Take Control or Be Controlled

Bill Daggett, Founder and Chairman
February 20, 2015

North Carolina Guide to Strengthening Our Public Schools
North Carolina’s ability to compete for jobs, develop a strong economy, and promote greater economic prosperity for all of its citizens is dependent on the quality of its public schools.

Prepare Students in the most Effective and Efficient way Possible
Prepare Students in the most Effective and Efficient way Possible VS. Protecting the System

Research Base

• Nation’s Most Rapidly Improving Schools
Focus

Research Base

• Nation’s Most Rapidly Improving Schools
• John Hattie’s Meta Analysis

Research on Effectiveness

1. Data-rich, analysis-poor
   - Meta-analysis
Research on Effectiveness

1. Data-rich, analysis-poor
   - Meta-analysis

2. Visible Learning by John Hattie
   - 52,637
   - 800 meta-analyses

Scale

• 138 factors
Effectiveness and Efficiency Framework

High Cost  Low Cost

High Student Performance

High Cost  Low Cost  Low Student Performance
Effectiveness and Efficiency Framework

High Student Performance

High Cost

C

D

Low Cost

Low Student Performance

Application of Knowledge

Effective

Efficient

0.65

0.80
Teacher Expectations and Clarity

Effective: 0.75
Efficient: 0.90

Student Teacher Relationship

Effective: 0.72
Efficient: 0.90
Literacy Strategies

Effective

Efficient

Professional Development

Effective

Efficient
Greatest Impact

1. Culture of High Expectations
2. Relevance of Instruction
3. Strong Relationships
System

Student Achievement
THE DAGGETT SYSTEM FOR EFFECTIVE INSTRUCTION

Alignment for Student Achievement

20 Day Plan

International Center for Leadership in Education
Organizational Leadership

Questions
Growing Gap

Take Control
Take Control of What?

Urgent vs. Important
Prepare Students in the most Effective and Efficient way Possible

VS.

Protecting the System

Culture Trumps Strategy
EMERGING TRENDS

Digital/Technology Impact
What is different here?

Pope Benedict XVI

What is different here?

Pope Benedict XVI  Pope Francis
Web

- 1.0 – Informational
  - Google
Web

- 1.0 – Informational
- 2.0 – Relational

Web

- 1.0 – Informational
- 2.0 – Relational
- 3.0 – Anticipatory
Web

- 1.0 – Informational
- 2.0 – Relational
- 3.0 – Anticipatory
  - Artificial intelligence

Web

- 1.0 – Informational
- 2.0 – Relational
- 3.0 – Anticipatory
  - Artificial intelligence
  - Deep Data Mining
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<tr>
<td>• Photo Math</td>
</tr>
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</table>
Digital Impact

• Digital Literacy

Digital Literacy

• Tools/Applications/Systems
• Digital Footprint
Digital Footprint

- Facebook
- Snapchat
- Instagram
- Vine

Snapchat

Allows users to take pictures and videos and share them with recipients for 1-10 seconds. Users send 400 million messages per day. With a core audience between the ages of 13 and 25.

Source: Business Insider
Snap-Hack

Allows you to save your Snapchats including pictures and videos without notifying the sender.

Digital Footprint

- College Admission
- Applying for a Job
- Boyfriend/Girlfriend (their parents)
... and you thought locker searches were controversial

Digital Literacy

- Tools/Applications/Systems
- Digital Footprint
- Vetting of Sources
Question

Digital Impact

- Digital Literacy
- Delivery System
Technology has transformed how children play and interact. It has transformed the workplace they will enter. But it has not transformed how we educate them.

Gaming is increasingly being built based upon brain research.
Gamification

- Engaging
- Personalized
Gamification

- Engaging
- Personalized
- Built on Growth Model

Gamification

- Engaging
- Personalized
- Built on Growth Model
- Tied to Standards
Gamification

- Engaging
- Personalized
- Built on Growth Model
- Tied to Standards
- Merging with Online Providers

The Military and the Corporate world are increasingly moving to game technology for training
Districts need a gamification, online, and Digital Literacy policy and plan

Emerging Trends

- Digital
- Career Ready
North Carolina Guide to Strengthening Our Public Schools

Are our Students College, Career and Citizen Ready?
College Freshman Well or Very Well Prepared

- High School Teachers – 89%
- College Instructors – 26%

Freshmen Needing Remediation

- Two Year College – 51.7%
- Four Year College – 19.9%
### College Retention Rate 2014
First to Second Year

<table>
<thead>
<tr>
<th>Type of College</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-Year Colleges</td>
<td>55.5%</td>
</tr>
<tr>
<td>Four-Year Colleges</td>
<td>65.2%</td>
</tr>
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Source: ACT

### College Dropout Rate 2014
First to Second Year

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<tr>
<td>Four-Year Colleges</td>
<td>34.8%</td>
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</tbody>
</table>

Source: ACT
Average Graduation Rate 1983-2014

- Two-Year Colleges in 3 years – 29.1%
- Four-Year Colleges in 5 years – 36.6%

Source: ACT

North Carolina 4 Year Public College

North Carolina
59.1% graduate in six years
35.1% graduate in four years
North Carolina 2 Year Public College

College Challenges

1. Success of Graduates
2. Cost
College tuition rates have increased on average at twice the rate of inflation in the past 17 years.

Source: ACT

2014 college grad average loan debt was $35,200.

Source: ACT
Are the higher success rates for college grads due to their education or that they have the personal attributes that enable them to succeed in college and to succeed in the workplace?
Career Ready

13 Million Americans are Unemployed

BUT

3.8 million jobs in the U.S. remain unfilled
Your Major Matters
A LOT

Bachelor’s Degrees

1. Business
2. General Studies
3. Social Science and History
4. Psychology
5. Health Professions
6. Education
7. Visual and Performing Arts
8. Engineering and Technology
9. Communications and Journalism
10. Computer and Information Science

Source: National Center for Education Statistics
Bachelor’s–Competing Nations

1. Business (1)
2. General Studies (10)
3. Social Science and History (6)
4. Psychology (9)
5. Health Professions (4)
6. Education (5)
7. Visual and Performing Arts (8)
8. Engineering and Technology (2)
9. Communications and Journalism (7)
10. Computer and Information Science (3)

Source: National Center for Education Statistics

Job Shares by Skill Group, 1980-2010

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

Sources: NY Fed Calculations, U.S. Census Bureau
Lost Jobs

• Telemarketers - 99%

source: The Future of Employment
C. Frey and M. Osborne
Lost Jobs

• Telemarketers - 99%
• Secretarial/Adm. Assistant - 96%

source: The Future of Employment
C. Frey and M. Osborne

Lost Jobs

• Telemarketers - 99%
• Secretarial/Adm. Assistant - 96%
• Accountant/Auditors – 94%

source: The Future of Employment
C. Frey and M. Osborne
Lost Jobs

- Telemarketers - 99%
- Secretarial/Adm. Assistant - 96%
- Accountant/Auditors – 94%
- Technical Writers – 89%

source: The Future of Employment
C. Frey and M. Osborne

Lost Jobs

- Machinists – 65%

source: The Future of Employment
C. Frey and M. Osborne
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<td>Machinists – 65%</td>
<td></td>
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<tr>
<td>Economist – 43%</td>
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<td>Economists – 43%</td>
<td></td>
</tr>
<tr>
<td>Health Technologists – 40%</td>
<td></td>
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**Job Shares by Skill Group, 1980-2010**

<table>
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<tr>
<th>Year</th>
<th>High-skill</th>
<th>Upper-middle</th>
<th>Lower-middle</th>
<th>Low-skill</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>18.9%</td>
<td>21.3%</td>
<td>47.1%</td>
<td>12.7%</td>
</tr>
<tr>
<td>2010</td>
<td>25.4%</td>
<td>20.7%</td>
<td>37.7%</td>
<td>16.2%</td>
</tr>
</tbody>
</table>

Sources: NY Fed Calculations, U.S. Census Bureau

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**Workplace Needs Workers**

- Solve Unstructured Problems
- Work with New Information
- Do Non-Routine Manual Tasks
“Today, maintenance workers need to be able to understand technical blueprints; communicate in writing what had happened on their shifts; test possible solutions to complex problems; and, of course, troubleshoot and repair major mechanical systems.”

Source: The Smartest Kids in the World

You need skill that cannot be translated into an algorithm
Question

Emerging Trends

- Digital
- Career Ready
- Focus on Application
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

Poh, M.Z., Swenson, N.C., Picard, R.W.
1. Awareness
2. Comprehension
3. Application
4. Analysis
5. Synthesis
6. Evaluation
### Rigor/Relevance Framework

<table>
<thead>
<tr>
<th>Level</th>
<th>Task Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>Analyze the graphs of the perimeters and areas of squares having different-length sides.</td>
<td>Obtain historical data about local weather to predict the chance of snow, rain, or sun during the year.</td>
</tr>
<tr>
<td>5</td>
<td>Determine the largest rectangular area for a fixed perimeter.</td>
<td>Test consumer products and illustrate the data graphically.</td>
</tr>
<tr>
<td>4</td>
<td>Identify coordinates for ordered pairs that satisfy an algebraic relation or function.</td>
<td>Plan a large school event and calculate resources (food, decorations, etc.) you need to organize and hold this event.</td>
</tr>
<tr>
<td>3</td>
<td>Determine and justify the similarity or congruence for two geometric shapes.</td>
<td>Make a scale drawing of the classroom on grid paper, each group using a different scale.</td>
</tr>
<tr>
<td>2</td>
<td>Express probabilities as fractions, percents, or decimals.</td>
<td>Calculate percentages of advertising in a newspaper.</td>
</tr>
<tr>
<td>1</td>
<td>Classify triangles according to angle size and/or length of sides.</td>
<td>Tour the school building and identify examples of parallel and perpendicular lines, planes, and angles.</td>
</tr>
<tr>
<td></td>
<td>Calculate volume of simple three-dimensional shapes.</td>
<td>Determine the median and mode of real data displayed in a histogram.</td>
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<tr>
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<td>Given the coordinates of a quadrilateral, plot the quadrilateral on a grid.</td>
<td>Organize and display collected data, using appropriate tables, charts, or graphs.</td>
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Express probabilities as fractions, percents, or decimals.

Classify triangles according to angle size and/or length of sides.

Calculate volume of simple three-dimensional shapes.

Given the coordinates of a quadrilateral, plot the quadrilateral on a grid.

Analyze the graphs of the perimeters and areas of squares having different-length sides.

Determine the largest rectangular area for a fixed perimeter.

Identify coordinates for ordered pairs that satisfy an algebraic relation or function.

Determine and justify the similarity or congruence for two geometric shapes.

Obtain historical data about local weather to predict the chance of snow, rain, or sun during a year.

Test consumer products and illustrate the data graphically.

Plan a large school event and calculate resources (food, decorations, etc.) you need to organize and hold this event.

Make a scale drawing of the classroom on grid paper, each group using a different scale.

Calculate percentages of advertising in a newspaper.

Tour the school building and identify examples of parallel and perpendicular lines, planes, and angles.

Determine the median and mode of real data displayed in a histogram.

Organize and display collected data, using appropriate tables, charts, or graphs.
North Carolina Guide to Strengthening Our Public Schools

International Benchmarked Performance Competencies
U.S. in 2012 PISA Test

- 24th in Reading
- 28th in Science
- 36th in Math

PISA High Performing Nations

- Homogeneous
- Equity
- Tutoring Sessions
- Knowledge vs. Application
- Culture of High Expectations

Source: The Smartest Kids in the World
1: SAUCE
You are making your own dressing for a salad.
Here is a recipe for 100 milliliters (mL) of dressing.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Salad oil</td>
<td>60 mL</td>
</tr>
<tr>
<td>Vinegar</td>
<td>30 mL</td>
</tr>
<tr>
<td>Soy sauce</td>
<td>10 mL</td>
</tr>
</tbody>
</table>

How many milliliters (mL) of salad oil do you need to make 150 mL of this dressing?

Answer: ............... mL
2. When \( x = 3 \) and \( y = 5 \), by how much does the value of \( 3x - 2y \) exceed the value of \( 2x - 3y \)?

1. F. 4  
2. G. 14  
3. H. 16  
4. J. 20  
5. K. 50

3. In quadrilateral \( PQRS \) below, sides \( PS \) and \( QR \) are parallel for what value of \( x \)?

6. A. 158  
7. B. 132  
8. C. 120  
9. D. 110  
10. E. 70
**DRIP RATE**

Intravenous drips are used to deliver fluids and drugs to patients.

Nurses need to calculate the drip rate, $D$, in drops per minute for intravenous drips.

They use the formula $D = \frac{v}{60t}$ where

- $g$ is the drop factor measured in drops per milliliter (mL)
- $v$ is the volume in mL of the intravenous drip
- $t$ is the number of hours the intravenous drip is required to run.

**Question 4: DRIP RATE**

PM903Q01 – 0129

A nurse wants to double the time an intravenous drip runs for.

Describe precisely how $D$ changes if $t$ is doubled but $g$ and $v$ do not change.

---

**Question 5: DRIP RATE**

PM903Q03 – 019

Nurses also need to calculate the volume of the intravenous drip, $v$, from the drip rate, $D$.

An intravenous drip with a drip rate of 50 drops per minute has to be given to a patient for 3 hours. For this intravenous drip the drop factor is 25 drops per milliliter.

What is the volume in mL of the intravenous drip?

Volume of the intravenous drip: ____ mL

---

International Center for Leadership in Education
6. How many irrational numbers are there between 1 and 6?

1. F. 1
2. G. 3
3. H. 4
4. J. 10
5. K. Infinitely many

7. Let \( R \) be the region enclosed by the graph of \( y = 3x^2 - x, \), \( x = 2, \) and the horizontal line \( y = 4 \), as shown in the figure above.

(a) Find the volume of the solid generated when \( R \) is rotated about the horizontal line \( y = 4. \)
(b) Region \( R \) is the base of a solid. For this solid, each cross section perpendicular to the \( x \)-axis is an isosceles right triangle with a leg in \( R \). Find the volume of the solid.
(c) The vertical line \( x = k \) divides \( R \) into two regions with equal areas. Write, but do not solve, an equation involving integral expressions whose solution gives the value \( k \).
North Carolina’s ability to compete for jobs, develop a strong economy, and promote greater economic prosperity for all of its citizens is dependent on the quality of its public schools.

“Economists have found an almost one-to-one match between PISA scores and a nation’s long-term economic growth”

Source: The Smartest Kids in the World
Question

Emerging Trends

- Digital
- Career Ready
- Focus on Application
- Focus on Rigor
Reading Study Summary

Interquartile Ranges Shown (25% - 75%)

Text Lexile Measure (L)

Grade 4 Reading Proficiency

**TN 170**

**MA 234**

**NC 204**
Grade 4 Math Proficiency

Grade 8 Math Proficiency
U.S. in 2012 PISA Test

- 24th in Reading
- 28th in Science
- 36th in Math

Source: The Smartest Kids in the World

Emerging Trends

- Digital
- Career Ready
- Application
- Rigor
- Data Analytics to implement Growth Models
Medicine as prototype

Intervention To Prevention
Population Health Management

1. Low Risk Patients
2. Medium Risk Patients
3. High Risk Patients

Shift from Volume to Outcomes

- Affordable Care Act requires in 2015
- Medicare
- Medicaid
- Private Insurance
## Health Care Cost

<table>
<thead>
<tr>
<th>Risk Group</th>
<th>% of population</th>
<th>% of total Health care cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Risk</td>
<td>50 %</td>
<td>3%</td>
</tr>
<tr>
<td>Medium Risk</td>
<td>45 %</td>
<td>47%</td>
</tr>
<tr>
<td>High Risk</td>
<td>5 %</td>
<td>50%</td>
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## From Fitbit to Chip
FollowMyHealth

From Summative Evaluation To Formative Evaluation
Reading Study Summary

Interquartile Ranges Shown (25% - 75%)

Lexile Framework® - Student Profile
Matt - Age 15, Grade 10, Lexile 1090, GPA 3.0

* Source of National Test Data: MetaMetrics
Lexile Framework® - Student Profile

- Text Lexile Measure (L)

- High School Literature
- College Literature
- College Non-Literature
- SAT 1, ACT, AP®

* Source of National Test Data: MetaMetrics
Emerging Trends

- Digital
- Career Ready
- Application
- Rigor
- Data Analytics to Implement Growth Models
- Personal Skills

Guiding Principles

- Responsibility
- Contemplation
- Initiative
- Perseverance
- Optimism
- Courage
- Respect
- Compassion
- Adaptability
- Honesty
- Trustworthiness
- Loyalty
RECOMMENDATIONS

Recommended Action Items

- Create a Culture – Create a Vision
Recommended Action Items

- Create a Culture – Create a Vision
- Needs Assessment

From Needs Assessment to Strategic Planning to Action Plan to Systemwide Focus
Take Control

Take Control of What?
Urgent vs. Important

Measuring What Matters
## Teacher vs. Student Comparison

<table>
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<th>Comparison</th>
<th>Percentage</th>
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<tr>
<td><strong>T</strong> – Students can apply what I am teaching to their everyday lives.</td>
<td>92%</td>
</tr>
<tr>
<td><strong>S</strong> – I can apply what I learn to my everyday life.</td>
<td>58%</td>
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## Teacher vs. Student Comparison

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<td><strong>T</strong> – Students in my classroom engage in hands-on activities.</td>
<td>88%</td>
</tr>
<tr>
<td><strong>S</strong> – We do lots of hands-on activities in my classes.</td>
<td>45%</td>
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From Needs Assessment to Strategic Planning to Action Plan to Systemwide Focus

Recommended Action Items

- Create a Culture – Establish a Vision
- Needs Assessment
- Systemwide Approach
Student Achievement

Instructional Effectiveness

Student Achievement