Amazon hypes e-books as another product to sell on its way to global e-retail dominance. In that sense they're almost opposites. Amazon sells hardware cheaply in order to make money on content. And since Amazon is more of a true content company, one with its sights set on dominating the publishing world, it would be a mistake to think that Amazon won't eventually have the larger impact on the education space.

Notes

1 Hart, J. "Top 100 Tools 2011." Center for Learning and Performance Technologies. November 13, 2011. Web. 1 Feb 2012. <http://c4lpt.co.uk/top-100-tools-for-learning-2011/>.

After receiving his Ph.D. from the University of Texas in Austin, Rob Reynolds began his career as a faculty member teaching languages and literature. He has served in university administration, as a textbook publishing executive, and as a co-founder of a successful educational technology startup. He also has experience as a textbook content author and has been an active researcher and blogger in the learning content space since 2003. He is currently the Director of MBS Direct Digital and the editor of **www.NextIsNow.com**.

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