The Moment of Spark Ideas

— Thinking by the 5P Model of Creation —

Text>

2017.9.22

Representative, SOKEN Research Institute Director (former Chairman and former Chief Director), Japan Creativity Society



株式会社 創造開発研究所

E Company

Present position

Ltd. Creation development laboratory

Representative

Director of Japan creation society (former chairman and former chief director)

Japanese, educational graduate university Professors emeritus

Association of academic society related to Science Council of Japan management assembly special command director

(one company)Japan establishment idea achievement project chief director

(NPO) Chief director of eco-literacy society

♦ Brief history

Shizuoka Prefecture Shizuoka City (old and Shimizu city) coming from.

Tokyo education largeness, Tsukuba University graduate school, and Toyo University graduate school completion.

The creation development laboratory Ltd. is established through the lecturer of the Sannou junior college and it assumes the position of the representative.

Naming it and the product development were done in the creation development laboratory centering on corporate training and the consultant.

The training lecturer (learning) and the chief director etc. of the Shohei educational institution by 2000 companies or more such

as Dentsu and NTV Nippon Life.

The docent is held successively at a lot of universities like T

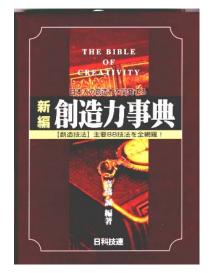
sukuba University, Toyo University, the education largeness, and

the Tokyo engineering department size, etc.



倉





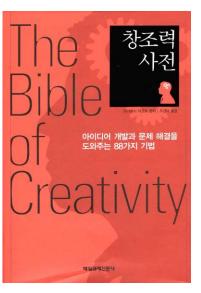












Exchange with creativity researcher in Europe and America (from 1977)





The United States Creative Education Foundation ex.Chairman Prof. Dr. Sidny Parnes (Mr. and Mrs. the second generation chairman)

Germany
 Germany creation society
 ex.Chairman
 Prof. Dr. Horst Geschka



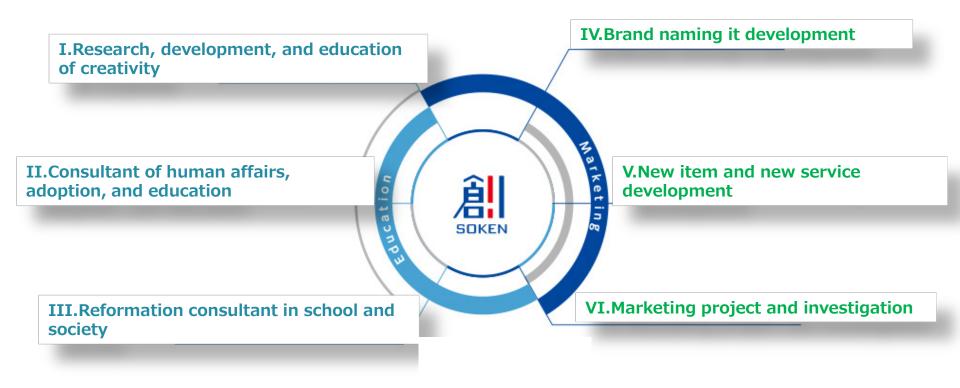
[Will]

1. Idea : Sincere originality

2. Vision : It aims at the achievement of the society that values the creation.

3. Mission : The organization and the creativity development of the individual are supported.

[Establishment] February 21, 1974 (establishment)



Brand development

Another of Corporate brand construction, VI(Visual Identity) development, and Credo development from developments of mission/vision/value etc. such as general enterprises and schools "Brand creation" whole like the construction of various commodities and the service brands etc. is suppo

Development of naming it

By our development of naming it system 'NAMELand?' Naming it and the logo design more than are developed.

- Pet name name of gasoline"Nisseki dash"
- Air dome pet name name"BIG EGG (Big-Egg)" •
- Postcard name "Sea gull-[ru]" with lot..".. cherry blossoms-[ru] (1987-2002)"
- Mail package name"Yu Pack" •
- Facsimile new brand name"Speax (Speakes)" •
- Equipment of supplying hot water manufacturer new division name"YUMEX ([yumek]
- Construction materials manufacturer new division name"TOSTEM (Tostem)" •
- House company synthesis brand name and strategy development"[Ingushiri-zu] [**nin]
- Public space pet name name"Sinclair"
- Public building pet name name"[Meruparuku]" •
- Modular bath brand name"[Soreo]"
- Special contract insurance name"[Etowa]"
- Heat exchange type air clean air conditioner system pet name name"Air Nabis"
- TV station pet name name and logo"TeNY ([tenii;])" •
- Sake name"[Tenma] ([tenbu])"
- Grain handy food name "[Tsuya] white staple grains" and "Staple grains of ...fragrance.. [iuu]""One bowlful's worth of of grain pan- \langle white grain \rangle and \langle black grain \rangle "
- Hotel category name Sunroute "Sopra""Patio"
- New commercial establishment name and logo according to development plan around Tamaplaza Station"Tama-plaza terrace"
- Bathroom and kitchen sink outlet brand name"Rin poi outlet that comes"
- Drinking water filtration supply system name and logo"Life spot" •
- House for resale reproduction enterprise brand name"[Kachitasu]"
- Construction company in-house project name"JIZAIMA ([jizaima])"
- Interior construction materials brand name"Lasissa ([rashissa])"
- Magazine name and publication and mail order company name"[Harumeku]"
- Caring tape name and logo & package design after wound after it operates"[Atofain]" [Na], [do]







創 SOKEN











感動のそばに、いつも。







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BIG EGG(東京ドーム)

Tokyo Metropolitan College of Industrial Technology

都立産業技術高等専門学校

Takahashi method · 5P bare-bones model of creation



(Creative Problem Solving Basic Model by M.Takahashi) Procedure (Technique of creation) Place Principle (basis of creation) (Area of creation) Settling Emanation Technique Technique Philosophy Creation Religion definition Integrated technique Awarenes Culture Attitude technique s of the Art issues **Process (procedure of creation)** Science Overall judgemer grasp Problem Problem solution Technolog Creation Probler Problem Executi idea ٧ Politics The Creation administrat attitude ion Organization Economy Creativity Managem Developm Group ent ent Individual Social Creativity Life Education Principal (subject of creation)

Ι.

Importance of creativity



Nature that discovers, understands problem, unites, integrates different information, and gives birth to society and individual to taking new value



♦ Ratio of work pursuers who can substitute it with robot within 10~20 years

- 1. Japan 49%
- 2. The United States 47%
- 3. Britain 35%
- Example of work with high substitutability

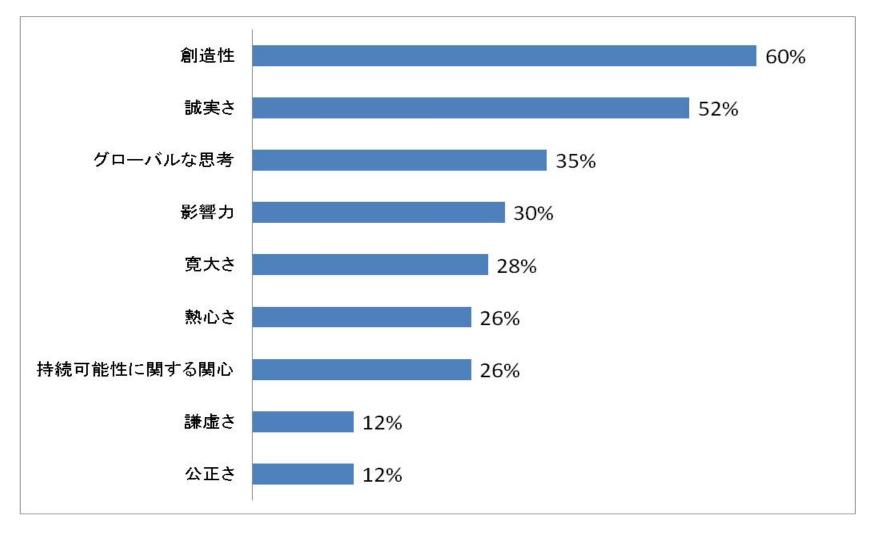
IT maintenance, accounting, administrative affairs, construction task, and taxi driver

Example of work with low substitutability Teacher of university and junior college, surgeon, product development person, editor, and actor

(Nomura Research Institute of Technology and Economics/Oxford University 2015.12.3 Announcement)



◆Question: Nature of leader who becomes important in 5 years (Three are chosen.)



(IBM Execution in January, 2010[..1541 person object.. investigation such as CEOs of country and 60 33 industries in the world]. Largest-ever investigation)

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SOKEN

- 1. The creativity is important in economic growth. : 80%
- 2. Creative country? :

1st place Japan 36%/2nd place the United States 26%/3rd place Germany 12%

3. Am I creative?

1st place the United States 52%/Low rank Japan 17% (Average 39%)

4. It is a means with the maximum tool to demonstrating the creativity.

1st place the United States 76% / Japan 58% (Average 65%)

(April, 2012 of Adobe investigation Each 1000 person object in British Germany-France in Japan-U.S. 18-year-old or more)

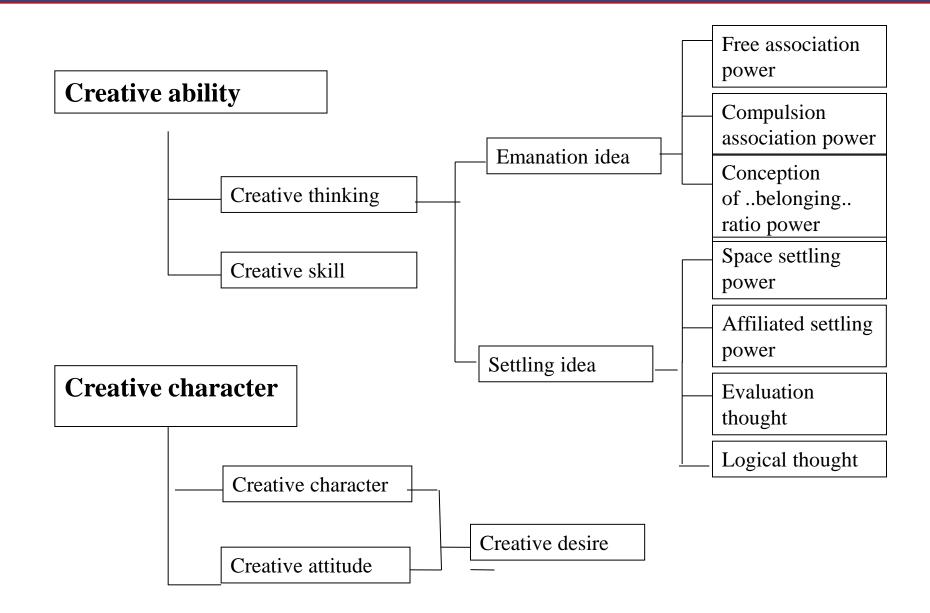
Creation committee (Chairman Reona Ezaki : Nobelist)





II. Creation man's ability and character







(The creation type is an ideal.)

Intelligence	Creation
type	knowledge type
(Ic type)	(IC型)
Type at on	Creation
the way to	type
(ic type)	(iC type)

(Creativity and intelligence)

1. When creativity is high, the possibility of making a high achievement is high in the childhood.

2. 25 years old does "Decline" from 45-years old time to intelligence by the peak.

3. Creativity expands by even aged.

4. The creation type can be called an ideal type by a high achievement according to another type.

Creativity



1. The probability of the child with a high creativity test of becoming a person such as an entrepreneur, an inventor, an university president, a brother of the quill, a doctor, diplomats, and soft developer who produces achievements is high.

{Followup study on garnet mirror}

2. The correlations of a life and creative achievement and the creativity test of the childhood are three times the IQ test. (Jonathan Blatter's followup study)

After 1950, Result of creativity test and IQ test of 500,000 people or more (adult object person) for 60 years

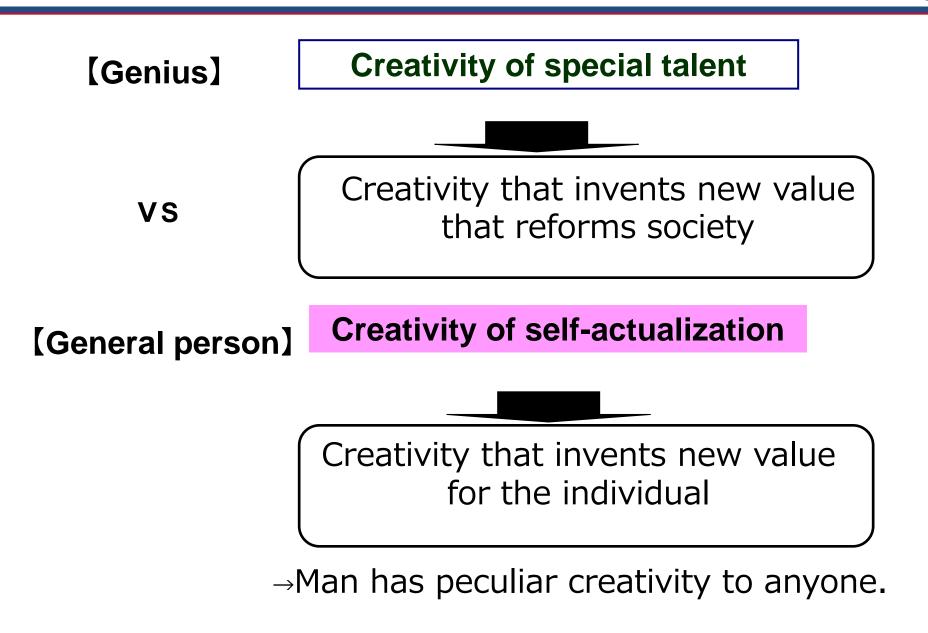
([How to forge creativity that science reveals] N e w s W e e k Japanese version, 2010. 7.28)



- 1.It is confidence to my conviction.
- 2.It is curious.
- 3. It decides arbitrarily by an original judgment.
- 4.It is absorbed in work continuing.
- 5.Danger is not assumed to be the one.
- 6. The authority's judgment is not accepted.

A.H.Maslow





The individual variation and the field difference of creativity are greater than that of intelligence.



1. The individual variation of creativity is larger than that of intelligence.

- 2. The demonstrating age of creativity has the field difference (H.C. Lehmann's research).
- Field of natural science
- Chemistry: 30 years old from 26 years old
- Physics, botany, mathematics, and electronics: 30-34 years old
- Physical geography, astronomy, and physiology: 35-39 years old
- Field of social science
- Politics, economics, and psychology: 30-39 years old
- General philosophy, logic, and ethics and aesthetics: 35-39 years old
- Social philosophy: 36-44 years old
- 3. The originality of the person with a lot of production (amount)(quality) tends to be also high, and there are a lot of excellent work people in the prolific worker.

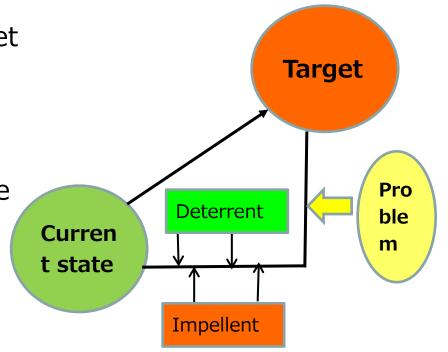
II. Procedure of creation

From the problem to the problem solving



What is the problem?
It is a difference between the target and the current state.

To the problem
:Generation type and discovery type
:Answer type and a lot of
only answer types



What is the problem solving?Bring it close aiming at the current state.



1. The problem is squeezed and it has the awareness of the issues.

The awareness of the issues scratches for information.
 The awareness of the issues gives birth to the discovery.



Because the serendipity (casual discovery) has the awareness of the issues, it is born.



1. Development of fountain pen that doesn't leak ink

Because the ink of the fountain pen to be used to sign the contract flowed, salesman and L Waterman in the United States was embarrassed.

→Development of Waterman fountain pen

2. Development of TelePrompTer

Actor ${\sf F}$. Burton in the United States was not good at the remembrance of the serif.

→Development of TelePrompTer

3. Development of cowpox vaccination method

Doctor E Jenner in Britain heard the story of "Milking was without relation in smallpox" and local.

 $\rightarrow \! \textsc{Development}$ of method of vaccinating weak cowpox and applying immunity

♦ Four stage theory of Warasu

1.Preparation (consideration) 2.Warming 3.Flashing 4.Verification

Procedure of creation



◆ Five stage theory of CPSI (Creative Problem Solving Institute)

1. FACT

2. PROBLEM

3. I D E A

F i n d i n g (fact discovery)

F i n d i n g (problem discovery)

F i n d i n g (idea discovery)

F i n d i n g
 (solution discovery)
F i n d i n g
 (adjustment
 discovery)

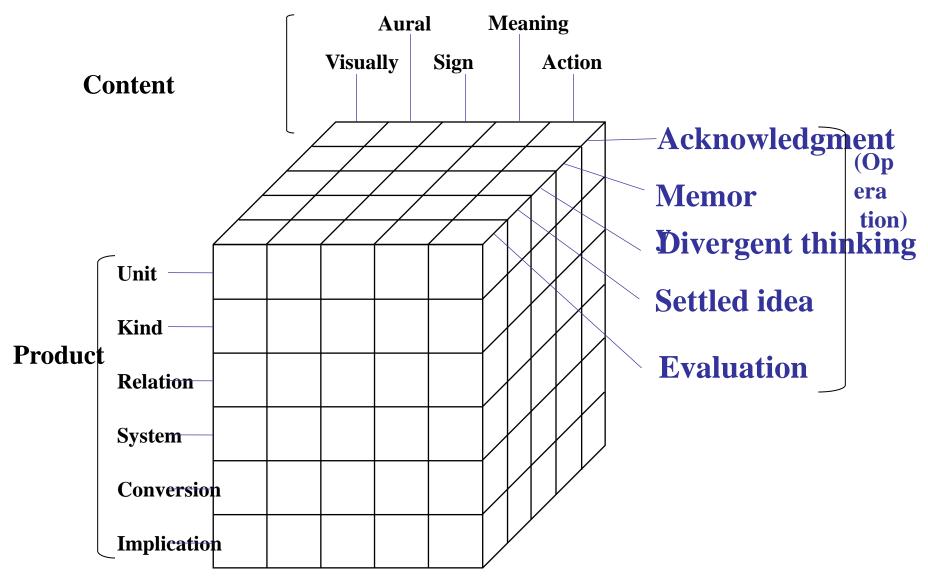
4. SOLUTION

5. ACCEPTANCE

IV. Idea of creation

Intelligence model of Gilford

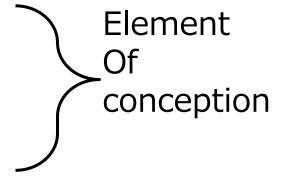




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Fluency (speed of idea)
 Flexibility (area of idea)



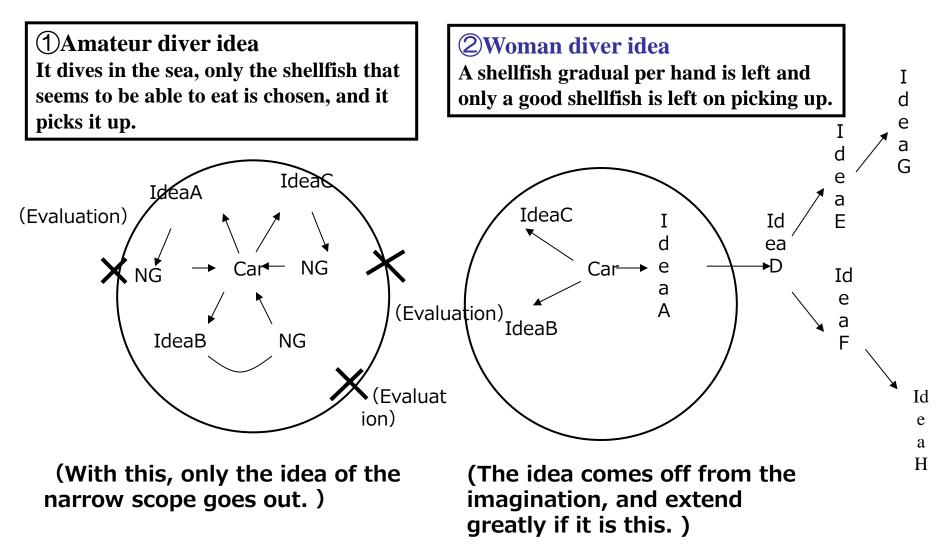
3.Originality (originality of idea)
 4.Concreteness (concreteness of idea)
 5.0 Element of use

The emanation and settling are divided in the creation idea.



Round trip idea

Emanation idea





- (1) Judgment postponement It is judged to be neither goodness nor bad.
- (2) Free You may do what remark.
- (3) A large amount of conception First of all, it thinks about in large quantities nor the quality.
 - (4) Wide angle conception The idea is greatly multilaterally expanded.
 - (5) Uniting development It thinks by tying toward an existing remark.
 [Note] (1) (2) (3) (5) Rule of BS method

Effect of five conception idea rule use



Conception Order	Fluency		Flexibility		Originality	
	Total	Average	Total	Average	Total	Average
The first	409	6.2	295	4.5	85	1.3
The second	536	8.1	430	6.5	137	2.1
Difference between	*>	k *	***		***	
the first time and the second times	1	.9	2	.0	0	.8

♦66 testees *** P <0.01

*** P <0.01 *** P <0.001

(1998.9 The 20th rally is announced. From the Makoto Takahashi thesis) Copyright © 2017 SOKEN Research Institute All Rights Reserved.



◆Experiment : The conference is executed for one hour by two methods. ∕ Five times for each

• Method 1 Discussion conference

The conference is executed for one hour by a usual discussion type.

∜

1

The number of ideas averages. 18

• Method 2 Creation conference

BS method (for 30 minutes) \rightarrow Possession point evaluation (Ten minutes) \rightarrow Decision discussion (20 minutes)

The number of ideas averages. 6 5

(2010 Makoto Takahashi Execution)

V. Technique of creation

Four classifications of creation technique



1. Emanation technique

- 1) Free association technique (Brainstorm brain writing mind map)
- 2) Compulsion association method (Check list method, form analysis method, and matrix method and others)
- 3) Conception of ..belonging.. ratio method (Gordon method, synectics method, and NM method and others)

2. Settling technique

- 1) Space type method (KJ method, block method, and crossing method and others)
- 2) Affiliated type method (PERT method, story method, and cause and effect diagram method and others)
- 3) Evaluation method (Paired comparison test and possession point evaluation method and others)
- 3. Integrated technique (Highbridge method, work design method, TRIZ method, and design idea and others)
- 4. Attitude technique1) Meditation type method (Meditation method, autonomous training method, zen, and Yoga and others)

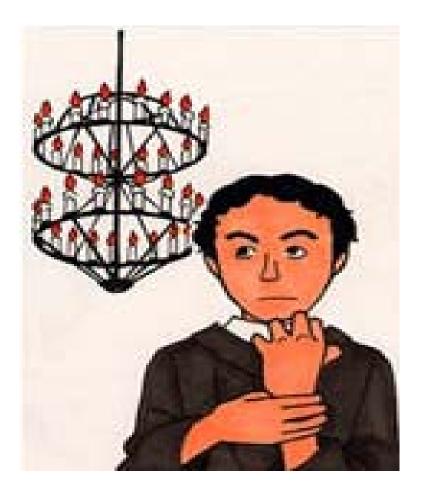
2) Exchange type method (TA method (transactional analysis) and encounter group and others)

3) Play type method (Psychodrama and role play · CreativeDramaAnother)

Case with free association – Isochronism theory



Galileo (The shake of the lamp of the cathedral in Pisa is seen, and the isochronism of the pendulum is discovered. >





(Osborne's design)

1. Outline of technique : Mother of emanation technique. It is born in the public relations firm in the United States, and has spread to the world.

2. Rule

(1)Criticism strict prohibition
(judgment postponement)
(2)Free
(3)Amount from quality (a large amount of conception)
(4)Uniting improvement

3. How to advance it

(1)The theme is made concrete in detail.

(2) The leader records all the remarks.

(3)The key word is made the best use of and summarized.

(4)Members are about 5-8 people.

(5)Time is about 1-2 hours.



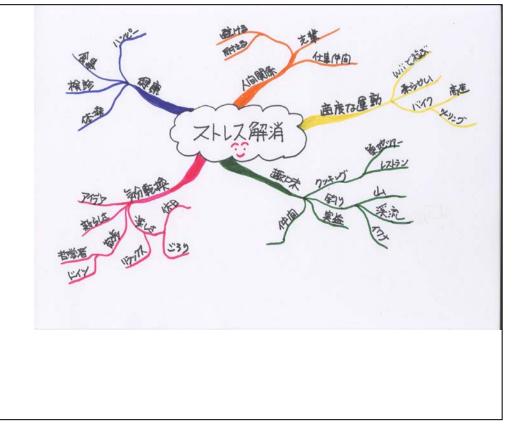
1. Outline of technique

1)The conception is freely expanded by association.

2)The extension and the relation of the conception are seen in the list.3)It can enjoy conceiving by making it more attractive.

2. How to advance it

 The theme is written at the center (Draw).
 The subtheme is radially expanded from the center like the branch.
 An important word and the image that relates to the branch are associated.



1. Outline of technique : It is a technique that facilitates postprocessing with a card as for the brain writing method.

2. How to advance it

(1)Post-it is put on the A4 seat.

(2)Each theme is written up.

(3)All members fill in three ideas to the first row.

(4)When time comes, the seat is passed to the person on the left side.

(note) 1 Even if it has not finished writing three ideas, it spends when time comes.

②It fills it in if it finishes writing by three ideas in time, and there is a unrecord column up.

(5)All members are filling in <Repeat as follows > in the second row three ideas

<Card BW method and seat>

Theme	()

<How to advance card BW method>



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Case with compulsion association – Othello game



Goro Hasegawa <It is an original idea getting a hint from the becoming it horse of Japanese chess as for "Othello". >



Case with compulsion association – My French



It made it to the small amount by a high quality getting a hint from the high-level French and the standing drinking house. (Price of about 1/3)



BISTRO 色のフレンチ

< method >

1. The shop it is is used.

2. The menu is left to the first class chef.

3. It is ...doing... a large amount of guest three times of the turnover ratio.

4. It does and is low-priced 60% of the present value rate.

5. The menu is squeezed, and cooking is rationalized.







1. Outline of technique

It ties variously compulsorily and it conceives it. "Conception checklist"

2. Example : Nine checklists of Osborne

(example of desk lamp)

- 1. Diversion to another ····· Type of book bookrest using combinedly
- 2. Application from another · · · Bookends type stand
- 3. When changing ····· The one that smell goes out because of heat when lighting
- 4. When expanding ······ Floor putting caster addition stand
- 5. When you reduce ····· Mini stand of kokeshi doll type
- 6. When substituting it ·····Angle free stand of shape-memory alloy
- 7. The re-array.....The lamp is possible also by the fluorescent lamp and LED.
- 8. When reversing it •••••Put the source of light, and to the mood lighting below
- 9. When uniting ····· With switch that can be blinked by voice



〈Shipworm〉

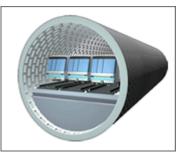


<Shield machine>



The companion of the shellfish of a long and slender body digs up the hole and eats the tree of driftwood and a wooden ship. The tree is planed by a hard shell the body ahead, the secretion liquid is put out from the mouth, and it advances while

hardening the inner wall of the hole.







•Shark \rightarrow bathing suit

: The resistance of water of shark's skin is a little.

• Beehive \rightarrow corrugated cardboard and aircraft wing

- : The beehive is light, and is strong in six corner type (honeycomb structure).
- \bullet Snail \rightarrow tile and toilet (Beautifully in being washing in clear water)
 - : Dirt doesn't adhere easily to snail's husk.

◆Kingfisher→Shinkansen 500 factions (Impact in tunnel)

: The kingfisher can dive into the water at a speed of 100km per hour.



Example < new rainwear >

1.Solution target

For within 300g portable and adults

2.Similar conception

(1)DA

(immediately and resemblance)

(2)PA

(pseudohumanity and resemblance)

(3)SA (symbolical and resemblance)

Resem blance	Basket worm	Eyebrow	Wet suit
Hint	With [kyu] on and under It presses it.	[Suppori] enters from the head. Method	Rainfit body it [fusegu] (rubber system material)

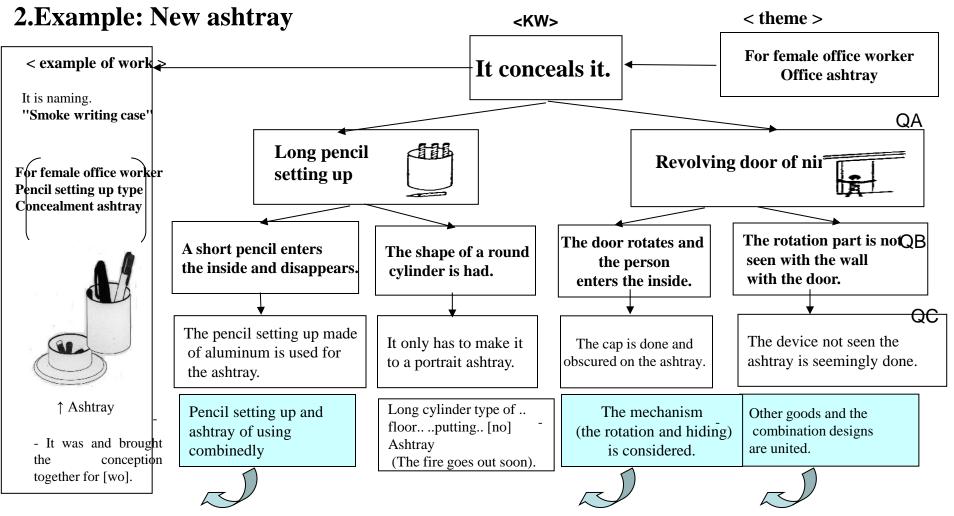
l	lint	I become a rainwear. It is imagined that an ideal rainwear is worn or now.		
A	Symbol	Compact	Angel's clothes	
?)	Hint	Pocketable size	Material that doesn't crumple	

3.Solution



1. Outline of technique

It designed it so that Masakazu Nakayama in the synectics laboratory might effectively invent it. Typical, similar conception method of Japan that opposes synectics from the United States.



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1.Outline of technique

It designed it so that cultural anthropologist's Jiro Kawakita might bring the site investigation together.

Representative technique for

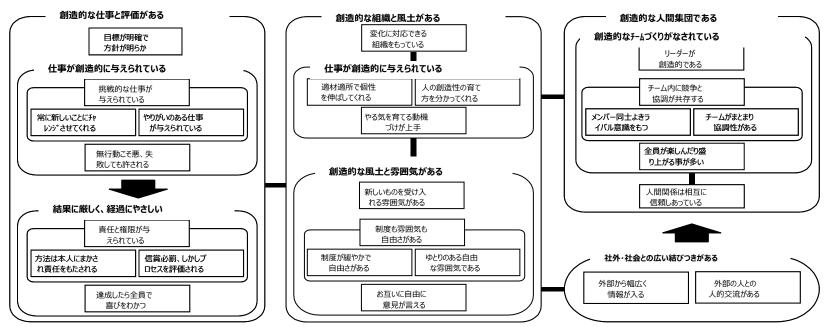
consolidating conception with card.

2.How to advance it

- (1)Data is made a card.
- (2)Cards that the content essentially looks like are collected.
- (3)The title is applied to each card group.
- (4)It brings it together in a high-ranking group one after another.
- (5)A figure is drawn to the thick paper.

(6)The drawing is announced and it makes it to sentences.

《What are the creative job and the office?》



1. Outline of technique

Speed settling technique for integrating a large amount of data (information and idea) by all members after evenly it distributes, and each one classifies similar data in member. It is suitable for being bring a large amount of data together in a short time.

2.How to advance it

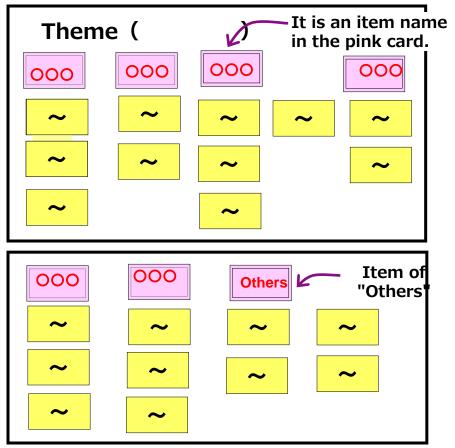
(1)The card that fills in the idea is evenly distributed to everybody, and it pastes it to personal paper.

- (2)Each one collects cards that look alike, and makes some classifications.
- (3)The classification is sequentially put out to a whole form one by one.
- (4)Other people put it out if there is a card that looks alike to the classification.
- (5)The person who puts out the classification writes the item name of the classification on the pink card.
- (6)The item of "Others" is made.
- (7)Hereafter, it continues until the card is lost.
- (8)All cards are pasted to the form.

Whole card

(design of Makoto Takahashi)

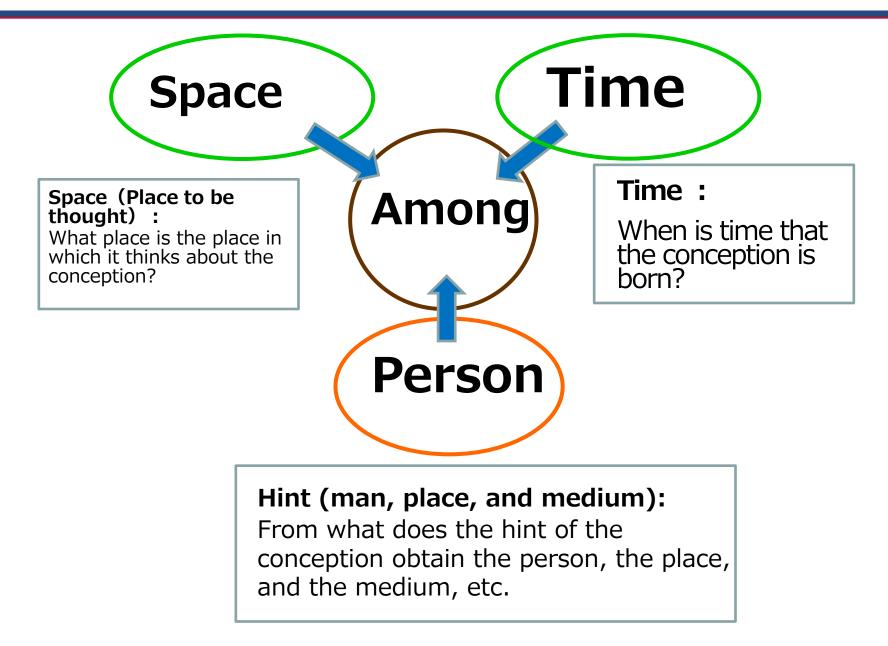
闾



VI. Moment of conception (Time, space, and hint)

It is born from "Between three" momentarily of the conception.





Momentarily of the idea conception



♦The idea

"One person", "It is not the work", and "Suddenly" It is born.



(2004 Soken investigation)

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What is the serendipity? (Koujien)

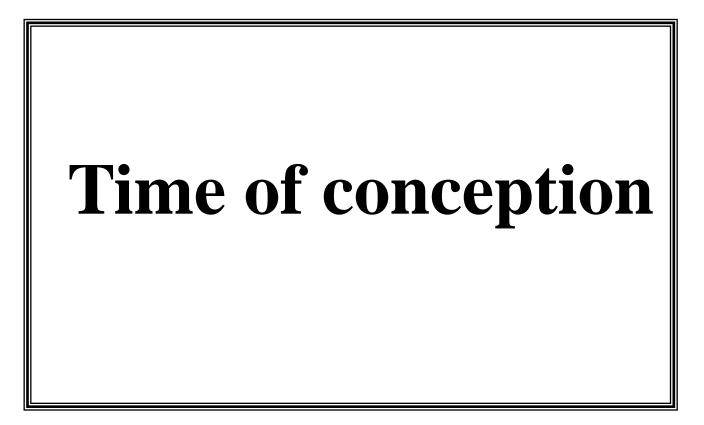
"Ability to discover the unexpected one by chance" that three princes of serendipity (Ceylon) had

♦Case:

- •Gutenberg"Type" (The woodcut for the print is asunder.)
- •Alexander Fleming"Penicillin"
- Art fly of 3M company"Post-it"
- •Koichi Tanaka of Shimadzu Corporation Elimination ion making method with soft laser

Moment of conception – Time

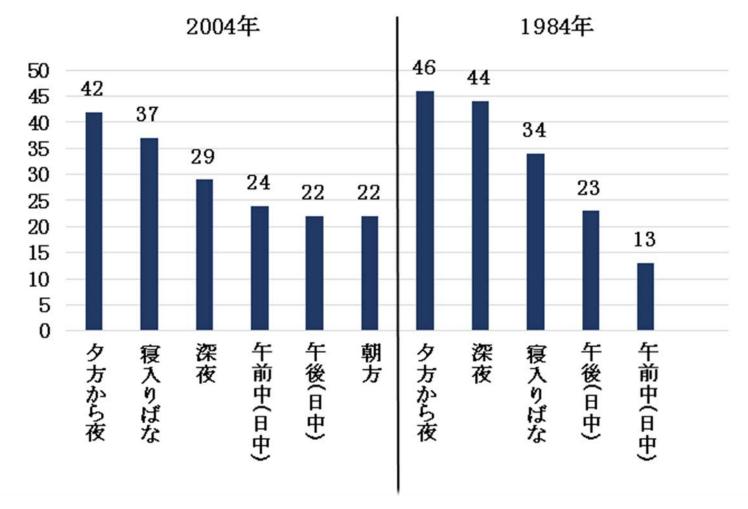




Time of idea birth-Night



アイデアが生まれるのはいつが多いですか(%)

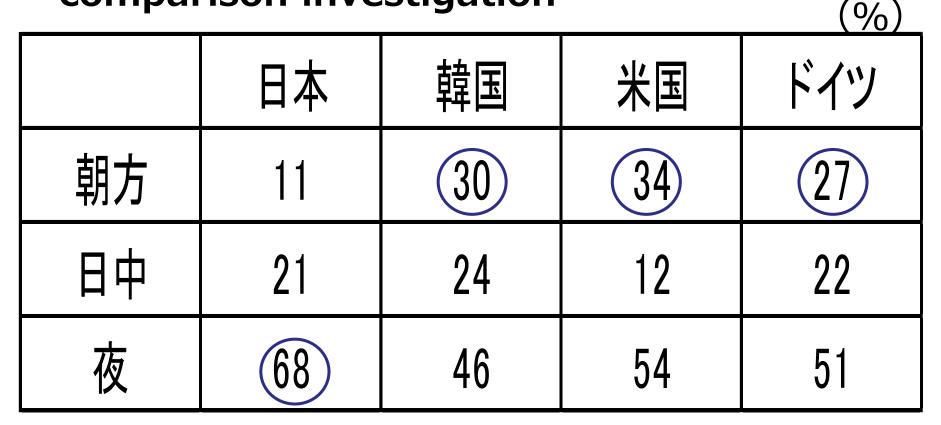


(創研調查1984/2004年)

Time of idea birth—The Japanese is a type at night.



♦ Time of conception · Four country comparison investigation



(創研調査1984年)

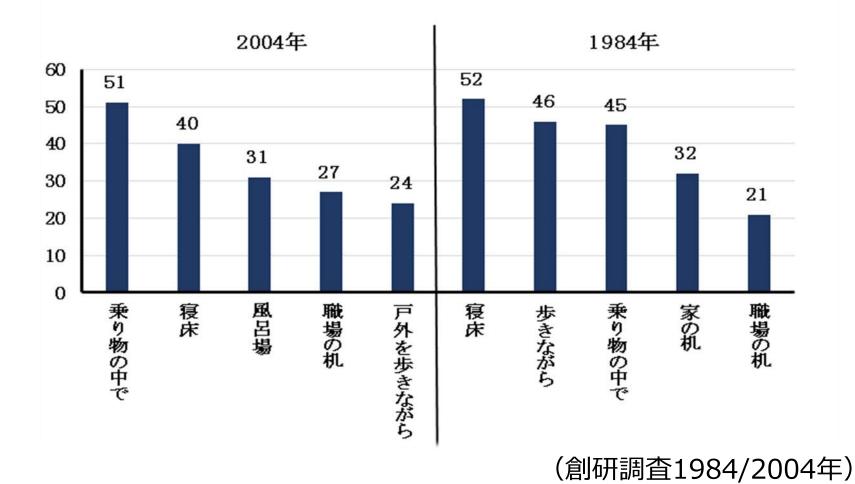
Moment of conception – Space



Space of conception (place to be thought)



アイデアを考えるのに適した場所は(%)

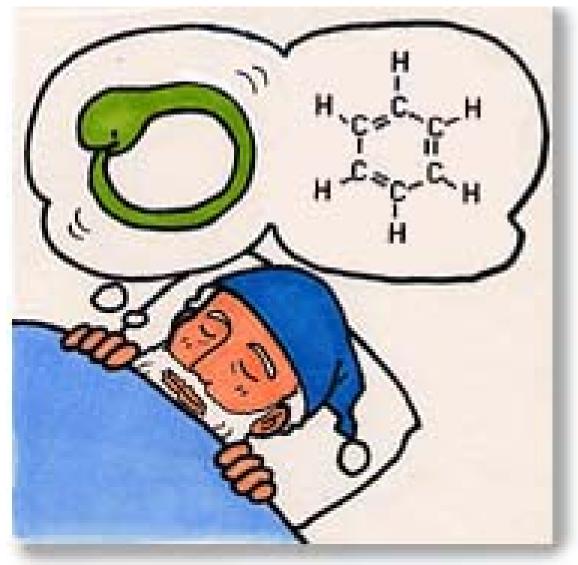


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Space of conception – It is sleeping.



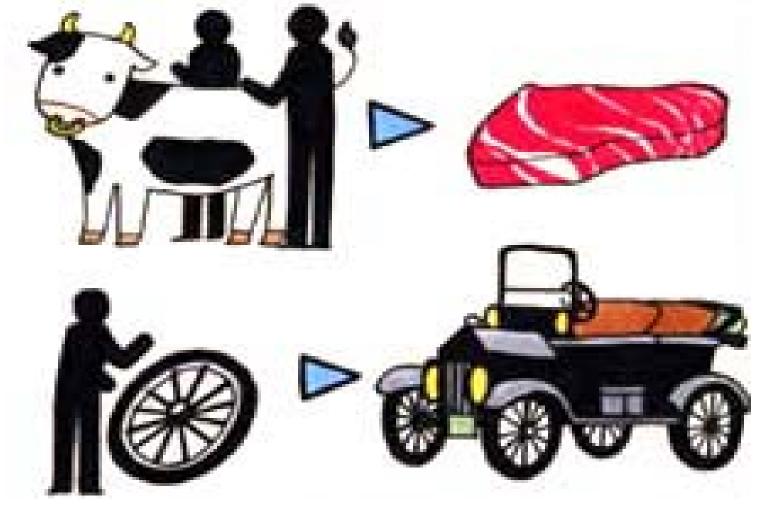
Kekure<The structural formula of benzene is discovered from the snake. >



Space of conception – Pawn inside



Ford 〈In the manufacturing revolution of the car, "Dismantlement of the cow" is a hint. 〉





◆ Seicho Matsumoto [Commuter train]

 \rightarrow Masterpiece "Point and line" etc. are designed.

◆Atsushi Mori 「Yamanote line of the first train」
 →"Gassan" writing of Akutagawa Literary Award winning

♦ Maris's PCR
 →Polymerase chain reaction

Moment of conception – Hint



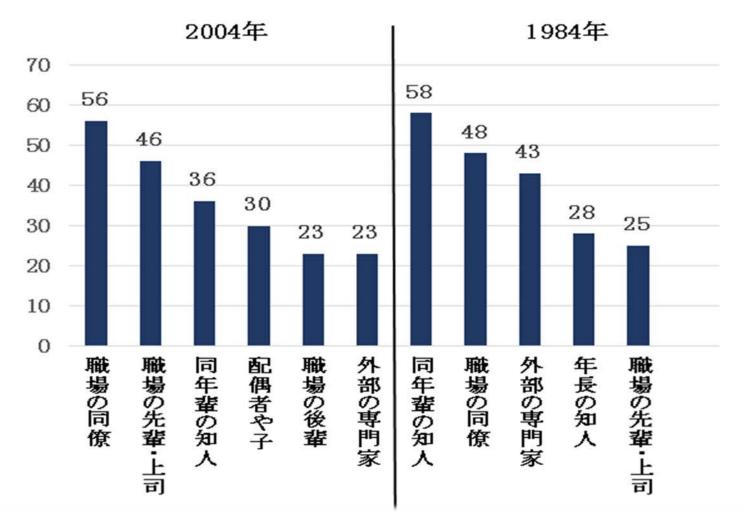
Hint of conception Person, place, and medium

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It is a speaker to the idea search. –Person in office



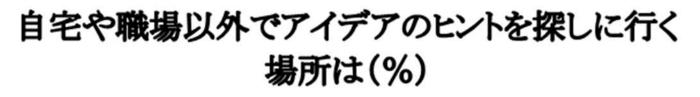
アイデアのヒント探しのため、意識して話をする人 は(%)

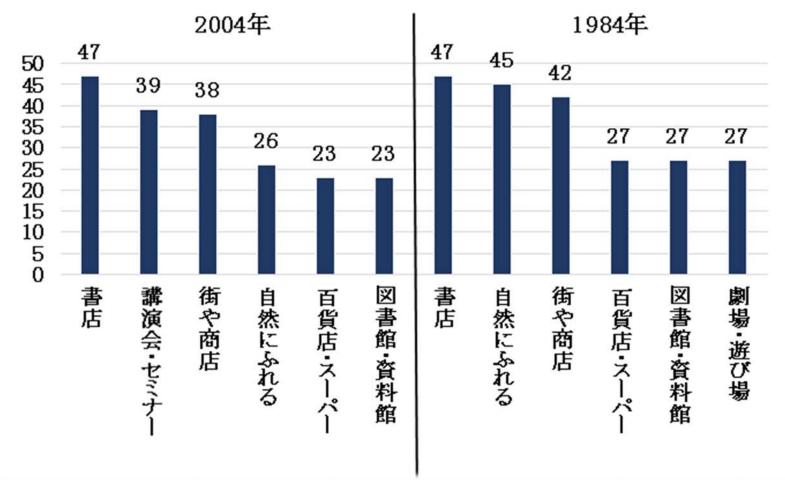




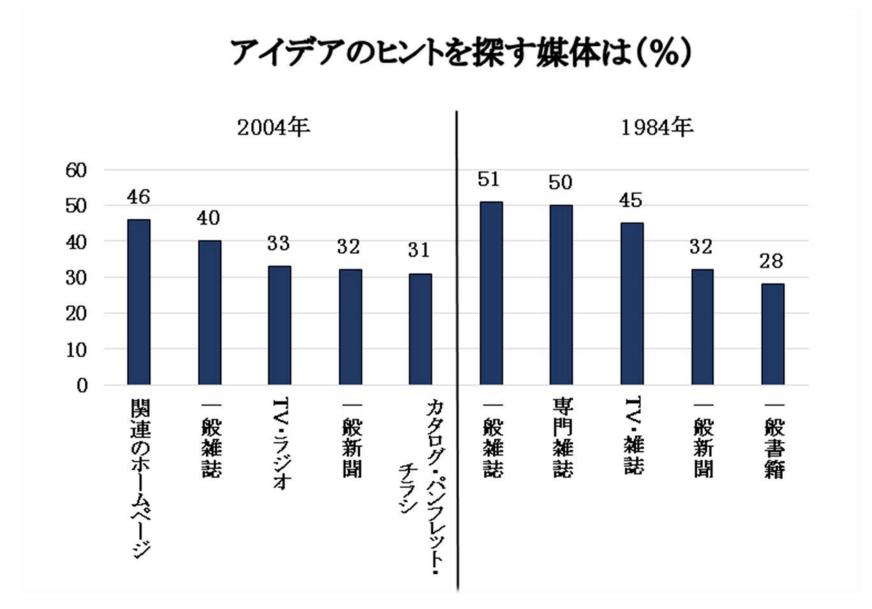
- •Santa Fe Institute
 - (Dr. Goldberg head's story)
 - \rightarrow Discussion of the researcher in quite
- different region of research
 - (Example) Economist and immunologist











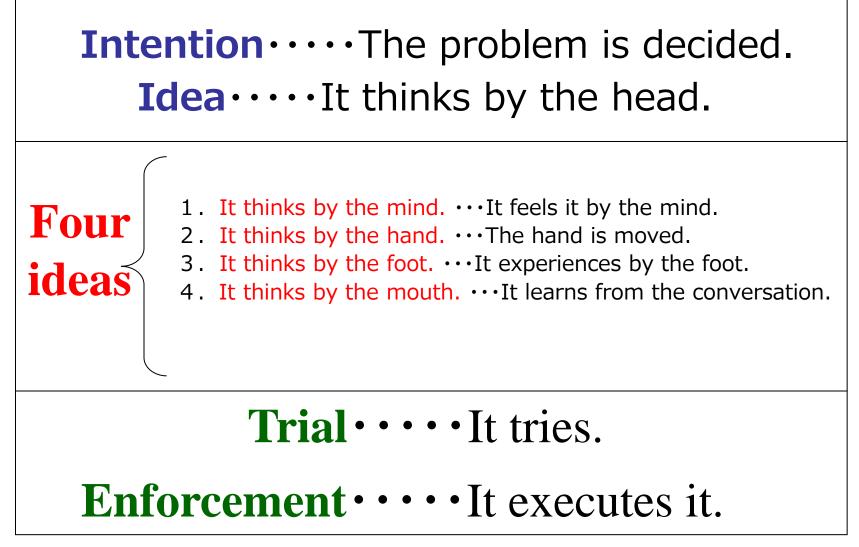


①Employee invention system **2**Proposal system ③Challenge human affairs system ④15% rule **⑤**Teleworking system **6**Flex system

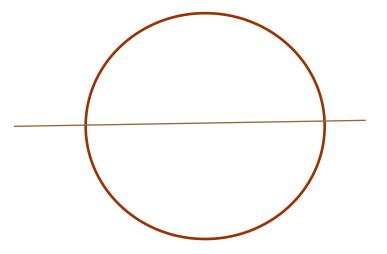
The creation is promoted by "Five favors".



The creation: Intention > Idea > Four ideas > Trial > Enforcement



(1) Conceptional Blocks⇒Where is "10" of ten yen gem?



From the center

On
I

On a little
I

On a little
I

Center
I

The under
a little

(J.Arnold)_創

(2)Cultural Blocks ⇒Success in Fuji Photo Film

(3)Emotional Blocks ⇒The person worries about others.

Knowledge of solution>

- 1. Basic text of problem solving technique
 - ①What is the problem? ②Procedure of problem solving

322 problem solving

techniques

④ The problem solving actually ⑤ What should be of information arrangement ⑥ Problem solving of group

- 2. Author Makoto Takahashi
- 3. Nikkei new book (830 yen + tax)

(Illustration. Solution power)

- Illustration text of creativity development
 What is creativity?
 Procedure of problem solving
 Idea of creativity
 Creation technique introduction-18 techniques
 Development of creativity
- 2. Author Makoto Takahashi
- 3. Department technological publisher of day and issue (1900 yen + tax)

(Creativity cyclopedia)

- 1. Cyclopedia put together overall for creativity
 - ①What is creativity?
 ②Moment of creation of genius
 ③Creativity of business
 ④Outline of creation technique
 ⑤88 creation technique methods
 ⑥Basic term of creativity
- 2. Author Makoto Takahashi
- 3. Japan Scientific Technique Federation Publishers and issue (6500 yen + tax)

Makoto Takahashi is a sheep goods collector of the top of Japan.





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END

Thank you for listening.