Innovation Learning with The Henry Ford

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THE HENRY FORD LEARNING STRATEGY

DRIVE INNOVATION LEARNING

- Powered by the perspective of The Henry Ford Archive of American Innovation

- Through core disciplines plus invention and entrepreneurship

- Using the The Henry Ford Model I Innovation learning framework as a common language across all disciplines

- Activated by Henry Ford’s philosophy of Learn-by-doing
“There are great differences in innovation rates ..... Those differences don’t seem to be due to innate ability to innovate”

Raj Chetty
Stanford Professor, Equality of Opportunity Project

Lost Einsteins: The Innovations We’re Missing (Dec 2017)
THE HENRY FORDS LEARNING STRATEGY

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THE HENRY FORD’S LEARNING STRATEGY

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Model i™ INNOVATION FRAMEWORK

**Actions of Innovation**

- **UNCOVER**
  - Connect with user to identify need, develop insight and gain perspective.
- **DEFINE**
  - Use new perspective to provide scope and clarity to the problem.
- **IMPLEMENT**
  - Take prototype to market, seek new insight and re-enter cycle.
- **OPTIMIZE**
  - Use feedback to improve the design through iteration.
- **DESIGN**
  - Brainstorm solutions and create a prototype for testing that solution.

**Habits of an Innovator**

- **LEARN FROM FAILURE**
  - Be resilient. Use feedback to make improvements.
- **CHALLENGE THE RULES**
  - Turn “can’t” into “can do.” Dare to be different.
- **STAY CURIOUS**
  - Learn something new. Ask questions.
- **TAKES RISKS**
  - Think BIG. Embrace uncertainty.
- **COLLABORATE**
  - Share what we know. Respect what others bring.
- **BE EMPATHETIC**
  - Walk in other people’s shoes to understand their needs.
Stay Curious
As a child, Elijah McCoy loved to read, tinker, and study the local trains. Raised in Ypsilanti, Michigan, McCoy was often found reading by the railroad tracks or pulling things apart just so he could put it all back together again.

Challenge the Rules
When McCoy returned to the US as a master mechanic and engineer at the age of 21, he faced another obstacle; the Michigan Central Railroad denied hiring him as an engineer. Unwilling to give up his dream working for the railroad, McCoy accepted a job as a fireman and oilman at the Michigan Central Railroad.

Stay Curious
While working as a railroad fireman and oilman, McCoy noticed many technical shortcomings. Every few miles the train would have to stop for he and the other oilmen to manually lubricate all the moving parts. He wanted to improve their work.

Challenge the Rules
By 1872, McCoy had designed the automatic lubricating cup, or oil drip cup. This device deposit metered amounts of oil where needed on the train, thereby, significantly reducing the need for manual labor.

Stay Curious
McCoy saw how much time, money, and manpower were wasted and sought to find a way to optimize the lubrication method. Outside of work, McCoy would go to his father’s barn to experiment with different ideas and methods for lubrication.

Collaborate
When Elijah prepared to go to college, he faced many obstacles. Of the few universities that admitted African American students, none allowed them to study engineering. That did not stop McCoy. McCoy’s father sought the help of a friend from the Underground Railroad, Thomas McAndrew, who had moved to the US from Scotland. McAndrew arranged for McCoy to complete an apprenticeship in Scotland.

Many people tried to imitate McCoy’s design, but failed to do so. Nothing worked as well as “The Real McCoy.”
Michigan Invention Convention

- Free program where young innovators create and pitch an original invention to their peers and judges.

- Educator Info Session

- Local Invention Convention: Scheduled by teacher lead, typically between February and early March

- Registration deadline for Michigan Invention Convention: March 18, 2019

- Michigan Invention Convention: April 27, 2019*

- National Invention Convention: May 29-31, 2019*

- Educator Open House

*held at The Henry Ford
Model I Paper Aircraft Activity

Select a criterion-
Build an aircraft that holds as many passengers as possible or flies the longest distance.

Use your materials-
You can build your aircraft using paper and paperclips.

Make and test your aircraft-
Remember, not all aircrafts look the same. Be creative!
Model I Paper Aircraft Activity

Make observations-
What worked? What didn’t? How can you improve your design?

Make improvements-
Did performance improve? Why or why not?
Resources

• Model 1 Primer: www.thehenryford.org/modeli

• Innovate Curriculum: www.thehenryford.org/education/innovate

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