

How to Foster Social Safety Culture by Organizational Learning for Safety-critical Systems

Hidekazu Yoshikawa
Toshio Sugiman

Kyoto University

1

Contents

- Existence of At least Two Meanings of Risk
- Gap between Safe and Danger
- Technical Communicator as the Mediator to gain Trust from Society
- What is Successful Technical Communicator ?
- Activity Theory- New Approach for Double Loop Organizational Learning

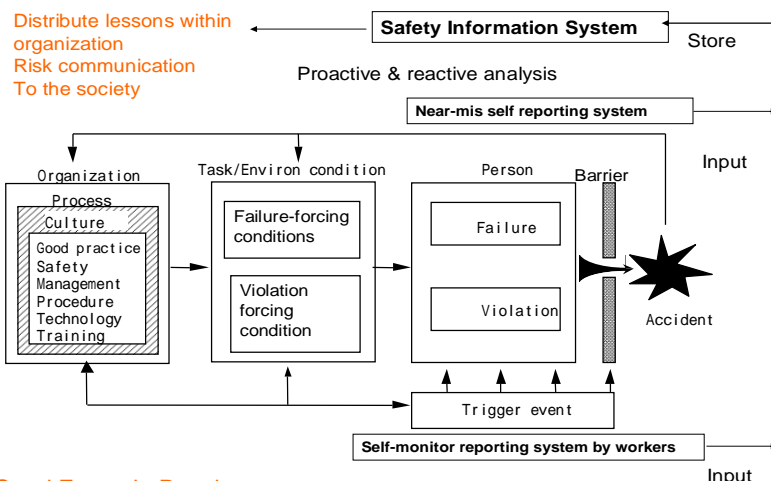
2

Existence of At least Two Meanings of Risk

- Scientific (objective) risk within organization
- Psychological (subjective) risk outside of the organization
- You should recognize that the meaning of “Risk” is (and should be) different, by the cases you are within or outside of hazardous organization.

3

Proper Risk Communication within Nuclear Organization (Adapted from Prof. Reason)



Good Example Practice:
TEPCO's Non Conformity Report system with the related committee activity ⁴

What is Social Safety Culture?

- Prof. Reason's way of safety culture campaign within hazardous organization is very important and needed to implement within the organization,

But

- There remains another important Safety Culture: this is "Social Safety Culture" and it becomes at issue in "Risk Communication for Outside of Nuclear Society"

5

Risk Communication for Outside of Nuclear Society

- Who are **outside** of hazardous organization?
Citizen>>Media>>Local government
They become all Important actors and major players for "Symbiosis of Nuclear with Society".
- But it is hard to let them change attitude towards the direction nuclear people wish.
- Here arises Social Safety Culture, and Nuclear Regulators are expected to become crucial player.
- But how **Regulatory** (& Nuclear Academia) are seen from Society from this point? It seems different from country to country

6

Regulatory (& Nuclear Academia) seen from Society

NOT Outside or **Inside** Nuclear Question BUT

- Is it knowledgeable than industry?
 - Is it the advocate of nuclear industry?
 - Is it reliable and dependable ?
- type Questions arises from society.
- Question: How do you think by yourself what you are seen from Society?

KINS? JNES? NISA? STA?

7

安全(Anzen :safe)と安心(Anshin: Peace in mind) の確保

This is one of the major subject of
National Science & Technology R&D
Program Plan in Japan
(in Mr. Oh-eda's Plenary talk at
ISSNP2007).

But the second word **安心** is very difficult to
define to let every one satisfy and attain
(even translate into English)

8



Common sentimental factor
seen in Japanese for

安心

Yearn for safe , peace, health

But

No certain and No assurance for Future

And so pray to Gods-like things

Without any rational principle

Like Confucianism, Christianity

11

The best way for Regulatory
(and Nuclear Academia)
in Japan

Should be seen as such kind of
“Dependable thing”

12

But the reality is not so. Why?

One aspect is
Gap between Safe and Danger
Another aspect is
Trust

13

Gap between Safe and Danger

Two highlighted types of Attitudes

| Safe 安全 | Uncertain どっちつかずで 不安な状態 | Danger 危険 |
|----------------|-------------------------------|--------------|
| Regard as safe | | Danger |
| Safe | Regard as danger | |

Type A:
Safe unless
danger is
detected

Type B:
Danger
unless safety
is confirmed

Which type do you think you are, Type A or Type B?

14

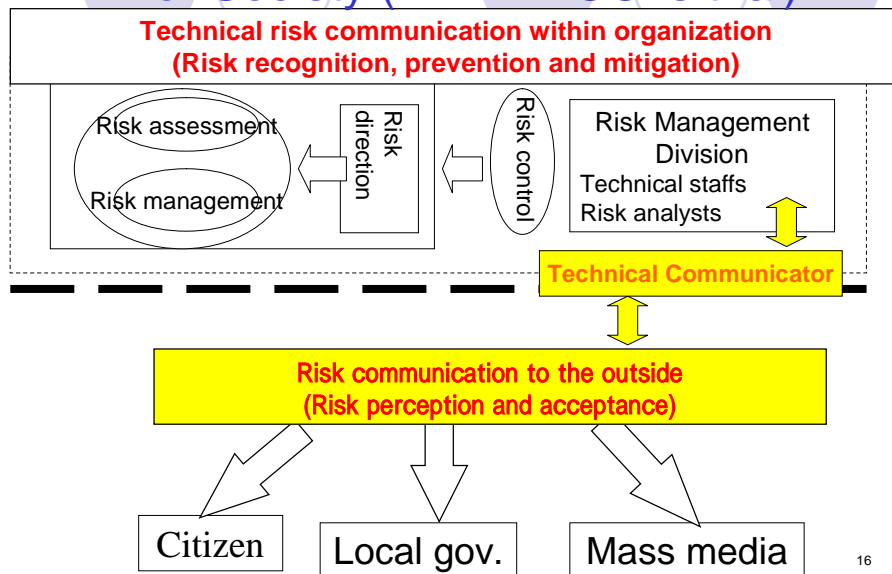
Seven Factors Contributing Social Trust Formation (After T. Sheridan)

| | |
|---|-----------------------|
| 1 | Reliable |
| 2 | Robust |
| 3 | Familiar |
| 4 | Understandable |
| 5 | Explanation of intent |
| 6 | Useful |
| 7 | Dependable |

Note: "Dependable" is the outcome from the rest six factors.

15

Technical Communicator as the Mediator for Society (Ex. TEPCO's trial)



16



What is Successful Technical Communicator ?

- Should be “**Trusted**” from the both parties, esp. **from outside** world, (although trusted by the management within organization is also difficult)
- But how to get “Social Trust” if technical communicator belongs to the company ?
- **Solution: Collaboration with independent authority who has the third party insight**

17

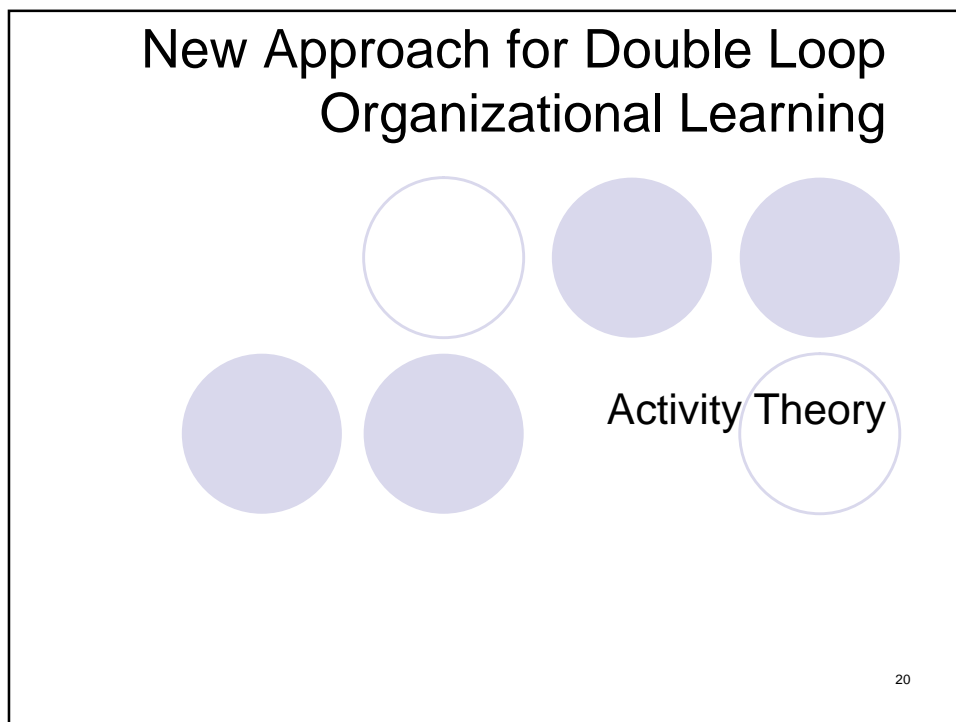
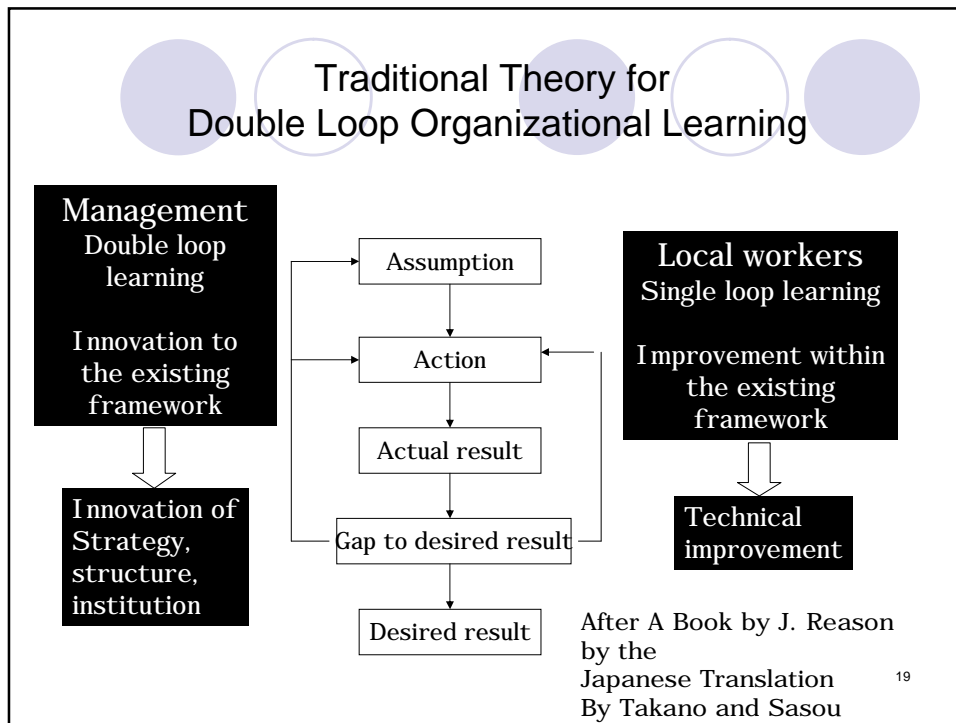


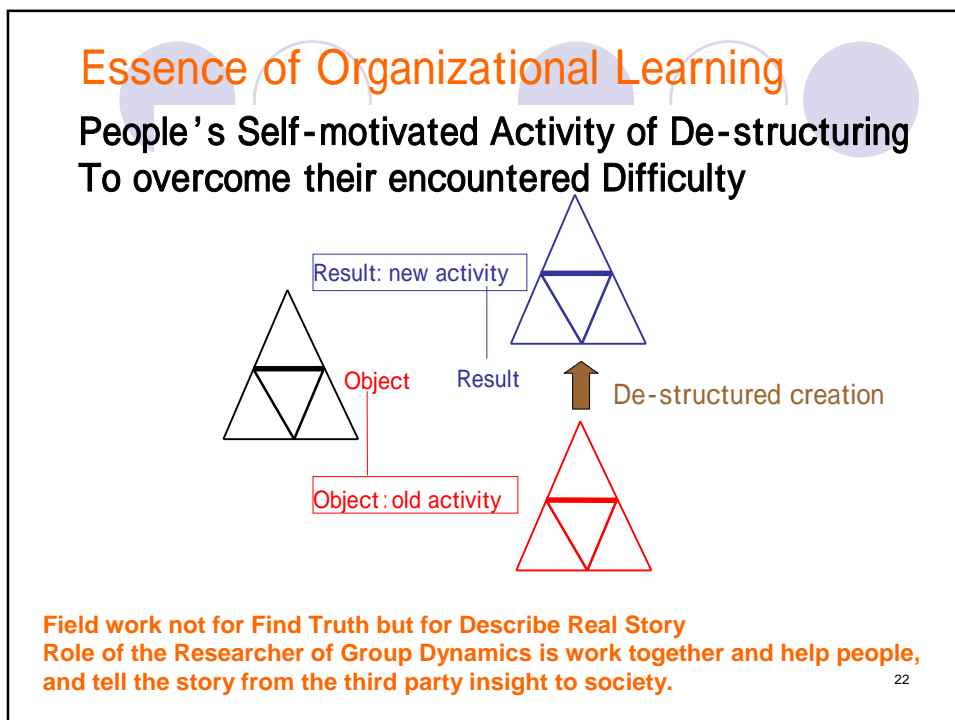
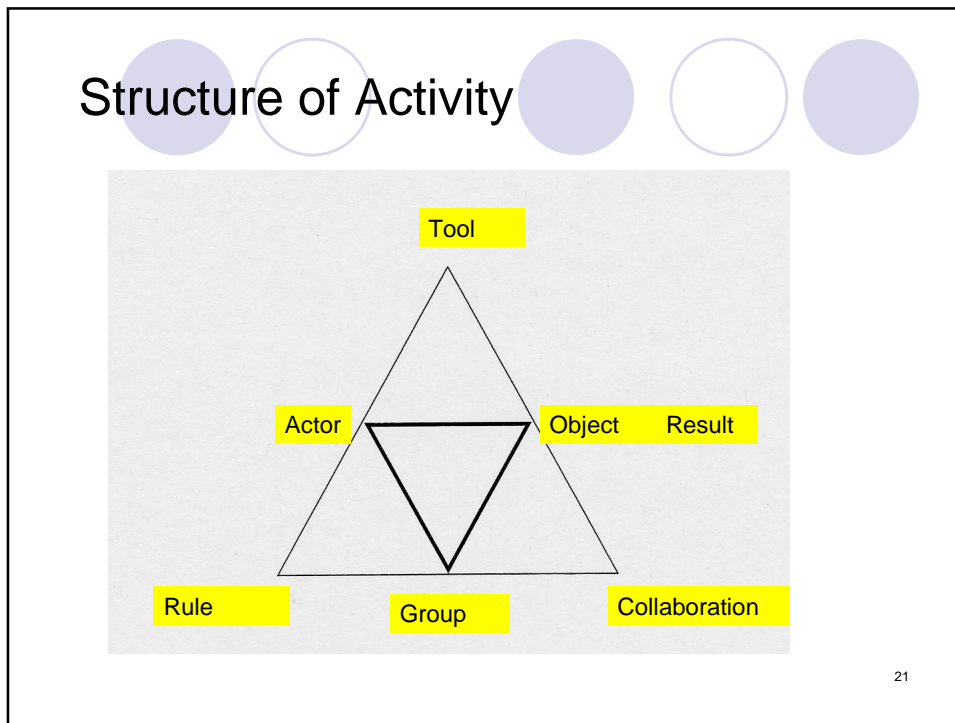
Trial Study

“Fostering safety culture by Organizational Learning in Nuclear Organizations”, FY 2006-8

(T. Sugiman, etc. by Support of JNES)

18





Field work not for Find Truth but for Describe Real Story
Role of the Researcher of Group Dynamics is work together and help people,
and tell the story from the third party insight to society.

Two Findings of First Year Field Study* at T-Plant in K- Electric Power**
 (: *By Pair of Field workers,**Good Performance of Safety Culture Score)

Presented at ISSNP2007 by H. Fukui and T. Sugiman*

Observed many evolutionary outcome activities

Observed worrisome trend in the workplace

Small findings small trials
The basis activities

- 発言促進的な会合
- 教育・研修
- 表彰制度
- 長期休暇
- チェックシート

INCREASED desk works FOR Regulatory REQUIREMENT depriving workers²³ time of learning activity

Finding of Second Year Study to be Presented at ISSNP2008 by H. Fukui and T. Sugiman

Two ways of seeing human classes to find new organizational learning outcome

Common employee

Managers, Supervisors

Top layers

Decide and execute

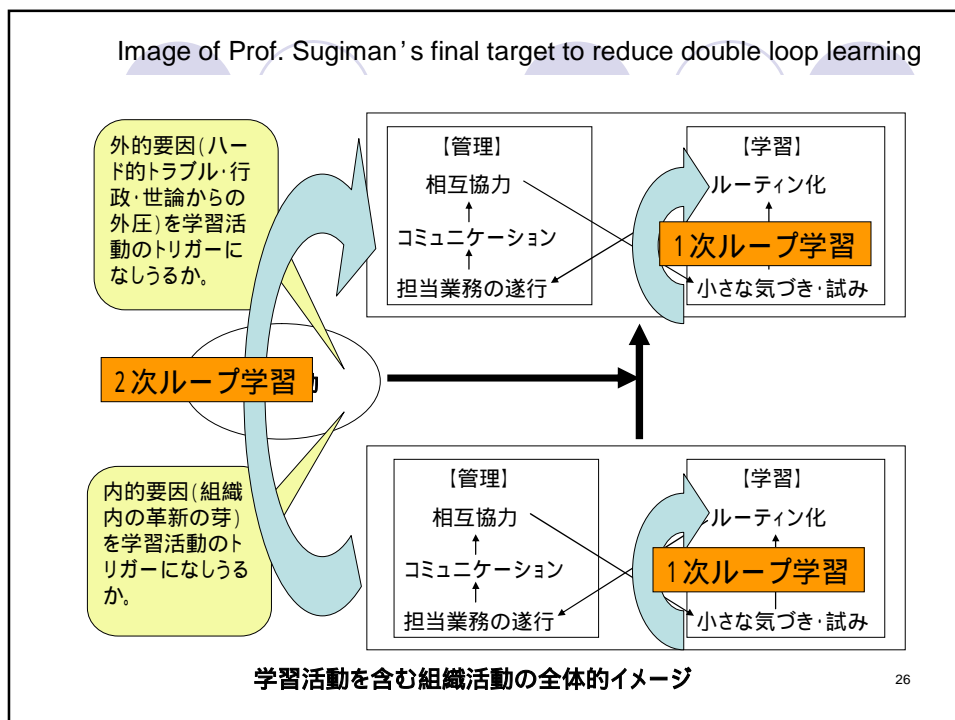
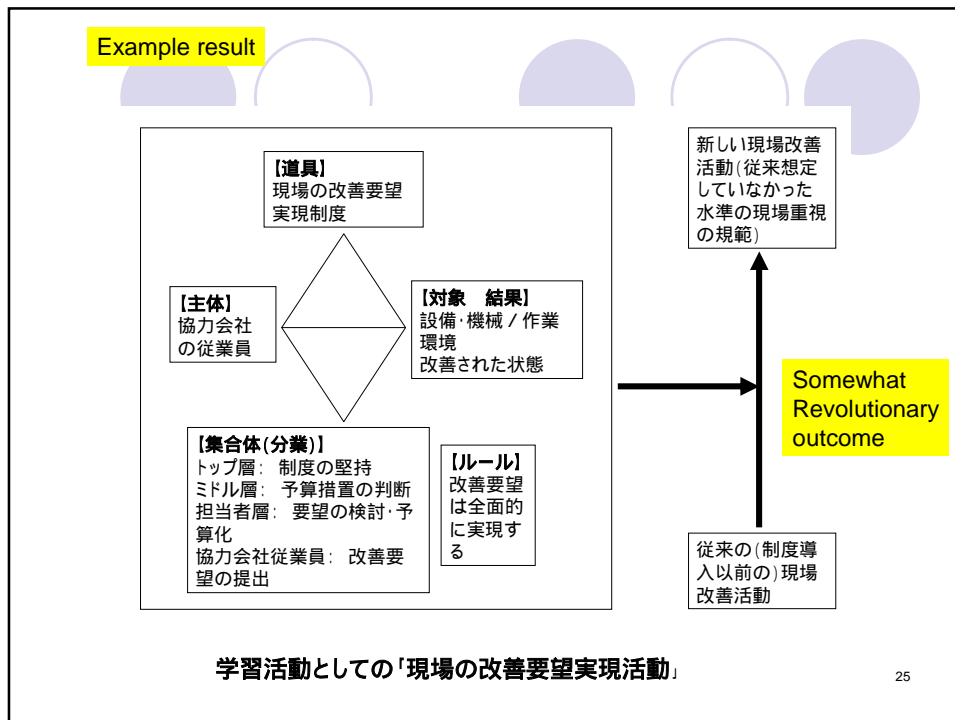
Common employees

Decision of top layers Based on information from below

SEE
Common employee
As the tool of managers and supervisors

SEE
Managers, supervisors
as the tool of common employees

24



Discussion Points

- Will this be nothing but traditional organizational learning? **NO**
- Does this approach contribute to Social Safety Culture? **YES and GOOD for hazardous organization** to introduce the third party view for the reality of workplace environment
- **WE hope recovery of mutual trust between Nuclear and Society by Clever Regulatory body to Promote such kind of organizational learning activity .**

27

Concluding remarks

Not only “Safety Culture within Organization”, but also “Social Safety Culture for Nuclear Power” will become more important subject in the present-day **安心追求型** society where more public involvement are progressing in the nuclear-related decision process
(such as seen by mayors elections, voting by local citizen, for accepting the change of nuclear regulation, プルサーマル、 plant construction, HLW, and much more .)

In this respect, more efforts should be given on what are “**trusted regulation** (and nuclear academia) effective for maintaining Social Safety Culture” as well as the industry’s effort on what will be **good** Symbiosis with Society.

28