Designing the Future of Learning: Unthink School to Rethink Learning

Bryan Setser – Partner – 2Revolutions

ECCO—April 24, 2014
“You've got to go out on a limb sometimes because that's where the fruit is.”

– Will Rogers
Objectives

1. Introduce 2Rev’s *Future of Learning framework, taxonomy* and philosophy
2. Share examples and trends of current *approaches to building next generation models*
3. Show you why *design thinking matters* to fuel innovation
4. Offer *tools to help you prototype your ideas* at this event and prepare you to execute in your district and in partnership with the regional early college model
Design.
2Rev as Mission-driven Design Lab

2Rev designs, launches and supports Future of Learning models and catalyzes the conditions within which they can thrive.
conditions

"Future of Learning"

models

models
2Rev’s Future of Learning Framework

- **conditions**
  - data infrastructure
  - leadership
  - public policy
  - public will
  - readiness
  - resources

- **model design parameters**
  - applied
  - competency-based
  - cost-effective
  - learner-driven
  - personalized
  - tech-enabled

- **model design levers**
  - curriculum & content
  - evidence of learning
  - human capital
  - learning environment
  - learning modalities
  - role of time

- **model implementation levers**
  - change management
  - family & community engagement
  - operations & infrastructure
  - professional learning
  - school culture
  - student supports
A “Both, And” Orientation

How can we jump from one curve to the next?

IMPROVE the System We Have
(Incremental = Diminishing Returns)

INNOVATE the System We Need
(Cross the Chasm = Difficult, But Promising)
1. Drive Toward Personalization
2. Explosive Growth in Technology
3. Advances in the Science of Cognition
4. Shifting Policy Environments
5. Increased Economic Pressures
6. An Evolving Ecosystem of Learning
Trend #1: Drive Toward Personalization

Students’ learning experiences – what they learn, and how, when, and where they learn – are tailored to their individual needs, skills, and interests.

Students also develop deep connections to each other, their teachers and other adults.

*Gates Foundation, 2014*
What Do We Mean By “Personalization” Anyway?

Does it refer to learning experiences for students that are ______________?

a) Tech-enabled
b) “Deeper”
c) Interest-driven
d) Applied/experiential
e) Learner-driven
f) All of the above?
Components of Personalized Performance

- **High Expectations**
- **People**
- **Process**
- **Time**
- **Technology**
- **Tools**

- **Student Centered**
- **Scalable & Sustainable**

- **Self-pacing, Mastery, & Competency-based Credit**

**Components of Personalized Performance**

- **Self-pacing**
- **Mastery**
- **Competency-based Credit**
#ECCOHOPE

Personalization: A Peek Around the Corner...

still got doubts?

#ECCODoubt

#ECCOFEAR

© 2013 2REVOLUTIONS LLC. ALL RIGHTS RESERVED.
Trend #2: Explosive Growth of Technology

We live in the “age of the mathematician,” in which inordinate power and riches will go to the people who create the algorithms that end up dictating who and what we know.

Yuri Milner – Russian Social Media Mogul
Professional Standards

1. Uses an appropriate range of teaching strategies
   - Inadequate
   - Satisfactory
   - Good
   - Outstanding

Timeline: 00:00:05 - 00:00:07

Note

This a great example of how you use different teaching strategies.

2. Uses appropriate resources, including e-learning, which meets learners needs

3. Builds on prior knowledge and attainment in order that learners meet learning objectives

4. Develops concepts and processes which enable learners to apply new knowledge, understanding and skills
Holding the muscle flaps with the forceps, separate the muscles from the tissue below.
Marysville Innovation Team

Group Posts

Me to Marysville Innovation Team

Part of building the case for PLCs and ELCs.

Plugging Into Professional Learning Communities
blogs.edweek.org

3 hours ago · Reply · Share
But before we get too enamored with technology.....
What problem are you trying to solve?

My daughter is 17 and she is an inexperienced driver........
The power of a testable IF/THEN hypothesis.....

**IF** I had an app that could track her location, **THEN** I could advise her and keep her safe at key points on her trip.
What problems have you solved?
Trend #3: Advances in the Science of Cognition

“There’s a lot we don’t know before we say we don’t know that.”

Mark Twain
The Neurology of Gaming

Video games have both positive and negative effects on the human brain. They can be used to educate through repetition and feedback, but they also have some less-positive side effects:

Different gaming scenarios and situations affect different areas of the brain by provoking certain reactions:

- **FRONTAL LOBE**
  One study claimed frequent players can get ‘video game brain.’ This means key parts of their frontal lobe become underused, which can alter moods.

- **PREFRONTAL CORTEX**
  Games that require logical thinking, like ‘Othello’ and ‘Tetris,’ activate this area, which controls decision making.

- **DOPAMINE**
  Dopamine, which is involved in learning and feelings of reward, is released in the brain’s striatum during video game play.

- **DORSAL ANTERIOR CINGULATE CORTEX**
  Immediately after firing a weapon in a video game, players show greater activity in this area, which controls cognition and planning.

- **ROSTRAL ANTERIOR CINGULATE CORTEX & AMYGDALA**
  Areas that resolve emotional conflict showed less activity while players fired a weapon.

---

**The parts of the brain impacted by games**

- **Game play involves repeated actions that strengthen the brain cell connections underlying memory and learning.**

- **PREMOTOR & PARIETAL CORTEX**
  Games that require real-time action, like ‘Space Invader,’ activate these areas, which control sensory movement.

- **DORSAL ANTERIOR CINGULATE CORTEX**
  Immediately after firing a weapon in a video game, players show greater activity in this area, which controls cognition and planning.

---

**Image:**

- Brain illustration showing various parts of the brain with corresponding descriptions.
How Neuroscience is Changing the Classroom

- **Later Start Times**
  High schools are pushing back start times so students are more alert for class.

- **Fewer Breaks**
  Schools are shortening summer breaks because research shows the more time a student spends away from school, the more he’ll forget.

- **Cognitive Tutoring**
  Software lets students learn by doing and adjusts to their individual needs.

- **Making Learning Fun**
  Studies show that people remember more when they enjoy an experience.

- **More Variety**
  Teachers are presenting lessons a variety of ways to improve retention.
“Presence” creates better learning and a continuous communication feedback loop for teachers.

Current Modalities are **Broadcast-centric**

Observer’s Brain Activity

VenueGen is **Participation-centric**

Participant’s Brain Activity

“I tell you and you forget. I show you and you remember. I involve you and you understand.”
— Confucius

Student Directed Discussion
"Blooming" with Web 2.0 Tools

CREATING
- Prezi
- Voicethread
- Protagonize
- Glogster
- EDU
- Wikispaces

EVALUATING
- Rubistar
- YouTube
- PollDaddy
- Rcampus
- Eportfolio

ANALYZING
- NOTA
- Exploratree
- Google Analytics
- Create a Graph
- pipes
- Google Finance
- Google Trends
- Google 10x10

APPLYING
- Google Finance
- Google Analytics
- pipes
- Gliffy
- Evernote
- Google Maps
- LOCBUD

UNDERSTANDING
- The Periodic Table of Videos
- Jeopardy Lab
- Wolfram Alpha
- Google News
- Google
- Google Scholar
- Google Images
- Google Trends

REMEMBERING
- CarrotSticks
- Zoho
- Lino.LT
- Creately
- NinjaWords
- CoboCards
- Visuwords
- Del.icio.us
- Flickr
Section 3

Revolutionary Documents
Trend #4: Shifting Policy Environments

System context can be:
• **Preventive**: constrains innovation (intentionally or accidentally)
• **Permissive**: is open and allows innovation, but doesn’t support it
• **Enabling**: explicitly promotes, enables and supports innovation
Where do the “4As” fit in the 2Rev Framework

- **conditions**
  - data infrastructure
  - leadership
  - public policy
  - public will
  - readiness
  - resources

- **model design parameters**
  - applied
  - competency-based
  - cost-effective
  - learner-driven
  - personalized
  - tech-enabled

- **model design levers**
  - curriculum & content
  - evidence of learning
  - human capital
  - learning environment
  - learning modalities
  - role of time

- **model implementation levers**
  - change management
  - family & community engagement
  - operations & infrastructure
  - professional learning
  - school culture
  - student supports

© 2013 2REVOLUTIONS LLC. ALL RIGHTS RESERVED.
The Colorado Legacy Foundation believes that increased student achievement for all Colorado students requires effective leaders in every school, effective educators in every classroom, and healthy and engaged students who come to school ready to learn.

Purpose and Overview
WHAT'S HAPPENING?

PBL 101 Webinar
February 14 in Rethinking Time &
Hello Thompson Team, Our partners at New Tech Network (NTN) are very eager to connect with you and provide

Check-in
February 14 in Rethinking Time &
Morning team, hope you are having a great week! Per our last conversation, I wanted to check-in on the progress on

PBL 101 Webinar
February 14 in Rethinking Time &
Hello Bayfield Team, Our partners at New Tech Network (NTN) are very eager to connect with you and provide

More
My E-Locker

Activity

I would like to hear from high school people who use PBIS or other data-driven approaches. Profanity? What sort of interventions? Consequences? Have you analyzed instances of verbal altercations and then designed any training for faculty to implement verbal de-escalation techniques?

February 11 in New Hampshire

Multiple measures

As you consider multiple measures here are some questions that you might want to ask as well as approaches used by other states, with links to their sites.

February 9 in Teacher Effectiveness Network

Tools available today?

Hi, I was wondering if Tool 15 and Tool 4 are available? Thanks

February 6 in Performance Assessment Network

NH K-12 Nationally Aligned Science Competencies

We are seeking feedback on this draft of the NH K-12 Aligned Science Competencies. Please take the time to review them and share them within your schools and districts.

February 6 in Performance Assessment Network

Support My Learning

Find

Explore

Access

Show Me Something Cool

Team Coordination is Key

Packing your team with the most talented individuals doesn’t necessar...
Purpose of Reports

This report is designed to inform you about the student’s progress toward achieving the New Hampshire Grade Span Expectation (GSEs) Standards. The GSEs along with the skill expectations of your school establish high and challenging expectations for all students; describe what students should know, be able to do, and care about; and serve as a basis for curriculum, instruction, and assessment at the Sanborn Regional School District. The curriculum for each content area is based on the standards relevant to the area. This report however cannot communicate everything you might possibly want to know about your child’s progress. This report should be considered with other information you receive from the school such as your child’s work, the open house, conferences, and skills checklist provided by teachers throughout the school year. Communication between the family and the school staff is highly encouraged. If you have any questions or concerns, please contact your child’s teacher or counselor.

<table>
<thead>
<tr>
<th>Level</th>
<th>Letter</th>
<th>Numerical</th>
<th>Performance Descriptors for Academic Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exceeding</td>
<td>E</td>
<td>90-100</td>
<td>The student consistently exceeds the performance standards for the grade-level. The student with relative ease, graps, applies, generalizes, and extends key concepts, processes, and skills consistently and independently.</td>
</tr>
<tr>
<td>Meeting</td>
<td>M</td>
<td>80-89.9</td>
<td>The student consistently meets the performance standards for the grade-level. The student, with limited errors, grasps key concepts, processes, and skills for the grade-level and understands and applies them effectively.</td>
</tr>
<tr>
<td>In Progress</td>
<td>IP</td>
<td>70-79.9</td>
<td>The student is progressing toward meeting the performance standard for the grade-level. The student is beginning to grasp key concepts, processes, and skills for the grade-level, but demonstrates inconsistent understanding and application of concepts.</td>
</tr>
<tr>
<td>Limited Progress</td>
<td>LP</td>
<td>65-69.9</td>
<td>The student is making some progress toward meeting the performance standard. The student is not demonstrating understanding of grade-level key concepts, processes and skills and requires additional time and support.</td>
</tr>
<tr>
<td>Not Met</td>
<td>NM</td>
<td>50 – 64.9</td>
<td>The student has not met the standard</td>
</tr>
<tr>
<td>Not Yet Competent</td>
<td>NYC</td>
<td></td>
<td>The student is not yet competent</td>
</tr>
<tr>
<td>Insufficient Work Shown</td>
<td>IWS</td>
<td></td>
<td>The student has not submitted a sufficient amount of work yet to calculate a grade</td>
</tr>
<tr>
<td>Incomplete</td>
<td>I</td>
<td></td>
<td>Incomplete Grade</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>S</td>
<td></td>
<td>Satisfactory Performance</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>U</td>
<td></td>
<td>Unsatisfactory Performance</td>
</tr>
</tbody>
</table>
Trend #5: Increased Economic Pressure

Given the mounting pressure on state and local funding structures, it will become increasingly essential for schools and systems to think creatively about how to do more with less.
What is your current budget news?

2014
In response to accreditation feedback, build a strategic plan that address the key areas of concern and incorporates the input of all stakeholders. Develop approach, review mission, set goals and framework.

2015
Finalize plan with implementation schedule. Present the plan to the broader community. Begin implementation of the first phase of the plan. Prepare marketing materials and text for website.

2016
Collect feedback from surveys and performance data. Adjust the plan as a "living document" based on new leadership, opportunities and/or threats.

2017
Move into second phase of the plan. Establish working groups to determine most effective ways to improve faculty culture and student enrollment.

2018

What does the budget look like next year?
What could our budget look like?

Business Model Generation

Lean StartUp

Great by Choice

What are new budget options?

Start

1st Quarter 2014
Having clearly identify the target market and value proposition, the team decided to focus on raising the school’s TQ by collaboratively developing a teacher rubric, refining teacher recruitment & reorganizing the leadership

2nd Quarter 2014
Building on the success from the 1Q, the leadership starts the development of a scope and sequence for student product K-12. A teacher coaching process is established, and a pilot for blended learning is identified

3rd Quarter 2014
Data from first 2 cycles provides valuable feedback. The board redesigns the school and chief performance assessment criteria, pilot is implemented, and marketing messages adjusted to reflect new narrative

4th Quarter 2014
Momentum is building with faculty, families, and donors because of the evidence of leadership and development. Fundraising target is increased because of greater donor engagement and higher quality. Research on master schedule for 2015-16

Finish

1st Quarter 2015
Record open house participation because of raving fans. New master schedule adopted, hiring for 15-16 is complete, and faculty culture is high.
Rethinking Time/ Teacher of Record

<table>
<thead>
<tr>
<th>Key Advantages</th>
<th>Generation Schools</th>
<th>Conventional Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Expanded learning time for all students</td>
<td>200 days per year</td>
<td>180 days per year</td>
</tr>
<tr>
<td></td>
<td>7-8 hours per day</td>
<td>6-6 ½ hours per day</td>
</tr>
<tr>
<td>2. Small class size in all Foundation Courses</td>
<td>14-18</td>
<td>28-34</td>
</tr>
<tr>
<td>3. Exceptional college and career guidance</td>
<td>1,100 hours per student</td>
<td>1-2 hours per student</td>
</tr>
<tr>
<td>4. Technology enhanced learning</td>
<td>In-class minilabs and more</td>
<td>Limited in-class access</td>
</tr>
<tr>
<td>5. Reduced student load for teachers</td>
<td>50 or fewer students daily</td>
<td>150 students daily</td>
</tr>
<tr>
<td>6. Reduced course load for teachers</td>
<td>3 classes per day</td>
<td>5 classes per day</td>
</tr>
<tr>
<td>7. Expanded common planning time</td>
<td>2 hours every day</td>
<td>Typically 45 min. weekly</td>
</tr>
<tr>
<td>8. High-caliber professional development</td>
<td>20 or more days per year</td>
<td>2-4 days per year</td>
</tr>
<tr>
<td><strong>All without increasing costs.</strong></td>
<td><strong>NYC: $12,403</strong></td>
<td><strong>$12,482</strong></td>
</tr>
</tbody>
</table>
Profiled Innovator: Cristo Rey

Cristo Rey Jesuit College Prep (Houston, TX) serves disadvantaged students in urban communities that operates a Corporate Work Study Program that:

- provides an **opportunity for students to work and earn 65-70% of their tuition**
- operates as a non-profit employee leasing agent working with 133 corporate partners
- every student works in job-sharing teams of four to cover a standard business week (5 days/mo for each student)

<table>
<thead>
<tr>
<th>Week</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 1</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>A</td>
</tr>
<tr>
<td>Week 2</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>B</td>
</tr>
<tr>
<td>Week 3</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>C</td>
</tr>
<tr>
<td>Week 4</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>D</td>
</tr>
</tbody>
</table>
Trend #6: An Evolving Ecosystem of Learning

If you had enough resources, you could make the decision to go and live in France. You might also decide to not learn French. You would survive. You would be able to get by, but you would never be a full participant in the community. If you ever found yourself in a competitive situation you would fail. In comparison, remaining digitally un-augmented will leave you at a disadvantage measured in dozens of IQ points in the communities and learning ecosystems of tomorrow.

-- Richard Boyd
One Vision for an Integrated Learning Ecosystem...
A Summer Break Reading List
More Students Engaged and On Track
Early results from North Carolina’s innovative high schools indicate that not only are more students staying in school - more are graduating ready for college, career and life.

More students stay in school
The annual dropout rate for North Carolina’s innovative high schools in 2010-11 was 2 percent - significantly below the statewide rate of 3.43 percent. For early college high schools, it was less than 1 percent. About one of every three innovative high schools -- 37 of 106 -- reported no dropouts.

More 9th graders stay in school and advance
Nearly three quarters of all innovative high schools had no 9th grade dropouts in 2010-11, and half promoted every 9th grader to 10th grade. Research shows that 9th grade is when most students drop out, so keeping kids in school through their freshman year is critical to their success.
Summer Connection 2014

Dates are set: July 22-24, 2014

Click here for information

Interested in Visiting MGSD.....Click Here!
"There is nothing more difficult to take in hand, more perilous to conduct, than to take a lead in the introduction of a new order of things, because the innovation has for enemies all those who have done well under the old conditions and lukewarm defenders in those who may do well under the new."

– Niccolo Machiavelli
REMEMBER: Innovation is a VERB!
A GPS for Next Generation Educators

IMPROVE the System We Have
(Incremental = Diminishing Returns)

NOW
Stable
Crisis

GOOD

Great

LEARN

EXPERIMENT (Existing)

FUTURE

INNOVATE the System We Need
(Cross the Chasm = Difficult, But Promising)

Transform School
Prototype (New)
Transform District

You are HERE
So...where is the innovation?
Why does innovation happen?
What is the Innovation?
Does it happen in Education?

The $4 Million Teacher

South Korea’s students rank among the best in the world, and its top teachers can make a fortune. Can the U.S. learn from this academic superpower?

By AMANDA RIPLEY

Kim Ki-hoon earns $4 million a year in South Korea, where he is known as a rock-star teacher—a combination of words not typically heard in the rest of the world. Mr. Kim has been teaching for over 20 years, all of them in the country’s private, after-school tutoring academies, known as hagwons. Unlike most teachers across the globe, he is paid according to the demand for his skills—and he is in high demand.

Mr. Kim works about 60 hours a week teaching English, although he spends only three of those hours giving lectures. His classes are recorded on video, and his materials are recorded on video, and

Mr. Kim works about 60 hours a week teaching English, although he spends only three of those hours giving lectures. His classes are recorded on video, and
Role of Short-cycle Design

Institute for Healthcare Improvement

Design Thinking

Google Innovation “Drivers”

Networked Improvement Communities
Short-cycle Methodology

Define | Identify | Brainstorm | Prioritize | Operationalize
Challenges & Opportunities | Assets & Barriers | Solutions & Hypotheses | Best Idea(s) | Integrate & Plan for Implementation

Continuously Iterate Via “Short Cycles” to... See What Works!
Short-cycle Innovation: Personalization

**Challenge:** Alternative school wants to move toward personalization, but doesn’t know where to start.

**Solution/Hypothesis:** By using student-facing ILPs combined with online learning, we can personalize learning for all students – to move them further faster.

**Prototype:** Use an ILP as a living profile of students in 9th grade, allowing them to move based on math readiness using an online module. Conclude 8-week prototype with student-led conferences reflecting on their math learning.

**Outcome:** A majority of students (~70%) showed greater progress over this 8-week period than in two preceding periods, and the combination of ILP and student-led conferences showed promising increases in student meta-cognition.

**Next Step:** School elected to Scale their effort – expanding the work to new band of grade 9-10 teachers that will set up a new prototype. Also currently investigating whether the right LMS can serve as platform to manage the work more deeply over time.
Your Mission, If You Choose to Accept It...

In our final few minutes, type in your phones or write yourself a note or two:

1. List one or more problems/challenges you must overcome, or opportunities you want to pursue;

1. Brainstorm “if/then” statements to identify potential solutions with testable hypotheses; and

1. Determine what you need to learn over the next two days to advance your thinking.

We’ll check back in with you tomorrow or as a follow-up to assess your progress and help you prepare to execute your ideas!
"Great ideas, when they appear, seem muddled and strange. They are only half-understood by their discoverer and remain a mystery to everyone else."

– Neils Bohr
Designing the Future of Learning: Unthink School to Rethink Learning

Design Activity #1
I have SO much to tell...
What is it:

A dynamic, innovative high school designed to help at-risk student populations take the first steps towards earning college certificates or degrees.

Focused on:

- integrating the high school and college experience
- building strong collaboration between high school & college staff
- offering high school & college courses to meet graduation requirements
- Providing access to the college’s student services
Early College High School Partnership

What does it look like:

- High school on a college campus
- Student-owned, self-paced, mastery-based learning
- Student-centric environment with high expectations; providing learning guidance, coaching and supports to develop independence
- Authentic student assessments
- Applied learning opportunities to deepen competencies
- Online and blended learning including digital portfolios and other innovative technology resources and tools
- Specialized professional development for teachers and staff
Early College High School Partnership

How:
- Supportive, collaboration, commitment, and partnership across multiple school districts

What will be accomplished:
- More students completing high school prepared for college
- Increased college access, enrollments and completion rates
- School prototype that can be replicated across the state and nation.
- Recognition and appropriate funding from the state for the value that the early college high school prototype brings to the state’s efforts to meet its education goals.
Let’s do a table talk and digital exercise on the 4 As based upon what you’ve heard:

• What (A)greements need to be made?
• What (A)rguments are needed?
• What (A)ssumptions can you make?
• What (A)spirations do you have?

Please table talk, elect a spokesperson, and then we’ll record audience reaction on a padlet.
Designing the Future of Learning: Unthink School to Rethink Learning

Defining Success & Identifying Barriers
How the faculty understood it

How procurement services describes it

How the school was billed

What the school expected to pay a company to build it

How the leadership team understood it

What the data said about it

How the appointed committee might design it

How the principal explained the need

How the work was documented

What the school actually needed

© 2013 2REVOLUTIONS LLC. ALL RIGHTS RESERVED.
Defining Success

What do your students need to know and be able to do in the complex future that awaits them after they graduate?
Identifying Barriers

If there is so much agreement on the definition of success, why aren’t institutions already preparing students for this future?

What’s preventing you?
Contact Info

Bryan Setser
Partner

Priscilla Maynor
Design Manager

Follow at Twitter, FB, LinkedIn, G+, or

www.2revolutions.net

Do What You Love, For Good