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Risk/Crisis Management⑧

危機管理論⑧

Risk Communication and biases

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Process of Risk Management



6 stage of Risk Management Process



How to implement risk communication?

Should we inform all data or documents in most details with highest expert level?

We found the risk of fatal cancer by radiation α exposure as

A : 0.1/pop- Sv

B : We can estimate at least one individual fatal canceration if some magnitude of population had been exposed 10SV

How to implement risk communication?

Could we choose any contexts for passing the information to all as our like?

A : This risk may be expected to bring 60 % death of residents by huge infection!

Framing effect

フレーミング効果

B: We expect to survive at least 40 % of residents even if this risk may bring huge infection!

Biases reflecting on sharing risk information

リスク共有に影響を及ぼすバイアス

① Demographic factor デモグラフィック要因

Differences in understanding risk by due to age or sex

② The gap of knowledge (intelligence gap) 知識量の差

Overestimation of risk severity when less knowledge(intelligence)?

③ Expert bias 専門家バイアス

Non-emotional evaluation for the expert events

④ Status bias 立場の違い

Different evaluation for risk in different status (manager VS. engineer)

⑤ Characteristic factor 性格的要因

Opportunism, lethargy, indifferent 日和見、無気力、無関心

⑥ Cultural factor 文化的要因

Difference in nationality

Various biases related to human perception 人間の認知に関するバイアス

① Normalcy bias 正常性バイアス

Bias in which ignoring or underestimating things what are inconvenient for them
自分に都合の悪い事柄を無視したり過小評価して、何もないかのように考える傾向

② Optimism bias 楽観主義バイアス

Bias in which people tend to have selfish idea to think "No problem to me" if they face any dangerous situation
危険な問題に遭遇しても、自分には関係ないと都合よく考えてしまう傾向

③ Catastrophic bias カタストロフィー・バイアス

Bias in which people tend to overestimate the risk of low probability in arising but high probability in damaging such as mega earthquake or meteorite fall
巨大地震や隕石落下など、確率は低いが被害が甚大なリスクを過大評価する傾向

④ Experienced bias 経験バイアス

Bias in which people tend to determine things by always empirical views even if that things have never seen before
未知のリスクに対してこれまでの経験値で判断しようとする傾向

⑤ Inexperienced bias 未経験バイアス

Bias in which people tend to make inappropriate judgement because that things have never seen before
当該リスクに遭遇した経験がないため、誤った判断を犯す傾向

Why people are suffered by such misperception

For scientific information (statistics information, quantitative information, uncertainty information), people are used to take **a heuristic approach** in their decision making stage, therefore this approach often induce big distortion in some situation when any information and phase are provided instead of approximate solution may be done in short term. -by D.Kahneman & A.Tversky

科学情報(統計情報、数量的情報、不確実性情報)に対し人は日常的にはヒューリスティック処理を行うため、短時間で近似解は出すものの、情報の種類や場面によっては大きな歪みが生ずることがしばしばある (D.Kahneman, A.Tversky他による)

Heuristic

At the time of decision making, people tend to employ quicker and intuitive way rather than approaching answers by logically and step by step.

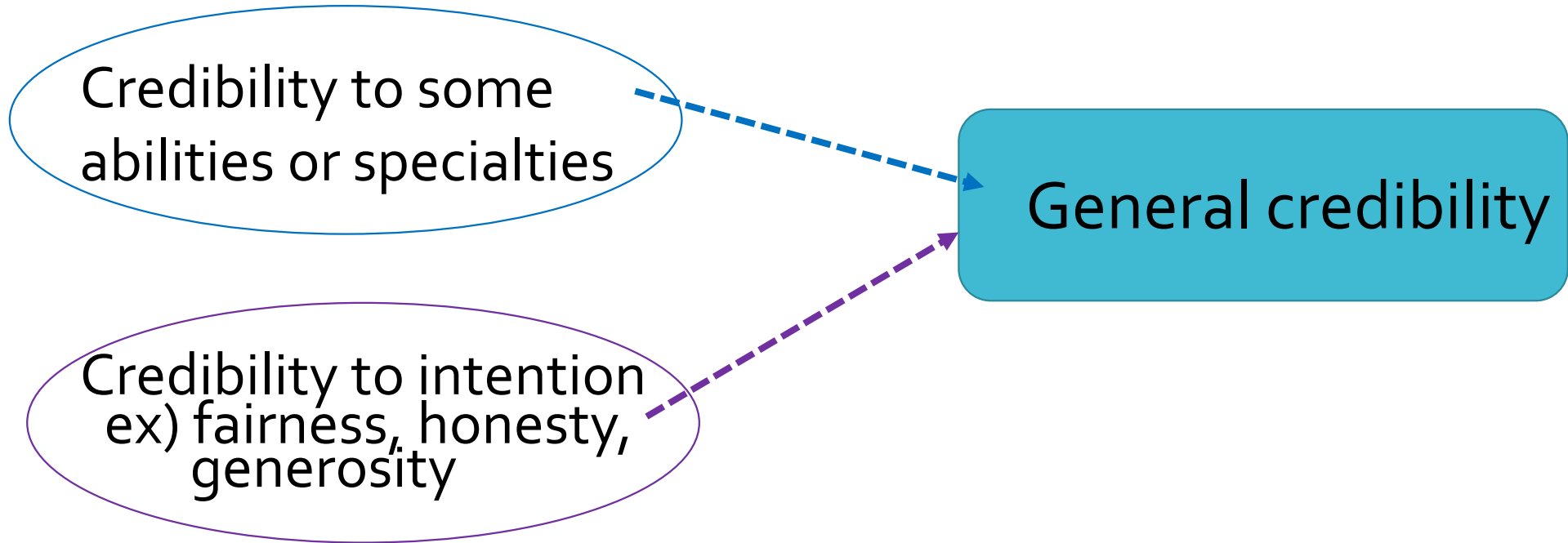
人が意思決定をしたり判断を下すときに、厳密な論理で一步一步答えに迫るのではなく、直感で素早く解に到達する方法

CAUSE model by Rowan KE (1994) in risk communication

- step 1) Credibility
- step 2) Awareness
- step 3) Understanding
- step 4) Solutions
- step 5) Enactment

What is credibility OR trust?

Traditional credibility (trust) model



SVS(Salient Value Similarity)

People may be credible to those who have similar values

Which model should be applicable in case?

Provability of earthquake

Earthquake rubble disposal problem

Marine base transfer problem in Okinawa

Dumping plastic materials at sea