Developing Creativity in the Classroom

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Elevate 2019 Midland ISD

Why creativity?

Creativity

Where creativity goes—and, by extension, wherever talent goes—innovation and economic growth are sure to follow.


Education and Creative Class

- The creative class are those workers who generate new ideas, technology, and content. They solve problems, innovate, and design.
- In the U.S. the creative class accounts for approximately 30% of the workforce.
- The creative class in leading metro areas can be 40-45% of the workforce.
- In some cities/university towns, the creative class can be as predominant as 60 to 75% (e.g., Durham, NC; Ithaca, NY; Boulder, CO; Florida, 2015).

Top Creative Cities in the U.S. (Florida, 2015)

<table>
<thead>
<tr>
<th>Rank</th>
<th>City</th>
<th>Creative Workforce %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cupertino, CA</td>
<td>76.9</td>
</tr>
<tr>
<td>2</td>
<td>Palo Alto, CA</td>
<td>76.4</td>
</tr>
<tr>
<td>3</td>
<td>McLean, VA</td>
<td>75.5</td>
</tr>
<tr>
<td>4</td>
<td>Bethesda, MD</td>
<td>75.1</td>
</tr>
<tr>
<td>5</td>
<td>Brookline, MA</td>
<td>74.2</td>
</tr>
<tr>
<td>6</td>
<td>Potomac, MD</td>
<td>73.4</td>
</tr>
<tr>
<td>7</td>
<td>Cambridge, MA</td>
<td>69.7</td>
</tr>
<tr>
<td>8</td>
<td>Newton, MA</td>
<td>67.5</td>
</tr>
<tr>
<td>9</td>
<td>Arlington, VA</td>
<td>66.7</td>
</tr>
<tr>
<td>10</td>
<td>North Bethesda, MD</td>
<td>66.5</td>
</tr>
</tbody>
</table>

Creativity

Global Creative-Class Index (Florida, 2006)

The percent of creative workers in the U.S. is 23.6. (Ranked 11th)

Ranked higher than the U.S.

- Ireland (33.5)
- Estonia 30.2
- Belgium 30.4
- United Kingdom 29.7
- Australia 26.5
- Canada 25.6
- The Netherlands (29.5)
- Finland 24.7
- New Zealand (27.1)
- Iceland 24.1

Baylor University Center for Gifted Education and Talent Development
Importance of Creativity

The development of creative thinking, creative production, and creative dispositions ought to be a priority in education.

- Skills of creativity are more expected than ever in the current knowledge-based economy.
- The demands of the creative class workforce expect:
  a) Deep domain expertise
  b) Well-developed creative capacity
  c) Problem-solving, design, and innovation skills

Why is it difficult to teach for creativity?

Cognitive vs. Ornamental Creativity

One of the challenges for effectively teaching for creativity is focusing on cognitive creativity rather than ornamental creativity.

Integrated Creativity

- Students engage in creative thinking while learning.
- Creativity is not an end of unit activity, but rather it is integrated throughout the learning process.
- Thinking creatively helps students learn and apply learning at deeper levels.
- Thinking creatively prepares students to engage creatively with others.
The Challenge

Teach content or teach creative thinking

Strategies for Developing Creativity

- Establishing an environment to support creativity
- Eliminating suppressors of creativity
- Highlighting creative people
- Problem-finding
- Anchor projects
- Creative competitions
- Assessing for creativity
- Synectics and analogical thinking
- Modeling creativity

False Dichotomy

Teach content or teach creative thinking

Tactics for Developing Creativity

- Brainstorming
- I Wonder thinking
- SCAMPER
- What would happen if... techniques
- Visualization techniques
- Attribute listing
- Lateral thinking
- Questioning assumptions
- Considering the opposite
- Changing perspectives
- Borrowing, adapting, & stealing

Developing Creativity with Strategies and Tactics

Developing Creativity in the Classroom

Putting Creativity into Practice: Strategies

Developing Creativity in the Classroom
**Suppress - Develop Creativity**

One strategy to develop creativity is to intentionally eliminate or avoid suppressors of creative thinking.

**Teacher Behaviors that Suppress Creativity**

- Expecting a narrow band of performance.
- Giving too many directions or requirements.
- Presenting a product model to which everyone conforms.

**Ideas to Support Creative Thinking**

<table>
<thead>
<tr>
<th>Need Less of...</th>
<th>Need More of...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excessive Project Guidelines</td>
<td>Open-ended Project Parameters</td>
</tr>
<tr>
<td>One Right Way to Respond</td>
<td>Opportunities for Originality</td>
</tr>
<tr>
<td>Fast-paced Learning Environment</td>
<td>Including Time for Reflection, Curiosity, and Imagination</td>
</tr>
</tbody>
</table>

**Teacher Behaviors that Suppress Creativity**

- Dismissing students’ efforts to innovate.
- Placing a high value on conforming behaviors.
- Communicating that there is one right way to complete work.

**Highlight Creative People**

**Two Approaches for this Strategy:**

1. Infuse the curriculum with planned learning experiences about creative people in each discipline.
2. Seek examples in current media to serendipitously highlight creative thinking within and beyond the discipline.

**Learning Focus:**

- Provide students contextual examples of creativity in action.
- Humanize creators so that students can see themselves following those pathways including the failures and perseverance that accompany creative achievement.
- Inspire students with creative role models in math, science, and the arts.
Highlight Creative People

Regularly spotlight creative people (successes & failures) during class.

Make a list of creative people in your field to highlight.
• Who is creative in STEM fields?
• Who is creative in humanities?
• Who is creative in business and technology?
• Who is creative in the arts and pop culture?

Creativity Includes Analogical Thinking

My proposition: Imagination is like a snow cone.
Now we are going to compare/contrast imagination and snow cones.
Answer these questions with as much detail as possible.

How are imagination and snow cones alike?
How are imagination and snow cones different?

Creativity Includes Analogical Thinking

Participate with me in this example.
My proposition: Imagination is like a snow cone.

Describe Imagination
Describe a snow cone

Creativity Includes Analogical Thinking

My proposition: Imagination is like a snow cone.
Now we are going to personify the imagination and snow cones.

What is it like to be imagination?
What is it like to be a snow cone

Creativity Includes Analogical Thinking

My proposition: Imagination is like a snow cone.
Lastly, you propose a new comparison with imagination.

Imagination is like ______.

Synectics Teaching Strategy

Synectics is a strategy that can reinforce deep learning of content while also developing creative thinking capacity.

Specifically, synectics learning activities involve the following:
• Analogical thinking
• Divergent thinking
• Compare and contrast analysis
• Idea generation
Four Phases of Synectics

Phase 1: Direct Analogy
Exploring a New Concept with Analogy

- Teacher identifies the primary concept to be explored and establishes a direct comparison as an analogy.
- Example: Erosion is like a thief.
- Teacher asks students to describe characteristics of each element of the comparison (erosion and thief).

Four Phases of Synectics

Phase 2: Personal Analogy
Personification of the Comparison

- Students use their imagination to become each of the elements in the analogy and describe what it is like to be each element.
- Example: In the erosion is like a thief analogy, students describe in first person the experience of being erosion followed by describing in first person the experience of being a thief.

Four Phases of Synectics

Phase 3: Contrast Analogy
Compare and Contrast the Elements of the Analogy

- Students next describe how the two elements are not alike.
- After thoroughly exhausting how they are not alike, students again describe how they are alike.
- The return to alike comparison completes the compare and contrast thinking.

Four Phases of Synectics

Phase 4: New Analogy
Deepening Understanding by Creating a New Analogy

- Students create a new analogy to further explore the primary concept (e.g., erosion).
- Example: Erosion is like an onion.
- Students individually or in groups explore the new analogies that were proposed by the class.

Assess for Creative Thinking

Originality
The ability to generate new, different, and unique ideas that others are not likely to generate

Elaboration
The ability to expand on an idea by embellishing it with details or the ability to develop an intricate plan
Assess for Creative Thinking

Fluency
The ability to generate quantities of ideas

Flexibility
The ability to create different categories of ideas or the ability to perceive an idea from alternative points of view

Brainstorm Questions about Topics

Brainstorm Questions about Topics
Brainstorming with a twist...
How many questions can we generate about this topic?

Coming up with questions is practicing wonder, curiosity, and imagination.

Brainstorm Questions about Topics

Brainstorm Variations

Teleport Storming
• Imagine you are teleported to another place or into the past/future. What ideas might people generate in those other times and places.

Figure Storming
• Imagine ideas that someone might generate in this situation.

• Those someones could be common roles or famous people. For instance, the principle, your parents, your senator, or famous people like Albert Einstein, Bill Gates, Steve Jobs, Tom Izzo, or Jim Harbaugh.

Brainstorm Variations

Changing Your Attributes
• Students think of themselves with a changed attribute and then consider that new perspective to generate more ideas.

• Changed attributes might include: gender, race, age, size, background, etc.

Reverse Storming
• In this variation, students think about what most people would assume to be the response in the situation, then they generate ideas that are the opposite what would be common.

Brainstorm Variations

Brainstorming
Brainstorming has been a tactic for fluency for decades.

• Digital brainstorming tends to yield more responses and reduces the tendency to evaluate ideas as they are shared.

• Combine group and individual brainstorming to increase fluency.

• Consistently enforce the rules (No idea evaluation, no ridicule of ideas)

• Encourage, motivate, and praise idea generation.

Brainstorming Variations

Brainstorming Variations

Brainstorm Variations
MOU4 I think we can eliminate brainstorming... if we keep it maybe keep only slide 48 and 49... those are items I don’t think many have heard of...

Microsoft Office User, 11/6/2018
Visualization Techniques

Visualization involves creating mental images of something that cannot be seen or something that does not exist.

Artists, writers, inventors, architects, and engineers visualize regularly.

What are some major historical events and/or places that you can have your students visualize?

Require Students to Generate Ideas

The Ideal Act of Learning (Generative Pedagogy)

“Learning situations that are designed to promote creative productive giftedness, emphasize the use and application of information (content) and thinking processes in an integrative, inductive, and real-problem oriented manner.”

Joseph Renzulli

“Developing Creative Productivity in Young People”

Using the Taxonomy of Creative Thinking

Idea Generation
Idea Elaboration
Idea Connections
Problem Solving
Original Work

Using the Taxonomy of Creative Thinking

These statements of student expectations can be combined with your curriculum standards (TEKS).

5.7(C) identify alternative energy resources such as wind, solar, hydroelectric, geothermal, and biofuels (Grade 5 Science)

Creativity 4.1: Students will recognize and describe problems that could be solved.
Using the Taxonomy of Creative Thinking

5.7(C) identify alternative energy resources such as wind, solar, hydroelectric, geothermal, and biofuels (Grade 5 Science)

Creativity 4.1: Students will recognize and describe problems that could be solved.

Students will recognize and describe problems that could be solved with alternative energy resources such as...

Using the Taxonomy of Creative Thinking

The student understands the factors of production in a society’s economy. The student is expected to:

(A) describe ways in which the factors of production (natural resources, labor, capital, and entrepreneurs) influence the economies of various contemporary societies; (Grade 6 Social Studies)

Creativity 1.2: Students will effectively use a wide range of idea creation techniques (e.g. brainstorming) to come of original ways in which factors of production influence the economies.

Creative Pedagogy Standards for Teachers

These 12 knowledge and skills standards outline a pathway of professional learning to continue building your skills as a teacher.

Learning is a journey, not a destination.