Twig to Tree: Creativity, STEM, and The Connected School Library

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Introductions

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Why are we talking about STEM all the time?

“That’s why we love science. It’s more than a school subject, or the periodic table, or the properties of waves. It is an approach to the world, a critical way to understand and explore and engage with the world, and then have the capacity to change that world, and to share this accumulated knowledge. It’s a mindset that says we that can use reason and logic and honest inquiry to reach new conclusions and solve big problems.”

President Barack Obama
March 23, 2015

http://go.umd.edu/353

Overview of Development

Arc of development is from
- Dependence to independence
- Identity based in family to identity based in self and vocation

Each age has challenges and resolutions

If we can foster a “STEM Identity” can we increase STEM engagement?
Overview of “child” development? Need some photos - maybe arc of development?

Mega Subramaniam,
Childhood

- 6-12 years of age (Elementary School)
- Task: Competence
- Crisis: Industry vs. Inferiority

Adolescence

- 12-18 years of age (Middle and High School)
- Task: Fidelity
- Crisis: Identity vs. Role Confusion
LEARNING THEORY AND STEM

Zone of Proximal Development: Vygotsky

Guided Inquiry: Kuhlthau

Arts of Learning: Azevedo

Hybrid Spaces: Calabrese Barton

Interest Engagement and Learning
Connected Learning

School librarians

INFORMAL LEARNING

FORMAL LEARNING

Connected Learning

Interests  Peer Culture

Academics
Why School Libraries?

Putting theory to work

Practical Applications of Theoretical Concepts
The Sci-Dentity Model

http://go.umd.edu/35w

The HackHealth Model

http://hackhealth.umd.edu
http://academicminute.org/2015/09/mega-subramanian-umaryland-hackhealth/
Makerspace Models

▪ What is a Makerspace?
▪ How do Makerspaces foster science learning?
▪ Why the library?

“The libraries of today need to be interactive learning environments that support a multitude of learning styles and modalities.”

- Diana Rendina
  Knowledge Quest Blog
  September 23, 2015
  http://knowledgequest.aasl.org/5-easy-ways-make-space-innovation/
Using Paper Circuits, iPads, Origami and iMovie to engage with Science, Technology, Engineering, Art and Math

STEAM in the Elementary School Library
Kinetic Sculpture Making – Model for the Future?

http://chibitronics.com/

https://vimeo.com/117017340
Reading SciFi and Science Learning

STEM and School Libraries

- School libraries are a natural place for exploratory learning
- School librarians are trained to foster inquiry
- School librarians serve the entire curriculum
- School libraries are often the central, neutral space in the school building.
Thank you!

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