

The 10th TRIZ symposium

To disseminate TRIZ into the business world

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[Abstract]

Most Japanese executives know nothing about TRIZ. Even if some executives have heard about TRIZ, it will be an unrecognized method and no diffusion within own company as an important business issue. Since 2001 the present authors have sought the right work way [approach] affiliating with Japanese project management (PM) organization [consortium]. Herein we introduce TRIZ permeation and approach from PM point of view.

TRIZ has an extremely low profile in Japanese business world. TRIZ becomes one of method of finding own idea for most executives who knows TRIZ. It is a part of TRIZ value ever so TRIZ is a power-packed method of finding own idea.

TRIZ has own conceptual system and uses unique words, it configures an unique world. With the engineering job creates unknown system, it becomes an essential that the engineers have an appropriate view of the world (view of the engineering). TRIZ is the most likely candidate as the reliable method for engineers. Here lies the key to disseminate TRIZ.

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2. Notices from the lecture to the student.
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4. Concrete approach
 ~Keep learning.
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1. Summary of announcement

There is no acknowledgment from the manager at all though TRIZ is acknowledged as an excellent idea conception method. Another big value might be buried.

As for the conclusion, the engineer has the outlook on the world (technological view) in TRIZ.

It is fit as basic attainments of straightening. A new phase opens it to engineer's personnel training by using it to promote the technological view.

The hardship should solicit the manager a lot of burs and here there.

It introduces "Experience of becoming it in the conclusion", "Point of the TRIZ spread seen from the PM industry", and "Current approach", etc.

2. Awareness from lecture to student

It will serve as the lecture of the engineer ethics to the student of Department of Engineering. This became a chance to announce this time.

- April, 2012 The lecture of the engineer ethics is started.
Tokyo City university
The third Mechanical Engineering Section grader (required subject)
- September, 2013 Impression is received to the TRIZ cram school site.
• The worlds other than the idea conception method are seen.
- November It knows the publication of the TRIZ Level1 textbook (PDF version).
• I feel the charm as systematic study.
- April, 2014 TRIZ is taken to the lecture of the engineer ethics.
• The student also sympathizes (interest of my idea).
- July The introduction begins with TRIZ Level1 textbook (booklet version) publication and "Pronunciation of the textbook" in the manager layer.

Lecture of "Engineer ethics"

- Outline of subject and performance target
- Support documentation

Think about "How do you act by thinking very in case of yourself?" the problem situation and the predicament when they are made to stand the purpose of the lecture. It promotes it of the "It thinks voluntarily and act" talent to the aim of the lecturer.

- All teaching materials are made by oneself though a standard case is used.
- Situation of lecture (Large classroom, 100~120 people, 90 minutes×15 times)
Late, the doze, the whispering, and the side job are natural unlike training in the enterprise.

It was continuous for the lecturer of the culture shock.

- Transition of form

It is not possible to make it to such a topic alone though an interest and an interesting topic are seriously heard. Moreover, there is no question at all, and it takes time to answer the lecturer's question. The following decided to be done as measures.

★The answer sentence of the question on the hilt that takes time is written.

★The leader is elected by mutual vote, it discusses in the team, and the report is submitted.

Concentrated level to the lecture came to go up gradually by the way above.

Tylenol poisoning incident(1982)

- Febrifuge of J&J Co. relieving pain
- The dead from general consumer
- A whole content difficult grasp is studied thoroughly.



- One hour after the truth turning out
The CEO's "Collection of all" declaration
- It will return to the market in two months.
- At that time, it is the manual none for crisis.



CREDO of decision in 1943

Model of crisis-management

CREDO

(Company's motto and company motto)

Leader : Submit the record (report).

Leader name

1. Problem

2. Conclusion

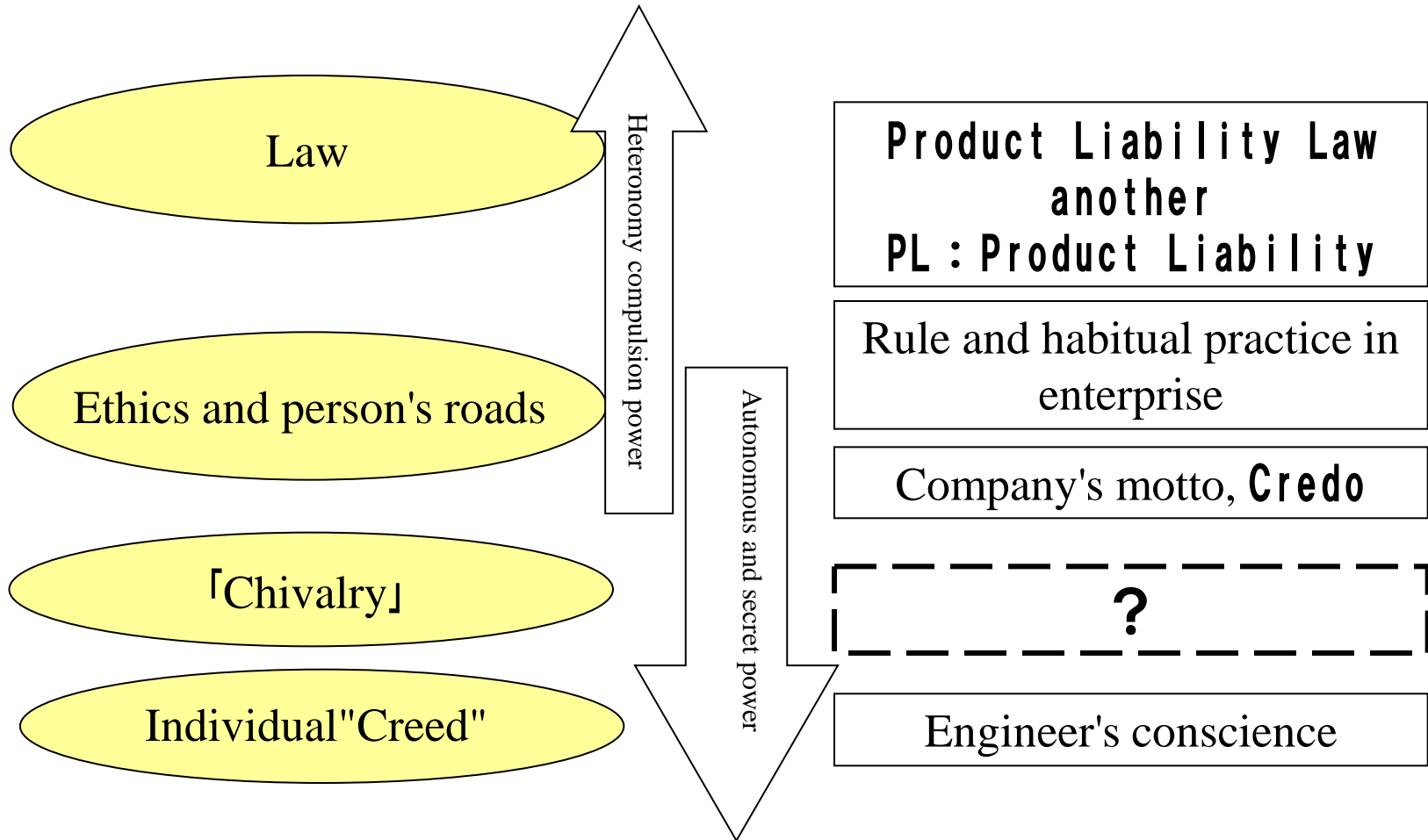
Team member name

① What one are you in the lesson obtained from this case?

② What device because of the purpose is to act Now adequate when saying do you exist?

Engineer's conscience

The engineer's behavior The criteria



It noticed by the lecture.

- There is a limit only by studying the case. It is necessary to acquire the outlook on the world (technological view) as the engineer.
- When comparing it to the personal computer
 - The case is studied.
 - The technological view is acquired.
 - It is likely to agree to the relation on.
- How should I do to acquire the technological view?
 - One way : The world of TRIZ (technological view) is told.

The world of TRIZ (technological view) is told.

It is the following ideas that make the bone union of TRIZ. A huge idea and practice were piled about each item and today's TRIZ was made.

- ★**Ideal**: An ideal thing is a thing that the function expected of it though it is not anywhere works.
- ★**Contradiction**: Here doesn't stand if it sets up there. It is a chance if there is such a dilemma.
- ★**Systematic approach**: The hint that solves a difficult problem is hidden unexpectedly.
- ★**Law of evolution**: The large invention is a combination of actually ordinary ideas.
- ★**Resource**: The one (person), energy, structure, idea (information), and situation and change at space and time, This is a resource.
- ★**Psychological inertia**: The person's perception is boldly omitted.
- ★**Problem model**: In Europe of the 13th century, If it was not a person who acquired a long experience, the dividing calculation was craftsmanship that was not able to be done. Why? Is the meaning of this expression understood?

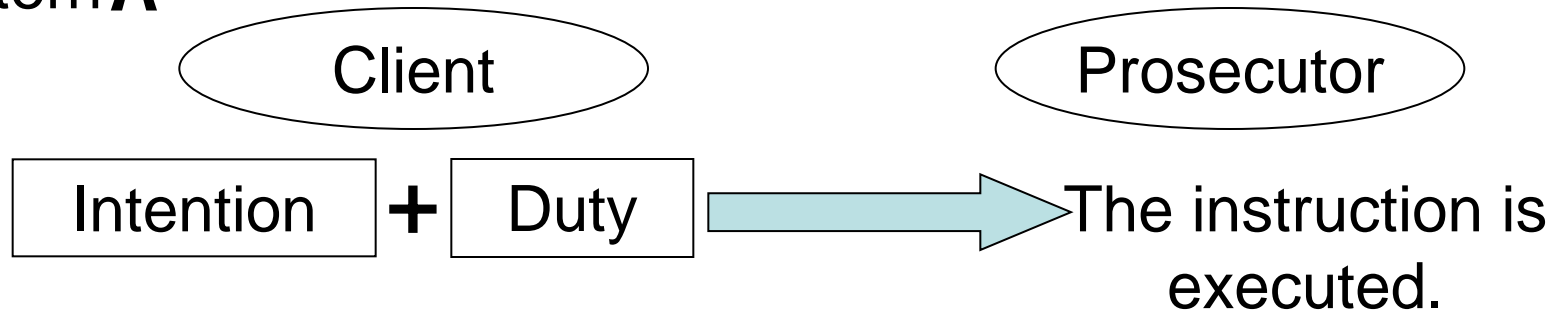
$$\text{DCCCLXXXVIII} \div \text{VIII} = \text{CXI}$$

3. It applies to the engineer of the enterprise.

Requirement for business accomplishment (how to advance work) :

「The client's intention」 and 「Prosecutor's duty」

Pattern **A**



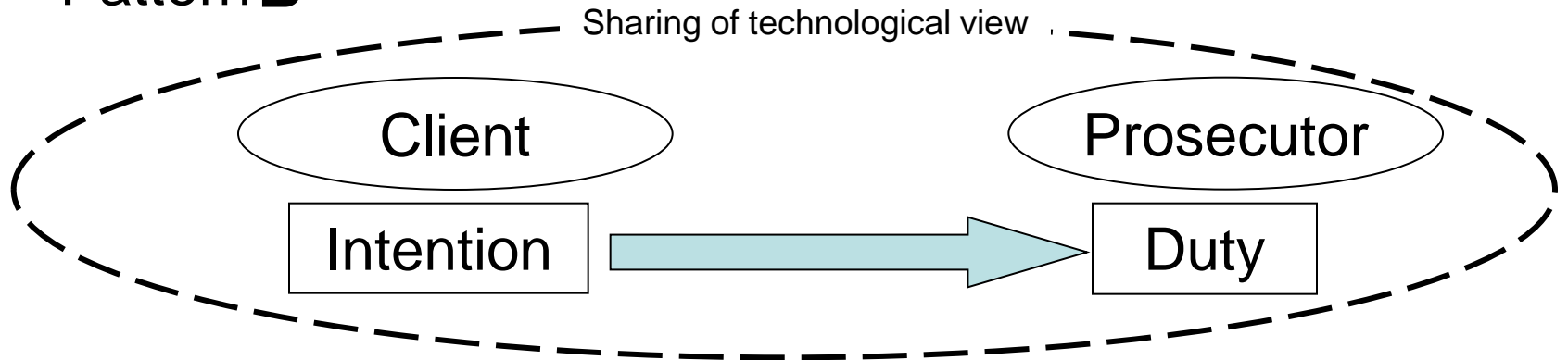
In the point of the business accomplishment if the client presents polite "Order specifications"

There is no problem. However, the room for prosecutor's discretion is limited.

The motivation is reduced only by this pattern.

**"Intention" And "Duty" is allotted.
"Technological view" is shared.**

Pattern B



The client only presents the intention of the business. As for the prosecutor, the discretionary zone grows, and the piling motivation also continues inventiveness.

It evolves as how to advance work. It becomes the pattern of the third stage.

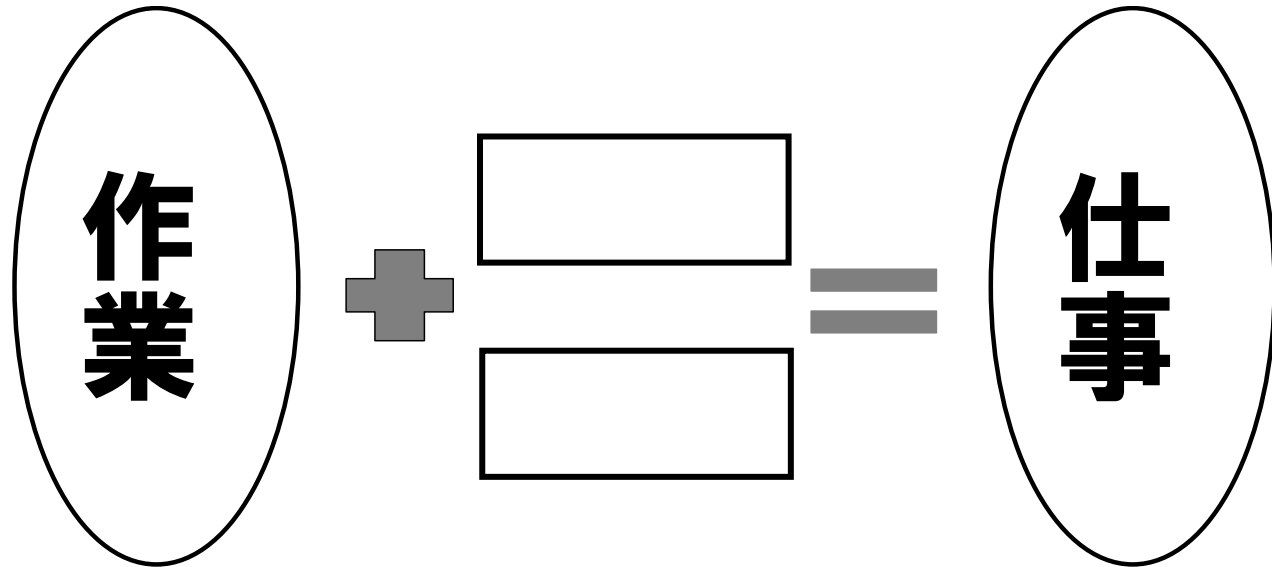
The prosecutor grows into "It thinks voluntarily and act" talent.

4. Concrete approach 「Keep learning. 」

**To aim at "Talent who thinks voluntarily and acts ",
To the student and businessmen, It is
"Keep learning. " to recommend.
This time, TRIZ was added to this.**

- (1) From work to work**
- (2) Japanese becomes good.**
- (3) Law of 1-2-7**
- (4) Three skills**
- (5) TRIZ level 1 textbook**

(1) From work to work



The way changes when this is understood. It devises it.

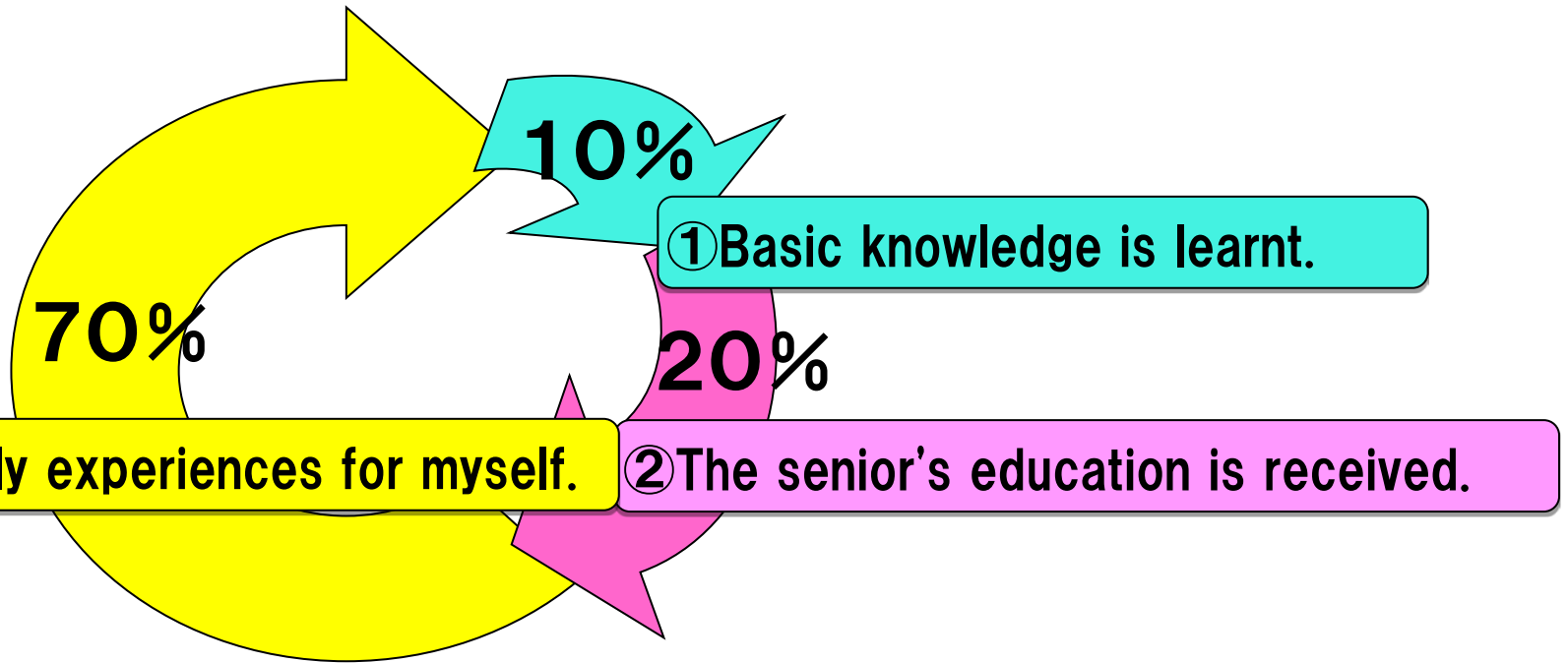
When this is understood, vigor is lucky. It burns.

Work: Here, do as you were said saying.

(2) Japanese becomes good.

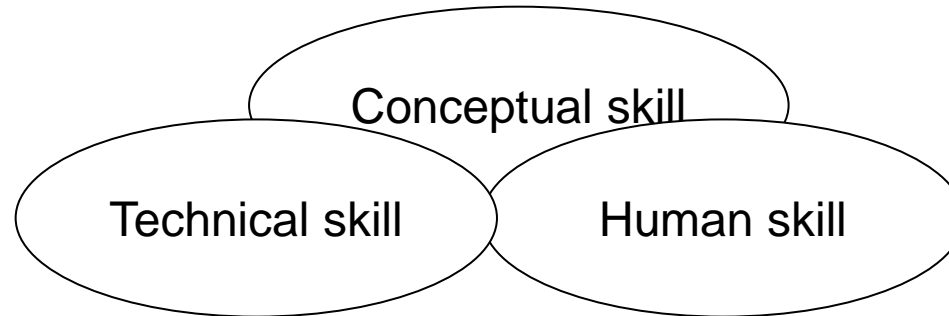
- A logical idea is indispensable. Study Japanese to the recommendation. Japanese raises the logical thinking.
- It is the most effective to read the book, and to write sentences.
- "Copy" is strongly recommended for the writing skill.
The column serialized with a famous newspaper every day is copied.
☆Concise beautiful passage ☆Model of how to catch current topics
- The acquisition of the foreign language more than the mother tongue is impossible.
For adequate communication in the foreign language, Skill and strengthening the mother tongue are indispensable.

(3) Law of 1-2-7 (Cycle of growth)



- It is repeated at the level with higher this cycle.
- This cycle is repeated even when working on new work.

(4) Three skills (Robert Katz)



Technical skill

The technique, the process, the procedure, and the technique in a special area are understood, and those capabilities in length and breadth to make good use of.

It is the most concrete, and it requested by a lot of people in the age of specialization.

Humanity skill

Ability to demonstrate each one member's ability in organization, and for environment that each other puts ones' efforts together to make.

The advanced one accepts the existence of a viewpoint, recognition, and belief different from me, and a word, behavior of others, and true aims understand something. The self-performed action is told by other party's form of presentation.

Conceptual skill

Ability to catch things and undertaking activities overall. It is understood that the function of the organization is related according to mutual. How certain one change influences the entire function is recognized.

It can lucidly draw how the business is related to politics, the society, and the economy of the industrial world, the regional society, and the entire country.

(5) TRIZ level 1 textbook

TRIZ is recommended to the manager layer as follows.

はじめに TRIZ(トゥリーズ)とは発明問題解決理論、つまり発明の方法論として知られていますが、真価はその思考法にあります。言葉の意味を知っているだけで、考え方の幅が広がり、仕事が効果的になり、生産性も向上します。 例えば、

製品や技術の機能 ..(主機能)=(用途)+(技術的機能)という構成で文書化すれば、明瞭なビジネス文書、技術文書が書けます。

技術システムの進化 ..世の中で起こる変化は同じようなことが繰り返されます。その法則性を利用すれば、将来形がイメージしやすくなります。

理想性、理想解 ..究極の理想から出発する思考は、現状を改良するアプローチでは実現できない、飛躍的な進歩のきっかけを与えてくれます。

資源 ..ヒト・モノ・カネ(経営資源)に限らず、エネルギー、空間、時間、情報、構造、状況、変化、時には何も無いことでも、何でも資源になります。

From "TRIZ level 1 pronunciation of the textbook" of the logo making.

5. To the end More haste, less speed.

**The education is the one that remains
after all forget having learnt it at
the school.**

Einstein

**If it is necessary not to be caught
only in "One with the immediate effect"
and "One with computable return" as a
person involved in the education and
training, it is deeply impressed.**

Support documentation

Koji Tsumagari

Logo Co . The President and Representative Director Docent of Tokyo City university Japanese project, Member of management society Japanese TRIZ society support member The engineer of the casting factory participates in drawing in NISSAN Motor Co., Ltd. and it participates in a lot of projects in profit cost management and a power train new product development, etc. After it retires of this The logo Ltd. is established with Akira of [**] Sakai in May, company and 2003, and it arrives now.

【Recent book】

90 percent of work is decided by "Arrangements". (2014 Writing support Takahashi bookstore)

Work ends at half time. (2013 Collaboration Diamond company)

It is useful for the life. "Cloud on slope"Ana (2011 Collaboration Integrated law publication)

The practice one-making innovation (2010 Collaboration Nikkei Business Publications, Inc.)

It learns from "Cloud on slope. Management that can be won (2010 Integrated law publication)

Revised edition practice ! Project management (2008 Collaboration PHP Institute Office Int' l)

【Recent activity】

In the enterprises of the car, the electric machine, the material, medicine manufacture, the system development, temporary staffing, and service, etc. the lecture, training, and the site support service of "How that work is correct to advance it" and "Project management" are done.

Acknowledgment level of project management (PM)

There are three groups in PM (project management) industry.
(One group of the individual member base is excluded.)The
enterprise that joins two groups exceeds 230 companies.

Project management society 134 companies (corporate member)

Japanese project management society

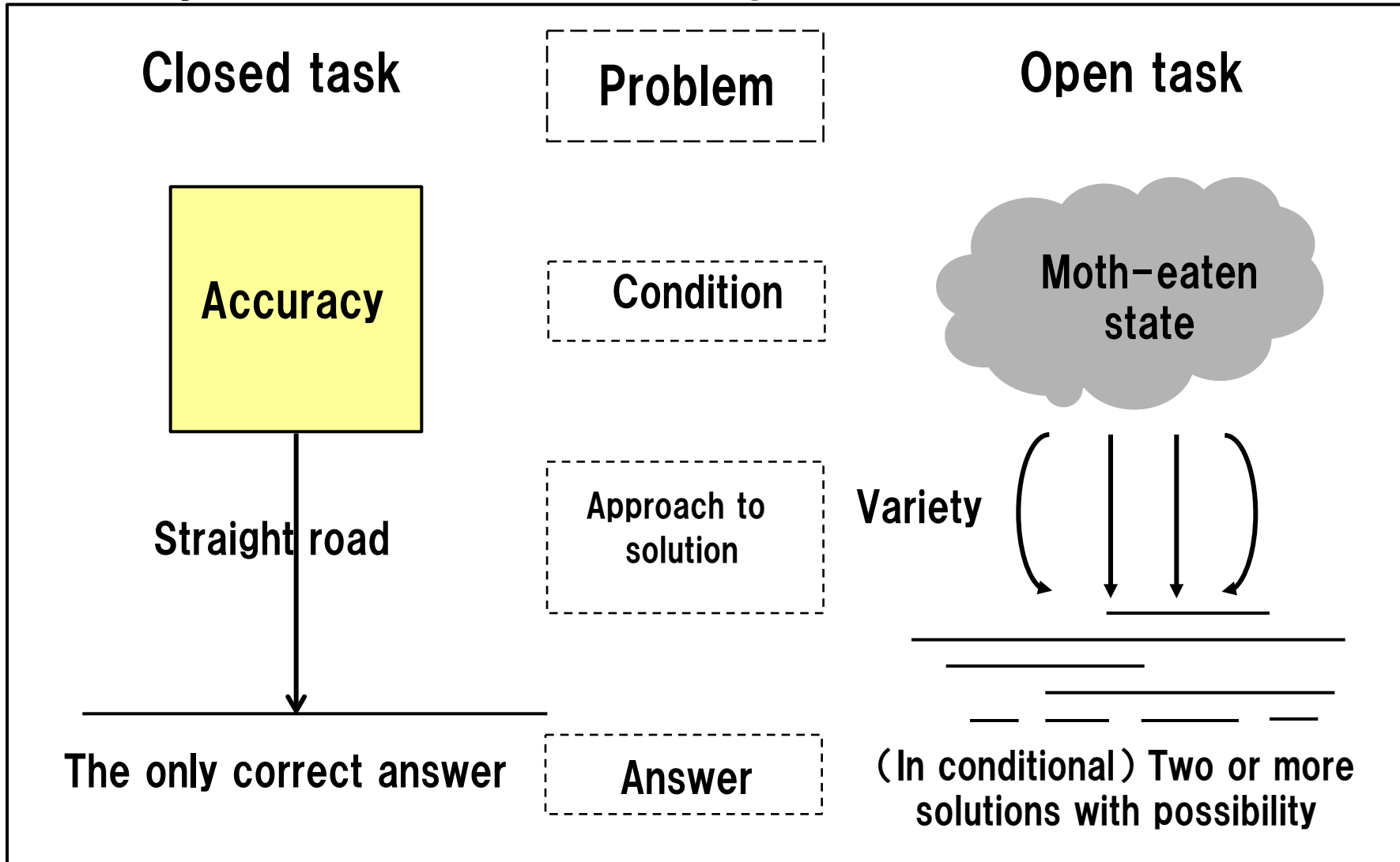
97 companies (corporate regular member and supporting member)

United States PM society Japanese branch

3000 people (number of members)

It depends on HP information as of July, 2014.

Open task of introducing it



It introduces an open task.

The answer with what problem it having grappled at the school is easy. It has grappled with the problem that the teacher taught how to solve. Official of the Closed task is as follows.

(Accurate condition)+(Established solution) \Rightarrow (The only correct answer)

It is a demerit mark when coming off from the established solution (idea method) right and left even by one step.

It is assumed that there are two types of ideas in psychology.

Settling type idea of one(closed, It is not creative.), The other emanation type idea (open and creative).

A person predominant settled idea is an intellectual character. A person predominant the idea of the emanation type is named a creative character. The person who is intelligent can solve a very complex problem. The problem is the one with the already-known solution that someone discovered till then. It is ,in a word, closed problem. A creative person tries to notice by himself, to set the problem, and to slip out the frame given beforehand. Of course, everyone offers an intellectual ability and a creative ability and has the person. However, each extent is different depending on the person. A creative idea attenuates as the age advances.

The student of the upper-grade and student 's at the university large majority come to follow the general trend. In addition, they dislike becoming independent, never never have the go-it-alone mentality, and come to pay attention only to "It is crunched, and the digestion. Information neatly decorated". They hesitate when they meet "Problem that the condition is not decided, and the solution is obtained only as choices". So natural.

How to fly cannot be taught to the bird that put it in the bird cage.

"Various approaches that reach the solution", "Difference of the level by which the real root of the problem is dug down", and "There is a variation in the solution" The muscular power of creativity cannot be forged when not flying away to the space of the open task that allows this.

Outline of subject and performance target: Engineer ethics

【Outline of subject】

Acting by voluntarily thinking becomes healthy member of society and occupation person's basic requirements. Everyone takes the responsibility and the influence of corresponding for the occupation person for the society. I want to tell "Scene of work that engineer's work, role, and ethics are needed" and "How that the background and work are correct to advance it and resolutions of the engineer" to the people who walk on engineer's road as an occupation.

Think the following to be independence、"What is the life not shaded off?"

【Performance target】

1. The background for which engineer's ethics are needed is understood.
 2. "Idea" to support engineer's conscience and "How that work is correct to advance it" are learnt.
 3. It not only is attending school but also after it graduates, "Technology that keeps learning" is always learnt.
- ✕Learning; It understands first, and it comes to have to be able to translate into action even little by little next.

The public trusts the engineer.

The engineer has the accountability ···
(accountability)

- **There is asymmetric information.**
- **The technology has been highly complicated.**
 - **It is difficult for the engineer to explain everything for the public and to make them understand.**
 - **Even if the public doesn't understand everything, the trust can be obtained.**

Reference noblesse oblige

Obligation of person with high position

(Nobility compels the obligation.)

What is a reliable person?

Entrust them with the arc of six shakus.

The child that father doesn't have bereaved small parents can be entrusted at ease. (A reliable person)

“Analects of Confucius” Taihaku

If the young lord who doesn't have small parents can be entrusted, the government ordinance of the nation at feudal lords can be left. It is not possible to deprive him of the will even if importantly hitting. Will only this be gentleman's person? (Certainly.) It is gentleman's person.

Confucius BC551~BC479 Philosopher in China on age of spring and autumn Analects of Confucius Postmortem of Confucius. The one that Confucius and the one of the best pupils' words and deeds were recorded. One of "Taihaku" of "Four books" in Confucism along with "Mencius" "University" "Mean".

Transition: Form of lecture

	Teaching material (topic)	Question from lecturer (individual)	Answer sentence submitting (It is usual in all members.)	Team discussion (leader election)
2012	● ↓	● ↓		
2013			● ↓	
2014				●

Spain : It doesn't limit to Shinkansen, and it is equipped the conventional rail and the bus, etc. with the hammer for the emergency (It breaks the glass and escape from the window).



Se penalizará el uso incorrecto

Spanish Shinkansen (AVE) The lecturer copied it.

日付 学籍番号 氏名

1.

2.

3.

4.

**1.
スペインと
日本について
これらの情報から
「日本の問題」は
何か？**