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Learning Together: Collaboration on Mathematical Pedagogies in the Virtual and Global Community


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Who Are We?



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Today's Objectives

- Rationale for Global Collaboration
- Global Collaborative STEM Education Continuum
- Examples of Lesson Planning in Engaged Global Collaboration




A Brief Rationale for Global Collaboration





"Global competition for jobs means that today's students must not only be well-educated, creative problem solvers but they must also be equipped to collaborate globally"

J. Lindsay & V. Davis (2013). Flattening Classrooms, Engaging Minds



"A global collaborative classroom is able to connect, collaborate, and create products or artifacts with other classrooms anywhere in the world."

J. Lindsay & V. Davis (2013). Flattening Classrooms, Engaging Minds




An internationally minded learner is above all a

- competent communicator,
- open-minded and
- knowledgeable.

However, these qualities cannot be achieved without ...

- cognitive competence (inquirers, thinkers and reflective practitioners), and
- disposition (principled, caring, risk-takers, and balanced).


Smith & G., (2015). 21st Century International Mindfulness

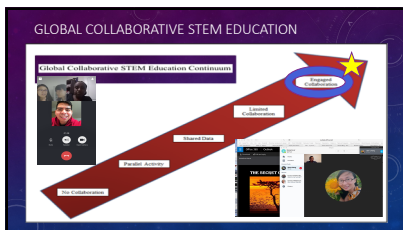
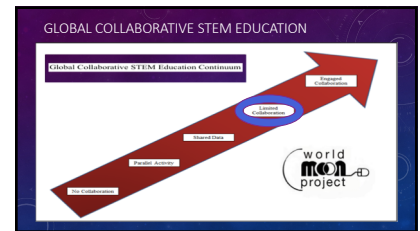
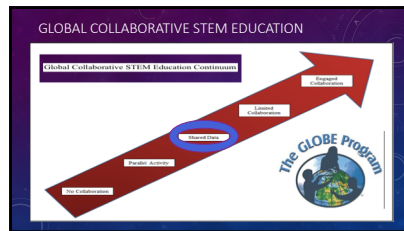
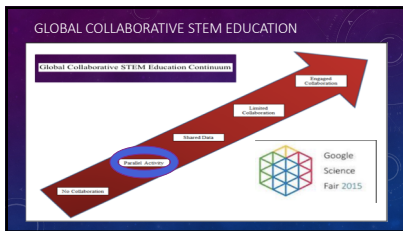
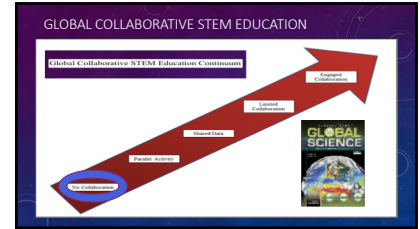
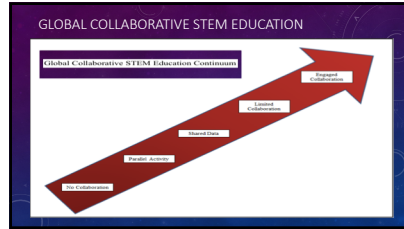
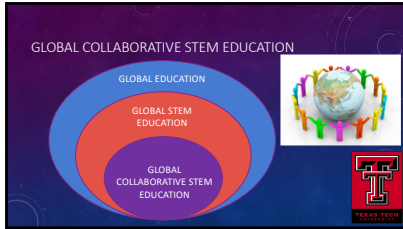


Global STEM Educator

Skilled at enabling teachers to engage their students with students in other countries to

- (1) inquire about nature,
- (2) address technology and engineering problems arising from human desires and needs, and/or
- (3) seek solutions to social problems requiring the application of STEM knowledge.





Global Collaborative Lesson Planning

- 1 teacher from Washington state, 1 from Texas, and 2 teachers from China
- Exchange of teaching strategies.
- Compared standards and discussed how it would be taught in their local schools.
- Application: Teach how it's taught in China, and vice versa.

GLOBAL RISE

Obstacles

- Time Zones
- Language Barrier
- Technical Difficulties

GLOBAL RISE

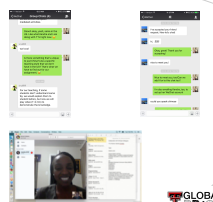

Modes of Communication

- Asynchronous: Email messaging, text messaging
- Synchronous: Video conferencing
- Partner in US: Skype
- Partner in China: WeChat



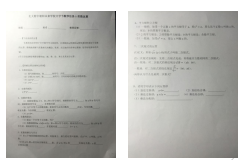



Communication Sessions

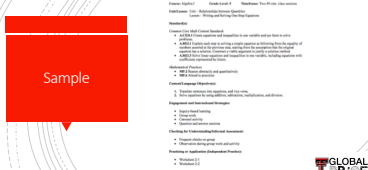

Lesson Plan from China

Sample


Lesson Plan from USA

Sample


Executing the US Lesson

- A math standard in China taught using inquiry-based learning.
- Piece-wise functions
- Intro Problem
- Think-time
- Q&A Sessions
- Poster Session




Executing the China Lesson

- Longer school hours with 70 minute blocks.
- 10-minute intro test
- 30-minute direct instruction
- Large groups for groupwork and discussion
- Smaller groups for error analysis



Outcomes

- Teaching in different perspectives.
- Different policy from a foreign country.
- Differences in culture and learning styles.



References

- Ministry of Education of People's Republic of China. (2003). Ordinary senior secondary: Mathematics curriculum standards (experimental version) (K. Cheung, Trans.). Retrieved from <http://ncm.gu.se/media/kuusplaner/andralander/kinagym.pdf>
- National Governors Association Center for Best Practices & Council of Chief State School Officers. (2010). Common Core State Standards for Mathematics. Washington, DC: Authors.



Partnering Resources

- Scistarter.com
- citizenscience.org
- Twitter: @globalchat
- citizensciencealliance.org
- "Connected Classrooms" (Google+)
- www.scientificamerican.com/citizenscience/
- Edmodo group
- Global Read Aloud
- ISTE

