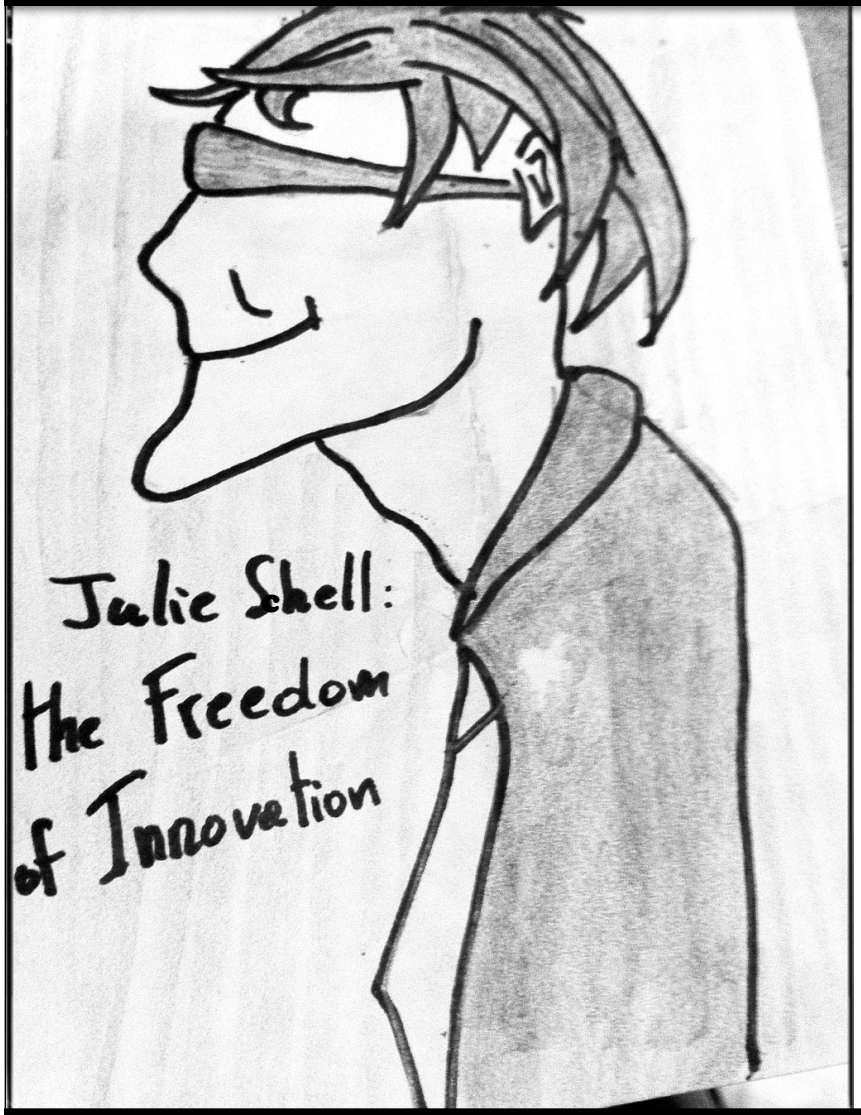
Why improve STEM Teaching?



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Why improve STEM teaching?

The Truth

Most STEM teaching fails to foster innovative thinking

Barriers

4 barriers to innovative thinking

Consequences

Without innovative thinkers, our nations suffer

Possibility

What is possible when we develop innovative thinkers

The truth

Most STEM teaching fails to foster innovative thinking

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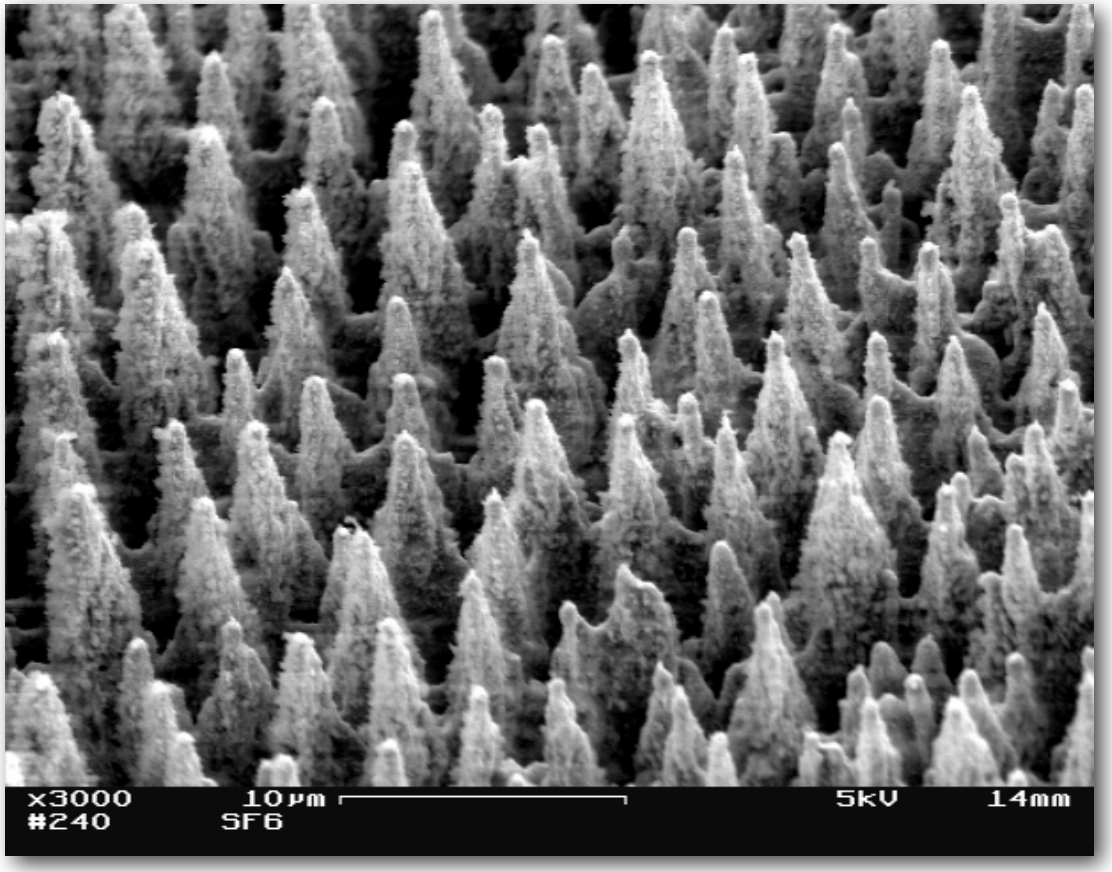

The truth

Most STEM teaching fails to foster innovative thinking

3 Types of learners
surface, strategic, deep

The sites of poor learning
our classrooms

Lack of awareness
Confess, there is a problem with OUR students' learning

The truth

Most STEM teaching fails to foster innovative thinking

Think of something related to your work that you are very good at...

How did you learn that?

The truth

Most STEM teaching fails to foster innovative thinking

How effective do you think your lectures are teaching students complex subject matter?

70% of you responded effective or highly effective

Barriers

Understand the barriers to innovative thinking

Knowledge transfer

The ability to transfer knowledge to new contexts

Autonomy

The ability to do independent work

Persistence

The tendency to not give up in the face of difficulty

Exploration

Working to find creative solutions, taking risks

Consequences

Without innovative thinkers, our nations suffer

Achievement

Students fail their STEM courses at high rates

Retention

Most students drop out of STEM majors

Loss of workforce talent

Knowledge, discovery and innovation is limited in business and industry

Nations

Fail to advance in increasingly STEM-based society

Possibility

What is possible when we develop innovative thinkers

Captain Chelsey Sullenberger

Possibility

What is possible when we develop innovative thinkers

Not why improve STEM teaching, but how?

Instructional design

Backward Design, Course Transformation Program

Learner-centered approaches

Peer Instruction, Team-Based Learning, Assessment: Evidence-Based Teaching

Instructional technologies

Online Learning Initiative, Rethinking the Role of Technology in Higher education

Understanding student success

From Student Readiness to Student Success

Institutional perspectives

Higher Education Policy and Productivity

The real revolution is not innovative STEM teaching, but innovative STEM learning.

Give your students the freedom to innovate.

Download this presentation at
scholar.harvard.edu/julieschell