STEM Education, Good Jobs, and US Competitiveness

James Brown, STEM Ed Coalition

March 17

ARSA Meeting
Part One: Why do We Care about STEM Education?
Jobless rate soars

Unemployment hits 25-year high of 8.1%

President touts Obama says stimulus saving jobs

---Taxes That Kill Jobs---

JOBS, JOBS, JOBS!
TAX EXPERT URGES

New York Comptroller Says Federal Government
Open Spillways of Employment by Throwing Out
‘Work-Blighting’ Levies on Business

This is the last of five articles by an eminent and pro-
authority on taxation, who served as Comptroller of New York
under Governors A.Smith and Franklin D. Roosevelt and still
that post. He proposes that the government change its poli-
cs to unleash business and restore better times.

---Continued---

Tepid Job Growth Fuels Worry
Unemployment Rate Hits 7.9% as Economy Stays Sluggish; Politics Cloud Prospects for New Hiring

Congress Considers $9.7 Billion to Clean Up Northeast After Sandy
Deeper

Technology Careers

Education Careers

Teacher-Long Term Sub
DIGITAL NATIVE DOES NOT MEAN TECH SAVVY

83% of millennials say they sleep with their smartphones.

— YET —

58% of millennials have poor skills in solving problems with technology.

Source: Nielsen, 2014
Parent Survey

STEM can help prepare students to become the world’s next innovators and address the world’s toughest problems.

A stronger emphasis on STEM is necessary in order to equip future U.S. generations with 21st century skills such as critical thinking.

Preparing students for careers in STEM should be a top priority for schools in the U.S.

Compared to other countries, the U.S. is doing a poor job of teaching STEM.

Preparing students for careers in STEM is a top priority for schools in the U.S.
**Skills Shortage**
More than half of companies say skills shortages are a significant problem for their companies.

*Source: 2014 Survey of CTEq/BRT corporate members*

---

**The Graduate Skills Gap**
55% of companies see skills gaps among U.S. applicants with bachelor’s degrees. 57% see gaps in those with industry-recognized certifications.

*Source: 2014 Survey of CTEq/BRT corporate members*
Part Two: What is a STEM Career?
General Public’s Image
Hollywood’s Image
What Students Think
Actual STEM Careers
STEM Job Growth
AS PROJECTED BY U.S. DEPT. OF LABOR 2012-22

18% COMPUTER & MATHEMATICAL
7.3% ARCHITECTURAL & ENGINEERING

26% MATHEMATICAL & SCIENCE
10% LIFE, PHYSICAL, SOCIAL SCIENCE
### TOP-PAYING MAJORS FOR 2012-13

**BACHELOR'S DEGREE GRADUATES**

<table>
<thead>
<tr>
<th>Major</th>
<th>Salary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Petroleum Engineering</td>
<td>$93,500</td>
</tr>
<tr>
<td>Computer Engineering</td>
<td>$71,700</td>
</tr>
<tr>
<td>Chemical Engineering</td>
<td>$67,600</td>
</tr>
<tr>
<td>Computer Science</td>
<td>$64,800</td>
</tr>
<tr>
<td>Aerospace / Aeronautical / Astronautical Engineering</td>
<td>$64,400</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>$64,000</td>
</tr>
<tr>
<td>Electrical / Electronics and Communications Engineering</td>
<td>$63,400</td>
</tr>
<tr>
<td>Management Information Systems / Business</td>
<td>$63,100</td>
</tr>
<tr>
<td>Engineering Technology</td>
<td>$62,200</td>
</tr>
<tr>
<td>Finance</td>
<td>$57,400</td>
</tr>
</tbody>
</table>

*SOURCE: APRIL 2013 SALARY SURVEY, NATIONAL ASSOCIATION OF COLLEGES AND EMPLOYERS*
1/2 of all STEM jobs don't require a four-year degree and pay an average of $53,000, which is 10 percent higher than non-STEM jobs with similar education requirements.
STEM Technicians
STEM Technicians
The Images are Starting to Change
Part Three: Policy Solutions
5 Major STEM Issues for the Next 5-10 Years

- Building STEM Capacity at the State Level
- Funding Federal STEM Priorities Through ESSA Structure
- Managing the Computer Science Revolution
- Improving the College Value Proposition
- Improving Equity and Diversity within STEM Education
Solutions: STEM Teacher Education

NATIONAL MATH + SCIENCE INITIATIVE

IN 2014, NMSI PROGRAMS IMPACTED...

44 UNIVERSITIES
536 SCHOOLS
8,622 TEACHERS

UTEACH NATIONAL PROGRAM ENROLLMENT
SPRING 2015 — 6,892 STUDENTS
Solutions: STEM Competitions and Hands on Learning
Solutions: Afterschool STEM Programs
Solutions: “Common Core” Math Standards

- **State adopted the Common Core (43 plus D.C.)**
- **State did not adopt the Common Core (4)**
- **State adopted the Common Core in only one subject (1)**
- **State reversed its adoption of the Common Core (3)**

*New standards take effect in 2015-2016*
Solutions: Next Generation Science Standards
Thank You!