

13th Annual

Thinking & Learning Conference

ERIC SHENINGER

Friday 20 May

Leading the Maker Movement
Session 3

MELBOURNE

ERIC SHENINGER

Eric Sheninger is a senior fellow and thought leader on digital leadership with the International Center for Leadership in Education. Prior to this, he was the award-winning principal of New Milford High School in New Jersey. As an innovative educator, bestselling author and sought-after speaker, Eric's work focuses on leading and learning in the digital age as a model for moving schools forward. This has led to the formation of the Pillars of Digital Leadership, a framework for all educators to initiate sustainable change that transforms school culture. Eric speaks internationally to other school leaders about embracing and effectively utilising technology.



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[Eric Sheninger](#)

ICLE Senior Fellow, Principal, Author, Consultant, Learner

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The following are resources I mentioned during my presentation and/or support some of the ideas/strategies that were presented. Follow, engage in, and contribute to the conversation on Twitter at anytime using [#DigiLead](#).

Order your copy of my new book: [Uncommon Learning: Creating Schools That Work for Kids](#)

- I. **The Maker Movement** - Tech-influenced Do-It-Yourself (DIY) community. Maker movement is driving innovation in manufacturing, engineering, industrial design, hardware technology and education.
 - A. [Maker movement reinvents education](#)
 - B. [Maker Movement Manifesto](#) (book)
 - C. [Maker movement has a place in all disciplines](#)

- II. **What is a Makerspace**
 - A. physical place where students can create real-world products/projects using real-world tools
 1. [Makerspace lays foundation for innovation](#)
 - B. shared workspace with new age tools that are not readily available outside of school
 - C. A community of tinkerers, inventors, creators, DIY'ers, and makers
 - D. Can be embedded in an existing space or standalone on its own



III. Qualities of a Makerspace

- A. Process – guided by natural inquiry and self directed learning; requires two skill sets: 1. Knowing which tool to use and how to use it safely; 2. Problem-solving and diagnostic skills required to figure out why something won't work, come up with a creative solution, and not get frustrated
- B. Dedicated Educator –helps students diagnose a problem so that they can create a solution; guides students through the inevitable highs and lows of making something; ties making to different content areas; Shift from transmitting knowledge to enabling a student to create his/her own solution (coach); Model when necessary
- C. The Space – must encourage creativity and support the idea that anything is possible (Library/media center, classroom, common area of the school)

IV. Suggested Makerspace Items

- A. LEGO's and Minecraft
 - 1. [Passion-based learning](#)
 - 2. [Minecraft EDU](#)
- B. [Little Bits](#) Bar
 - 1. [Case study](#)
- C. [Makey-Makey](#) kits
 - 1. [lesson plans](#)
- D. Take-a-part technology station
 - 1. [Student created website](#)
- E. [Raspberry Pi](#)
- F. [Arduino](#)
 - 1. [Introduction to Arduino](#) (video)
 - 2. [What is arduino and what can you do with it](#)
 - 3. [Difference between Arduino and Raspberry Pi](#)
- G. Green screen
- H. 3D printer
 - 1. [Makerbot](#)
 - 2. [Afinia](#)
 - 3. [3-D Printing Becomes Accessible for High School Teachers](#)
- I. [Mozilla Webmaker](#)
 - 1. [specific tools](#)

V. The Maker Environment

- A. Comfortable seating



- B. Creative use of available space
- C. Limited rules and control
- D. Flexible
- E. Ubiquitous access to WiFi and technology
- F. Prompts and guides

VI. Leadership Matters

- A. Autonomy to make decisions
- B. Freedom to execute
- C. Trust and empowerment
- D. Budget
- E. Encouragement

VII. Essential Questions / Next Steps

- A. Who will lead your maker initiative?
- B. Where will you create a makerspace in your school?
- C. How will you fund your makerspace?
- D. What do you want the key components to be?
- E. How will you determine the educational value of your makerspace?

VIII. Resources

- A. [Pinterest board](#) linking to various articles and resources
- B. [Worlds of Making](#)
 - 1. Follow on Twitter ([#worldsofmaking](#))
- C. Books
 - 1. [Invent to Learn](#)
 - 2. [Worlds of Making](#)
 - 3. [A Book With A Hole In It](#)
- D. [Collection of Vine videos](#) from a high school makerspace
- E. [Makerspace website](#)
- F. [The Maker Education Initiative](#)
- G. [Table Top Inventing](#)
 - 1. [products/supplies](#)

MAKERSPACE PLANNING



Laura Fleming, 2014



Principles of Maker Education as Experiential Education



Learners are engaged intellectually, emotionally, socially, soulfully and/or physically.



Learners actively engage in posing questions, experimenting, being curious, solving problems, assuming responsibility, being creative, and constructing meaning.



Learners take the initiative, make decisions and are accountable for results.



Learners may experience success, failure, adventure, risk-taking and uncertainty



Relationships are developed and nurtured: learner to self, learner to others and learner to the world at large.



Results of the learning are personal and form the basis for future experience and learning.



Design of the learning experience includes the possibility to learn from natural consequences, mistakes and successes.



Educator recognizes and encourages spontaneous opportunities for learning.

Maker Education

Adapted from Association of Experiential Education <http://www.aee.org/about/whatsEE>

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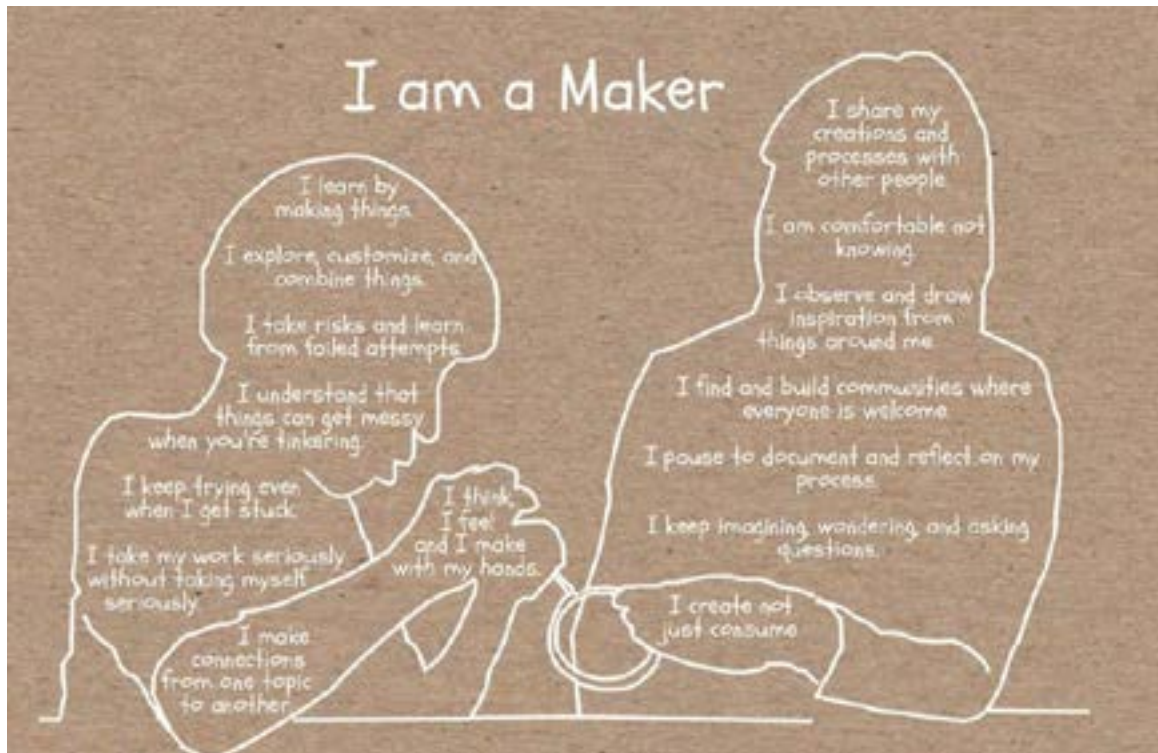
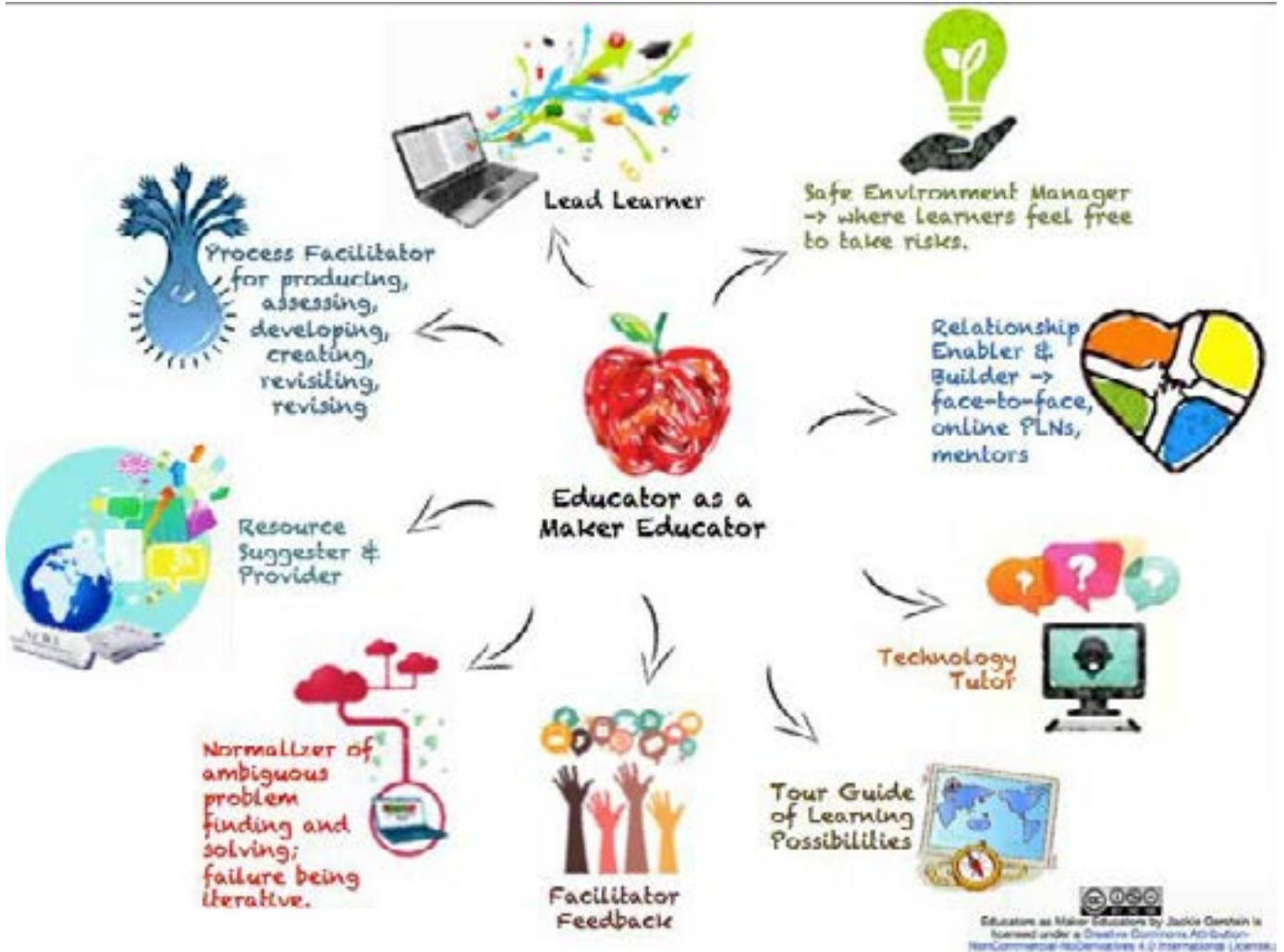


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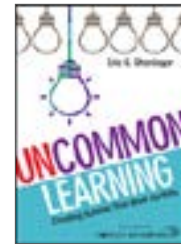
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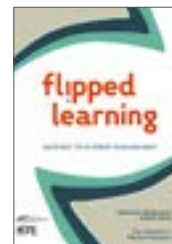
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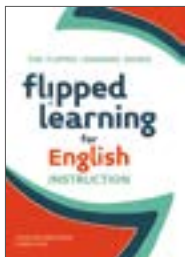
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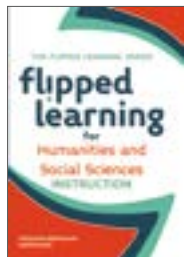
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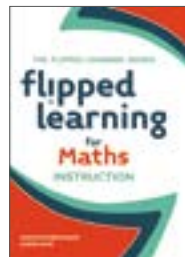
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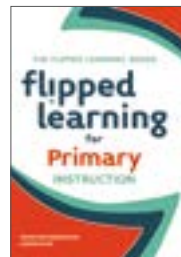
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