Creative Problem Solving in the 21st Century

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PIANO STAIRCASE | THE FUN THEORY

NEED FOR CREATIVITY IN EDUCATION
Overview

- Rationale
- Fluency
- Flexibility
- Elaboration
- Application
Rationale

- Career Pathways
  - Where are we going?
  - How will we get there?
- Blooms Taxonomy
  - Higher level thinking skills
## Career Pathways

<table>
<thead>
<tr>
<th>Conventional academic success has involved:</th>
<th>While workplace success now involves:</th>
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<tbody>
<tr>
<td>• mastery of basic skills</td>
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<tr>
<td>• largely solitary study</td>
<td>• working with others</td>
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<td>• generally uninterrupted work</td>
<td>• constant distractions</td>
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<td>• concentration on a single subject</td>
<td>• working at different levels across different disciplines</td>
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<td>• much written work</td>
<td>• mainly verbal skills</td>
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<td>• a high analytical ability</td>
<td>• problem-solving and decision-making</td>
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The 21st Century Learning Initiative: A Policy Paper: The Strategic and Resource Implications of a New Model of Learning
Corinthian Colleges (which includes Everest Universities, Colleges and Institutes as well as WyoTech) says that they are "preparing students for jobs that don't yet exist...using technologies that haven't been invented"..."to solve problems we don't even know are problems yet." (Carlsen, Ben; 2010 EzineArticles.com)

In the end, said Mr. Cappelli, the Wharton School professor, the skills that might turn out to be most valuable for students to learn are “the skills for managing uncertainty.” (Cech, Scott; 2007 Edweek.org)

The evidence in Culture and Nurture comes from a convergence of findings in the biological and social sciences, and economics and it shows that the economic and social environment in which schools operate is currently moving away from an emphasis on deference to systems towards an emphasis on personal responsibility and creativity. (The 21st Century Learning Initiative: A Policy Paper: The Strategic and Resource Implications of a New Model of Learning)
What does this mean for someone just now planning their career. Proximity and creativity are the key. You really have two choices:

- Look for a career that requires a very high level of skill or creativity . . .
- Learn a trade or skill that requires hands on presence . . .

Essentially you want to pick a career that requires your physical presence and that can not easily be done remotely. Combining proximity with creativity in a career gives you added security.  

(Robinson, Michael T.; 2010 Careerplanner.com)
What could this be?
Coming up with many, many ideas.
Application of Fluency

- Language Arts
  - Consonants in the Alphabet
  - A character thinks selfishly
  - The body of an essay

- History
  - Number of Jamestown colonists who died after the winter of 1609
  - Mountainous land in Greece

- Science
  - Water on the earth
  - A Gibbous moon

- Math
  - 3 quarters of a dollar
  - 45 minutes of the hour
Green and Edible

1. List things that are green and edible.
2. Each share a response
3. List things that are green and edible again.
4. Each share a response
5. List things that are green and edible one more time.
6. Pick the 3 responses you think are the most creative.
We practice fluency because...

QUANTITY LEADS TO QUALITY
Application of Fluency

- Use BB8 (Hooray Star Wars!) to design your own fluency activity related to your content. Please be prepared to share! You can use:
  - The letter B
  - The number 8
  - The shape
  - The concept of robots or electric
What is the word?

BSAINXLAETNTEARS

Cross out six letters to reveal a common English word. Don’t move letters around!
How can you make this into 8 by adding a line?
How can you make this 6 by adding a line?
Flexibility

Looking at things in many different ways
Application of Flexibility

- Language Arts
  - Letters and punctuation
  - Scene from a story

- History
  - Structure from history
  - Map of an area
  - Writing a famous document

- Science
  - A scientific invention
  - Example of scientific principle

- Math
  - Numbers and operations
  - Geometric shapes
  - Example of mathematical principle
Changing your perspective can lead to... INNOVATION
Application of Flexibility

- Use the materials provided to design your own fluency activity related to your content. Please be prepared to share! You can use:
  - Designing a structure
  - Representation of a concept
  - Utilizing the properties of the materials to symbolize a concept.
Tell me about this person . . .

I wrote 9 symphonies!

Loss of hearing

1770–1827
Elaboration

Making something rich in detail
Application of Elaboration

• Language Arts
  • Characters and scenes in books
  • Grammar

• History
  • Asking why something is important
  • Asking how something became important

• Science
  • Collecting data
  • Asking why something happened

• Math
  • Operations
  • Story problems
The monkey ate.
- *The enormous gorilla devoured the last banana for 100 miles.*

She read a book.
- *Marissa, a struggling 1st grader, successfully read her first book, Hop on Pop, thanks to her reading teacher.*

The tree was tall.
- *The redwood tree towered over all man-made structure in California.*
Details can improve

QUALITY

AND

INNOVATION
Application of Elaboration

- Use a color to design your own elaboration activity related to your content. Please be prepared to share!

  You can:
  - Start with a color and allow students to elaborate on it
  - Utilize colors to elaborate on a concept

- Useful Elaboration Websites
  - Elaboration Website
  - Elaboration Website 2
Creative Problem Solving

Fluency

Elaboration

Flexibility
Questions?

COMMENTS?

Let’s work on making our lesson plans more creative!