

Expert Workshop on Risk Perception and Risk Culture

Thursday 10 January 2013 – 08:30 - 12:15

School of Public Policy and Management, Tsinghua University – Third floor

Workshop description

One doesn't have to look very deeply into any account of individuals, organisations, or societies dealing with risks to observe how psychological, social and cultural forces drive the perceptions and behaviours of individuals and stakeholders. Whether protestors are angry about a local waste incinerator, a financial industry is blind to mortgage derivative risk, or shoppers avoid foods made with genetically modified organisms, it is clear that people's level of concern about risk and their preferences for risk-management solutions are powerfully influenced by characteristics of the risk and its context that go beyond simple measures of damage and cost.

This workshop will explore the psychological, social and cultural factors that influence how risks are perceived, evaluated and acted upon by individuals and groups. Following several presentations to lay the groundwork, participants will discuss research and practical policy measures that would enable risk managers to better cope with these human dimensions of risk. The discussion will address both Chinese and international risk contexts.

Risk perception refers to an individual's or group's associations and judgements about a risk. Psychologists have found that people's perceptions are influenced by many risk-related and context-related attributes of the risk scenario. These include the images of dread associated with the threat, whether the risk is accompanied by any countervailing benefits, whether those at risk are familiar with the threat, and whether the risk is personally controllable. On a more collective level the perceived distribution of risks and benefits among and between social groups and populations is a major driver for social concern.

Understanding the way people perceive risk is an important prerequisite to designing effective risk interventions and risk communication.

Whereas perceptions drive attention to risk, people's values and concerns influence their preferences for how risks ought to be managed. For example, judgments about how aggressively the state should intervene in free markets to influence people's preferences for regulation of new financial derivatives.

Debates about the best risk management option can be impeded by a failure to identify and discuss underlying value differences and concerns of the participating stakeholders.

This workshop will explore how perceptions of individuals and groups affect risk-related behaviour and social responses, which factors have been identified as influential for shaping human perception and how risk management agencies should handle perceptions and their influential drivers.

The social and cultural dimensions of risk management are closely related to management decisions that are often made by institutions (e.g., government agencies, corporations, non-profit organisations). Organisations adopt norms, values, and visions that influence how they engage stakeholders, assess risks, and judge the relative costs and benefits of risk management alternatives. Whether explicit or implicit, formal or informal, these traditions constitute the organisation's risk culture.

Risk culture not only influences an organisation's internal processing of risk decisions, it also affects how organisations perceive the legitimacy of positions and concerns of external stakeholders. Groups on opposite sides of a risk issue can become disdainful of one another, in part because their internal risk cultures promote the demonization of critics.

The workshop will explore various dimensions of risk culture and the challenging question of how to change a risk culture that is not serving an organisation well.

Workshop Agenda

08:15 Registration – SPPM Third Floor - Room 321

08:30 – 8:45 Welcome and introduction

- **Xiaofei XIE**, Peking University
- **Ortwin RENN**, University of Stuttgart

Moderator: **Keith FLORIG**, University of Florida

08:45 – 10:00 Session 1 – The view from Chinese experts:
How to create a responsive risk culture in China

- **Xiaofei XIE**, Peking University
The Expectation Discrepancy Effect: Risk Communication Barriers and the Intervention Strategies
- **Yongfang LIU**, East China Normal University
Risk Preferences in Monetary Auction Tasks: The Roles of Self-esteem Levels and Genders
- **Wenxuan DING**, Indiana University and Cheung Kong Graduate School of Business
Modelling Risk Perception for Response Preparation
- **Discussion**

10:00 – 10:15 Tea Break

10:15 – 11:30 Session 2 – The view from outside China:
Building blocks of risk culture formation

- **Ortwin RENN**, University of Stuttgart
Risk Perception and Risk Culture
- **Keith FLORIG**, University of Florida
Risk Culture in the Private Sector
- **Baruch FISCHHOFF**, Carnegie Mellon University
Integrating Risk Perception and Analysis
- **Discussion**

11:30 – 12:15 Session 3 – Panel discussion with speakers and other experts

- What are the consequences of an organization dismissing the risk perceptions its stakeholders? How can organizations demonstrate understanding of their stakeholders' risk perceptions? How can organizations become aware of their own risk perceptions?
- How do traditional and social media influence risk perceptions? Do social media foster better understanding of risk perceptions among stakeholders, or do they induce polarization of risk perceptions by creating partisan information channels? In a polarized risk-management environment, how can organizations gain the trust of all parties?
- Risk perceptions and risk cultures clearly vary across nations. But they also vary across and within smaller levels of organization: sector, industry, firm, and team. How significant are national differences compared to others? For what kinds of risk management decisions do national differences matter? In China, do longstanding expectations that risk management is

the government's responsibility bode ill for policies that would encourage emergent individual initiatives in a crisis?

- In what ways can risk culture cause an organization to behave counter to its own strategic interest? If an organization wants to change its risk culture, what science-based advice can be offered to inform that process? What underlies the recalcitrance of risk culture to change?

Background reading

- Fischhoff, B. and Kadavy ,J.; "Risk Perception," Chapter 5 in *Risk- A Very Short Introduction*, Oxford Press (2011)
- Renn, O; "Risk Perception", Chapter 4 in *Risk Governance*, Earthscan(2008)
- Wynne, B.M; Creating Public Alienation: Expert Cultures of Risk and Ethics on GMOs, *Science as Culture* 10(4):445-481 (2001)
- Renn, O., and Rohrman, B.; Cross-cultural risk perception, a survey of empirical studies, Kluwer (2000)
- Kasperson, R. E., Renn, O., Slovic, P., Brown, H. S., Emel, J., Goble, R., Kasperson, J. X., & Ratick, S.; The social amplification of risk: A conceptual framework. *Risk Analysis* 8: 177-187 (1988)

Speakers' Abstracts and Biographies

Xiaofei XIE

Professor, Department of Psychology, Peking University

Presentation abstract

The Expectation Discrepancy Effect: Risk Communication Barriers and the Intervention Strategies

Expectation discrepancy effect refers to a kind of interpersonal conflict resulting from a discrepancy of expectations between multiple laterals within the same situation. The expectation discrepancy contains two components, which are dimension and degree. With its inevitability and imperceptibility, expectation discrepancy could be strengthened in groups. Under the disaster situations, it is likely to form a vicious circulation between expectation discrepancy and risk communication barrier. Factors such as roles of individuals, perception of information, and existing knowledge would affect the dimension component, while factors such as psychological entitlement, and trust would affect the degree dimension. Both of these could lead to risk communication barriers. Breaking up mindsets could effectively reduce expectation discrepancy and start a virtuous circulation of risk communication, which is of great importance in disaster management.

Biography

Xiaofei Xie is a professor in the Department of Psychology, Peking University. She got her Ph.D. in psychology from Institute of Psychology, Chinese Academy of Sciences. Her expertise is on managerial psychology, organizational behaviour, and human resource management.

Ortwin RENN

Professor and Chair of Environmental Sociology and Technology Assessment, Stuttgart University, Germany

Presentation abstract

Risk Perception and Risk Culture

Deciding about the location of hazardous facilities, setting standards for chemicals, making decisions about clean-ups of contaminated land, regulating food and drugs, as well as designing and enforcing safety limits all have one element in common: these activities are collective endeavours to understand, assess and handle risks to human health and the environment. These attempts are based on three requirements. On the one hand, risk managers need sufficient knowledge about the potential impacts of the risk sources under investigation and the likely consequences of the different decision options to control these risks. Secondly, they need criteria to judge the desirability or undesirability of these consequences for the people affected and the public at large. Thirdly, they need to incorporate the perceptions of those people creating or being affected by the risk. All three aspects are crucial elements of a risk culture understood as a system of norms, values and visions that an organization shares among its members. Within the portfolio of organizational culture, criteria on how to assess risks, on how to determine the trade-offs between risks and benefits and how to incorporate the perceptions of those who operate within and outside of the organization reflect social values such as good health, equity, or efficient use of scarce resources. All three components – knowledge, perceptions and values – are necessary for any decision-making process independent of the issue and the problem context.

Anticipating consequences of human actions or events (knowledge), incorporating people's images of risk (perceptions) and evaluating the desirability and moral quality of these consequences (values) pose particular problems if the consequences are complex and uncertain and the values contested and controversial. Dealing with complex, uncertain and ambiguous outcomes often leads to the emergence of inner-organizational or social conflict. This is particularly the case for emerging technologies where the risks are not yet known. Although everyone may agree on the overall goal of safety and environmental quality, precisely what that goal entails (how safe is safe enough?) and precisely how that goal will be obtained

may evoke substantial disagreement. Major issues in this context are: what are the most suitable criteria for judging risks? How can and how should we include perception of risk into our risk decision making routines? Can organizational culture cope with uncertain outcomes and how can it develop an effective monitoring system? How should an organization manage risks that benefit one party at the expense of potential harm to another?

Biography

Ortwin Renn serves as full professor and Chair of Environmental Sociology and Technology Assessment at Stuttgart University (Germany). He directs the Stuttgart Research Center for Risk and Innovation (ZIRUS) at Stuttgart University and the non-profit company DIALOGIK, a research institute for the investigation of communication and participation processes in environmental policy making. Renn also serves as Adjunct Professor for “Integrated Risk Analysis” at Stavanger University (Norway) and as Affiliate Professor at Beijing Normal University. Ortwin Renn has a doctoral degree in sociology and social psychology from the University of Cologne. His career included teaching and research positions at the Juelich Nuclear Research Center, Clark University (Worcester, USA), the Swiss Institute of Technology (Zuerich) and the Center of Technology Assessment (Stuttgart). His honours include an honorary doctorate from the Swiss Institute of Technology (ETH Zurich), an honorary affiliate professorship at the Technical University Munich and the “Distinguished Achievement Award” of the Society for Risk Analysis (SRA). Among his many political advisory activities the chairmanship of the “State Commission for Sustainable Development” (German State of Baden-Württemberg) and the participation in the “Federal Government’s Ethics Committee on Germany’s Energy Futures” are most prominent. Renn is primarily interested in risk governance, political participation and technology assessment. He has published more than 30 books and 250 articles, most prominently the monograph “Risk Governance” (Earthscan: London 2008).

Keith FLORIG	Associate Research Scholar, Warrington College of Business University of Florida
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Presentation abstract

Risk Culture in the Private Sector

Markets present both opportunity and threat to commercial enterprises. To cope with these risks, enterprises have evolved special risk-related knowledge, values, and practices. This presentation will review how organizational culture influences risk taking in the private sector, how risk culture evolves with time within an organization, and how some characteristics of business culture make it challenging to control risk. Illuminating cases, such as the 2008 financial crisis, will be discussed and insights drawn for the broader science of risk governance.

Biography

H. Keith Florig, Ph.D., is Associate Research Scholar at the Warrington College of Business Administration, University of Florida, and Adjunct Professor, Dept. of Engineering and Public Policy, Carnegie Mellon University. Since his first job as an issue analyst for the nuclear power industry, Dr. Florig has pursued an interest in how organizations and their stakeholders cope with risk and crisis. Dr. Florig’s research has addressed these issues in many applied contexts including energy systems, arms control, terrorism, air pollution, worker and consumer safety, and aviation. For the past 20 years, Dr. Florig has collaborated with Chinese scholars on research to address risk management issues in China. He serves on the Academic Advisory Committee of the Center for Crisis Management Research at Tsinghua University and has lectured on risk management at universities throughout China. Currently, Dr. Florig teaches risk and crisis management in the traditional and executive MBA programs at the University of Florida.

Presentation abstract**Risk Preferences in Monetary Auction Tasks: The Roles of Self-esteem Levels and Genders**

Money and self-esteem are important factors affecting decision-making process. Based on the exchange theory of money and self-esteem in decision making, two experiments are designed to explore the effect of self-esteem levels and genders on risk preference in monetary auction tasks. The results showed that the levels of self-esteem significantly affect risk preference in monetary auctions and participants with moderate self-esteem have the highest risk preference, bidders' gender and its interaction with levels of self-esteem play an insignificant role in risk preference, and the auction opponents' gender was an insignificant effect while its interaction with levels of self-esteem and the bidders' gender has a significant effect on risk preference.

Biography

Yongfang Liu is a professor in the School of Psychology and Cognitive Science, East China Normal University. His research interest is in the psychology of decision making and the psychology of management. He has been serving as the vice chairperson of Shanghai Psychological Society and vice president of Shanghai behavior science society. He is in the editorial board of Journal of Psychological Science and Popular Psychology. He has been listed in the New Century Excellent Talents in University. His recent focus is on risk difference and affecting factors.

Presentation abstract**Modelling Risk Perception for Response Preparation**

Threat information can impair people. In the event of a disaster, people's anxiety and perceptions of risk influence the amount of response efforts required to mitigate the threat. Their behavior may accumulate and become collective social anxiety. In this talk, we first explore the formation procedure and mechanism for psychosocial effects of threat. We then quantify individual level and population-level collective psychosocial impacts. We show how such influence challenges the effectiveness of response efforts. We analyze possible targeting interventions and suggest methods for measuring the efficiency of such policy interventions. Applying the proposed model to examine the potential psychosocial effects of SARS on health care professionals demonstrates the great effectiveness of the proposed model.

Biography

Wenxuan Ding is a Visiting Professor at the Kelley School of Business, Indiana University, Bloomington, USA, and Cheung Kong Research Fellow at Cheung Kong Graduate School of Business, Beijing, China. She received a Ph.D. in Information Technology and Cognitive Science from Carnegie Mellon University, under the advising of Dr. Herbert A. Simon (a Nobel Laureate in Economics). Her research interests include emergency management and risk response, disaster and security informatics, risk and predictive analytics, and the use of computers and mathematics to study the nature of human behavior and intelligence. She has conducted research to address various risk control issues, ranging from public threat warning advisories to response-side capability building. These include how to quickly realize sudden and unexpected events and ascertain their nature and severity, how to design effective threat warning advisories, models on quantifying public reactions to threat, assessing psychosocial impacts on social productivity, and identifying the potential involvement of HazMat materials, risk control in critical infrastructures. Her single-authored book – Social Computing in Homeland Security: Disaster Promulgation and Response, has been used as a textbook by many federal

and local emergency response authorities and universities in US, UK, South Korean, Australia and India as well as other countries.

Baruch FISCHHOFF Howard Heinz University Professor,
Department of Social and Decision Sciences and Engineering and Public
Policy, Carnegie Mellon University

Presentation abstract

Integrating Risk Perception and Analysis

In order to serve decision makers effectively, risk experts need to identify their information needs, summarize the relevant science, and convey it in clear terms. Accomplishing these tasks efficiently requires coupling the analytical and decision-making processes. The talk will discuss organizational strategies for that integration, drawing especially on experiences at the US Food and Drug Administration and US Department of Homeland Security.

Biography

Baruch Fischhoff, Ph.D., is Howard Heinz University Professor, in the Departments of Social and Decision Sciences and of Engineering and Public Policy at Carnegie Mellon University, where he heads the Decision Sciences major. A graduate of the Detroit Public Schools, he holds a BS in mathematics and psychology from Wayne State University and an MA and PhD in psychology from the Hebrew University of Jerusalem. He is a member of the Institute of Medicine of the National Academies and is a past President of the Society for Judgment and Decision Making and of the Society for Risk Analysis. He chaired the Food and Drug Administration Risk Communication Advisory Committee and the National Research Council Committee on Behavioral and Social Science Research to Improve Intelligence Analysis for National Security; he currently cochairs the NRC Committee on Future Research Goals and Directions for Foundational Science in Cybersecurity. He has been a member of the Eugene, Oregon Commission on the Rights of Women, the Department of Homeland Security Science and Technology Advisory Committee, and the Environmental Protection Agency Scientific Advisory Board, where he chaired the Homeland Security Advisory Committee. He has written or edited several books: *Acceptable Risk* (1981), *A Two-State Solution in the Middle East: Prospects and Possibilities* (1993), *Preference Elicitation* (1999), *Risk Communication: The Mental Models Approach* (2001), *Intelligence Analysis: Behavioral and Social Science Foundations* (2011), *Risk: A Very Short Introduction* (2011), *Communicating Risks and Benefits: An Evidence-Based User's Guide* (2011), *Judgment and Decision Making* (2011), *Risk Analysis and Human Behavior* (2011), and *Counting Civilian Casualties* (in press).

<http://www.cmu.edu/dietrich/sds/people/faculty/baruch-fischhoff.html>