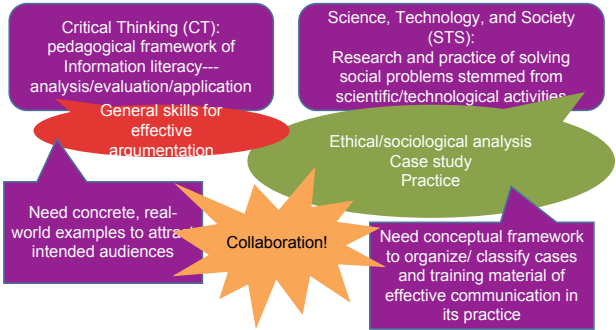


Intercultural issues toward integration of critical thinking and science communication

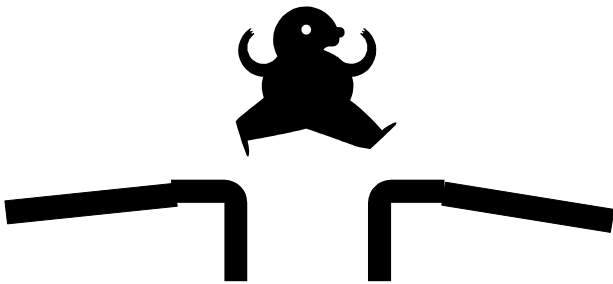
Yuko Murakami and Tetsuji Iseda

Demand for literacy in highly technological society in an information age



CT without SC is empty; SC without CT is blind

However, there are big gaps between them.



Current discrepancy between CT and STS

- Need of advanced logic
- Need of interdisciplinary inputs
- Intrinsic problems of CT

Need of advanced logic

- (1) inductive and probabilistic reasoning
- (2) deontic reasoning

SC requires statistic literacy and moral reasoning

Need of interdisciplinary inputs

- (3) empirical results of psychological research should be introduced as supports of the principles of traditional CT;
- (4) pragmatics: the notion of context should be carefully discussed in CT;

SC is heavily context-dependent

Intrinsic problems

- (5) CT and STS seemingly have different attitudes on commitment to a specific topic, although SC in the communication model may welcome a topic-neutral approach of CT;
- (6) emphasis of transferring knowledge in the deficit-model-like CT should be shifted to focusing on building mutual trust and other real-world skills.

“Deficit model” or lack of two-way communication

SC

1. Conflicts on problems involving science and technology stem from lack of knowledge of the topic, on the side of lay people; and
2. We can solve the conflicts by supplementing lacking scientific knowledge to them.

CT

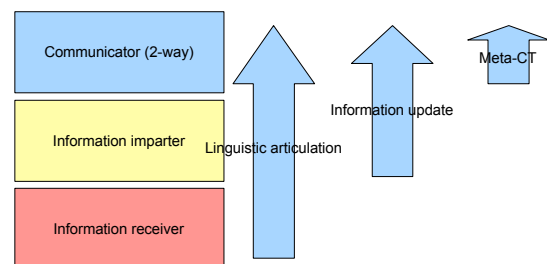
1. Conflicts on problems involving arguments stem from lack of logical skills, on the side of lay people; and
2. We can solve the conflicts by supplementing lacking logical skills to them.

Need of communication model has been discussed

Observation

- SC is intercultural communication
 - The STS-specific factor is only (1) inductive and probabilistic reasoning.
 - Other factors of discrepancy are common in intercultural communication.
- CT needs revision to cope with communication

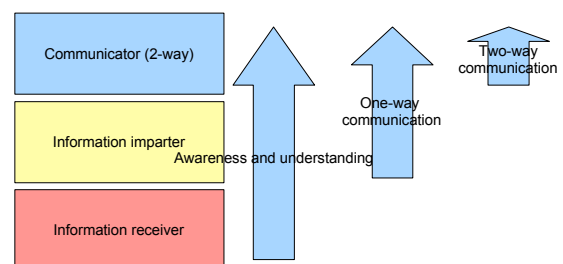
Three-tiered model of CT



Three-tiered model

- CT-1: awareness of problems
- CT-2: understanding of the topics and problem settings, and model-building of audience in one-way communication
- CT-3: exchange information to find a common ground and a point of compromise in two-way communication.

Three-tiered model of SC



Meta-CT

- CT techniques are not universally effective
- Need of meta-CT skills to decide whether CT works

Necessary skills in
two-way communication

Toward pedagogical materials for Japanese

- Virtually no CT curriculum in K-12 and most universities in Japan; logical/statistical reasoning skills ignored.
- Japanese language is not logical?
 - Debate in English education in Japan: how to enjoy discussion/argument? Is the matter is on social skill or on cultural issue?

Rokkasho

- “YORIAI”-style SC
 - Trust-building process
 - No pressure against immediate decision making
 - Free discussion
 - Discussion not open to public

Miura (2008)

- Critical thinking textbook integrated with theory of war esp. justification of the uses of atomic bombs
- Ambitious but pedagogically problematic