4Cing the Future of STEM

Jonathan W. Gerlach
International Consultant for STEM Education
Jonathan_Gerlach@Discovery.com

@STEMigo
WHY STEM; WHY ME?
STEM has become more than an acronym
STEM is a culture not a class.
Students and Teachers Energizing Minds
The 4 C’s of 21st Century Learning

• Critical thinking
• Communication
• Collaboration
• Creativity
80% of executives said they believe the 4C’s need to be combined with the 3R’s
Critical Thinking
What Space Number?
Which Way?
Communication
IN 60 SECONDS...

- 1 NEW DEFINITION IS ADDED ON UPD8
- 1,600+ READS ON Scribe
- 13,000+ HOURS MUSIC STREAMING ON PANDORA
- 12,000+ NEW ADS POSTED ON craigslist
- 370,000+ MINUTES VOICE CALLS ON skype
- 98,000+ TWEETS
- 20,000+ NEW POSTS ON tumblr
- 13,000+ IPHONE APPLICATIONS DOWNLOADED
- 600+ NEW VIDEOS ON YouTube
- 100+ NEW ARTICLES PUBLISHED
- 6,600+ NEW FAVORITES ADDED ON flickr
- 50+ WORDPRESS DOWNLOADS
- 510,040+ WALL POSTS
- 79,364+ PLUGINS DOWNLOADED
- 1,500+ NEW BLOG POSTS
- 60+ NEW BLOGS
- 168 MILLION EMAILS ARE SENT
- 510,040+ COMMENTS
According to the UN, there are 5000+ Global Companies.
Creativity and Cranes
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Creativity

• Creativity isn’t just thinking outside the box

• “Creativity involves breaking out of established patterns in order to look at things in a different way.” - Edward de Bono

• CEO’s: Single most important leadership skill for finding a path through global complexity.

Source: Forbes 2010
The Global workforce is changing!
By 2020, over 90% of jobs will require at least one STEM skill.
Prepare our Students to be Leaders

65% of jobs our students will have don’t exist today

**THE BIG DATA ARCHITECT**

Although it’s been around for at least 2 decades, the concept of big data took off around 2008. That year, the Computing Community Consortium published a white paper which propelled the term into the limelight.

<table>
<thead>
<tr>
<th>Year</th>
<th>Jobs</th>
</tr>
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<tbody>
<tr>
<td>2008</td>
<td>0</td>
</tr>
<tr>
<td>2013</td>
<td>3,440</td>
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</tbody>
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3,440 x growth in 5 years

**THE CLOUD SERVICES SPECIALIST**

Salesforce.com and Amazon were the 2 companies that introduced cloud computing to businesses throughout the early 2000s. The stark contrast in the number of jobs shows how popular and reliable cloud services have become.

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<td>195</td>
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17x growth in 5 years
Are the 4C’s Enough?

“STEM skills are necessary for many types of innovation, as well as productivity and growth, but they are not sufficient on their own…”

Council of Canadian Academies, 2015
STEM Dispositions

- Persistent
- Metacognitive
- Life Long Learner
- Communicative & Collaborative
- Altruistic
- Inquisitive & Problem Solver
- Skeptic & Wonderer
- Imaginative
- Risk Taker
In a STEM learning environment, powerful critical thinking and exploration practices commonly used in science, technology, engineering and math classrooms will be drawn across disciplines and connected by a common or transdisciplinary theme, allowing students to:

**STEM Learners:**
- Ask deep real world questions
- Collaborate with their peers
- Arrive at meaningful conclusions through inquiry
- Explore 4C’s Skills tied to STEM careers
Discovery Education STEM Ecosystem

Transformational Culture Development

Communities of Practice

Developing Connections
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Developing Connections

#DESTEMChat

STEM Strategies That Work

Instructional ideas that incorporate STEM culture in meaningful, effective, and practical ways.

STEM Project Starters
Thank You!

In STEM -

Jonathan W. Gerlach

International Consultant for STEM Education Discovery Education

Albert Einstein STEM Fellow Emeritus

NASA Endeavor STEM Fellow Emeritus

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@STEMigo