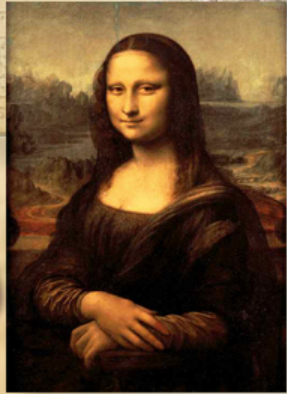




Learning to Innovate from Leonardo Da Vinci

**ASQ Section 0511
August 14, 2019**

Michael J. Novak



Learning from Leonardo (Da Vinci, Not DiCaprio)

**Virginia Forum for Excellence
September 11, 2012**

**Michael J. Novak
Maryland Performance Excellence Awards Program**



Innovation – Using the Techniques of Leonardo Da Vinci

**Keystone Alliance for
Performance Excellence
November 19, 2014**

**Michael J. Novak
Maryland Performance Excellence Awards Program**



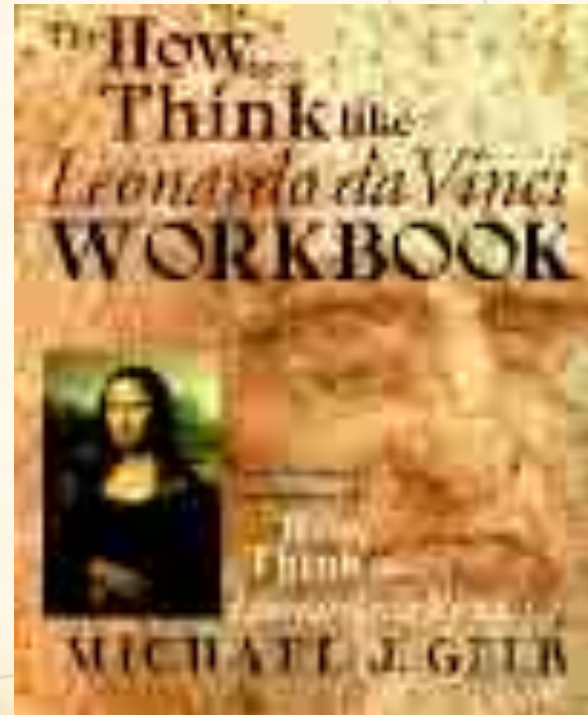
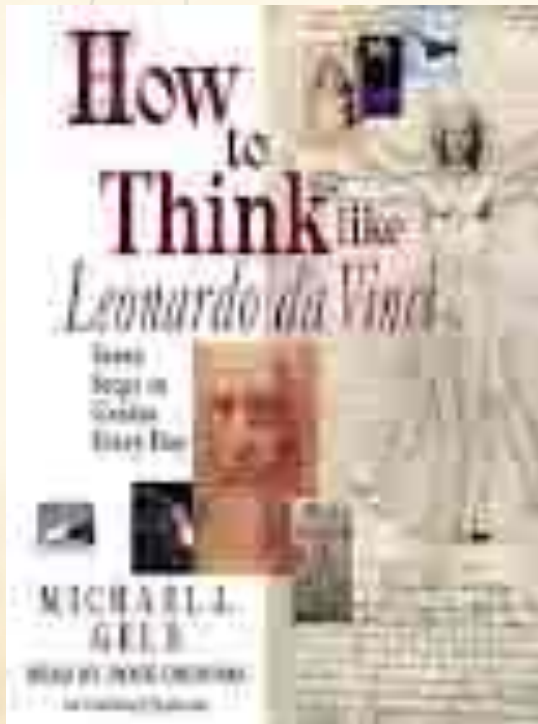
Innovating Like Da Vinci

KMWorld
November 4, 2015

Michael J. Novak
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Acknowledgments: Primary Resources





Overview

- **Leonardo Da Vinci – Some Innovative Accomplishments**
- **Leonardo’s Seven Principles**
- **Applying the Seven Principles**
- **Constructing a “Seven Principles Journal”**
 - **Journal Entries**
 - **Exercises – Practicing Leonardo’s Principles and taking them to the Real World**



Leonardo Da Vinci

- **Born 1452; died 1519**
- **Artist – Mona Lisa, The Last Supper**
- **Scientist – Designed a flying machine, helicopter, parachute, extendable ladder, bicycle, snorkel, folding furniture**
- **Engineer – Plans for armored tank, machine gun, mortar, submarine**



The Seven Da Vincian Principles

- **Curiosita**
- **Dimostrazione**
- **Sensazione**
- **Sfumato**
- **Arte/Scienza**
- **Corporalita**
- **Connessione**



Curiosita

- **An insatiably curious approach to life and an unrelenting quest for continuous learning**
- **Builds upon the natural impulse to be curious**
- **Leonardo as a child – curious about the world around him: nature, mathematics**
- **Leonardo as an adult – curious about practically everything**



Curiosita – A Quote from an Old Star Trek Book

- **Kirk: What are you interested in?**
- **Spock: Everything. Anything less would be an insult to the intellect.**



Applying Curiosita

- **Keep a journal – Leonardo did.**
 - 100 questions that are important to you
 - Top ten list of questions
- **Develop key themes – one per day/week/etc.**
 - Overarching categories from your 100 questions
- **Contemplation**
 - Refer to your questions and/or themes.

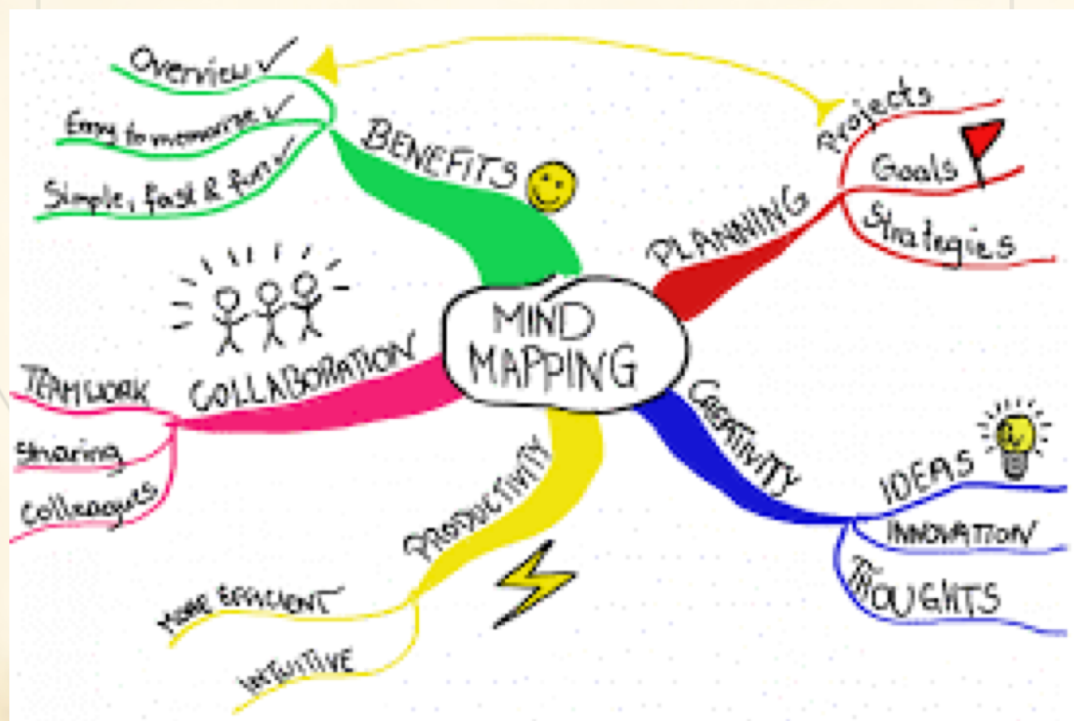


Applying Curiosita

- **Stream of Consciousness (a.k.a. mindmapping)**
- **Curiosita and innovative problem solving**
 - **What, who, when, where**
 - **How, why**
 - **“The answer is in the question.” Or is it?**



Applying Curiosity – Mindmapping





Applying Curiosita

- **Curiosita and continuous learning**
 - **What if ...? – Contingency Planning; Risk Analysis and Management**
 - **Realize your ideal hobby – how will it benefit me?**
 - **Learn a new language**
 - **Nurture your Emotional Intelligence – “Know thyself”**



Curiosita – Exercise

- **What were you curious about as a child?**
- **What are you curious about now?**
- **Is there a difference? Why or why not?**



Curiosita Exercise and Homework

- **Exercise: What are you not curious about? Tell us.**
- **Homework: What are you not curious about? Find out about it.**



Dimostrazione

- **A commitment to test knowledge through experience, persistence, and a willingness to learn from mistakes**
- **Deming: “How do you know that?” – PDCA**
- **Baldrige Scoring Dimension, “Learning” – continuous cycles of evaluation and improvement**
- **Self-assessment – How well do you acknowledge your mistakes and learn from them?**



Applying Dimostrazione

- **What would you consider the most influential experience(s) of your life?**
- **What are your fundamental beliefs?**
 - **What are the reasons you hold those beliefs?**
 - **Have they changed based on your life experiences?**
- **Dimostrazione and Advertising**
 - **How vulnerable are you to advertising?**
 - **Do you ever “fact check” an advertisement’s claims?**



Applying Dimostrazione

- **Learn from mistakes and from adversity.**
- **Create self-affirmations – “I am ... [some good quality].”**
- **Learn from “Anti-Role Models.”**



Sensazione

- **The continual refinement of the senses, especially sight, as the means to enliven experience**
- **The better your senses, the more you can sense.**
 - **The more you can sense, the more information you can bring to bear on innovation.**



Sensazione

- **Yogi Berra: “You can see a lot just by observing.”**
- **Leonardo: The senses are the keys to opening the doors of experience.**
 - Sensazione is the catalyst for Dimostrazione.
- **We know about Active Listening.**
 - There is also active seeing, active smelling, active tasting, active feeling.



Sensazione

- **Be wary of distracting background sensory stimuli – loud noise, bright lights, strong smells, bad-tasting foods, rough or sharp objects.**
- **Sensazione is a right-brain activity.**
 - **Left-brain-dominant people need to consciously work on developing it.**



Sfumato – literally, “Going up in smoke”

- **A willingness to embrace ambiguity, paradox, contradiction, and uncertainty**
- **Ability to face the unknown**
- **Keeping your mind open in the face of uncertainty is the single most powerful secret of unleashing your innovative potential.**
 - **Sfumato is the key to that openness.**



Arte/Scienza

- **The development of the balance between science and art, logic and imagination – “whole-brain thinking”**
- **Leonardo: Art and science are inseparable; “Study the science of art, and the art of science.”**
- **Achieving a balance between art and science through mindmapping – as opposed to outlining and linear note-taking**



Applying Arte/Scienza

- **Learn mindmapping**
- **Practice mindmapping skills**



Corporalita

- **The cultivation of grace, ambidexterity, fitness, and poise**
- **Healthy body => health mind**



Applying Corporalita

- **Develop a physical fitness program.**
- **Watch your diet.**
- **Get enough rest.**
- **Avoid stress.**
- **Have regular medical checkups.**
- **Cultivate ambidexterity.**
- **Learn to juggle – or something else that requires coordination (e.g., walking and chewing gum).**



Connessione

- **A recognition of and appreciation for the interconnections of all things and phenomena**
- **This is what the Baldrige approach to organizational improvement is all about – seeing the interconnections of policies, programs, processes, and results.**
- **Discern ripple effects, especially unintended/unforeseen consequences, the “butterfly effect.”**



Applying Connessione

- **Identify relationships among seemingly disparate things.**
- **Have imaginary dialogues.**
- **Think about interconnections among things.**
- **Think about the creation/origin of things, ideas, processes.**
- **Think about how large-scale things are reflected in microcosm – and vice versa.**



Final Exercise

- **Using one or more of Leonardo's seven principles, list 100 uses for a common paper clip.**



Summary

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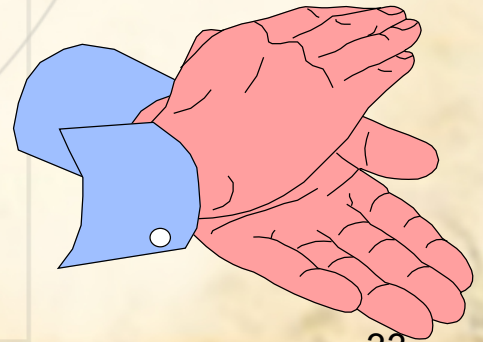
Questions?





Thank You!

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**GO
NAVY!**

**BEAT
ARMY!**