

1.3.2. The Medici Effect

CEIE 896 “Design and Inventive Engineering”

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RENAISSANCE

- Began second part of 15th century
- Rinascimento in Italian:
the revival (of classical ideas of human power and potentiality)
- Cultural, intellectual and social transformations driven by capitalism
- Ascetics of Middle Ages versus “consumerism” of Renaissance

WHY RENAISSANCE?

- Black Death (Bubonic plague) in the 14th century
- Rapid death of about 50% of population
- Religious, philosophical and emotional paradigm change
- Wealth concentration

Treasure Ship



RENAISSANCE: MAJOR FEATURES

- Social changes
- Scientific discoveries
- Geographic discoveries
- Inventions
- Art revolution

SOCIAL CHANGES

- Humanism - focus on preoccupation with man in relation to human society rather than to God
- Growing role of women
- Decline of feudalism
- Beginning of capitalism
- International trade (globalization)
- Interest in arts, fine arts, literature

SCIENTIFIC DISCOVERIES

Astronomy:

- Sun planetary system (Mikolaj Kopernik)
- Dynamics of a planetary system (Johannes Kepler)

GEOGRAPHIC DISCOVERIES

- Spanish explorers:
 - Columbus - North America
- Portugal explorers:
 - Vasco da Gama - West Coast of Africa
 - Henry the Navigator - Atlantic exploration along the west coast of Africa
- Dutch explorers:
 - Krzysztof Arciszewski - Brazil

MAJOR FIGURES

- Columbus (an explorer)
- Mikolaj Kopernik
(an astronomer)
- Leonardo Da Vinci
(an engineer)
- William Shakespeare (a poet)

Alberti, Copernicus, Galilei



PARADIGM CHANGE

Significant changes in all areas of life in various European societies leading to new understanding of science, religion, art, and, most importantly, to an **entirely new attitude to life based on the assumptions of unlimited human potential and of the importance of joy of life**

THE MEDICIS

- A very wealthy banking family
- Florence, Italy, 15th century
- Funded creators in many disciplines:
 - Architects
 - Painters
 - Scientists
 - Philosophers

MEDICI



THE MEDICI PHENOMENON/ EFFECT

- Congregation of creators
- A creative community
- Human interactions, exchange of ideas, mutual inspiration and learning, breaking barriers between disciplines and cultures
- Connecting/intersecting disciplines to produce creative insights
- Creating intersections

CREATING THE MEDICI EFFECT

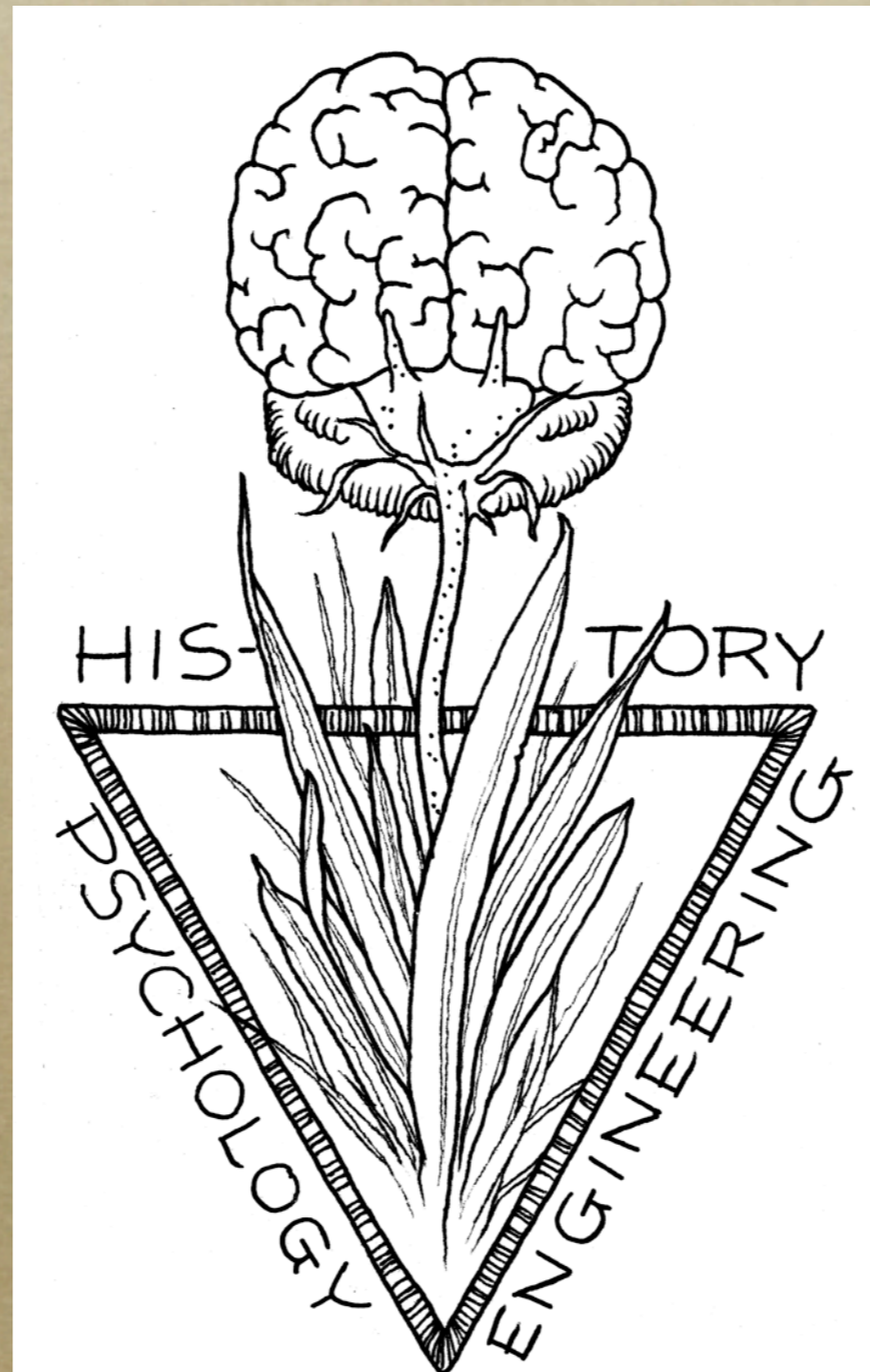
- Breaking down the barriers between fields (Swedish and Mexican food)
- Breaking associative barriers (changing the context, situated learning, vector of inertia)
 - A brick and a wall versus a brick and an energy accumulator
- Gould (a prominent zoologist) and Darwin
- Local versus global thinking style

INTERSECTION

Time and place specific unique combinations of:

- Fields
- Disciplines
- Cultures
- Personalities
- Languages

Intersection



INTERSECTION EXAMPLES

- Mick Pearee, an architect in Harare, Zimbabwe
- A challenge to build an office building without air conditioning
- Solution at the intersection of:
 - Architecture
 - Biology, how termites cool their nests (constant 87 F degrees)
- Creative solution:
 - Use of wet mud to cool the air
 - Use of winds to distribute cool air

INTERSECTION EXAMPLES

- 2002, Brown University, Rhode Island
- A rhesus monkey is trained to play a computer game controlling the cursor mentally
- Deliberate effort to find an intersection of disciplines
- Research group focused on understanding how the brain works:
 - Mathematicians
 - MDs
 - Neuroscientists
 - Computer scientists
- GMU Krasnow Institute for Advanced Study

INTERSECTION DRIVERS

- Movement of people
- Convergence of science (disciplines coming together)
- Leap of computation (simulation, distributed computing, etc.)

HOW TO BREAK BARRIERS

- Expose yourself to a range of cultures (and languages)
- Learn differently (self-education and broad learning experience in several fields)
- Reverse assumptions
- Take multiple perspectives

EXPECT THE UNEXPECTED

- Break barriers
- Create Intersection
- Create a flood of ideas
- Control your fears of risks

DIRECTIONAL VERSUS INTERSECTIONAL IDEAS

- **Directional Ideas:**
 - Produced within a single domain
 - Result of evolution
 - Following the inertia vector
- **Intersectional Ideas:**
 - Produced at the intersection of at least two domains
 - Result of revolution (paradigm change)
 - Changing the direction of evolution

CREATIVE VERSUS INNOVATIVE IDEAS

- Creative ideas: unknown, (to the creator or the field), relevant, potentially useful, surprising
- Innovative ideas: creative ideas already implemented

CONCLUSIONS

- Understanding the Medici Effect allows its recreation
- The Medici Effect is crucial for creation of a creative community
- Intersection is the fundamental mechanism of creativity