Transforming Education Using Personalized Learning

Bill Daggett
Founder and Chairman
August 1, 2017
Making Schools Work

Bill Daggett
Founder and Chairman
July 19, 2017
Ongoing Research

1. Good to Great
Ongoing Research

1. Good to Great
2. High Poverty/High Performance
Nation’s Most Rapidly Improving Schools

Source: Publicly available performance and enrollment data
Nation’s Most Rapidly Improving Schools

Source: Publicly available performance and enrollment data
Nation’s Most Rapidly Improving Schools

Source: Publicly available performance and enrollment data
Culture Trumps Strategy
Future?
WHY
WHY – WHAT
WHY – WHAT - HOW
Lessons Learned

1. Culture Trumps Strategy
Lessons Learned

1. Culture Trumps Strategy

2. It is More than Content
Lessons Learned

1. Culture Trumps Strategy
2. It is More than Content
3. Actionable Data
Lessons Learned

1. Culture Trumps Strategy
2. It is More than Content
3. Actionable Data
4. It is not a series of “Events”
WHY
Rate of Change
Rate of Change
The Winds of Change

Accelerating Impact of Technology
1st Industrial Revolution
1st Industrial Revolution
2nd Industrial Revolution
Industrial Revolution transformed both the expectations and model of public education
1st Industrial Revolution
2nd Industrial Revolution
3rd Industrial Revolution
Web 1.0 - Informational Web
Web 1.0 - Informational Web
Web 2.0 – Relational Web
Web 1.0 – Informational Web
Web 2.0 – Relational Web
Web 3.0 – Anticipatory Web
“Harvard Yanks Acceptance Letters Over Offensive Facebook Posts”

-Fortune

Source: Fortune, June 5, 2017
“Colleges Eyeing Social Media—Big Time”

-South Coast Today

Source: Fortune, June 5, 2017
“They Loved Your G.P.A. Then They Saw Your Tweets.”

-The New York Times

Source: Fortune, June 5, 2017
“One in Ten Young People Have Been Rejected For Jobs Because of Their Social Media History”

-Business Insider

Source: Fortune, June 5, 2017
5 Largest Companies

<table>
<thead>
<tr>
<th>2007</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Exxon Mobil ($540B)</td>
<td>1. Apple ($794B)</td>
</tr>
<tr>
<td>2. General Electric ($463B)</td>
<td>2. Google ($593B)</td>
</tr>
<tr>
<td>3. Microsoft ($355B)</td>
<td>3. Microsoft ($506B)</td>
</tr>
<tr>
<td>4. Citigroup ($331B)</td>
<td>4. Amazon ($429B)</td>
</tr>
<tr>
<td>5. Bank of America ($290B)</td>
<td>5. Facebook ($414B)</td>
</tr>
</tbody>
</table>

Source: S & P Dow Jones Indices
4th Industrial Revolution

3rd Revolution
4th Industrial Revolution

PHYSICAL
Nanotech
- 1/100th
- 10 times
- Jell-O

3rd Revolution
Driverless Cars
40% of cost of a car today is electronics. It will soon be 60%.
G.E. Schenectady R.D. Center

- Engine Part
1. Concept

Engine Part
G.E. Schenectady R.D. Center

Engine Part

1. Concept
2. Design Team
G.E. Schenectady R.D. Center

Engine Part

1. Concept
2. Design Team
3. Build Machine Tool
G.E. Schenectady R.D. Center

- Engine Part

1. Concept
2. Design Team
3. Build Machine Tool
4. Build Prototype
G.E. Schenectady R.D. Center

Engine Part

1. Concept
2. Design Team
3. Build Machine Tool
4. Build Prototype
5. Test
G.E. Schenectady R.D. Center

Engine Part

1. Concept
2. Design Team
3. Build Machine Tool
4. Build Prototype
5. Test

2 years
G.E. Schenectady R.D. Center

- Engine Part
- 2 Years
- Now

3-D computer-aided software
3-D printer using steel chips
G.E. Schenectady R.D. Center

- Engine Part
- 2 Years
- Now 3-D computer-aided software
  3-D printer using steel chips

*From 2 years to 2 days*
4th Industrial Revolution

3rd Revolution
4\textsuperscript{th} Industrial Revolution

**PHYSICAL**
- Nanotech
- 1/100\textsuperscript{th}
- 10 times
- Jell-O

3\textsuperscript{rd} Revolution
4th Industrial Revolution

PHYSICAL
Nanotech
- 1/100th
- 10 times
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3rd Revolution

3rd Revolution
4th Industrial Revolution

PHYSICAL
- Nanotech
- 1/100th
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- Jell-O

3rd Revolution

BIOLOGICAL
- Biotech
4th Industrial Revolution

PHYSICAL
Nanotech
- 1/100th
- 10 times
- Jell-O

3rd Revolution

BIOLOGICAL
Biotech

DIGITAL
Health Care
Precision Medicine

Customization of health care with medical decisions, practices, and products tailored to the individual patient
Precision Medicine

Sequencing of the human genome

Improved technologies for biomedical analysis

New tools for using large datasets
Microprocessors traverse the digestive tract and circulatory system to pinpoint and later treat medical issues.
Schools
If you can write an algorithm for a task, the job is gone.
Paid for Unique Knowledge

- Lawyers
- Accountants
- Stock Brokers
- Doctors

In the immediate future...
Middle-Level Skilled Jobs 1980 - 2040

1980

2010

2040

70%

Source: NY Fed Calculations, U.S. Census Bureau
Middle-Level Skilled Jobs 1980 - 2040

Source: NY Fed Calculations, U.S. Census Bureau
Middle-Level Skilled Jobs
1980 - 2040

1980

2010

2040

41%

Source: NY Fed Calculations, U.S. Census Bureau
Middle-Level Skilled Jobs
1980 - 2040

Source: NY Fed Calculations, U.S. Census Bureau
Job Shares by Skill Group
1980 - 2040

- Low-skill
- Lower-middle
- Upper-middle
- High-skill

1980:
- Low-skill: 18.9%
- Lower-middle: 21.3%
- Upper-middle: 47.1%
- High-skill: 12.7%

2010:
- Low-skill: 25.4%
- Lower-middle: 20.7%
- Upper-middle: 37.7%
- High-skill: 16.2%

2040:
- Low-skill: 33.4%
- Lower-middle: 10.2%
- Upper-middle: 31.3%
- High-skill: 25.1%

Source: NY Fed Calculations, U.S. Census Bureau
## 5 Largest Companies

<table>
<thead>
<tr>
<th>2007</th>
<th>2017</th>
<th>2027</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Exxon Mobil</td>
<td>1. Apple</td>
<td>Bio/Nano/Info</td>
</tr>
<tr>
<td>2. General Electric</td>
<td>2. Google</td>
<td>Technology</td>
</tr>
<tr>
<td>3. Microsoft</td>
<td>3. Microsoft</td>
<td></td>
</tr>
<tr>
<td>4. Citigroup</td>
<td>4. Amazon</td>
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</tr>
<tr>
<td>5. Bank of America</td>
<td>5. Facebook</td>
<td></td>
</tr>
</tbody>
</table>

Source: S & P Dow Jones Indices
The rate of change caused by technology is faster than larger organizations can adapt to.
Entrepreneurs are more effective in this changing environment than large/bureaucratic organizations.
Work to Worker
Six billion of the 7 billion people on Earth have a mobile phone. More than those who have access to toilets.

Source: * Industries of the Future
Developing nations do not need to be freed from the structures of the past.
The internet has reduced the barriers of time and distance.
The internet has reduced the barriers of time and distance everywhere except education.
The Winds of Change

Accelerating Impact of Technology

Higher Education Challenge
College Dropout Rate 2016
First to Second Year

34.8%
Four-Year Colleges

44.5%
Two-Year Colleges

Average Graduation Rate 2016
1983 - 2016

36.6%
Four-Year Colleges in 5 years

29.1%
Two-Year Colleges in 3 years

Montana Two-Year Public College

19.6%

Montana

30.8% graduate in 150% time
19.6% graduate in 100% time
Montana Four-Year Public College

18.0%

Montana
42.7% graduate in six years
18.0% graduate in four years
Your Major Matters
A LOT
## 2-Year College Graduates

<table>
<thead>
<tr>
<th>OCCUPATION</th>
<th>STARTING</th>
<th>AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Management Info Systems</td>
<td>$45,100</td>
<td>$72,100</td>
</tr>
<tr>
<td>Electrical and Chemical Engineers</td>
<td>$45,100</td>
<td>$69,800</td>
</tr>
<tr>
<td>Occ. Health and Safety</td>
<td>$50,300</td>
<td>$68,200</td>
</tr>
<tr>
<td>Diagnostic Medical Specialist</td>
<td>$50,200</td>
<td>$66,800</td>
</tr>
<tr>
<td>Computer Programmer</td>
<td>$42,300</td>
<td>$65,300</td>
</tr>
</tbody>
</table>
# 4-Year College Graduates

<table>
<thead>
<tr>
<th>OCCUPATION</th>
<th>STARTING</th>
<th>AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Development</td>
<td>$35,900</td>
<td>$48,000</td>
</tr>
<tr>
<td>Athletic Trainer</td>
<td>$34,800</td>
<td>$46,900</td>
</tr>
<tr>
<td>Social Worker</td>
<td>$33,000</td>
<td>$46,600</td>
</tr>
<tr>
<td>Recreation and Leisure</td>
<td>$32,200</td>
<td>$45,300</td>
</tr>
<tr>
<td>Child and Family Studies</td>
<td>$30,300</td>
<td>$37,200</td>
</tr>
</tbody>
</table>
## 4-Year College Graduates

<table>
<thead>
<tr>
<th>OCCUPATION</th>
<th>STARTING</th>
<th>AVERAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petroleum Engineer</td>
<td>$103,000</td>
<td>$160,000</td>
</tr>
<tr>
<td>Actuarial Math</td>
<td>$58,700</td>
<td>$120,000</td>
</tr>
<tr>
<td>Nuclear Engineer</td>
<td>$67,600</td>
<td>$117,000</td>
</tr>
<tr>
<td>Chemical Engineer</td>
<td>$68,200</td>
<td>$117,000</td>
</tr>
<tr>
<td>Aerospace Engineer</td>
<td>$62,800</td>
<td>$109,000</td>
</tr>
</tbody>
</table>
The Winds of Change

- Accelerating Impact of Technology
- Higher Education Challenge
- College and Career Ready

International Center for Leadership in Education
Key Skills
Data Analytics
Key Skills

Data Analytics

System Skills
Key Skills

Data Analytics
System Skills
Complex Problem Solving
Key Skills

Data Analytics
System Skills
Complex Problem Solving
Personal Skills
1. Complex Problem Solving

Top 10 Skills

Source: Future of Jobs Report, World Economic Forum
Top 10 Skills

1. Complex Problem Solving
2. Critical Thinking

Source: Future of Jobs Report, World Economic Forum
Top 10 Skills

1. Complex Problem Solving
2. Critical Thinking
3. Creativity

Source: Future of Jobs Report, World Economic Forum
Top 10 Skills

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
### Top 10 Skills

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence

---

Source: Future of Jobs Report, World Economic Forum
1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Active Listening

Top 10 Skills

Source: Future of Jobs Report, World Economic Forum
Top 10 Skills

1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Active Listening
8. Service Orientation

Source: Future of Jobs Report, World Economic Forum
1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Active Listening
8. Service Orientation
9. Negotiation

Source: Future of Jobs Report, World Economic Forum
1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Active Listening
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility

Source: Future of Jobs Report, World Economic Forum
WHAT
Application Model

1. Knowledge in one discipline
2. Application within discipline
3. Application across disciplines
4. Application to real-world predictable situations
5. Application to real-world unpredictable situations
Knowledge Taxonomy

- Creating: 6
- Evaluating: 5
- Analyzing: 4
- Applying: 3
- Understanding: 2
- Remembering: 1
Rigor/Relevance Framework®

Rigor/Relevance Framework®
College Ready (College Prep)

Rigor

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td></td>
<td>C</td>
<td></td>
<td>D</td>
<td></td>
</tr>
</tbody>
</table>

Relevance
Job Ready (CTE)
Career Ready

Rigor

<table>
<thead>
<tr>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>C</td>
<td>A</td>
<td>B</td>
<td>D</td>
</tr>
<tr>
<td>2</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
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</tr>
<tr>
<td>4</td>
<td></td>
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</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Relevance
Key Skills

Data Analytics
System Skills
Complex Problem Solving
Personal Skills
1. Complex Problem Solving
2. Critical Thinking
3. Creativity
4. People Management
5. Coordinating with Others
6. Emotional Intelligence
7. Active Listening
8. Service Orientation
9. Negotiation
10. Cognitive Flexibility

Source: Future of Jobs Report, World Economic Forum
A and C were Needed Pre-Internet
B and D are Required in the Internet Age
Regulated, Certified, Tenured, and Contracted

Rigor

Relevance

6 5 4 3 2 1

1 2 3 4 5

C

A
Make all children all they are capable of being,
BUT
it is about more than standards and tests.
Personal Skills

- Responsibility
- Contemplation
- Initiative
- Perseverance
- Optimism
- Courage

- Respect
- Compassion
- Adaptability
- Honesty
- Trustworthiness
- Loyalty
It all begins with the focus on the students, not the standards.
HOW
Effective use of Data
The achievement of RIGOR begins with RELATIONSHIPS and is anchored in RELEVANCE.
Quad D does require a fundamental shift in both instructional focus and methodology.
Seven Interrelated Fundamental Shifts
Seven Interrelated Fundamental Shifts

From A/C to B/D
Levels

Rigor

Relevance
Seven Interrelated Fundamental Shifts

1. From A/C to B/D

2. Reading, Writing, and Mathematics
Reading Study Summary

Interquartile Ranges Shown (25% - 75%)

Text Lexile Measure (L)

<table>
<thead>
<tr>
<th>Category</th>
<th>Text Lexile Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Literature</td>
<td></td>
</tr>
<tr>
<td>College Literature</td>
<td></td>
</tr>
<tr>
<td>High School Textbooks</td>
<td></td>
</tr>
<tr>
<td>College Textbooks</td>
<td></td>
</tr>
<tr>
<td>Military</td>
<td></td>
</tr>
<tr>
<td>Personal Use</td>
<td></td>
</tr>
<tr>
<td>Entry-Level Occupations</td>
<td></td>
</tr>
<tr>
<td>SAT 1, ACT, AP*</td>
<td></td>
</tr>
<tr>
<td>CCSS</td>
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</table>

Source: National Test Data, MetaMetrics
Reading Study Summary

Interquartile Ranges Shown (25% - 75%)

Text Lexile Measure (L)

Source: National Test Data, MetaMetrics

High School Literature
College Literature
High School Textbooks
College Textbooks
Military
Personal Use
Entry-Level Occupations
SAT 1, ACT, AP*
CCSS
Existing Curriculum
College and Career Ready Required Mathematics

Existing Curriculum

• Algebra I
College and Career Ready
Required Mathematics

Existing Curriculum

- Algebra I
- Geometry
College and Career Ready
Required Mathematics

Existing Curriculum

• Algebra I
• Geometry
• Algebra II
College and Career Ready
Required Mathematics

Existing Curriculum

- Algebra I
- Geometry
- Algebra II
- Pre-Calculus
College and Career Ready Required Mathematics

Existing Curriculum

- Algebra I
- Geometry
- Algebra II
- Pre-Calculus
- Calculus
College and Career Ready Required Mathematics

Existing Curriculum

- Algebra I
- Geometry
- Algebra II
- Pre-Calculus
- Calculus

5% of the U.S. Workforce
College and Career Ready
Required Mathematics

Existing Curriculum
• Algebra I
• Geometry
• Algebra II
• Pre-Calculus
• Calculus

Workplace Ready

5% of the U.S. Workforce
## College and Career Ready Required Mathematics

<table>
<thead>
<tr>
<th>Existing Curriculum</th>
<th>Workplace Ready</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Algebra I</td>
<td>• Proportional Relationships</td>
</tr>
<tr>
<td>• Geometry</td>
<td></td>
</tr>
<tr>
<td>• Algebra II</td>
<td></td>
</tr>
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<td>• Pre-Calculus</td>
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<td>• Calculus</td>
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5% of the U.S. Workforce
College and Career Ready
Required Mathematics

Existing Curriculum
- Algebra I
- Geometry
- Algebra II
- Pre-Calculus
- Calculus

Workplace Ready
- Proportional Relationships
  - Percentages

5% of the U.S. Workforce
College and Career Ready Required Mathematics

Existing Curriculum

• Algebra I
• Geometry
• Algebra II
• Pre-Calculus
• Calculus

Workplace Ready

• Proportional Relationships
  • Percentages
  • Graphical Representations

5% of the U.S. Workforce
# College and Career Ready Required Mathematics

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<tr>
<td>• Algebra II</td>
<td>• Graphical Representations</td>
</tr>
<tr>
<td>• Pre-Calculus</td>
<td>• Functions</td>
</tr>
<tr>
<td>• Calculus</td>
<td></td>
</tr>
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5% of the U.S. Workforce
College and Career Ready
Required Mathematics

Existing Curriculum
• Algebra I
• Geometry
• Algebra II
• Pre-Calculus
• Calculus

Workplace Ready
• Proportional Relationships
  • Percentages
  • Graphical Representations
  • Functions
  • Expressions

5% of the U.S. Workforce

International Center for Leadership in Education
College and Career Ready
Required Mathematics

Existing Curriculum
• Algebra I
• Geometry
• Algebra II
• Pre-Calculus
• Calculus

Workplace Ready
• Proportional Relationships
  • Percentages
  • Graphical Representations
• Functions
• Expressions
• Equations

5% of the U.S. Workforce
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<tr>
<td></td>
<td>• Equations</td>
</tr>
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</table>

Mastery of middle school math at the Quad B/D levels

5% of the U.S. Workforce
Seven Interrelated Fundamental Shifts

1. From A/C to B/D
2. Reading, Writing, and Mathematics
3. Data Analytics
Data is growing at a 40 percent compound annual rate, reaching nearly 45 ZB by 2020

Source: Oracle, 2012
Data analytics requires you to reduce, refine and manage information.
Data Analytics

Like a Microscope: Examine smaller details than we can quickly observe (your personal shopping habits).

AND

Like a Telescope: See things in large scale showing connections not recognized before (people who buy one product and then buy another).
Data Analytics

Tables

Charts

Graphs
3-D Surface

Total Revenue by Month

- $0-$50,000
- $50,000-$100,000
- $100,000-$150,000
Radar

Units

January
December
February
November
March
October
April
September
May
August
June
July

Trees
Flowers
Bulbs
Herbs
Big Data

A graphic visualization of the mobile industry.

Source:
DATA ANALYTICS IS INTERDISCIPLINARY

But that is not how we are organized, certified, tenured, or contracted.
Seven Interrelated Fundamental Shifts

1. From A/C to B/D
2. Reading, Writing, and Mathematics
3. Data Analytics
4. Innovation and Creativity
Seven Interrelated Fundamental Shifts

1. From A/C to B/D
2. Reading, Writing, and Mathematics
3. Data Analytics
4. Innovation and Creativity
5. Technology Tools
Seven Interrelated Fundamental Shifts

1. From A/C to B/D
2. Reading, Writing, and Mathematics
3. Data Analytics
4. Innovation and Creativity
5. Technology Tools
6. Social Media
Social Issues

Sex Education

Drug Addiction

Social Media Education
Seven Interrelated Fundamental Shifts

1. From A/C to B/D
2. Reading, Writing, and Mathematics
3. Data Analytics
4. Innovation and Creativity
5. Technology Tools
6. Social Media
7. Non-cognitive

International Center for Leadership in Education | A division of Houghton Mifflin Harcourt
Personal Skills

- Responsibility
- Contemplation
- Initiative
- Perseverance
- Optimism
- Courage

- Respect
- Compassion
- Adaptability
- Honesty
- Trustworthiness
- Loyalty
Fundamental Shift in Instruction
Fundamental Shift in Instruction

Open Educational Resources
Open Educational Resources
Teachers Pay Teachers
Scope and Sequence
Fundamental Shift in Instruction

Open Educational Resources

Text to Digital
Fundamental Shift in Instruction

- Open Educational Resources
- Text to Digital
- Virtual to Augmented Reality
Wednesday, April 15, 2015

BC (or BCE)

AD (or CE)

3,873,000 bricks in the wall
Augmented Reality
Fundamental Shift in Instruction

- Open Educational Resources
- Text to Digital
- Virtual to Augmented Reality
- Gamification
Gamification
Gamification

Engaging

Personalized
Gamification

Engaging

Personalized

Built on Growth Model
Gamification

- Engaging
- Personalized
- Built on Growth Model
- Tied to Standards
Fundamental Shift in Instruction

- Open Educational Resources
- Text to Digital
- Virtual to Augmented Reality
- Gamification

Online
Florida, Michigan, Virginia and Alabama require one online course as a graduation requirement. Idaho requires two.
Fundamental Shift in Instruction

- Open Educational Resources
- Text to Digital
- Virtual to Augmented Reality
- Gamification
Let’s help every teacher become successful at making all students all they are capable of being.
It all begins with the teacher.
The achievement of RIGOR begins with RELATIONSHIPS and is anchored in RELEVANCE.
Let’s help every teacher become successful at making all students all they are capable of being.
WHY - WHAT - HOW
MAKING SCHOOLS WORK:
Why College Ready Isn’t Ready Enough

WILLARD R. DAGGETT
Begin With the End in Mind
Learning Criteria

Foundation Learning

(Achievement in the core subjects of English language arts, math and science, and others identified by the school)
## Learning Criteria

<table>
<thead>
<tr>
<th>Foundation Learning</th>
<th>Stretch Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Achievement in the core subjects of English language arts, math and science, and others identified by the school)</td>
<td>(Demonstration of rigorous and relevant learning beyond the minimum requirements)</td>
</tr>
</tbody>
</table>
## Learning Criteria

<table>
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<th>Stretch Learning</th>
<th>Learner Engagement</th>
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<td>(Achievement in the core subjects of English language arts, math and science, and others identified by the school)</td>
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<td>(The extent to which students are motivated and committed to learning; have a sense of belonging and accomplishment; and have relationships with adults, peers, and parents that support learning)</td>
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# Learning Criteria

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<td><strong>Personal Skill Development</strong></td>
<td>(Measures of personal, social, service, and leadership skills and demonstrations of positive behaviors and attitudes)</td>
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Personal Skills

• Responsibility
• Contemplation
• Initiative
• Perseverance
• Optimism
• Courage

• Respect
• Compassion
• Adaptability
• Honesty
• Trustworthiness
• Loyalty
## Learning Criteria

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TRADITIONAL

Foundation Learning

Stretch

Student Engagement

Personal Skill Development
FUTURE-FOCUSED

- Foundation Learning
- Stretch
- Student Engagement
- Personal Skill Development
Systemwide
Focus

What is effective?
Hattie’s Research
Focus

What is effective?

What can you impact?

What is most efficient?
Greatest Impact

- Culture of High Expectations
- Relevance of Instruction
- Strong Relationships
Findings

Teachers are our greatest hope
20-Day Plan
Organizational Leadership
The Winds of Change

Accelerating Impact of Technology
The Winds of Change

Accelerating Impact of Technology

Higher Education Challenge
The Winds of Change

Accelerating Impact of Technology

Higher Education Challenge

College and Career Ready
The Winds of Change

Accelerating Impact of Technology

Higher Education Challenge

College and Career Ready

Demographics
## Life Expectancy

<table>
<thead>
<tr>
<th>Birth</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950</td>
<td>71.1</td>
<td>65.6</td>
</tr>
<tr>
<td>1960</td>
<td>73.1</td>
<td>66.6</td>
</tr>
<tr>
<td>1970</td>
<td>74.7</td>
<td>67.1</td>
</tr>
<tr>
<td>1980</td>
<td>77.4</td>
<td>70.0</td>
</tr>
<tr>
<td>1990</td>
<td>78.9</td>
<td>72.0</td>
</tr>
<tr>
<td>2000</td>
<td>79.5</td>
<td>73.9</td>
</tr>
<tr>
<td>2010</td>
<td>81.4</td>
<td>75.5</td>
</tr>
</tbody>
</table>

Source: International Monetary Fund
45 Million, Growing to 80 Million by 2030
Today’s 30-year-old is yesterday’s 20-year-old.
Retirement Savings - Less than $10,000

50% White households

Sources: *Time*, May 18, 2015
National Institute on Retirement Security
Retirement Savings - Less than $10,000

White households: 50%
Black households: 75%

Sources: Time, May 18, 2015
National Institute on Retirement Security
Retirement Savings - Less than $10,000

- White households: 50%
- Black households: 75%
- Hispanic households: 80%

Sources: Time, May 18, 2015
National Institute on Retirement Security
Social Security Solvency

TRUST FUND INSOLVENT 2036

1990 2000 2010 2020 2030 2040 2050 2060 2070 2080

Source: Social Security Administration.
Data note: Figures represent deficits, excluding interest income.
Produced by Veronique de Rugy, Mercatus Center at George Mason University.
The Population is Aging

1950 (16:1)  1960 (5:1)  2015 (3:1)  2035 (2:1)

The number of workers per Social Security retiree is falling.

Source: 2016 Social Security Trustees Report
Federal Budget

Social Security 24%
Federal Budget

- Social Security: 24%
- Medicare: 15%
Federal Budget

- Social Security: 24%
- Medicare: 15%
- Medicaid: 9%
Federal Budget

- Social Security 24%
- Medicare 15%
- Medicaid 9%
- Interest 6%
Federal Budget

- Social Security: 24%
- Medicare: 15%
- Medicaid: 9%
- Interest: 6%
- Other: 14%
Federal Budget

- Social Security: 24%
- Medicare: 15%
- Medicaid: 9%
- Interest: 6%
- Other: 14%
- Defense: 16%

Total: 100%
Federal Budget

- Social Security: 24%
- Medicare: 15%
- Medicaid: 9%
- Interest: 6%
- Other: 14%
- Non-Defense Spending (including education): 16%
- Defense: 16%
- Medicaid: 9%
- Medicare: 15%
- Social Security: 24%
Changing Demographics

65+

78.3% are Caucasian

Source: U.S. Census Bureau
Changing Demographics

65+

78.3% are Caucasian

<1 year

38% are Caucasian

Source: U.S. Census Bureau
Children born to single parents

U.S. Census Bureau, 2014

1940

3.8%
Children born to single parents

U.S. Census Bureau, 2014

1940: 3.8%
2016: 41%
Over 50% of public school students qualify for free and reduced lunch.

1 in 5 speak a language other than English at home.

Nearly 1 in 4 are foreign born or have a parent who is.

80% of public school teachers are white.

Create a Culture

Make it personal.

Keep it simple.

It is a journey, not an event.
Organizational Leadership
A and C were Needed Pre-Internet

Rigor

Relevance
B and D are Required in the Internet Age
Regulated, Certified, Tenured, and Contracted

Rigor

Relevance

[Diagram showing a matrix with the terms Rigor and Relevance, and the labels C, A, and 1, 2, 3, 4, 5 along the axes.]
Organizational Leadership

STRUCTURE AND SYSTEMS

Culture
Vision
Structure and Systems
Organizational Changes

Looping
Organizational Changes

Looping

Department Chairs
Organizational Changes

- Looping
- Department Chairs
- 9th Grade Electives
Organizational Leadership
Leadership is NOT a Position.
Organizational Leadership
Actionable Data
Survey Tools
for Measuring What Matters

We Learn™
Student Survey

We Teach™
Instructional Staff Survey

We Lead™
Whole Staff Survey

We Succeed™
Student Survey

We Inspire™
Instructional Staff Survey

We Support™
Parent/Community Survey
Teacher vs. Student Comparison

Students can apply what I am teaching to their everyday lives.

Teacher: 92%

I can apply what I learn to my everyday life.

Student: 58%
Students in my classroom engage in hands-on activities.

We do lots of hands-on activities in my classes.
Teacher vs. Student Comparison

I make learning exciting for my students. 84%

My teachers make learning exciting. 40%
Teacher vs. Student Comparison

- I recognize students when they demonstrate positive behavior in school. (95%)
- Good citizenship is rewarded in this school. (40%)
Student Profile
Reading Study Summary

Interquartile Ranges Shown (25% - 75%)

Source: National Test Data, MetaMetrics
Student Report Card

Literacy Profile Across Grades (Lexiles®)

Student Name: Jane Smith (Grade 11)

Lexile Measure

Grade 6  Grade 7  Grade 8  Grade 9  Grade 10  Grade 11  Grade 12  Postsecondary

Lexile Measure

Grade 11: 1120
Student Report Card
Literacy Profile Across Grades (Lexiles®)

Student Name: Jane Smith (Grade 11)

Lexile Measure

Grade 6  Grade 7  Grade 8  Grade 9  Grade 10  Grade 11  Grade 12  Postsecondary

Levile Measure

600  800  1000  1200  1400  1600

1120
Student Report Card
Literacy Profile Across Grades (Lexiles®)

Student Name: Jane Smith (Grade 11)

Interquartile Ranges

High School Literature (Grade 11 / 12)

Lexile Measure (Lexiles®)

Grade 6  Grade 7  Grade 8  Grade 9  Grade 10  Grade 11  Grade 12  Postsecondary

1120

International Center for Leadership in Education
Student Report Card
Literacy Profile Across Grades (Lexiles®)

Student Name: Jane Smith (Grade 11)

Interquartile Ranges

High School Textbooks (Grade 11/12)

Lexile Measure

Grade 6  Grade 7  Grade 8  Grade 9  Grade 10  Grade 11  Grade 12  Postsecondary

600  800  1000  1200  1400  1600
Student Report Card
Literacy Profile Across Grades (Lexiles®)

Student Name: Jane Smith (Grade 11)

Lexile Measure (Lexiles®)

Interquartile Ranges

Grade 6
Grade 7
Grade 8
Grade 9
Grade 10
Grade 11
Grade 12
Postsecondary

Personal Use
Texts

1120

Interquartile Ranges
Student Report Card
Literacy Profile Across Grades (Lexiles®)

Student Name: Jane Smith (Grade 11)

Lexile Measure

Interquartile Ranges

1140

Grade 6  Grade 7  Grade 8  Grade 9  Grade 10  Grade 11  Grade 12  Postsecondary

Entry-Level Jobs

1450

1120

International Center for Leadership in Education | A division of Houghton Mifflin Harcourt
Student Literacy Profile
Reading Study Summary

Interquartile Ranges Shown (25% - 75%)

Text Lexile Measure (L)

- High School Literature
- College Literature
- High School Textbooks
- College Textbooks
- Military
- Personal Use
- Entry-Level Occupations
- SAT 1, ACT, AP*
- CCSS

Source: National Test Data, MetaMetrics
Reading Study Summary

Interquartile Ranges Shown (25% - 75%)

Text Lexile Measure (L)

Source: National Test Data, MetaMetrics
Instructional Practice Review
Instructional Leadership
Do not confuse a lot of expectations with high expectations.
Instructional Leadership
Seven Interrelated Fundamental Shifts

1. From A/C to B/D
2. Reading, Writing, and Mathematics
3. Data Analytics
4. Innovation and Creativity
5. Technology Tools
6. Social Media
7. Non-cognitive

Reading, Writing, and Mathematics

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Instructional Leadership

LITERACY AND MATH

- High expectations
- Curriculum
- Literacy and math

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Division of Houghton Mifflin Harcourt
Always in Beta
College and Career Ready Required Mathematics

Existing Curriculum

• Algebra I
College and Career Ready
Required Mathematics

Existing Curriculum

• Algebra I
• Geometry
Existing Curriculum

- Algebra I
- Geometry
- Algebra II
College and Career Ready Required Mathematics

Existing Curriculum

- Algebra I
- Geometry
- Algebra II
- Pre-Calculus
College and Career Ready Required Mathematics

Existing Curriculum

- Algebra I
- Geometry
- Algebra II
- Pre-Calculus
- Calculus
College and Career Ready Required Mathematics

Existing Curriculum

- Algebra I
- Geometry
- Algebra II
- Pre-Calculus
- Calculus

5% of the U.S. Workforce
College and Career Ready
Required Mathematics

Existing Curriculum
- Algebra I
- Geometry
- Algebra II
- Pre-Calculus
- Calculus

Workplace Ready

5% of the U.S. Workforce
College and Career Ready
Required Mathematics

**Existing Curriculum**
- Algebra I
- Geometry
- Algebra II
- Pre-Calculus
- Calculus

**Workplace Ready**
- Proportional Relationships

5% of the U.S. Workforce
College and Career Ready
Required Mathematics

Existing Curriculum
• Algebra I
• Geometry
• Algebra II
• Pre-Calculus
• Calculus

Workplace Ready
• Proportional Relationships
  • Percentages

5% of the U.S. Workforce
College and Career Ready
Required Mathematics

Existing Curriculum
- Algebra I
- Geometry
- Algebra II
- Pre-Calculus
- Calculus

Workplace Ready
- Proportional Relationships
  - Percentages
  - Graphical Representations

5% of the U.S. Workforce
College and Career Ready
Required Mathematics

Existing Curriculum
• Algebra I
• Geometry
• Algebra II
• Pre-Calculus
• Calculus

Workplace Ready
• Proportional Relationships
  • Percentages
  • Graphical Representations
  • Functions

5% of the U.S. Workforce
College and Career Ready
Required Mathematics

**Existing Curriculum**
- Algebra I
- Geometry
- Algebra II
- Pre-Calculus
- Calculus

**Workplace Ready**
- Proportional Relationships
  - Percentages
  - Graphical Representations
  - Functions
  - Expressions

5% of the U.S. Workforce
College and Career Ready Required Mathematics

Existing Curriculum
- Algebra I
- Geometry
- Algebra II
- Pre-Calculus
- Calculus

Workplace Ready
- Proportional Relationships
  - Percentages
  - Graphical Representations
  - Functions
  - Expressions
  - Equations

5% of the U.S. Workforce
Existing Curriculum
• Algebra I
• Geometry
• Algebra II
• Pre-Calculus
• Calculus

Workplace Ready
• Proportional Relationships
  • Percentages
  • Graphical Representations
  • Functions
  • Expressions
  • Equations

Mastery of middle school math at the Quad B/D levels

5% of the U.S. Workforce
Instructional Leadership

DATA-DRIVEN

- High expectations
- Curriculum
- Literacy and math
- Data-driven
Teacher vs. Student Comparison

**We Teach**

**Teacher**

Students can apply what I am teaching to their everyday lives. 92%  

**We Learn**

**Student**

I can apply what I learn to my everyday life. 58%
Instructional Leadership

PROVIDE PROFESSIONAL GROWTH

- High expectations
- Curriculum
- Literacy and math
- Data-driven
- Provide professional growth
Teaching

RIGOR AND RELEVANCE

Rigor and relevance

International Center for Leadership in Education

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Rigor

Levels

Relevance
Teaching

RELATIONSHIPS

Rigor and relevance

Relationships
Teaching

CONTENT

Rigor and relevance
Relationships
Content
Teaching

HOW STUDENTS LEARN

- Rigor and relevance
- Relationships
- Content
- How students learn
Teaching

INSTRUCTIONAL STRATEGIES

- Rigor and relevance
- Relationships
- Content
- How students learn
- Instructional strategies

International Center for Leadership in Education

A division of Houghton Mifflin Harcourt
Students know technology but not necessarily how it can support learning.
Gamification
Gamification
Gamification

Engaging

Personalized
Gamification

Engaging
Personalized
Built on Growth Model
Engaging
Personalized
Built on Growth Model
Tied to Standards
Teaching

ASSESSMENT TO GUIDE INSTRUCTION

Rigor and relevance
Relationships
Content
How students learn
Instructional strategies
Assessment to guide instruction
Assessments

Tests

Portfolios

Artifacts of Student Work

Observations
Recommendations
Recommended Action Items

Create 20-Day Plans
Recommended Action Items

- Create 20-Day Plans
- Create a Culture – Establish a Vision
Recommended Action Items

- Create 20-Day Plans
- Create a Culture – Establish a Vision
- Quad D™ Instruction
Levels

Rigor

Relevance

6 5 4 3 2 1

C D

A B

International Center for Leadership in Education
Recommended Action Items

- Create 20-Day Plans
- Create a Culture – Establish a Vision
- Strive toward Quad D™ Instruction
- Measure What Matters
Teacher vs. Student Comparison

I make learning exciting for my students.

My teachers make learning exciting.
Recommended Action Items

Professional Learning
Recommended Action Items

- Professional Learning
- Leadership Development/Executive Coaching
THE DAGGETT SYSTEM FOR EFFECTIVE INSTRUCTION

Alignment for Student Achievement

Bill Daggett
SHARE YOUR FEEDBACK!

Through the APP or

https://tinyurl.com/n57tofo

Or QR Code
THE DAGGETT SYSTEM
FOR EFFECTIVE INSTRUCTION

......

Alignment for Student Achievement

Bill Daggett
Students do better than 84% of students not in that initiative.
1 Standard Deviation

Students do **better than 84% of students** not in that initiative.

Typically represent **2 years growth in 1 year**
Application of Knowledge

Effective

0.65  SD = 1.30 Years
Growth per Year
Student-Teacher Relationship

Effective

0.72  SD = 1.44 Years
Growth per Year
Literacy Strategies

Effective

0.61 SD = 1.22 Years
Growth per Year
Focus

What is effective?
What can you impact?
Socioeconomic Status

Effective

0.57
You Cannot Change Where
YOUR STUDENTS CAME FROM

However

You Can Change Where
YOUR STUDENTS ARE GOING
Effectiveness and Efficiency Framework

High Cost

Low Cost
Effectiveness and Efficiency Framework

High Student Performance

High Cost

Low Cost

Low Student Performance

Effectiveness
Effectiveness and Efficiency Framework

- High Student Performance
- Low Student Performance
- High Cost
- Low Cost

Quadrants:
- **A**: High Cost, Low Student Performance
- **B**: Low Cost, Low Student Performance
- **C**: High Cost, High Student Performance
- **D**: Low Cost, High Student Performance
Student-Teacher Relationship

Effective

Efficient

0.72

0.90
Application of Knowledge

Effective

Efficient
Professional Development

Effective

0.62

Efficient

0.75
Teacher Expectations and Clarity

Effective

Efficient

0.75

0.90
Assessment to Inform and Differentiate Instruction

**Effective**

![Bar chart showing 0.65]

**Efficient**

![Bar chart showing 0.80]
Literacy Strategies

Effective

Efficient

0.61

0.65
Less Effective
Class Size

Effective

Efficient

0.21

0.20
Summer School

Effective

Efficient

0.23

0.20
iPhone
The Order of Things Have Changed

- **Uber**: The world’s largest taxi company, owns no vehicles.

Source: Better and Faster, Jeremy Gutsche
The Order of Things Have Changed

• **Uber**: The world’s largest taxi company, owns no vehicles
• **Facebook**: The world’s most popular media owner, creates no content.

Source: Better and Faster, Jeremy Gutsche
The Order of Things Have Changed

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- **Facebook**: The world’s most popular media owner, creates no content
- **Alibaba**: The world’s most valuable retailer, has no merchandise
- **Airbnb**: The world’s largest accommodation provider, owns no real estate.

Source: Better and Faster, Jeremy Gutsche
The Nation’s Most Rapidly Improving Schools

Culture Trumps Strategy
The Nation’s Most Rapidly Improving Schools

Culture Trumps Strategy

Are Future Focused
A must-read for all education stakeholders

by Dr. Bill Daggett

Highlights the six core values that underpin the vision at leading-edge schools, and the frameworks to fold them into your own district, school, and classrooms.

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Equip your team with skills and strategies that will build instructional leadership!

- Building Learning Mindsets
- Digital Leadership and Learning
- Instructional Leadership and Excellence
- Equity and Cultural Relevance

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