

## **Creativity: Flow and the Psychology of Discovery and Invention**

Mihaly Csikszentmihalyi (HarperCollins 1996)  
Read Dec 2003

### **One: setting the stage**

Vera Rubin (Astronomer)'s story

#### **EVOLUTION IN BIOLOGY AND CULTURE**

(My interpretation – can be used as the basis for an article:  
The Age of Creation)

For most of human history,

It was presumed that Gods created man  
Humans were helpless, puny things

Now,

It's presumed (by the cognoscenti at least) that man created  
god(s)

We create everything

#### **ATTENTION AND CREATIVITY**

Attention is a limited resource

Creativity requires lots of attention

As culture evolves, specialized knowledge will be favored over  
generalized knowledge

Creative individuals are often seen as odd, arrogant, selfish,  
and ruthless

Not really so. Seem to be the opposite, yet some “selfishness”  
required

#### **WHY STUDY CREATIVITY?**

Creativity enriches the culture and the quality of life

one of the most exciting models for living  
But, not really much support for it

#### **TOO GOOD TO BE TRUE**

Not really so. Seem to be the opposite, yet some “selfishness”  
required

## **Part I. The Creative Process**

### **Two: Where is Creativity?**

#### **THE SYSTEMS MODEL**

Domain: A set of symbolic rules and procedures

e.g., Mathematics

Nested in Culture

Field:

Gatekeepers

e.g., in visual arts: curators, art teachers

Individual person

Definition of Creativity

When a person has an idea in a domain that the gatekeepers  
select for inclusion ...

Or Galileo or Freud developing a New Domain from existing  
ones

#### **CREATIVITY IN THE RENAISSANCE**

#### **DOMAINS OF KNOWLEDGE AND ACTION**

Symbolic worlds that let us see more than we could by biology  
alone

Few bother to learn the rules

For most of us, a way to make a living; for others, a perfect match which people pursue for their own sake:

Why people pursue for their own sake

to bring order to an experience  
to make something that will endure (beyond death)  
to extend the power of humanity

Domains can help or hinder creativity in three ways

Consider pharmaceutical company A and pharmaceutical company B

*Clarity of structure*

Which company has more detailed data?  
Where is the data better organized?

*Centrality within culture*

Which company puts more emphasis on research?  
Where does knowledge earn more respect?

*Accessibility*

Which company disseminates knowledge better?  
Where is it easier to test a hypothesis?

Differences in domains

*Tightness of symbolic structure*

Math and physics have Tight symbolic structure. Easier to master and easier to assess  
Social science and philosophy much looser. Decades to master; decades to assess.

*Knowledge?*

**FIELDS OF ACCOMPLISHMENT**

Only a tiny percentage of novelties become part of a culture.  
Fierce competition between memes

Culture exists when a majority agrees that X is worth more attention than Y

Fields act as filters

Stieglitz on the importance of convincing colleagues.

Differences in fields

*Inclusivity*

Four people understood Einstein  
The whole society evaluated New Coke

Fields can help or hinder creativity in three ways

*Reactive or proactive:*

Does it encourage (Florence in renaissance) or resist [pharaoh's Egypt]

*Narrow or broad filter:*

Some fields are conservative (few new ideas at any time); some fields liberal (many ideas)  
At extremes, risk from too little or too much novelty.

*Give an example?*

*Connectedness to larger culture:*

Money and support.

Interaction of Domains and fields

In science, domains limit what the field can do.

In the arts, the field decides

Sometimes incompetent fields control domains (church Galileo. Fundamentalists teaching evolution; communists control art, science, business...)

Sometimes fields cannot represent domains well—Philosophy?

**CONTRIBUTION OF PERSONS**

Mostly luck

## INTERNALIZING THE SYSTEM

Jacob Rabinow inventor:

You need three things to be an original thinker:

Lot of knowledge: What's been tried? What's worked?  
(domain)

Do what's easy. Don't do what's hard. Eventually you become good at one thing and lousy at everything else.

Willing to do the work – because you *like it*: You can't just be doing things as a favor (*person*)

ability to get rid of junk, and then when you see a good one, you know to pursue it (the criteria of judgment the *field* uses)

And then you must have an ability to get rid of the trash that you think of. You cannot think only of good ideas or write only beautiful music. You must think of a lot of music, a lot of ideas, a lot of poetry, a lot of whatever. And if you're good you must be able to throw out the junk immediately without even seeing it. In other words, you must get many ideas appearing, and you discard them because you're well trained and you say "that's junk." And when you see the good ones you say, "oops, that sounds interesting. Let me pursue that a little further." And you start developing it. Now people don't like this explanation. They say, "What? you think of junk?" I say "yes, you must." You cannot a priori think only of good ideas. You cannot think only of great symphonies. Some people do it very rapidly and this is a matter of training... (p 49)

## Three: The Creative Personality

What kind of person?

John Reed of Citibank: No common factors in who can run businesses

*Would Rakesh and those who study leadership agree?*

Likewise for science – as long as you play by the rules

*Do discoverers all play by the rules? Doesn't Nietzsche break the rules? Doesn't Machiavelli discuss this directly? The winner makes the rules.*

Genetic predisposing? Seems logical, but El Greco, Beethoven.

Early *Interest* in a domain. John Wheeler, historian Natalie

Davis

Access to a domain. Cultural capital (Bourdieu)

Access to a field. Highly restricted; connections, irrelevant factors important

## THE TEN DIMENSIONS OF COMPLEXITY (55)

Not much to say about The Creative Personality ... tremendous variation

When assumed (sullen, introverts in the 60s), it's wrong.

[Proposition]: Creative people are *Complex*

Each contains "a multitude", embodying e.g., aggression and cooperation

Do not consider parts "good" or "bad"

Carl Jung's mature personality: owns up to one's shadows.

1. much physical energy, but often quiet & at rest

Driven by internal clock

Davies: taking a nap

Sexuality: healthy libidos matched with celibate restraint.

2. Intelligence + naïveté

Goethe: naïveté is the most important attribute of genius

Howard Gardner: wisdom & childishness

Convergent thinking v. divergent thinking: less a matter of having new ideas than seeing them through ... and discarding junk.

Playfulness + discipline

Nina Holton: the hard work of sculpture

Jacob Rabinow: "I pretend I'm in jail"

That's what I do, too -- pretend I'm in jail – my prison cell at  
the library!  
Staying up all night?

Imagination/fantasy + realismExtraversion + IntraversionHumble + proudMasculine + feminineIndependent/rebellious + conservative/traditionalPassion + objectivitySuffering/pain + enjoyment*Suffering/pain*

1. Inventors have a low threshold of pain: things bother them
  2. Eminence invites attack
  3. High rates of psychopathology & addiction
- Poet Mark Strand: sensitivity to the world around them

*Enjoyment*

Butler: the fun of science

Summary

Hard to find these opposites in people, but both are needed:  
One pole to recognize new ideas  
The second pole to develop ideas to the point of getting them  
accepted

**Four: The Work of Creativity****THE WRITING OF A STORY**

Author Grazia Livi:

Traditional "creative process"

Phase 1. preparation: immersion in a set of problems e.g.,  
emotional quandary of the modern woman: tough at work,  
feminine at home

Phase 2. incubation: unusual connections are made

Phase 3. insight:

Phase 4. evaluation: As Grazia Livi sifts thru her log to  
determine what's important

Phase 5. elaboration

Freeman Dyson's explanation of electrodynamics:

**THE EMERGENCE OF PROBLEMS****Life as a source of problems**

[the person – he does not include it because the motif should  
be apparent by now]

Grazia Livi's struggle as a career woman

Poets record daily feelings

Artists note interesting visuals

Scientists may feel awe at nature or the workings of man.

Donald Campbell has an endless list of problems to explore

**The influence of past knowledge**

[the domain]

Painters in the 60s had to do abstract expressionism or rebel  
against it

Holton on the problems of his domain (logical positivism)

Domains that are too narrow: Manfred Eigen on bridging  
domains

Domains that are no longer relevant. Barry Commoner.

Creating new domain of ecological concerns.

Impara l'arte e metilla da parte.

## The pressures of the human environment

[the field]

The influence of teachers and colleagues

*Organizational contexts*

John Reed continually confers with others

Robert Galvin (Motorola) orchestrates the efforts of his workforce

New organizations: Barry Commoner, Hazel Henderson (ecological concerns) John Gardner (Common Cause)

*Organizational embedded in larger groups and processes*

Great depression --> economists.

WW II --> physicists

Military needs --> IQ tests then creativity tests

For arts: problems and forces in society, e.g., Disillusionment after WW I.

## PRESENTED AND DISCOVERED PROBLEMS

Presented Problems are easier and quicker to solve.

Einstein: important problems are Discovered Problems, e.g. walkie-talkies, Evolution.

### THE MYSTERIOUS TIME

All agree idle time is important.

## The functions of idle time

What happens during incubation? Conscious problem solving looks for direct solutions; during incubation the mind “free associates” giving rise to possibility of new formulations.

Parallel processing rather than serial processing?

## The Field, the Domain, and the unconscious

Even in idle time The Field and the Domain are important.

Sometimes, you’re using part of the domain to correct another part (Offner’s jet engine controls)

## THE “AHA!” EXPERIENCE

A subconscious connection fits so well that it’s forced to pop into consciousness.

## THE 99 PERCENT PERSPIRATION

Four conditions to the final part of the process:  
pay attention to the developing work—keep flexible  
pay attention to goals and feelings about it – is the work proceeding as intended

keep in touch with domain knowledge: best techniques, theories ...

most important in late stages, listen to the field– interact

## Five: The Flow of Creativity

Jacob Rabinow: “You invent for the hell of it.”

Naguib Haufetz: “I love my work more than I love what it produces.”

Same sentiments in every single interview

*That’s hard to believe. Enjoy writing? Not everyone does; certainly I don’t; I like the output. Perhaps I just that I haven’t quite found my niche?*

## PROGRAMMED FOR CREATIVITY

An evolutionary logic to create some members of the species with a love of discovery, and others to nurture them

Also a logic of entropy – to curl up and conserve energy

Most prefer entropy; a few, like those in the book, respond more to the rewards of creation.

## WHAT IS ENJOYMENT

Flow! Which comes from: clear goals, immediate feedback  
balance between challenge and skill, action and awareness  
merged, distractions excluded from consciousness, no  
worry of failure, self-consciousness disappears, sense of  
time becomes distorted, the activity becomes autotelic

## THE CONDITIONS FOR FLOW IN CREATIVITY

Clear goals

Immediate feedback

Balance between challenge and skill

Action and awareness merged

Distractions excluded from consciousness

No worry of failure

Self-consciousness disappears

Sense of time becomes distorted

The activity becomes autotelic

Only the first two or three are "action items."

## FLOW AND HAPPINESS

Flow --> happiness directly because if one's life is enjoyable,  
then happy

Flow --> happiness indirectly when engaged in activities that  
lead to satisfaction (pleasure leads to addiction)

## FLOW AND THE EVOLUTION OF CONSCIOUSNESS

People enjoy different things all of which create similar  
sensations of well being.

Does that mean all forms of enjoyment are equally worth  
pursuing?

Plato said the most important task for a society is to teach the  
young to find pleasure in the right things.

Certainly some truth: Better to learn to enjoy, for example,  
reading than stealing, athletic activity than sadomasochism  
... but why, and how to determine?

The problem is that it's easier to find pleasure in things that  
*are* easier like sex and eating which is already programmed  
into our genes. Making money, building palaces are also  
embedded in our physiology. It's more difficult to learn to  
enjoy manipulating symbolic systems (math and science  
music, learning).

Can be used in my video game argument

Schools are poor in teaching pleasure in the right things. They  
kill pleasure.

The best argument yet for private school

## Six: Creative Surroundings

Creative people give their surroundings a personal pattern that  
echoes the rhythm of their thoughts, a place where they can  
forget the world and pursue their Muse.

## BEING IN THE RIGHT PLACE

### Access to the domain

Knowledge is not equally distributed. There is usually a best  
place to learn something ... where a domain's colleagues  
congregate.

### Novel stimulation

Novel stimulation is not equally distributed. New ideas, cutting  
edge colleagues lead to creativity.

George Stigler: University of Chicago [discussed in field, but belongs here]

John Bardeen: Bell Labs and then University of Illinois [discussed in field, but belongs here]

On the other hand... Business organizations, even universities may inhibit creativity through demands for conformity.

#### Access to the field

Access to the field is not equally distributed.

Money --> University of Chicago, University of Texas

Don Campbell ... sometimes better to resist the money and corresponding demands. Work somewhere that permits freedom.

What place ultimately depends on an entire personal choice and configuration.

### **INSPIRING ENVIRONMENTS**

Evidence suggests beautiful places --> creativity.

Csikszentmihalyi, Nietzsche, John Reed, etc ...

A possible explanation: Creativity is highest during semiautonomic activities.

Beautiful places do not demand all one's attention, but suggest novel connections

Another creativity-producing environment: (political?) Prisons

### **CREATING CREATIVE ENVIRONMENTS**

Beautiful places catalyze the moment of insight

Preparation and evaluation benefit from familiar, comfortable settings

Macroenvironment v. Microenvironment

Examples:

K Boulding: a cabin overlooking the rockies

Hazel Henderson: runs, pretty place in N. Fla where things are in harmony.

Davies looks down on Toronto.

E Boulding: early morn walk & reflection

Pekka: the Lapp who needs serenity and harmony

Elisabeth Noelle-Neumann. Office, car, etc... all set for work and pleasure

Supportive symbolic ecology:

Women on different floors of the expensive hi-rise

To me, this takes time & effort I'd rather put into work

Car is the modern castle:

### **PATERING ACTIVITIES**

Elisabeth Noelle-Neumann: particular eating times w strict schedule

Richard stern: a rhythm

What matters most is that we shape the immediate surroundings, a activities and schedules to feel in harmony with the small segment of the universe in which we're located.

Where you work and live reflectgs your needs and tastes.

Room for stimulating novelty and concertrated activity.

Objects should help you become who you intend to be

Use your time how you want; with rhythms that work best for you.

Experiment to find what works best.

Creativity may be beyond our control; a creativite personal life is not.

## **Part II. The Lives**

### **Seven: The Early Years**

Key: Personal resolution to shape their lives to suit their goals, rather than being dictated by external factors

*I wonder: Success, at least, has seemed to me the product of pursuing goals valued by others: so either one happens to share goals consistent with those sought by the world or in fact, one is being shaped by it. A possible distinction between success and creativity? Although, still his definition of creativity would dictate these congruent goals. Shaping one's life to suit their goals is hardly likely to breed worldly acclaim, is it?*

#### **CHILDHOOD AND YOUTH**

Legend has it ... Giotto

No basis in historical document

Reflects a psychological need for predictability

*I wonder: Perhaps an egoistical need to excuse ourselves for lack of creativity, for not taking control of our lives.*

#### **Prodigious curiosity**

Hard to find any pattern

Einstein, Churchill, Tolstoy, Kafka & Proust did not impress their elders

Creativity first displayed throughout the lifetime.

Not prodigies, but prodigious curiosity

Reisman: what drives me is curiosity.

Memories, in this case, seem genuine. Evidence

Where does intense interest come from?

*Competitive advantage?*

Attention and admiration of significant adults

Comparative abilities

Heredity

Social environment: Chandrasekhar

Shifts common: Jonas Salk. Hilde Domin

Open to the world around them

The convoluted path of Ilya Prigogine: a non-deterministic universe.

#### **The influence of parents**

Intellectual pursuits

Standards

Values ... honesty

#### **The missing father**

30% of males, 20% of females lost father before age 13.

Other fathers inaccessible (Ravi Shanker)

Most of the sample came from supportive families; some from deprived. Few from the middle

Most of the sample came from wealthy or intellectual; some from poor. Few from the middle. None from comfortably middle-class.

#### **The mirror of retrospection**

Careful how much to read into this. The artist whose childhood grew worse with career problems. People look for consistency.

#### **On to school**

School does not matter – almost no influence, outside of an *occasional* good teacher

#### **The awkward years**

Nobody looks back on teenage years with fondness; some look back with horror.



Some protection from sex; more time with family

### THREADS OF CONTINUITY

Many lives have Continuity. Many don't

### WHAT SHAPES CREATIVE LIVES?

A will to shape events rather than be shaped by them.

## Eight: The Later Years

### COLLEGE AND PROFESSION

Often good years, sometime the high-point.  
 Profs help or hinder a great deal  
 luck

### SUPPORTIVE PARTNERS

Most married early ... and stayed married  
 Photographer Bradley Smith: began sex at age 6 and never  
 looked back.

#### The woman's view

### THE MAKING OF CAREERS

Creativity is more the result of a lifetime than a moment  
 In one sense all creative careers are similar, they INVENT the  
 jobs that they do.  
 They don't *have* careers, they *make* careers. They also often  
 create a new field.  
 Rosalyn Yanow: **beat up, at age 3, her older brother** created  
 medical physics, radioimmunology,  
 Artist Michael Snow, **Walking Woman**, recognition of his film,  
**Wavelength**.

### THE TASK OF GENERATIVITY

Erikson: middle years task – pass on genes and memes

*Libri aut libreri?* most of sample did pass on both.

My own memes? Along with genes. I haven't received memes  
 from others to pass along. Maybe I'll generate a few still.

### TAKING A STAND

Many very involved socially. Mahfouz murdered for integrity.

*Is this characteristic of Islam and a source of its modern  
 difficulties? (1) unwillingness to seek out – or even accept  
 – truth. (2) murder the innovator?*

### Beyond Careers

#### With success, responsibility

Internal reasons: Run out of steam, ideas, support,  
 connection

External reasons: positions offered, a chance to do  
 something important

### The Question of Succession

### The Matter of Time

### THE SLINGS OF ARROWS AND FATE

A calling that let them deal as little as possible with what might  
 have been.

Most are v healthy. Important that they are able to give their  
 work as much attention as possible, not have to deal with  
 pain or disease.

Part of the problem of central America: so much cr-p to worry  
 about, lack of standards, continuity, predictability that it  
 saps your attention

## Nine: Creative Aging

Performance in some areas peak in the 20s; ability to create as  
 used in the book (change a symbolic domain) may increase  
 in later years

## WHAT CHANGES WITH AGE?

As reported TWICE AS MANY POSITIVE CHANGES AS NEGATIVE ONES!

### Physical and Cognitive Capacities

#### Negative:

Fluid intelligence declines with age  
Energy down some

#### Positive:

Crystallized intelligence – sensible judgments, categories, induction, reason, improves

### Habits and Personal Traits

#### Negative:

Too much demands on time

#### Positive:

Diminished anxiety, confidence, courage  
Having learned from past mistakes  
Masters of their own time

### Relationships with the Field

#### Negative:

Men miss formal institutional membership

#### Positive:

Greater centrality in their field

### Relationships with the Domain

#### All Positive:

Always more and different knowledge to pursue & create

## ALWAYS ONE PEAK MORE

## THE SOURCES OF MEANING

### FACING THE INFINITE

## Part III. The Domain of Creativity

### Ten: The Domain of the Word

Among the oldest symbolic domains

Words Enrich life by expanding experience

*Why does that enrich? Better to directly experience*

Words Enrich life by understanding better what is happening within ourselves.

Not only information, but imagery-- Madeline L'Engle:

“intuition and intellect should be working together ... making love”

True, perhaps, that life presents the same stories over and over, but literary people are gardeners allowing flowers to bloom anew and keeping the weeds out. (239)

### TO BE A WITNESS

Mark Strand (poet)'s job: to express in arresting and accurate language what he has learned from witnessing life ... an unassuming, yet precise, chronicler of life

*Read Mark Strand's poems*

### THE HAVEN OF WORDS

Hilde Domin b. 1912, a Jew, driven from Germany  
1951 started writing poems. Six years before any were published

### Struggles with the Field

A jealous literary *mafia*

### Telling it as it is

Honesty is touching because so few people are honest

Read Hilde Domin's poems

### RELEASED BY STYLE

Anthony Hecht: crystalline, elegant poems

Learned to write by reading extensively ... Only by immersing oneself in a domain can one find if there is room to left for creatively contributing, and whether one is capable of doing so

### A JOYFUL RESPONSIBILITY

Madeline L'Engle

Check out her other work

### Eleven: The Domain of Life

### Twelve: The Domain of the Future

### Thirteen: The Making of Culture

The organization of knowledge

Flow and learning

### 14: Enhancing of Personal Creativity

Cultural creativity requires access to a domain, support of a field, and an enormous amount of good luck. Personal creativity can make life more vivid, enjoyable, and rewarding

Four obstacles:

- too many demands,
- easily distracted and unable to channel our energy

We live in a world of endless distraction: TV, Sports, Video games, consumerism, porn (including endless soft porn)

- laziness, lack of discipline
- not knowing what to do with our energy

### THE ACQUISITION OF CREATIVE ENERGY

Can't be so impoverished that all energy goes into survival  
Neither can we be so egocentric that all energy goes into wealth and fame

### Curiosity and Interest

Try to be surprised by something every day

Try to surprise someone every day

Write down what surprised you and how you surprised someone else

When something strikes a spark of interest, follow it

### Cultivating Flow in Everyday Life

Entropy applies to the mind too. Without an external force demanding we focus, we lose focus. We fall into chaos, to the lowest energy state.

Then unpleasant thoughts surface, forgotten regrets emerge, and we become depressed.

To get out we turn on the TV, read the advertisements in the local flyer... refocuses us, but wastes attention.

Creative energy can result in internal force to keep concentration focused.

Wake up in the morning with a specific goal to look forward to

There's got to be something. Develop the habit

I've had many things "to get out of bed for" or look forward to. Unfortunately, they are often addictive, hard to

control, and destructive. The hard part is finding something to want to get out of bed for that's also useful

Soon life will be mostly things to look forward to

It becomes a privilege to wake up, not a chore

If you do anything well, it becomes enjoyable

The conditions for flow improve performance and joy, e.g.,

clear goals, immediate feedback

I need to apply some of these to teaching.

Soon life will be mostly things to look forward to

It becomes a privilege to wake up, not a chore

To keep enjoying something you need to increase its complexity

I've never really found my "field", a work community of which I am sincerely a part.

### Habits of Strength

Productive people often claim they are lazy. Not that they have discipline [willpower], but rather they have good habits.

Einstein didn't waste time with clothes. Open to new ideas, but then focused on a domain

Maintain control thru relinquishing it: Meditation

Take charge of your schedule

Discover your rhythms.

Most of all: leave time

Make time for reflection and relaxation

Being productive always is better than doing nothing, but leave time

I like to do nothing.

Shape your space

Find out what you like and what you hate about life

Start doing more of what you love and less of what you hate

### INTERNAL TRAITS

Develop what you lack

Shift often from openness to closure

Aim for complexity

### THE APPLICATION OF CREATIVE ENERGY

#### Problem finding

Shift often from openness to closure

Find a way to express what moves you

Look at problems from as many viewpoints as possible

Figure out the implications of the problem

Implement the solution

#### Divergent thinking

Produce as many ideas as possible

Have as many different ideas as possible

Try to produce unlikely ideas

#### Choosing a Special Domain

## References