



A Publisher as Advocate for Change— Curriculum Development from the Vantage Point of Publisher

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Simon Fraser University**





Publishers

National Curriculum
Regional Curriculum
State or Provincial Curriculum



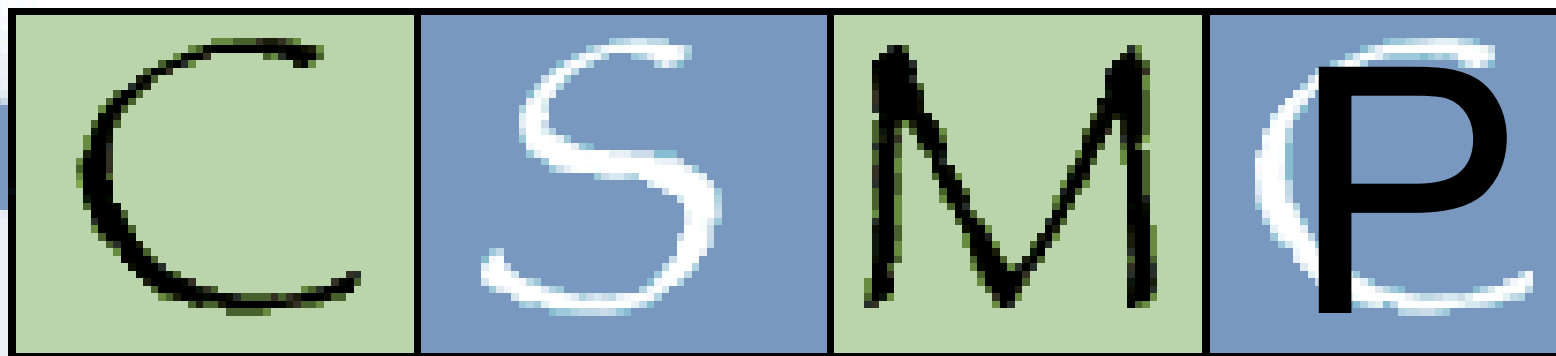


Beliefs about School Curriculum

Orthodoxy: Publishers

Heterodoxy: Everyone Else





Center for the Study of Mathematics Curriculum ~~Curriculum~~

Publishers







High Costs, High Stakes, Poor Results “Welcome to My Publishing World”

- New texts require an investment of \$2M to \$5M **per year of curriculum**
- Sales and marketing costs can be **50% of sales**
- New books must generate a return on investment quickly
- Publishing is a high risk business
- Publishers are not very profitable



**And you thought I wasn't going to
show Sketchpad!**

**Follow the Money with
The Geometer's Sketchpad**





Where the Money Is Spent



	%
Area Content (Royalties) = 8 cm ²	0.10
Area Prod Services = 3 cm ²	0.04
Area Cost of Goods and Bus Serv = 24 cm ²	0.30
Area Sales & Marketing = 32 cm ²	0.40
Area Profit = 9 cm ²	0.12
Area Prof Dev & Support = 3 cm ²	0.04
Sum of Areas = 79 cm ²	1.00

Animate Points

Reset

- Content
- Production
- COG & Bus
- S & M
- Profit
- PD & Support





Consequences:

- **Publishers are risk averse**
- **Conformity is the safest strategy**
- **There are large barriers to market entry—and that works for the publishers who dominate the market**
- **Faced with choices on what to sell, publishers go with the easiest book to sell**



	Discovering Algebra	Glencoe	Prentice-Hall	Holt	McDougal-Littell
Chapter 0	Fractions and Fractals				
Chapter 1	Data Exploration	The Language and Tools of Algebra	Variables, Patterns, and Graphs	Foundations for Algebra	Expressions, Equations, and Functions
Chapter 2	Proportional Reasoning and Variation	Solving Linear Equations	Real Numbers	Equations	Properties of Real Numbers
Chapter 3	Linear Equations	Functions and Patterns	Solving Equations	Inequalities	Solving Linear Equations
Chapter 4	Fitting a Line to Data	Analyzing Linear Equations	Solving and Inequalities	Functions	Graphing Linear Equations and Functions
Chapter 5	Systems of Equations and Inequalities	Solving Systems of Linear Equations	Graphs and Functions	Linear Functions	Writing Linear Equations
Chapter 6	Exponents and Exponential Models	Solving Linear Inequalities	Linear Equations and Their Graphs	Systems of Equations and Inequalities	Solving and Graphing Linear Inequalities
Chapter 7	Functions	Polynomials	Systems of Equations and Inequalities	Exponents and Polynomials	Systems of Equations and Inequalities
Chapter 8	Transformations	Factoring	Exponents and Exponential Functions	Factoring Polynomials	Exponents and Exponential Functions
Chapter 9	Quadratic Models	Quadratic and Exponential Functions	Polynomials and Factoring	Quadratic Functions and Equations	Polynomials and Factoring
Chapter 10	Probability	Radical Expressions and Triangles	Quadratic Equations and Functions	Data Analysis	Quadratic Equations and Functions
Chapter 11	Introduction to Geometry	Rational Expressions and Equations	Radical Expressions and Equations	Exponential and Radical Functions	Radicals and Geometry Connections
Chapter 12		Statistics and Probability	Rational Equations and Functions	Rational Functions and Equations	Rational Equations and Functions
Chapter 13					Probability and Data Analysis

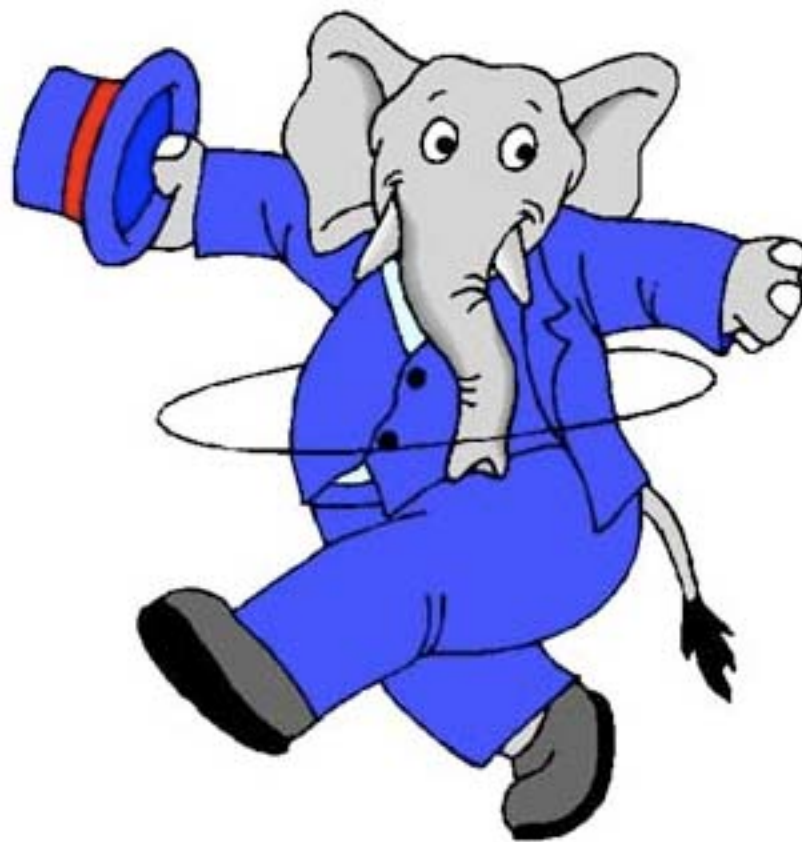




- **Publishers are fundamentally sales organizations**
- **Books tend towards a “please everyone” strategy**
- **Materials are designed to sell teachers, not educate students**
- **Insufficient money goes to editorial development**
- **It is cheaper to manipulate customer expectations than to educate students**



- **Books are a pedagogical “hodge-podge”**
- **Technology is marginalized and, as a result, poorly utilized**
- **In publishing, too often the economic “winners” don’t evolve**
- **And texts that aren’t quick economic successes are taken off the market and can’t evolve**
- **The options for students, teachers and schools are dwindling**





<i>Investigations</i>	Dale Seymour → Pearson Scott Foresman
<i>UCSMP Everyday Mathematics</i>	Everyday Learning → Wright Group/McGraw-Hill
<i>Math Trailblazers</i>	Kendall/Hunt
<i>ThinkMath!</i>	Houghton Mifflin-Harcourt
<i>Building Blocks</i>	SRA/McGraw-Hill
<i>MathThematics</i>	Houghton Mifflin → McDougal Littell/Holt (Houghton Mifflin-Harcourt)
<i>MathScape</i>	Heinemann → Glencoe/McGraw-Hill
<i>Connected Mathematics Project</i>	Dale Seymour Publications → Pearson
<i>Mathematics in Context</i>	Encyclopaedia Britannica → Houghton Mifflin-Harcourt
<i>CME Project</i>	Pearson
<i>Core-Plus Mathematics Project</i>	Janson Publications → Glencoe/McGraw-Hill
<i>Interactive Mathematics Program</i>	Key Curriculum Press
<i>Mathematics: Modeling Our World</i>	Southwestern → (COMAP)
<i>UCSMP (Secondary) (3rd edition)</i>	Scott Foresman → Wright Group/McGraw-Hill
<i>SIMMS Integrated Mathematics</i>	Self-Published (Pearson Custom) → Kendall Hunt
<i>MATH Connections</i>	It's About Time







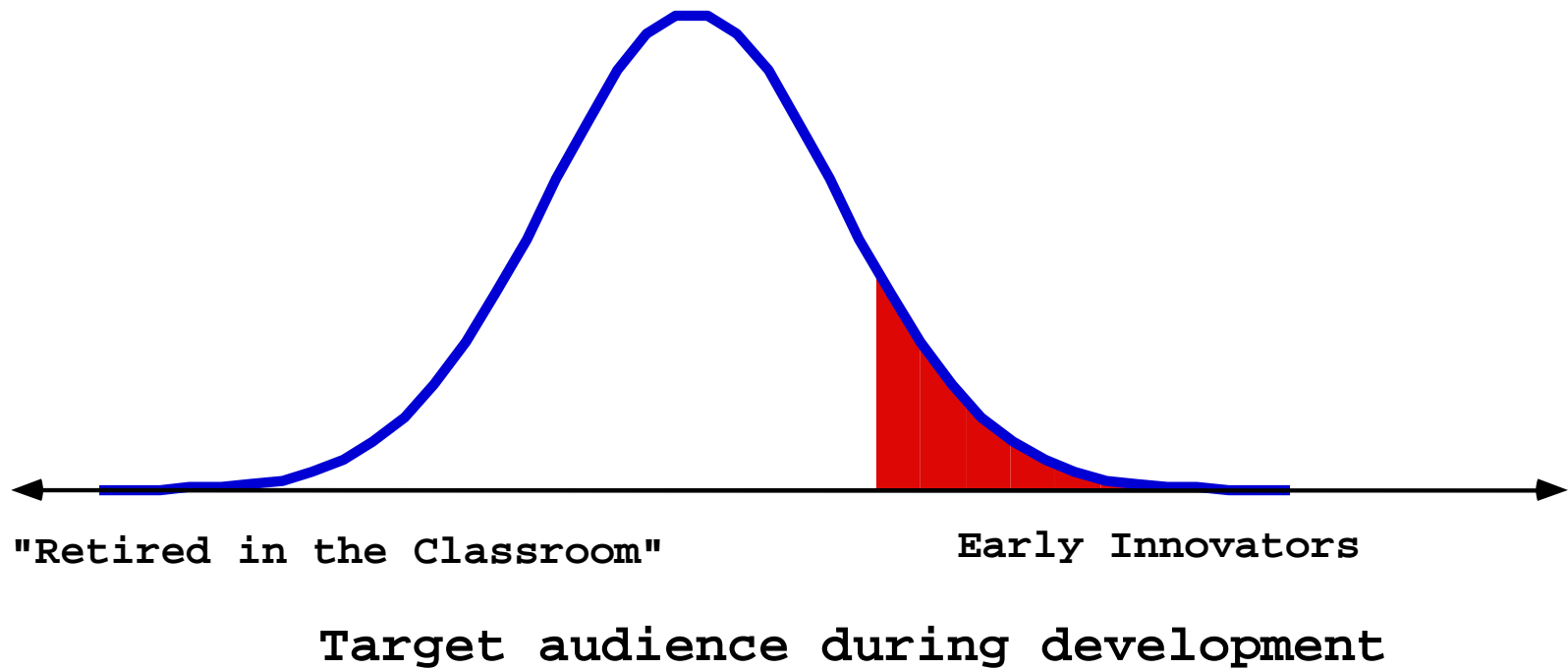
Bottom-line

Innovative curricula are not well served by the existing publishing models designed to serve traditional curricula and the needs of publishers. From development to dissemination, the constraints imposed on publishers and imposed by publishers operate to thwart innovation and limit the availability and market success of mold-breaking programs in schools. Clearly, teachers and students lose out as a result.



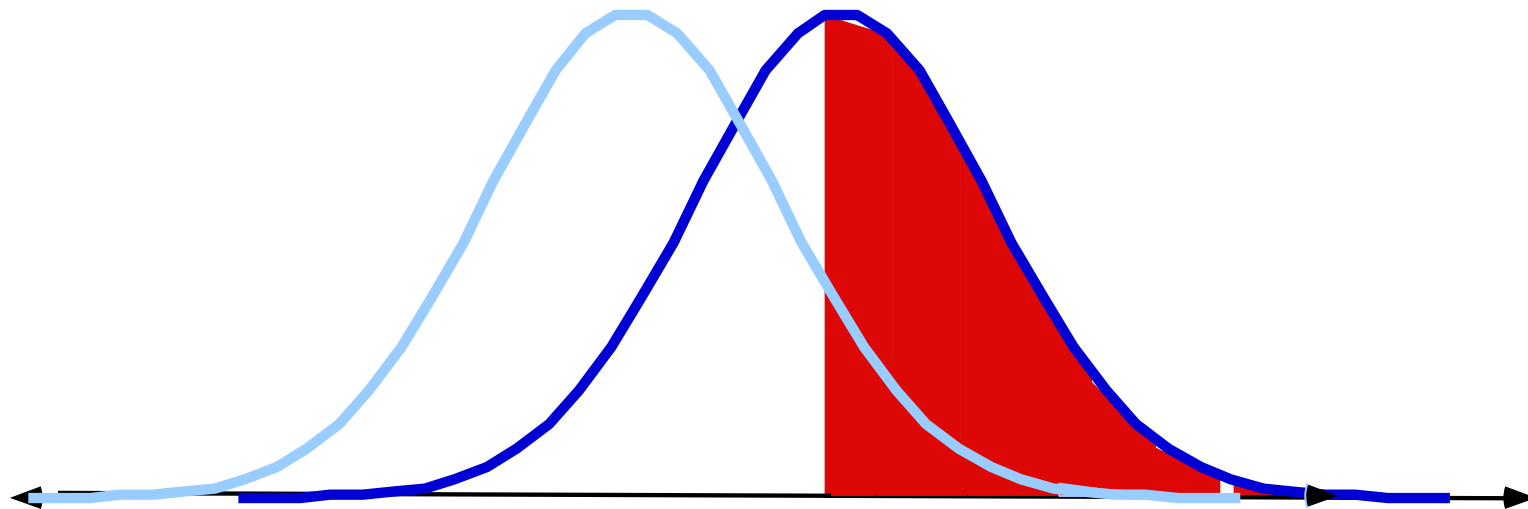
My Naïve Model

Development for Innovation





Market Forces Drive Expansion



Resistant to Change Willing to Adopt

As market evolves, "early innovators"
becomes segment willing to adopt change

I hadn't counted on the "recession of ideas" of the last eight years in the U.S.!



Curriculum Used in Nova Scotia

(This slide has not been developed yet. I will talk about last three generations of NS materials that I am familiar with and use this as a transition to new possibilities)







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CK-12 Foundation, a non-profit organization founded in January 2007, aims to reduce the cost of textbook materials for the K-12 market both in the US and worldwide. Using a collaborative and web-based compilation model that can be manifested as an adaptive textbook - termed the "FlexBook" - CK-12 intends to pioneer the creation and distribution of high quality educational web texts both as traditional print and online medium. At the same time, CK-12 hopes to use the leverage that open source models, like Linux software and Wikipedia encyclopedia, have used to continually improve regionally and temporally relevant content.

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Featured Author



Darryl Morrell

Contribution : *Engineering: An Introduction for High School; An Introduction to Solving Engineering Problems with MATLAB*

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Featured Book

The People's Physics Book



3rd Edition
James H. Dann,
 Ph.D.,
James J. Dann,

The authors' intent is to produce an alternative textbook, as one part of a multifaceted strategy to teach physics conceptually and mathematically. As a reference guide and problem text, it is carried easily and is especially helpful in preparation for the AP Physics B & C exams.



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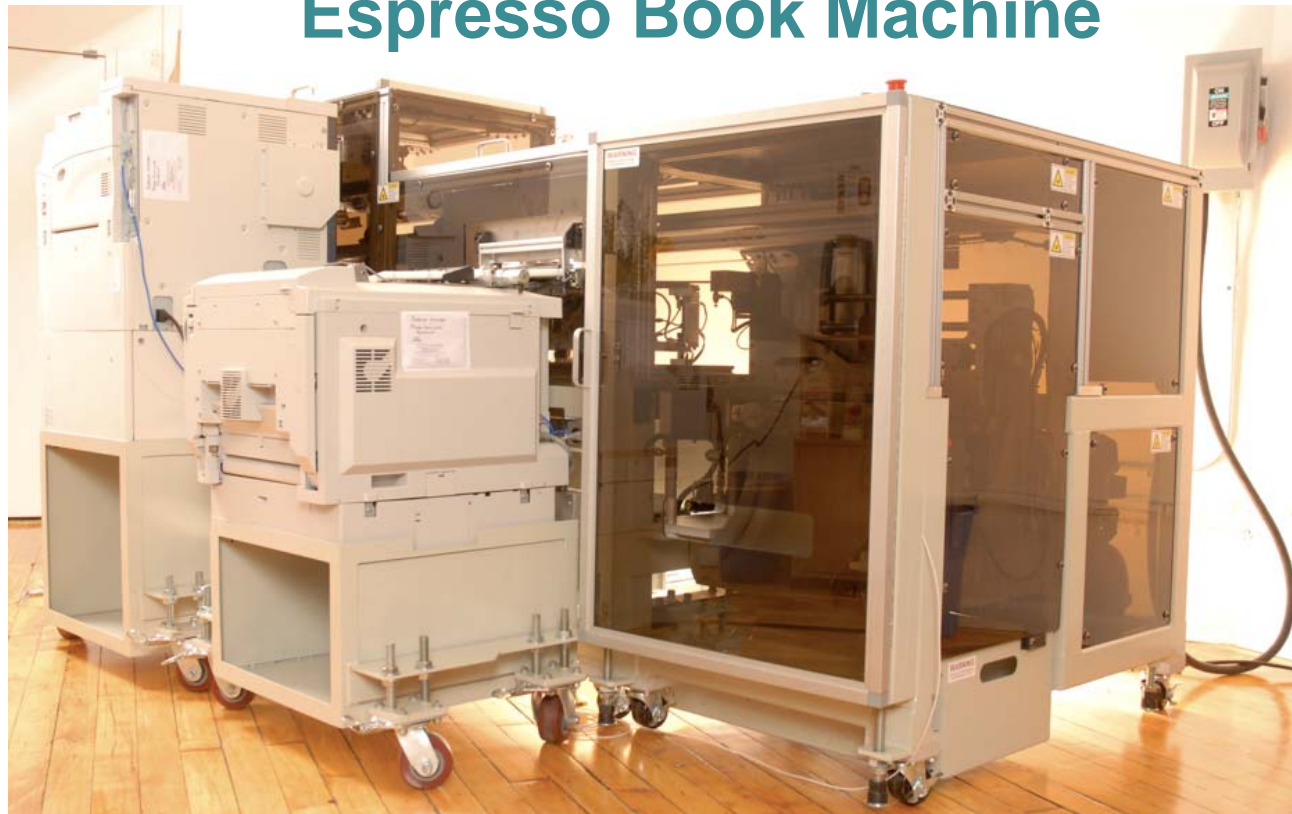
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Print on Demand Espresso Book Machine



The University of Michigan recently announced that patrons of their Shapiro Library will be able to print “on-demand books” via their new Espresso Book Machine. The machine will print and bind—in just 5-7 minutes—a book from the library’s digital collection of out-of-print books. The average price for each book is \$10.



Benefits and Possibilities with New Publishing Models

- **Programs rich in technology—
for dissemination and educational use**
- **Localized programs**
- **Teacher supported materials**
- **Open and more democratic programs**
- **Sustainable and living programs**
- **Materials as part of a rich ecosystem**



- **Rich mix of programs for students and professional development for teachers**
- **Free or low-cost textbooks**
- **Ability for generational succession of developers**
- **Wider reach of materials and impact of ideas**



Bottom-line Requirements of New Publishing Systems and Models

- **Electronic versions of curriculum**
- **Printed versions of curriculum**
- **Stable versions of curriculum**
- **Mechanisms to “vet” curriculum for assurance of quality**
- **Networks of vested users (“Texts 2.0”)**



- **Agility in adapting to customer needs**
- **Active quality improvement processes**
- **Web-enabled distribution**
- **Business back-end support for school customers**
- **Changed customer expectations and behavior**



Issues to Work Out as We Look at and begin to Experiment with New Models

- **Who supports the curriculum developers if curriculum is free?**
- **What types of collaborations among what sets of people with what expertise can make optimal use of collaborate curriculum development tools?**



- **How do we get schools and teachers to support new relationships with new players in the “curriculum business” that don’t fit the mold?**
- **Who can do the business “stuff” and on what basis?**



Issues to Work Out

- **How can we support student learning and teacher learning simultaneously with new integrated publishing tools?**
- **How can we extend our reach to other learning venues with web-enabled tools? And plan for it in our curriculum design!**



- **How do we work together to support new publishing models?**
- **How do we support and evolve the tools we need to do our work better?**
 - **Mechanisms to ensure curricular coherence**
 - **Ability to solicit and collect feedback from kids and teachers**



Sketchpad File Edit Display Construct Transform Measure Graph Window Help (37%) Wed 10:03 PM

Pub as Adv-Models.gsp: Balance

Control of Content

- ★ Developer Control
- ★ Publisher Control
- ★ User Control

Cost of Materials

- Free
- High Cost
- Low Cost

Developer Resources

- No Royalties
- Some Royalties
- Lots of \$\$\$\$\$

Distribution Scale

- ▲ National Distribution
- ▲ Small/Local Use
- ▲ Moderate Scale

Character of Materials

- ◆ Conformist
- ◆ Innovative
- ◆ Mold Breaking

"Thud Factor"

Opportunity to Revise

What do you value?

How much do you value it?

★ = 1 ■ = 2 ● = 3
▲ = 4 ◆ = 5

X: User Control

✓: High Cost

X: Small/Local Use

✓: Conformist

X: High Cost

X: Lots of \$\$\$\$\$

