

Appendix A

NM Method

Abstract

NM Method (Way of Getting An Image Idea Developed by Masakazu Nakayama)

This appendix is edited under approval by Mr. Masakazu Nakayama, the inventor.

NM Method

1. Introduction
2. Technique Outline and Characteristics
3. Method for Advancing Technique
4. Important Notices
5. Application Field

1. Introduction

- (1) This method is to be used in combination with the Key Word in the PMD method in order to search for ideas.
- (2) This method, which was developed by Mr. Masakazu Nakayama (Creative Engineering) as a method for thinking about 20 years prior to the appearance of the PMD method, has not only been contributing to the creative growth of the economy and engineering in postwar Japan, but will continue to be used very effectively in developing engineering and economies in the world.
- (3) Occasionally, some of the terms in this appendix are used with a meaning different from that used in other parts of the book. This is only the result of maintaining the terminology used by the original author and does not interfere with the usage of the method.
- (4) Nippon Business Report, Creative Technique Handbook (the author and editor, Makoto Takahashi and the supervisor, Akira Onda) and Mr. Masakazu Nakayama are acknowledged for their approval, suggestions and addition of illustrations in preparing this appendix.

2. Technique outline and characteristics

2.1 Technique Outline

Problems are solved sometimes by means of logical analysis (i.e. repetition of inductive and deductive reasoning). To obtain a creative solution, an assumption has to suddenly strike the mind of the person searching for it. Although induction in general involves this 'strike', the HBC (Human Brain Computer) Assumption Model (See Fig. 1), which forms the basis for the NM method, argues that this strike is not generated by rational action but by the intuition inherited from wild animals.

Intuition can not be consciously worked as "technique" because it is an unconscious function. But its

process can be simulated on the surface of consciousness if the mechanism by which unconsciousness gives birth to intuition is understood. This means the way of thinking with priority given to the right hemisphere of the cerebrum.

At present, the left and right hemispheres of the cerebrum are considered to constitute a memory system giving priority to language and images, respectively. If it is true, analysis is an activity to extract images (past experience) stored in the right hemisphere by means of language stored in the left hemisphere. On the contrary, in intuition, the past experience appears first and then the image is given language.

The following procedure shall be followed for consciously simulating this process:

- (1) Select Key Words (referred to as KW) representing the real nature of the problem;
- (2) Put a question "Just as ~?" to the KW. This analogy, which is called QA (Question Analogy), is the "memory of the past" stored in the right hemisphere. Therefore, QA is set by intuition.
- (3) Put a question "What is happening there in the background?" to QA. This is called QB (Question Background); that is, QB is the measure to pull out the peripheral memory by analogous thinking.

The process up to this point is diverging thought in psychology: the right hemisphere taking priority, but afterward the image is being transferred to the left hemisphere, that is, handed over for evaluation and support with logic. This process is to put a question "Does it give us a hint to ~?" and is called QC (Question Conception). Several QC, which may only hint at the problem, must be combined into an idea. The process up to this point is called the NM method.

There are two methods for combining the hints obtained by QC. The first method is the "spatial combination" method, Type A (Area), in which two pieces of data, A and B, do not have a cause and result relationship with each other. The other method is the "combination based on tempo" method, called Type S (Serial), in which there is a cause and result relationship between two pieces of data, A and B.

2.2 Characteristics

It frequently happens that keeping the steps shown by the NM method leaves us an assumption in a situation in which there is nothing to do after carrying out all possible analysis. That is, the NM method may hasten the instant of noticing. For insufficient analysis, however, it is generally not very efficient because the synapse resistance of the nerve system from the left to the right hemisphere has been

reduced by education, which solely endeavors to put knowledge into the left hemisphere. This is a kind of memory and means that the repetition of flow from the left to the right strengthens "the memory of the way of thinking."

For this reason, it happens that, for example in the case of QA, you try to build up an image by language, giving precedence to the left hemisphere. This technique does not work well and there is nothing but practice to overcome this difficulty. This is in fact the difficulty which you encounter when trying to practice Synectics (W. Gordon), or an equivalent transformation (Kikuya Ichikawa).

It is recommended that the NM method not be considered the way for solving a problem, but rather a manual for thinking, giving precedence to the right hemisphere. Don't think of the procedures for the NM method being used for solving problems, but rather that practicing the NM method leads to developing a brain capable of automatically generating ideas. With such a brain, ideas naturally generate at the manufacturing site without use of the NM method. It is important not to misunderstand this point.

2.3 Background for the Birth of Technology

Synectics and other equivalent transformations already existed before the appearance of the NM method. Synectics is the inductive finding of technique called "analogy" by means of asking the question: "What way of thinking does an inventor employ?" Namely, "you must be able to create ideas if you are imitating an inventor's way of thinking."

Also in an equivalent transformation theory, an equivalent transformation equation was inductively obtained by means of surveying, from example, the "relation between information before and after the creative action."

In the NM method, on the other hand, based on McCauley's "shape neuron model," the HBC (Human Brain Computer) model (Fig. 1) was introduced starting with the question "what computer is functionally equivalent to the brain." In addition, the relation between intuition and analysis was also introduced as an assumption. As a result, the NM method obtained "technically" similar conclusions to Synectics and the equivalent transformation.

Accordingly, "setting assumption" comes first in the NM method, and so the NM method is not an inductively obtained result. It may be said that the NM method was arrived at from the other side of

Synectics or an equivalent transformation. It may also be said that the NM method was created through the way of thinking shown by the NM method.

3. Method for Advancing Technique

Steps for technique

It is assumed that a given problem has already been sufficiently thought out in an analytical manner. Next the steps necessary for the NM method are determined as follows. These steps are, however, not necessarily prescribed, but are considered to be an exercise, as mentioned above.

- (1) Select the real nature of the problem from the point of view, "What should be solved for the present?"

For example, "break" is the real nature of the problem "method of breaking a building," but the KW need not be a simple word, because it is not real language, but an image.

- (2) Put an analogy QA: "Just as XXX??"

Concerning "break" QA will be "a rock on the shore is cracked," "vertical motion of the earthquake is terrible," and so on.

For QA, the phrase "to break with a hammer" or "to make a hole with a drill" gives language precedence. These are not efficient analogies, because they inherently carry the concept of breaking. Giving priority to the right hemisphere means there is the existence of past experience, but it can not be understood whether this experience is useful or not. The language of the left hemisphere is left until later. It is technically better to write down on cards as many analogies as appear in the mind.

- (3) QB: such an image as "what is happening there in the background?" Examples of QB for the above QA "a rock on the shore" are: "a pine tree grows on that rock," "the wave splashed against the rock," "children were gathering shellfish attached to the rock," and so on. These do not require to be written down because they are images.
- (4) QC: Consider whether the images mentioned above give hints about the problem "breaking building" or not. For example, if the thought that "acid or something which melts rock may possibly seep out from the root of the pine tree" arose from the image that "a pine tree was growing," transferring the idea to the problem leads to the idea "how about pouring something which can dissolve concrete into a hole dug out of the concrete wall?" In addition, considering "whether the seawater, which permeated the crack of the rock generated by the roots of the pine tree and froze in winter, has broken the rock or not" generates the idea "how about pouring and water into the holes dug out of the concrete wall and freezing it?"

Similarly from the QA: "being weak against vertical motion," the idea that "how about giving the concrete structure vertical vibration after setting an explosive in an important position" or "how about focusing destructive power on one point with a concave explosive" may be generated. It is easier to shift to another analogy when extracting many ideas from one analogy which has reached a dead end.

Setting some KWs, creating some QAs for each of the KWs, and then getting some QCs for each analogy result is the commonly used Type T of the NM method (Fig. 3). There is another pattern of deployment called Type H of the NM method (see Fig. 4). If it does not work to directly get QCs from one analogy, this type takes up another analogy. This type is often used in inventive efforts.

Type T or Type H, which are relatively easy to use as techniques, and so are frequently used, also provide the means of basic training for making the brain flexible, that is, thinking by giving precedence to the right hemisphere. Therefore becoming skillful in these two methods makes it possible "to combine heterogeneous things," the principle of creative thinking. Naturally the NM method progresses to the next steps, Type A (Fig. 5) and Type S (Fig. 6).

In Type A, "the third assumption which connects the heterogeneousness of two things" is constructed. For example, from A: "broken shoji (sliding paper door)" and B: "Japanese nightingale," assumption C: "both are longing for spring" is obtained (Fig. 7).

In other words, it has the same structure as "giving cross meaning puzzle." Although detailed analysis, that is, the repetition of Type T and H also arrive at assumption C, Type A is recognized as a better exercise for more intuitively arriving at C.

Type A (Fig.5) is effective in cases where there are no concrete objectives as in the case of invention and there is a theme such as "anything having good sales" or "any new products to eat." Type S (Fig. 6) is available to produce ideas for planning or operation, and is especially effective as a commercial message or cartoon.

Another type is Type D (Discovery). This type proposes to try "setting the assumption first, and then giving proof for it with data when an enterprise or government agency wastes time at meetings which reach no conclusion."

Taking the example of a criminal investigation, in addition to the important scientific investigation

in which a criminal is inductively inferred from all of the collected data, there is another kind of investigation such as one employed by Edo period detectives like Heiji Zenigata. In this type of investigation, a detective intuitively marks somebody down as the criminal and then searches for supporting evidence through a pair of colored glasses. If a mistake is made, the procedure is repeated in the same way. This method may become the subject of discussion in a criminal investigation, but this method will speed up company meetings. 80 points is preferred to 100. Time is considered more important than getting 100 points.

Because being familiar with Type A and Type S is very important for avoiding mistakes of intuitive aim with D-Type (namely, setting an assumption), they are considered to be especially good manuals for raising the abilities of managers.

4. Important Notices

There are no difficult requirements to perform the NM method. The NM method can be performed by any "tools," by any "lineup member," or only "one member," at any "site," for "any time duration," (i.e., quit using it only when losing interest in it), and with or without a "leader."

If however the NM method is used for developing the brain, the following program could be set up:

Each member of, say, a foursome reads, say, "Everything of the NM method" in turns. The only reason for making the group is that isolated reading grows tiring. It is therefore not prohibited that a positive person makes up his mind to read by himself. A member explains a few pages which he has read to the other members. Themes which are considered not to have any relation with themselves must not be omitted. As they continue to read, the synapse resistance between the right and left hemispheres will gradually decrease. (This means cutting a fixed idea down.)

The above-mentioned enlightenment can be obtained by an ordinary person within 6 months when the above reading takes place roughly once a week, and each member is given some kind of homework each time. The manufacturing site automatically grows wise even without declaring the NM method. In a company, this works best when someone at section chief level picks a positive person to host the reading circle.

5. Application Field

Policy from the top is important in management, but at the same time, the wisdom of each staff member must not be forgotten. Let's look at a familiar example. In the operation of a shop, it is important that the boss gives detailed direction to a salesman. If a salesman makes a customer angry, the customer may never come back to the shop. The reason why a salesman makes a customer angry is that he can not solve the problem existing between the customer and himself. This is not a problem of knowledge, but of wisdom. There is no quarrel where there is wisdom. This is the most universal expression of creativity. Things are the same in a department store as in a shop. Trouble which occurs between a superior and a subordinate, or among colleagues, remains an uncomfortable image in the brain. Eventually it disturbs the concentration needed to tackle a problem.

Generating wisdom is to create the mechanism which functions like lubricating oil in an enterprise.

Does an entrepreneur forget this mechanism of wisdom beyond the mechanism by more salary and welfare? If a person can fully play by his wisdom, he can have a positive attitude anytime.

Although the NM method is useful as a technique for creating ideas in situations where creative solutions cannot be arrived at through analysis, the real intention of the writer lies at the point where all employees (including top management, if possible) can raise their level of wisdom using this method. Any number of ideas can be extracted during work at a manufacturing site with a high level of wisdom. I recommend that you consider that there is a field of application for the NM method at this point.

Although cerebral physiologist Tadanobu Tsunoda said "a Japanese, on average, leaves the right hemisphere of the cerebrum idle. If he fully used it, his ability could really be increased as much as 5 to 6 times," this writer's experience shows that it is easy to increase his ability as much as 10 times. (This is by estimate of an engineer's ability to invent through paid patent fees.)

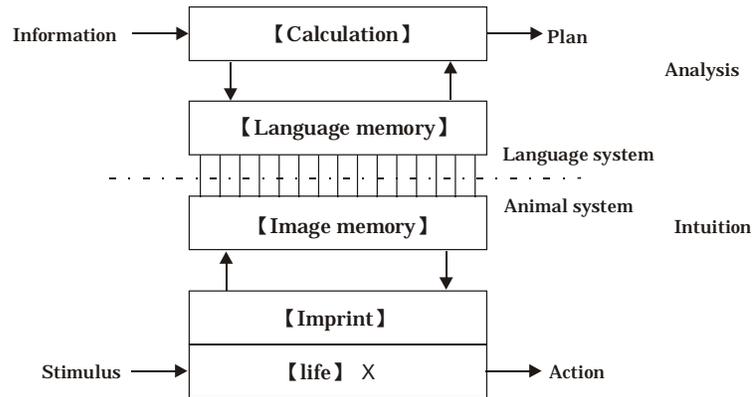
There are many examples of this. A machinery manufacturer's profits increased rapidly with the development of this ability, which was proposed by a person from the section chief level. An iron manufacturer that miraculously eliminated the occurrence of accidents which every manufacturer had, up to that time, accepted as a reality. A textile mill that beautifully completed technological innovation through adopting a theme which every manufacturer in every country had abandoned as a terrible money eater. To our surprise, no one in top management knows how that came about.

The writer believes that buying the wisdom of employees through the proposal system is the way of thinking of American business, and the assumption that an unwise person is not worth employing is a Japanese way of thinking. This is the reason why the writer recommends that you deal with the NM method according to your own opinion from here on.

References

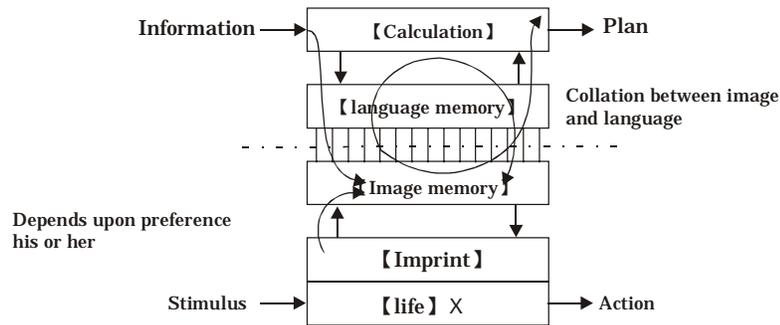
- (1) Masakazu Nakayama, "Everything of the NM method," Sangyo Nouritu Daigaku Publishing Co. (1972). (Refer to for details of the NM method.)
- (2) Tadanobu Tsunoda, "The Cerebrum of the Japanese" Daishukan, (1978).
- (3) Outline of creative thinking is the following literature:
Masakazu Nakayama, "Self-discovery of creativity," Blue Backs, Kodansha.
- (4) Wisdom Group, "Wisdom", Soko Co. Ltd.

Fig.1 HBC(Human Brain Computer) model(By M. Nakayama)



【Life】 ; Computer to control the minimum functions required to live
 【Imprint】 ; Computer memory to store the basic rules required to live
 【Image memory】 ; Computer memory to store the memory which keep the experienced stimuli
 【Language memory】 ; Computer and logical thinking to search word memory
 【Caluculation】 ; Computer and logical thinking to search word memory

Collate inside of oneself



Conversation with another person

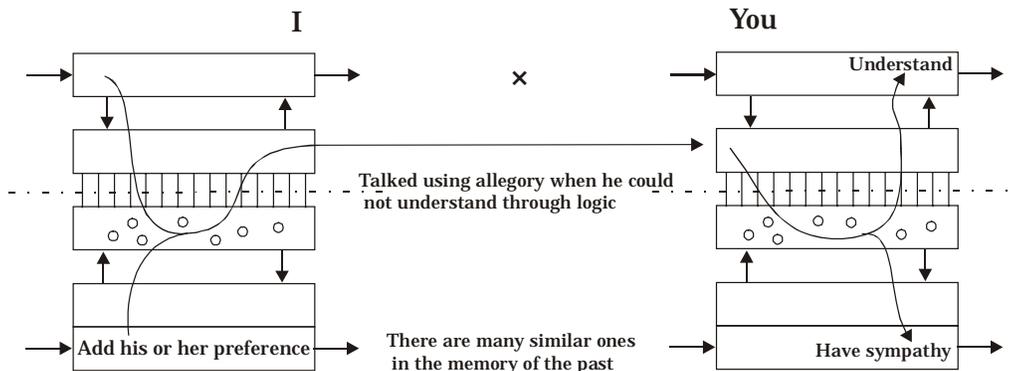
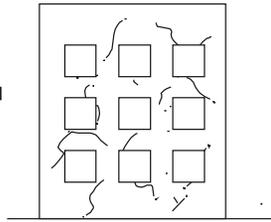
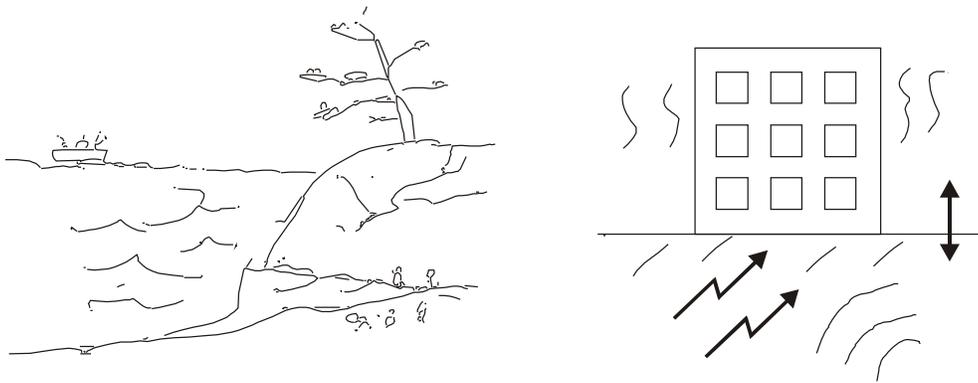


Fig.2 Example of QA, QB, QC

KEY WORD : 「Discracy」



QA "Just as ~"



QB What is happening there in the background?

QC Does it give us a hint to destroy the building?

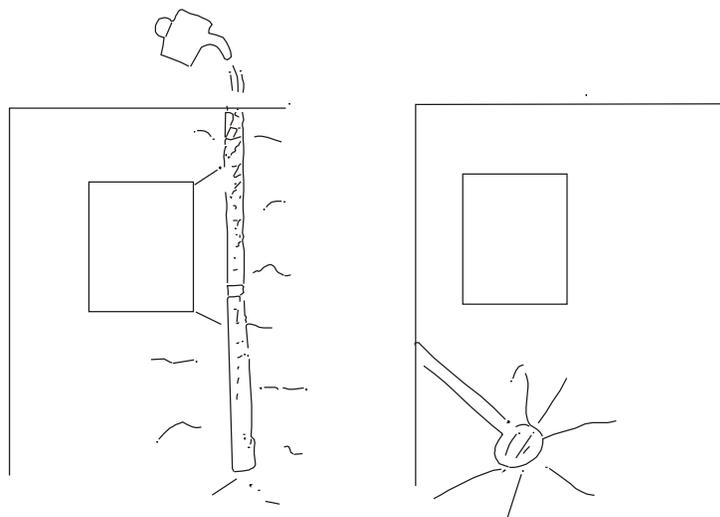


Fig.3 NM-method, T-type

How to persuade the boss

Show



Flicker the data	Persuade by show style
Show it, in foolish style	Speak it in the place where many peopex exist
Talk many time by changing places	Play with companion
Discuss in maked feeling	Use seven color lights

Theme

K.W.(Key Word)

QA (Question Analogy)

"Just as ~ "

e.g.(Show it like a strip show)

QB (Question Background)
 (What is happening in the background?)
 (How is it happening there?)

QC (Question Conception)
 (How does QB contribute to solving the theme?)
 (What does QB suggest to the theme?)

Fig.4 NM-method, H-type

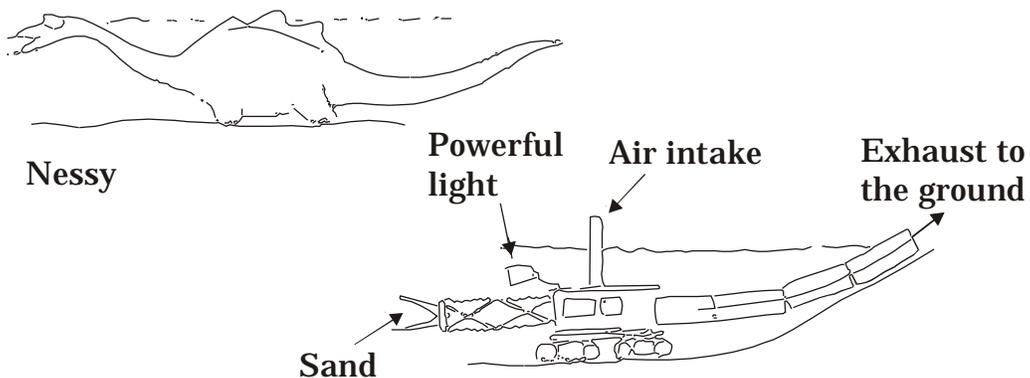
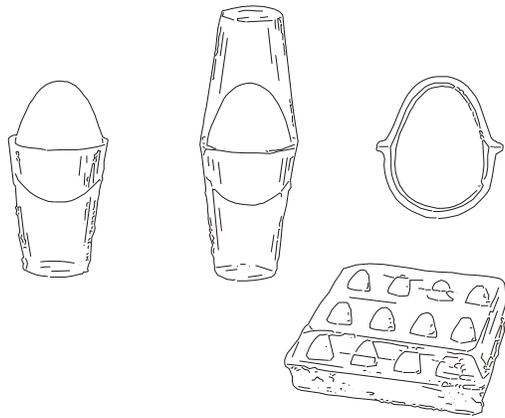


Fig.5 NM-method, A-type



Cup and Eggs

Fig.6 NM-method, S-type



Introduction

Development

Denoument

Conclusion

by Machiko Hasgawa

Different nature

Fig.7 Broken "Shoji(Sliding Paper sliding door) and Japanese nightingale

