Educating Everybody’s Children: Education Reform and The Future of Teaching
A Changing Economy Makes Education More Important

Low skill jobs  Knowledge work jobs

1900  1950  2000
0%  20%  40%  60%  80%  100%

Low skill jobs  Knowledge work jobs
How the demand for skills has changed
Economy-wide measures of routine and non-routine task input (U.S.)

Mean task input as percentiles of the 1960 task distribution

- Routine manual
- Nonroutine manual
- Routine cognitive
- Nonroutine analytic
- Nonroutine interactive

The dilemma of schools:
The skills that are easiest to teach and test are also the ones that are easiest to digitize, automate, and outsource
He was as tall as a six-foot-three-inch tree.
John and Mary had never met. They were like two hummingbirds who had also never met.
She walked into my office like a centipede with 98 missing legs.
He fell for her like his heart was a mob informant and she was the East River.
Even in his last years, Grandpappy had a mind like a steel trap, only one that had been left out so long, it had rusted shut.
He was as lame as a duck. Not the metaphorical lame duck, either, but a real duck that was actually lame.
She grew on him like she was a colony of E. coli and he was room-temperature Canadian beef.
The plan was simple, like my brother-in-law Phil. But unlike Phil, this plan just might work.
Her vocabulary was as bad as, like, whatever.
What Deeper Learning is:

- An understanding of the **meaning** and **relevance** of ideas to concrete problems
- An ability to **apply** core concepts and modes of inquiry to complex real-world tasks
- A capacity to **transfer** knowledge and skills to new situations, to build on and use them
- Abilities to **communicate** ideas and to **collaborate** in problem solving.
- An ongoing ability to **learn to learn**
What Deeper Learning is Not
How Can Teachers Support Deeper Learning?
Effective Teachers...

- Engage students in active learning that builds on their experience
- Create intellectually ambitious tasks
- Use a variety of teaching strategies
- Assess student learning to adapt teaching to student needs
- Create effective scaffolds and supports for language and content learning
- Provide clear standards, constant feedback, and opportunities for revising work
- Develop and effectively manage a collaborative classroom in which all students have membership.
Equitable Teachers …

- Learn to see, hear, and understand the child
- Find out about children’s strengths, experiences, and prior knowledge
- Have many tools for scaffolding understanding
- Continually develop culturally responsive practices
- Develop language
- Reinforce students’ competence and confidence
- Reach out to families
- Culturally connected caring
The U.S. Challenge: Today, There are Two Achievement Gaps

- The gap between white and more affluent students in the U.S. and students of color and those in poverty

- The gap between U.S. students and those in other high-achieving nations that have made greater – and more equitable - investments in education over the last thirty years.
The U.S. is Falling Behind in Educational Attainment

Approximated by percentage of persons with ISCED3 qualifications in age groups 55-64, 45-55, 45-44 and 25-34 years

1. Excluding ISCED 3C short programmes
2. Year of reference 2004
3. Including some ISCED 3C short programmes
## PISA 2009 Results

<table>
<thead>
<tr>
<th>Subject</th>
<th>Country 1</th>
<th>Country 2</th>
<th>Country 3</th>
<th>Country 4</th>
<th>Country 5</th>
<th>Country 6</th>
<th>Country 7</th>
<th>Country 8</th>
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</thead>
<tbody>
<tr>
<td>Reading</td>
<td>Korea</td>
<td>Finland</td>
<td>Singapore</td>
<td>Finland</td>
<td>Korea</td>
<td>Singapore</td>
<td>Japan</td>
<td>Canada</td>
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<td>Japan</td>
<td>Korea</td>
<td>New Zealand</td>
<td>Estonia</td>
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<tr>
<td>Mathematics</td>
<td>Singapore</td>
<td>Korea</td>
<td>Finland</td>
<td>Lichtenstein</td>
<td>Switzerland</td>
<td>Japan</td>
<td>Canada</td>
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<tr>
<td>Science</td>
<td>Finland</td>
<td>Singapore</td>
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<td>Korea</td>
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<td>Canada</td>
<td>Estonia</td>
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</tr>
</tbody>
</table>

US is #14 / 40  
US is #27 / 40  
US is #21 / 40
Poverty Rates of PISA Participants
The Anatomy of Inequality

- Dysfunctional schools
- Unequal access to curriculum
- Inequitable distribution of well-qualified educators
- Unequal school funding
- Poverty and segregation
What are High-Achieving and Steeply-Improving Nations Doing?

- Universal preschool and health care
- Equitable funding with investments in high-need schools and students
- Large investments in educator preparation and ongoing support
- A thoughtful, whole child curriculum
- Performance assessments focused on higher order skills
- Focus on multilingual, multicultural education
What are these Nations Not Doing?

- Ranking and labeling schools and teachers based on tests
- Belittling educators
- Blaming parents
- Closing schools
- Disinvesting in education
England

ALL I WANT for CHRISTMAS is an EDUCATION
Barcelona
United States

Why is there always money for war and not for education?
California
Strategies that Go Straight to the Periphery of the Issues

- Reducing preparation for teachers and firing “low-performers” rather than building a profession
- Merit Pay without competitive, equitable salaries and strategies to share expertise among teachers
- Managing schools exclusively by test scores without attention to school completion, important learning or and other education purposes
- Targets, sanctions, and school closings without attention to poverty and school resources
- Requiring charters without ensuring access and supporting innovation throughout the system
What Do We Need to Do?
The Need to Develop Excellence and Equity

“Excellence and equity are not opposing concepts. The definitions of the words include each other. Excellence without equity is simply not excellence; it is privilege. Excellence is superlative performance starting from a level playing field; performance made superlative through extraordinary effort and talent, not from the relative advantage of some at the expense of others. True excellence requires equity as a precondition…”
“And equity without excellence is not equity, it is tokenism and leads to a mediocrity that is good for no one's kids. Equity means we push every one of our students to excellence and tell them in no uncertain terms: we will support you along the way, no matter who your parents are, where they may have been born...the color of your skin...where you live...how much money your parents make...the structure of your family...your prior academic performance...or even how long you have been in the district. You are ours and we will support you.”
1) Create a Level Playing Field

- Redesign school funding systems to create equal access to stable educational resources

- Focus resources on investments that matter – well-qualified teachers, quality curriculum, instructional supports -- and ensure that every student gets them
2) Provide an Even Start
3) Support a Strong Profession of Teaching
High-performing school systems around the world focus on:

1) Getting the right people to become teachers
2) Developing them into effective instructors,
3) Ensuring that the system is able to deliver high-quality instruction for every child.
Professional Learning Opportunities in High-Achieving Nations

The highest-achieving nations:

- Ensure extensive initial preparation that includes clinical training in model schools
- Provide beginners with intensive mentoring.
- Offer sustained learning opportunities embedded in practice:
  - Teachers have 15-25 hours a week for collaboration plus 100 hours a year for professional learning
  - Most engage regularly in Lesson Study, Action Research, and Peer Observation and Coaching to evaluate and improve practice.
Preparation and professional development

- Strong clinical preparation in model schools connected to universities
- Performance assessments to guide preparation and mentoring
- Collaborative work on curriculum, assessment, and “child study”
- Collegial coaching and sharing
- Inquiry and problem solving
Professional Learning Opportunities that Impact Practice are:

- Focused on learning specific curriculum content
- Organized around real problems of practice
- Connected to teachers’ work with children
- Linked to analysis of teaching and student learning
- Intensive, sustained and continuous over time
  - Supported by coaching, modeling, observation, and feedback
- Connected to teachers’ collaborative work in professional learning communities
- Integrated into school and classroom planning around curriculum, instruction, and assessment
Learning *about* Practice *in* Practice
4) Focus on the Right Kind of Learning

Revise assessments to support thoughtful curriculum and teaching
Expectations for Learning are Changing

The new context means new expectations. Most studies include:

- Ability to communicate
- Adaptability to change
- Ability to work in teams
- Preparedness to solve problems
- Ability to analyse and conceptualise
- Ability to reflect on and improve performance
- Ability to manage oneself
- Ability to create, innovate and criticise
- Ability to engage in learning new things at all times
- Ability to cross specialist borders
1. What two gases make up most of the Earth's atmosphere?
   - A) Hydrogen and oxygen
   - B) Hydrogen and nitrogen
   - C) Oxygen and carbon dioxide
   - D) Oxygen and nitrogen

2. Is a hamburger an example of stored energy? Explain why or why not.
To Assess Experimental Skills and Investigations, Students…

- Identify a problem, design and plan an investigation, evaluate their methods and techniques
- Follow instructions and use techniques, apparatus and materials safely and effectively
- Make and record observations, measurements, methods, and techniques with precision and accuracy
- Interpret and evaluate observations and experimental data
CCSS-ELA

- Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on what is most significant for a specific purpose and audience.
- Draw evidence from literary or informational texts to support analysis, reflection, and research.
## Assessment Tasks: GCSE English (UK)

<table>
<thead>
<tr>
<th>Unit and Assessment</th>
<th>Tasks</th>
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</thead>
<tbody>
<tr>
<td><strong>Reading literacy texts</strong></td>
<td>Responses to three texts from choice of tasks and texts, interpreting texts in their social, cultural and historical context</td>
</tr>
<tr>
<td>Controlled assessment (coursework)</td>
<td></td>
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<tr>
<td><strong>Imaginative Writing</strong></td>
<td>Two linked continuous writing responses from a choice of Text Development or Media</td>
</tr>
<tr>
<td>Controlled assessment</td>
<td></td>
</tr>
<tr>
<td><strong>Speaking and Listening</strong></td>
<td>• A drama-focused activity;</td>
</tr>
<tr>
<td>(coursework)</td>
<td>• A group activity;</td>
</tr>
<tr>
<td></td>
<td>• An individual extended contribution. One activity must be a real-life context in and beyond the classroom</td>
</tr>
<tr>
<td><strong>Information and Ideas</strong></td>
<td>Non-Fiction and Media: Responses to passages</td>
</tr>
<tr>
<td>Written exam</td>
<td>Writing information and Ideas: One continuous writing response – choice from 2 options</td>
</tr>
</tbody>
</table>
Common Core Standards - Math

- Students should be able “understand,” “describe,” “explain,” “justify,” “prove,” “derive,” “assess,” “illustrate,” and “analyze.”

- They also need to be able to “model,” “construct,” “compare,” “investigate,” “build,” “interpret,” “estimate,” “summarize,” “represent,” “evaluate,” “extend,” and “apply” their learning to a wide range of real world problems – including uses in science, engineering, and technology problems.
The school plans to buy enough stackable chairs to allow all students and staff a chair during school assemblies. A practical storage area for the chairs must be found.
Modeling

Questions

1. Develop mathematical models for each dimension of a stack of chairs, where the number of chairs is unknown.

2. To help you think about the practicalities of storing chairs, use your mathematical models to find:
   a. the greatest number of chairs in one stack that can fit into a storage area with a 4 m high ceiling
   b. the number of stacks that fit across a 3.2 m wide area if there are 10 chairs in each stack
   c. the height of a stack, if all the chairs for the school are put into one stack.

3. Use the understanding of the practicalities of storing chairs you developed in Question 2 to find a practical storage area for the chairs.

To answer these questions, work through the steps set out on the following pages. As you work, record everything you do in your research journal.
Using a research journal

A research journal is a record of what you and your group do.

Your research journal should include:

- what you and your group do in each class session
- ideas
- questions
- plans
- difficulties faced
- how difficulties are managed
- data collected
- calculations
- mathematical language
- acknowledgment of any help you receive from friends, teachers or other people.

Your research journal should contain all the information you need to write your report. It will also help your teacher decide what you can do by yourself, and what you can do as part of a group.
Write a report on your investigation.

Your report should include:

- an introduction providing an overview of the scenario and the questions
- your solutions to the questions, using mathematical language, data, calculations, diagrams, graphs and phrases or sentences that provide enough information for a person to know what you are calculating without having to read the questions
- a conclusion, summarising:
  - your reflection on the practicalities of your solutions
  - any assumptions made or limitations to your answers
  - suggestions for improving the investigation or strategies used.

The written component of your report should be about three pages in length.
5) Scale-Up Successful School Models
What Kind of Schools Can Create these Abilities?
Schools that Successfully Prepare College and Career Ready Students Feature:

- Personalized Structures
- Rigorous and Relevant Project-Based Instruction
- Real World Integration
- Authentic Assessment
- Culture of respect, responsibility, & revision
“School should not be mass production. It should be loving and close. This is what kids need; you need love to learn.” -- A student at Vanguard HS, New York City
Rigorous and Relevant Instruction
High Standards and Performance Assessment

“When you take a test you don’t feel like you need to know it after it’s done. The portfolio sticks in your brain better.”

-- a New York City student

School engagement in standard-setting
Focus on student work
Performance and exhibition
Revision and Redemption
High Standards and High Supports
“At our school, there is a true partnership between parents and teachers. It feels like we are both raising the same child.”

-- A parent at San Francisco Community School

Families as experts and partners
Regular parent-educator-student meetings
Looking at student work together
Partnerships for school design
What Can All of Us Do?
“What the best and wisest parent wants for his or her child, that must the community want for all of its children. Any other goal is narrow and unlovely. Acted upon, it destroys our democracy.”
"On some positions, Cowardice asks the question, 'Is it safe?' Expediency asks the question, 'Is it politic?' And Vanity comes along and asks the question, 'Is it popular?' But Conscience asks the question 'Is it right?' And there comes a time when one must take a position that is neither safe, nor politic, nor popular, but he must do it because Conscience tells him it is right."

-- Martin Luther King, 1968