

“Project RED is nothing less than a blueprint for remaking American Education.”

**Angus King
Former Governor of Maine**

Rethinking Today Preparing for Tomorrow

Lessons From Project RED



REVOLUTIONIZING *ED*UCATION

AZBEC
Rethinking Today
Preparing for tomorrow

www.projectred.org



The Perfect Storm

**Demand for academic
performance is increasing**

**Gap between schools
and society is
growing exponentially**

Finances have hit a cliff



More with less.



The Perfect Storm Is Only Beginning

4.0: Identify and validate design principles for efficient and effective online learning systems and combined online and offline learning systems that produce content expertise and competencies equal to or better than those produced by the best conventional instruction in **half the time** at **half the cost**.

Emphasis added

What if every student was learning at twice their current rate?

What if this also saved money?

What would you do to make this happen?

Research two major issues related to U.S. education:

- **Improving student achievement.**

Unlike other segments, public education has seen only isolated benefits attributable to technology. Project RED seeks to define technology models that lead to improved student achievement.

- **Evaluating the financial impact of technology on budgets.**

Little work has been done to show the positive financial impact of educational technology. Project RED identifies cost savings, cost avoidance, and revenue enhancements.

Unique scope, breadth, and depth:

- 997 schools, representative of the U.S. school universe
- 11 diverse Education Success Measures (ESMs)
- 136 independent variables in 22 categories
- Comparison of findings by student/computer ratios (1:1, 2:1, 3:1, 4:1, or more)
- Comprehensive demographic data correlated to survey results

All Schools

1. *Fewer* disciplinary actions
2. *Lower* dropout rates
3. *Less* paperwork
4. *Lower* paper and copying expenses
5. *Higher* teacher attendance
6. *Higher* test scores

High Schools

7. *Higher* AP course enrollment
8. *Higher* college attendance plans
9. *Higher* course completion rates
10. *Higher* dual/joint enrollment in college
11. *Higher* graduation rates

Which practices improve learning the most?

(rank order of predictive strength – top KIFs vary by school type)

- 1. *Technology-integrated intervention programs:*** Technology applications are used daily in special education, Title I, English Language Learners, and reading intervention classes.
- 2. *Principals lead ‘change’:*** Leaders regularly schedule teacher professional learning and collaboration focused on technology use.
- 3. *Students’ online collaboration:*** Students use technology daily for online collaboration (games/simulations and social media.)
- 4. *Technology use in core subjects:*** Teachers and students use technology weekly or more frequently in core content areas.

Key Implementation Factors (KIFs)

Which practices improve learning the most?
(rank order of predictive strength)

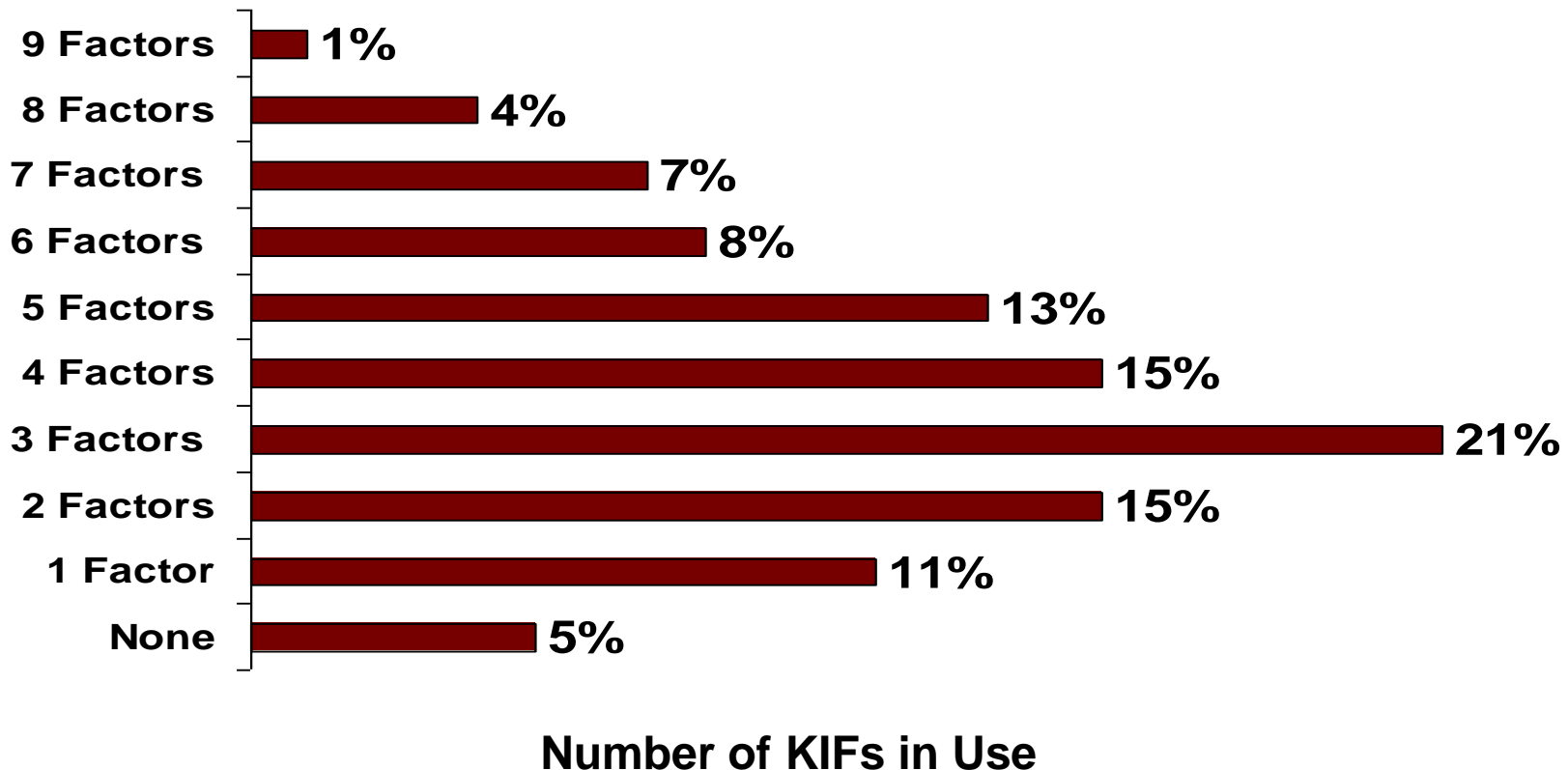
- 5. *Student online formative assessments:*** These assessments are used at least weekly in the instructional program.
- 6. *Student/computer ratio:*** Lower ratios improve outcomes.
- 7. *Frequent use of virtual field trips for instruction:*** Virtual field trips are a powerful teaching and learning strategy when used at least monthly.
- 8. *Student use of search engines:*** Daily use develops skill and personalization of learning.
- 9. *Principals' professional development:*** Principals are trained in teacher buy-in, best practices, and technology-transformed learning.

Nine key implementation factors (KIFs) are linked strongly to education success.

Key Implementation Factors Few Schools Deploy Many

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Pct. of Respondents



- **The right recipe is crucially important**
- **Self Audit – Where are you?**
- **Understand and implement the Key Factors**
- **Avoid NIH**

**“Experience is a dear teacher and a fool would have no other.”
Ben Franklin**

**Using key implementation factors
saves money.**

Using key technology implementation factors saves money.

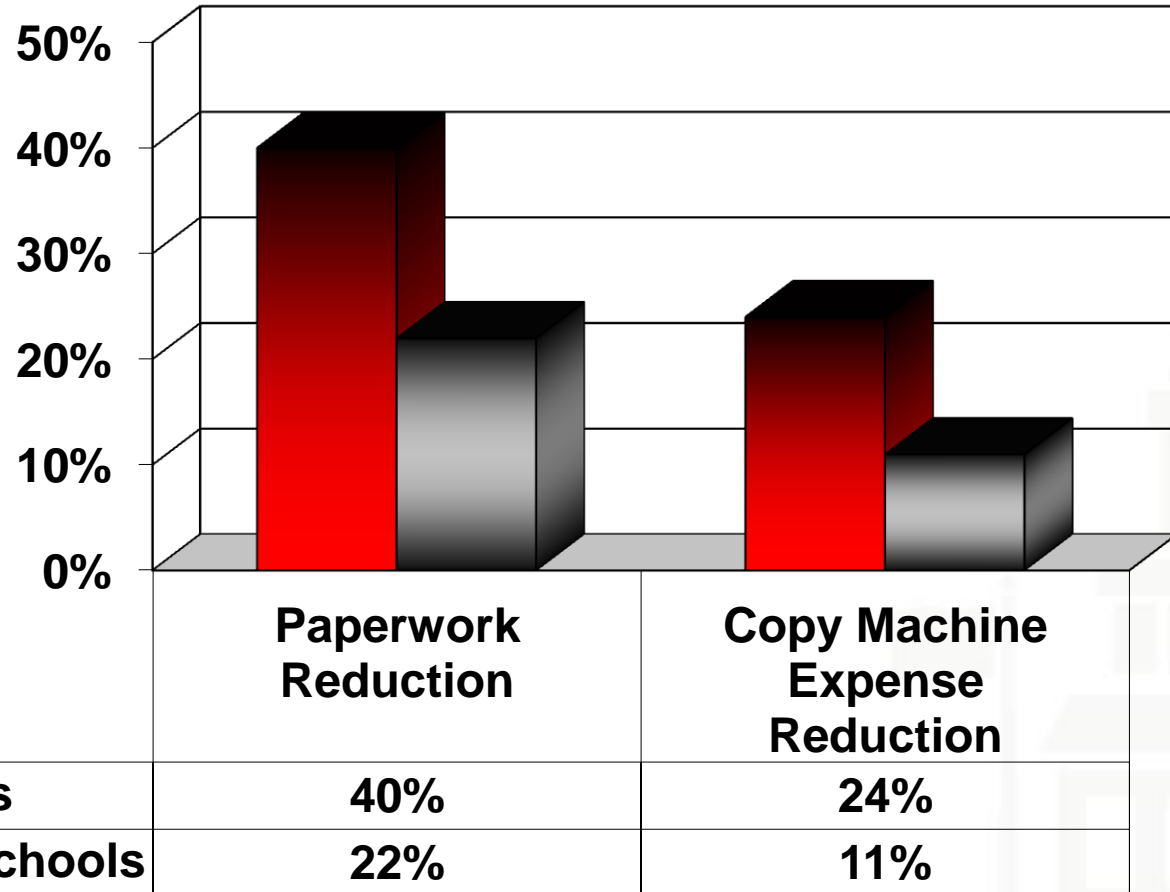
- Most discussions focus on the high costs of technology, not the potential for savings.
- Project RED shows that properly implemented technology can provide immediate short-term savings at all levels.
- For example, LMS features can reduce copy machine and bubble sheet expenses (through the switch to online formative assessment).
- To the extent that school systems are willing to change practices and states are willing to change policy, the savings can grow substantially over time.
- For example, longer-term state-level savings can come from reduced dropouts and dual/joint enrollment.

The projected savings in 13 areas average \$448/student/year.

1:1 Schools Have Greater Savings

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Financial Impact Per Year - \$25B

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Category	National Impact	Per Student
Student Data Mapping	\$605,000,000	\$11
Online Professional Learning	\$654,000,000	\$12
Teacher attendance increase	\$718,200,000	\$13
Power savings	\$861,666,667	\$16
Digital core curriculum savings	\$935,000,000	\$17
Disciplinary action reduction	\$1,100,000,000	\$20
Post-secondary remedial education	\$1,660,000,000	\$30
Digital supplemental materials vs. print	\$1,700,000,000	\$31
Copy machine cost calculations	\$2,200,000,000	\$40
Online assessment savings	\$2,392,500,000	\$44
Dual/joint/AP course enrollment	\$3,180,343,000	\$58
Paperwork reduction	\$3,300,000,000	\$60
End of course failure	\$5,865,200,000	\$107
Total Per Student excluding Dropout Savings	\$25,171,909,667	\$448

- Nationally, 25% of all students drop out, roughly a million students a year,¹ and the average dropout fails at least six classes before dropping out.² Given an average cost per class of \$1,333, the direct avoidable cost is approximately \$8,000.³
- The human cost is incalculable and can span generations.

1 NCES, *Public School Graduates and Dropouts*, 2010

2 Project RED estimate

3 National expenditure per pupil \$9,145 U.S. Dept. of Education

Dropout Reduction Benefits

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- The number of Project RED schools reporting a reduction in dropouts due to technology jumps to 89% when key implementation factors (KIFs) are employed.
- A student who graduates from high school generates \$166,000 to \$353,000 in increased tax revenues compared with a dropout over a career of 40 years.
- A student who graduates from high school and then graduates from college generates \$448,000 to \$874,000 in increased tax revenues compared with a dropout over a career of 40 years.

Dropout Rate Reduction: \$3.121 Trillion

- Dropouts have the highest financial impact of any of the variables discussed in this report.
- Students who complete high school and go on to college have substantially increased earning power and consequently pay more taxes.
- The increased tax revenue continues throughout their careers.



Overall, 1:1 schools outperform all others

It's impossible to get to second order change without a recipe that includes 1:1

1:1 schools employing key implementation factors outperform all schools and all 1:1 schools.

A 1:1 student/computer ratio has a higher impact on student outcomes and financial benefits than other ratios, and the key implementation factors (KIFs) increase both benefits.

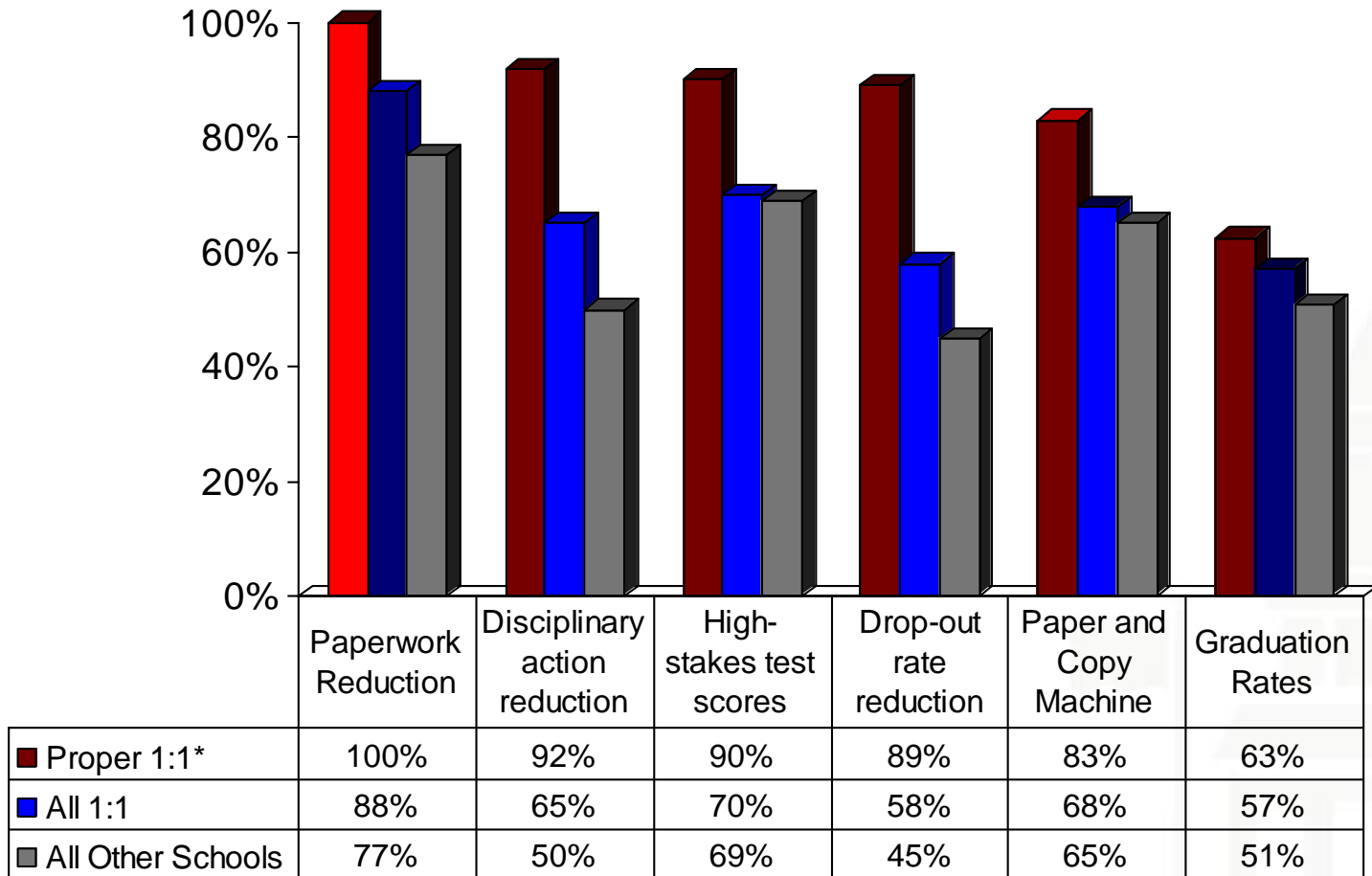
- In general, schools with a 1:1 student/computer ratio outperform non-1:1 schools on both academic and financial measures. The lower the student/computer ratio, the better the student outcomes.
- Performance of all schools can be improved by adherence to known best practices. The chart on the next slide illustrates the positive impact of the Top Four of our key technology implementation factors:

Technology is deployed and incorporates the top four key implementation factors

1:1 Works When Properly Implemented

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Pct. of Respondents Reporting Improvement



•Proper 1:1: Those schools practicing the top 4 Key Implementation Factors (13 schools) Rev. Intervention Classes Every Period, Principal Leads Change management, Online collaboration Daily, Core Curriculum weekly

Key Finding 4

Leadership at all levels is crucial to success.

The principal's ability to lead change is critical.

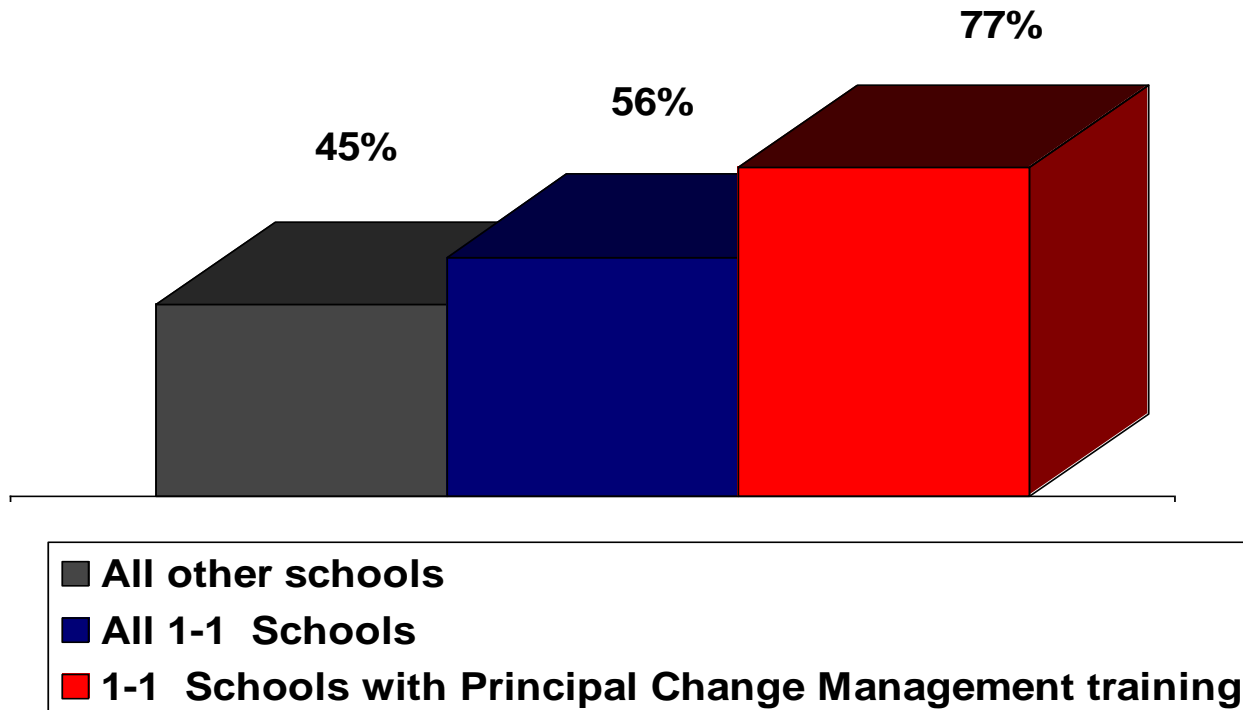
The principal's ability to lead change is critical.

- The impact of a good principal has been widely documented. Project RED shows that the principal is the single most important variable across many of the 11 ESMs.
- Change leadership training for principals involved in large-scale technology implementations is of paramount importance.
- All schools benefit from technology, with more benefits in 1:1 schools.
- When principals receive specialized training and technology is properly implemented, the benefits increase even more.
- The goal is systemic change, not dependent on an individual, so collaboration at all levels from supt. and school board to classrooms is key.

Reduction in Disciplinary Actions

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Pct. of Respondents



An Organizational Development expert is your best friend

Make personalized change management training mandatory for all stakeholders, starting with the leaders

Mooresville Graded School District Before/After Digital Conversion

Category	2006-2007	2009-2010
End of Course/End of Grade pass rate	70%	86%
Graduation Rate	77%	86%
Students going to College	74%	86%
Short Term Suspensions	549	310
Dropouts	5.3%	2.3%
Attendance	94%	96%
Free/Reduced Lunch	31%	39%

Digital Instructional Materials: Empire High School, Vail, Arizona

Digital Content Costs (Core + Supplemental)	Total
Annual instructional materials cost per student 2006-2007	\$51
Annual instructional materials cost per student 2008-2009	\$9
Cost savings per student	\$42 (82% savings)

A VOICE FROM A STUDENT

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2nd order Change in Schools

Can lead to

Students learning at twice the rate

What's the Answer to The Perfect Storm?

LEADERSHIP

Starting at the top

A shift to *full personalization*

Print → Digital

Fixed Computing → Mobile Computing

Server Rooms → Cloud Computing

**Occasional Connectivity →
24/7 Connectivity**

Technology assisted Personalization becomes The “Next Big Thing”

- **Raise the bar – to double the rate of learning**
 - **New standards**
 - **New assessments**
 - **And many more changes required**
- **Will require careful planning and a transition process**

- **Create an X prize for Education – The EX Prize**
 - **Objective – Solve Grand Challenge 4.0**
 - **Districts and vendors partner**
 - **\$10M prize to the winner**
 - **Minimum requirement – 2X learning**
 - **Prize money from a foundation**
 - **State commits to encourage replication**

- **Create a comprehensive “recipe”**
 - **2000 activity Gantt chart**
 - **Piece parts tailored to fit local needs**
 - **Sample deliverables for each activity**
 - **Replicable and scalable**

Create incentives for districts to move to more cost effective solutions utilizing “properly implemented” technology

**What if every student was
learning at twice the current
rate?**

What if this also saved money?

**What will *you* do to make this a
reality?**

We are now, however, at an inflection point for a much bolder transformation of education powered by technology.

This revolutionary opportunity for change is driven by the continuing push of emerging technology and the pull of the critical national need to radically improve our education system.

National Ed Tech Plan 2010

Thanks to Supporters & Sponsors

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