Education Technology Policy for a 21st Century Learning System

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Overpromised and Underdelivered

- Historically, no more efficient system than 30+ students in a classroom.
- Buying technology makes schools look *modern,* BUT
- New technology almost always crammed into old production system.

Therefore…

Education innovation

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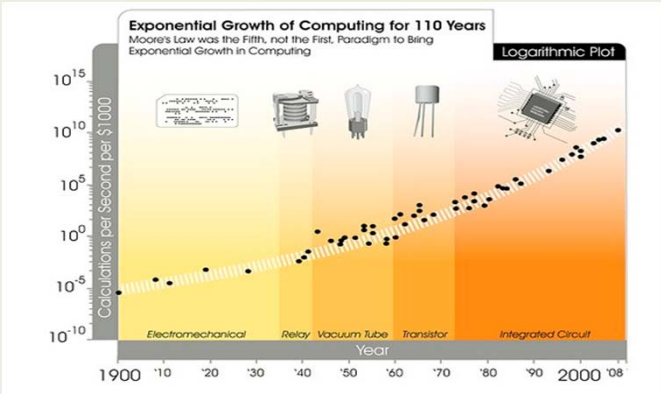
Tech innovation

Until Now!

- Internet technology has the capacity to change the learning production system:
  - from batch processing to individualization,
  - software and data can make the system smarter,
  - from hierarchy to networks of collaborating schools, teachers, and students.

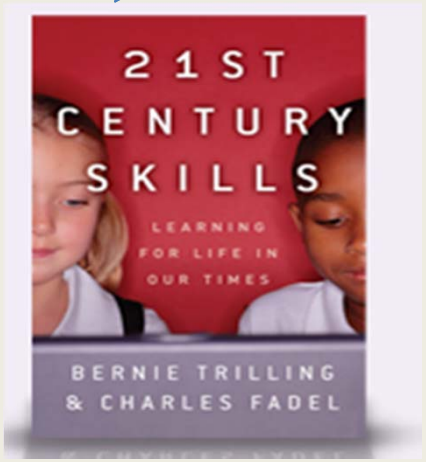
Moore's Law



A Difficult Policy Problem

- Why do anything? Technology will grow regardless.
- It's hard to link technology investments with educational progress. Can't we just reduce class size?

Cool but Controversial



The State Has an Interest in *How* Technology is Developed

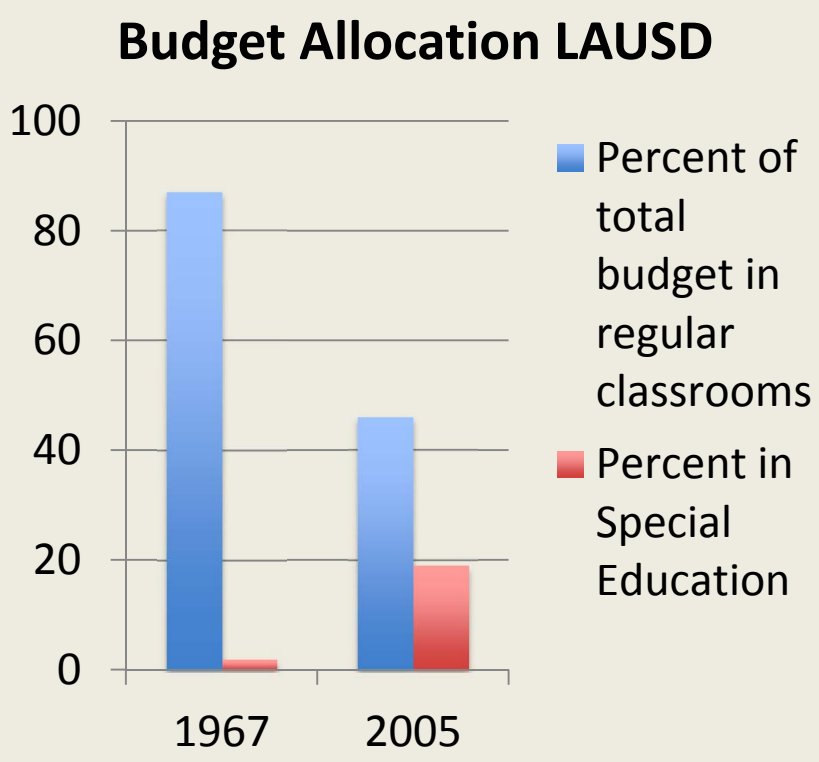
- To lead rather than lag other states: Image and economic development.
- To create an efficient education system.
- To create access and equity.
- To keep the system open and prevent *capture* by vendors.

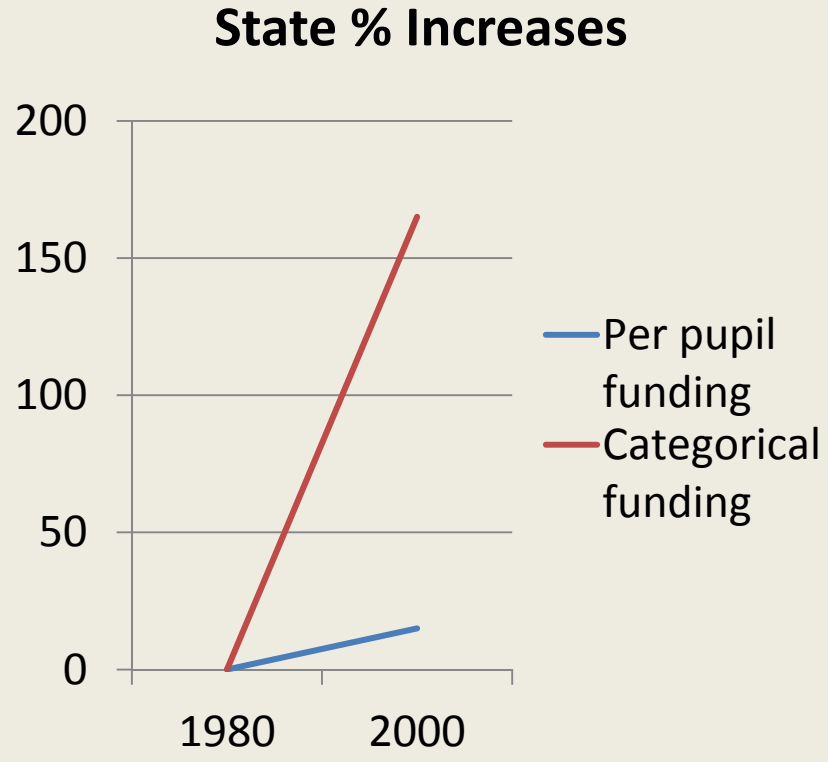
Why, one might ask, should California, the headwater of the digital revolution, be stuck in the eddies of early 20th Century school design?

3 Technology Policies

- Invest where schools have persistent and expensive problems:
  - English learners, special education, remediation, transition to higher education.
- Create an educational infrastructure for teachers, students, and schools to learn differently.
- Modify regulations to create positive incentives.

Policy 1: Tackle Persistent and Expensive Problems





Do the Soft Numbers

1. ELL: $1.4-billion	$196,000,000
2. Remediation: $274-million	$100,000,000
3. Special Education: $9.3-billion	$290,000,000
4. Transition to college	$ 50,000,000

Total:

$636,000,000

Picking the ‘Low Overhanging Fruit’

- Social media technology for special educators.
- Adaptive software.

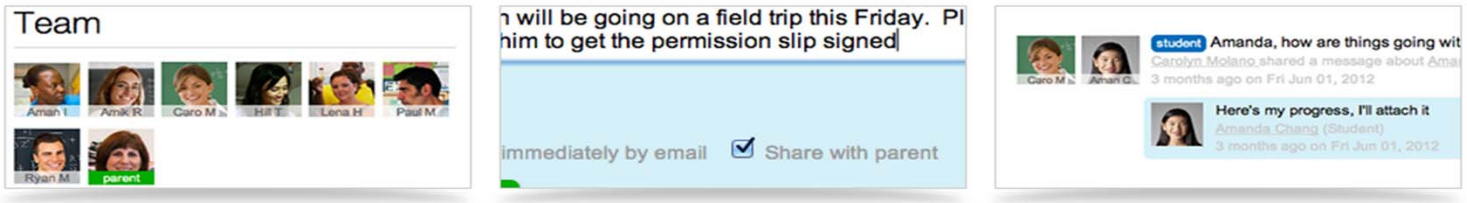
- Course management and learning management 

vide feedback.

GOALBOOK

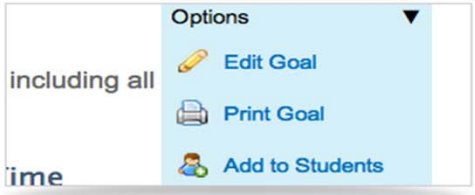
Comprehensive Student Profile

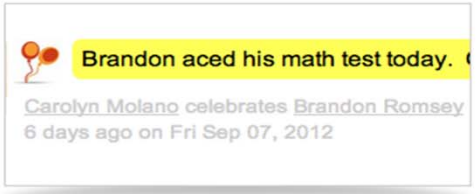
Full Team Collaboration



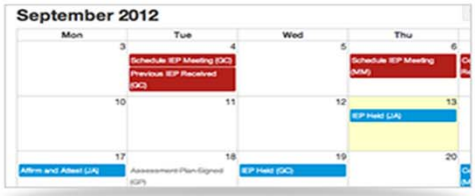
GOALBOOK

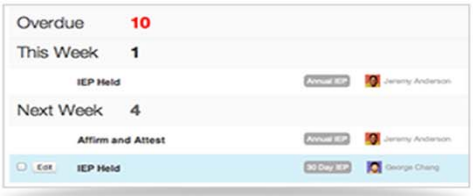
Share and Celebrate Progress

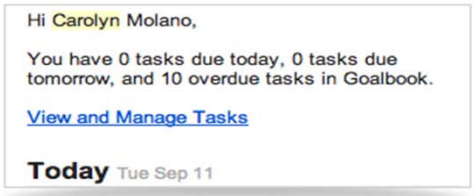




Coordinate Tasks and Events







Start a New Adoption Channel

- Teacher Technology Fund small grants direct to teachers to try an approved list of new software uses.
- Promising Practices among schools and districts.
- Start now. Simple, Fast. If a state agency can't do it, contract it out to a university or partner with a foundation.

Policy 2: Create an Education Infrastructure

- Steps toward a new learning system.
- Not a virtual school, but statewide networks.
- Build systems, plural, “not one best system.”

Elements of the Infrastructure

1. Access and information:
   - A Bring-Your-Own-Device Policy
   - Increasing access to networks at school and home
   - Build a fair and useful data system
2. Open systems learning.
3. Testing and gaining credit.

Some Design Principles

- Adopt *flexible specialization* design principle from manufacturing.
  - Break down complex processes into modules, lessons, projects that teachers and students can combine to create customized learning.
- Get learning tools into the hands of students.
- Experiment, avoid a rush to judgment. Learn from failure.

Create a Public-Private Partnership

- Create specific legislative agenda.
- Tech leaders, entrepreneurs, learning scholars, practicing teachers, school leaders.
- Create a clinical trials format.
- Broker the development of powerful analytical engines, such as those being created for adaptive software.
- Broker relationships with vendors.

Policy 3: Regulation and De…

- Seat time v. merit badges.
- The “Contiguous County” rule.
- The California Diploma.