Unveiling the Secret of Creativity
- Study of Psychologist Csikszentmihalyi

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Outline

• *Mihaly Csikszentmihaly and His Theory*
• Creativity: the Psychology of Discovery and Invention
• Creative Society
• Creative Organization
• Creative Person
• Summary and Comments
Mihaly Csikszentmihalyi
Video: Theory of Flow
Happiness vs Income

United States

Average Income

Very Happy People

USD


5,000 10,000 15,000 20,000 25,000 30,000 35,000 40,000

%
Theory of Flow

Challenge

Anxiety

Flow

Ecstasy

Apathy

Boredom

Skill
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Creativity: Flow and the Psychology of Discovery and Invention

• Interviewed 91 creative people (Nobel Prize level), including scientists, writers, poets, musicians, artists, inventors, executives
• Illustrates
  • how creative process works
  • what creative people are like
  • what conditions encourage or hinder creativity
• Result of research on creativity in 30 years
Three Elements of Creativity

• Creativity cannot be understood by looking only at people who appear to make it happen.

• Creativity = results from system consists of
  – Domain: culture that contains symbolic rules
  – Field: field of experts who recognize and validate innovation
  – Individual: person who brings novelty to the symbolic domain
Creativity

- Creativity is any idea, act, product that changes an existing domain or that transforms an existing domain into a new one.
  cf., perpetual motion machines
- A domain cannot be changed without explicit or implicit consent of the field responsible for it.
  cf., collectors, critics, curators, government officials in art
- Creative person is someone whose thoughts or actions change a domain, or establish a new domain.
  cf., Freud started Psychoanalytic, Galileo Galilei started Experimental Science
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Creativity in Renaissance

• Spurt in artistic creativity in Florence between 1400 and 1425
• Domain: rediscovery of ancient Roman methods of building and sculpting that had been lost for centuries
• Field:
  – favorable to the creation of new works
  – one of the richest cities, with successful manufacturers and banks
  – leaders decided to make Florence most beautiful city in the world
  – leaders became intensively involved in the processing of encouraging, evaluating, and selecting works
Construction of “Gate of Paradise”

- A special commission was formed
- Decided each door is of bronze and has ten panels from old testament themes
- Requested opinions from scholars in Europe
- Drew up specifications for the doors
- Announced competition for design
- Chose five finalists
- Five finalists spent a year to mock-up, famous Brunelleschi was among them, they were paid very well
- The commission selected 21 year old Ghiberti’s proposal
- Ghiberti spent 47 years to finish the two doors
Gate of Paradise at Florence Baptistery

Lorenzo Ghiberti
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Creative Organization

• The right milieu is important in more ways than one. It can affect the production of novelty as well as its acceptance; therefore, it is not surprising that creative individuals tend to gravitate toward centers of vital activity, where their work has the chance of succeeding.

• American corporations spend a great deal of money and time to increase the originality of their employees. But such a programs make no difference unless management also learns to recognize the valuable ideas among the many novel ones, and then finds ways of implementing them.
Importance of Surrounding

• The place where one lives is important for three main reasons.

• The first is that one must be in a position to access the domain in which one plans to work. Information is not distributed evenly in space but is clumped in different geographical nodes.

• The second reason why a place may help creativity is that novel stimulation is not evenly distributed. Science, even more than art, is a collective enterprise where information grows much faster in “hot spots” where the thought of one person builds on that of many others. And then there are places that inhibit the generation of novelty.

• Finally, access to the field is not evenly distributed in space.
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Creative Person

• There are bright persons who express unusual thoughts, who are interesting and stimulating. Unless they also contribute something of permanent significance, these people must be called brilliant rather than creative.

• There are people who experience the world in novel and original ways. Their perceptions are fresh, their judgments are insightful. They are people personally creative.

• There are people who changed our culture in some important respect. They are creative persons without qualifications.
Creative Person

• We don’t need to assume that a creative person is necessarily different from anyone else.
• What counts is whether the novelty he or she produces is accepted for inclusion in the domain. This may be the result of chance, perseverance, or being at the right place at the right time.
• The trait of personal creativity may help generate the novelty that will change a domain, but it is neither a sufficient nor a necessary condition for it.
• IQ may not be the most important factor. Later studies suggest that the cutoff point is around 120.
Luck and Creativity

• When we asked creative persons what explains their success, perhaps the most frequent answer was that they were lucky.

• Creativity is facilitated by a genetic predisposition

• A person also needs access to a domain. Luck does play a big role. Being born in an affluent family or being close to good schools, mentors, and coaches obviously is a great advantage.

• Access to a field is equally important.
Curiosity and Creativity

• Creative persons differ from one another in a variety of ways, but in one respect they are unanimous: They all love what they do. It is not the hope of achieving fame or making money that drives them; rather, it is the opportunity to do the work that they enjoy doing.

• Without a good dose of curiosity wonder and interest in what things are like and in how they work, it is difficult to recognize an interesting problem.
Attention and Creativity

• A great deal of our limited supply of attention is committed to the tasks of surviving from one day to the next.

• The amount of attention left over for learning a symbolic domain is a fraction of this already small amount.

• Diffused thinking leads to lack of concentration. Creativity is only possible when we are able to focus on the problem at hand.
Childhood of Creative Person

• Children can show tremendous talent, but they cannot be creative. Mozart had to spend at least a decade mastering the domain of musical composition.

• The creative people had tremendous interest, a burning curiosity, concerning at least one aspect of their environment, and generally it lasted all through the person’s life.

• Perhaps each child becomes interested in pursuing whatever activity gives him or her an edge in the competition for resources.

• In some cases, the competitive edge is the result of the child’s heredity.
Practice of Creative Person

• First, you have to have a tremendous amount of information—a big database if you like to be fancy. If you’re a musician, you should know a lot about music, that is, you’ve heard music, you remember music, you could repeat a song if you have to.

• Then you have to be willing to pull the ideas, because you’re interested. There are people like myself who like to do it. It’s fun to come up with an idea, and if nobody wants it, I don’t give a damn. It’s just fun to come up with something strange and different.

• Finally, he focuses on how important it is to reproduce in one’s mind the criteria of judgment that the field uses: And then you must have the ability to get rid of the trash which you think of.
Personalities of Creative People

• Creative individuals have a great deal of physical energy, but they are also often quiet and at rest.

• Creative individuals tend to be smart, yet also naive at the same time. People who bring about an acceptable novelty in a domain seem able to use well two opposite ways of thinking: the convergent and the divergent.

• A third paradoxical trait refers to the related combination of playfulness and discipline, or responsibility and irresponsibility. But this playfulness doesn’t go very far without its antithesis, a quality of doggedness, endurance, perseverance.
Personalities of Creative People

• Creative individuals alternate between imagination and fantasy at one end, and a rooted sense of reality at the other.

• Creative people seem to harbor opposite tendencies on the continuum between extroversion and introversion.

• Creative individuals are also remarkably humble and proud at the same time.

• When tests of masculinity/femininity are given to young people, over and over one finds that creative and talented girls are more dominant and tough than other girls, and creative boys are more sensitive and less aggressive than their male peers.
Personalities of Creative People

• Generally, creative people are thought to be rebellious and independent. Yet it is impossible to be creative without having first internalized a domain of culture. And a person must believe in the importance of such a domain in order to learn its rules; hence, he or she must be to a certain extent a traditionalist.

• Most creative persons are very passionate about their work, yet they can be extremely objective about it as well.

• Finally, the openness and sensitivity of creative individuals often exposes them to suffering and pain yet also a great deal of enjoyment.
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Summary

• Three elements of creativity: domain, field, individual
• Creative society: rational evaluation system, including competition mechanism, selection criteria, merit system
• Creative organization: rational evaluation and implementation system, connection to domain and field, stimulating environment
• Creative person: contribution to domain, luck, curiosity, attention, complex personalities
• Process of creativity: accumulate domain knowledge → think openly → think critically
• Education: discover child’s talent, stimulate child’s interest
• Happiness: create own flow
Comments

- Key for building creative society: reasonable evaluation and management system
- Key for building creative organization: connecting with domain and field, stimulating environment
- Definition of good research: meaningful contribution to the domain
- Purpose of writing papers is to make sufficient contribution to the domain
- Number of citations, h-index, etc are only metrics
Comments

• Criteria for significant innovation: practical verification, theoretical foundation, simplicity, usefulness (for engineering)
• Two important abilities: think deeply, and think out of box
• Two important factors for becoming deep thinker: strong interest and good environment
• Important factor for becoming out-of-box thinker: trying to think in different ways (only one vs number one)
• Creative thinking is performed in sub-conciseness, flow of energy, pain and joy of creativity - Karl Jung
• Creative people have changed their own traits to become creative, e.g., introvert vs extrovert
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Thank you!