

The Development of Risk Perception Model for Alternative Dispute Resolution:

An Experimental Application of Information Integration Theory

Chyi Shen¹⁾, Ching-Yuan Huang²⁾, Shih-Chien Chien³⁾

¹⁾ Assistant professor International Business and Trade SHU-TE University, Taiwan

(jackshen@mail.stu.edu.tw)

²⁾ Lecturer, International Business and Trade, SHU-TE University, Taiwan

E-mail: chiyuan@mail.stu.edu.tw

³⁾ Lecturer, International Business and Trade, SHU-TE University, Taiwan

E-mail: cscsyh@mail.stu.edu.tw

Abstract

This study intends to analyze the cognitive consistency of worker behaviors in risk environment, in which their risk perceptions are presumably related to labor disputes. It explores the literature of risk perception with particular emphasis on conflicting and complementary environments in negotiation process. The magnitude of conflicting and complementary in the multicultural environment would depend on the perceptions of the parties in labor disputes.

Keyword: Industrial Dispute, Risk Perception, Information Integration Theory (IIT).

I. Introduction

Since 1987, the democratization of political institution, multiplication of social development, and rapid economic development, contribute to a new attention on labor issues. It has also entailed introduction of migrant workers, expanded coverage under the Labor Standard Act, increases in the worker's education level, and greater awareness of workers' right.

Moreover, since the financial crisis in Asia began in 1998, the sluggish economy of both the U.S. and Japan have diminished Taiwan's trade activities and forced many factories to close, resulting in rising unemployment and labor disputes. The statistical estimation of labor disputes has been jumped from 2,600 cases in 1997 to 4,138 in 1998; then to 5,860 and 8,026 cases for 1999 and 2000 respectively. In 2001, 10,955 cases reported for labor conciliation.[2]

Mediated groups have played important roles in developing Taiwan's labor conciliation regimes since 2001. It is the increasing trend of mediated groups that

negotiate directly with firms and workers in terms of various labor disputes. The inadequate legitimate positions of mediation groups make Council of Labor Affairs still provides a central coordinate function in national labor dispute mechanism. However, the labor conciliations continued to decentralized in judicial system and local administrative levels. The labor dispute issues tend to be more distributed at regions.

Table 1: The current situation of conciliation and mediation in Taiwan

Year	Cases of disputes	Results			
		Conciliation	Mediation	Arbitration	Pending
1997	2600(2532)	2228(2163)	344(344)	-(-)	50(47)
1998	4138(4043)	3641(3547)	461(461)	-(-)	86(82)
1999	5860(5806)	4861(4803)	946(946)	-(-)	139(139)
2000	8026(6579)	6602(5192)	1445(1445)	-(-)	117(81)
2001	10955(7405)	8807(5229)	2170(2170)	-(-)	95(87)
2002	12393(7768)	10301(5711)	2028(2028)	2(1)	157 (115)
2003	9869(4546)	8098(2752)	1899(1899)	-(-)	29(10)

Source: Council of Labor Affair (CLA), Executive Yuan, 2003

Table 2: The Classification of Performance in Labor Dispute Management

During Seven Year Period (1997-2004)

Dispute\Year	1997	1998	1999	2000	2001	2002	2003	Total	Percent age %
Disputes cases	2600	4138	5860	8026	10955	12393	9869	53841	100
Contract disputes	1172	1945	2976	3921	6187	6703	5252	28156	52.29
Wage disputes	738	1321	1953	3127	3897	5171	4026	20233	37.58
Hour disputes	18	36	28	63	117	176	90	528	0.98
Pension disputes	251	306	363	512	613	582	429	3056	5.68
Welfare disputes	24	67	56	100	93	182	98	629	1.17
Labor insurance disputes	100	121	125	196	230	367	272	1411	2.62
Management disputes	64	81	103	134	199	257	112	950	1.76
Disaster disputes	367	493	656	850	814	777	785	4742	8.81
Security disputes	-	1	-	-	-	-	-	1	0
Union disputes	5	5	3	4	2	6	4	29	0.05
Employment disputes							6	6	0.01

Unemployment disputes	-	-	-	0
Others	59	89	153	269

Sources: Council of Labor Affairs, Executive Yuan (2004)

II. Literature Review of Risk Perception

Risk perception is an uncertainty situation that involved parties are highly influenced by personal attributes, past experience, information, and management information capability, real-life situation involves voluntary and control behavior [8]. The literature of risk perception can be classified as classical decision-making, psychological decision-making, and social psychological dimension of judgment and attribution [16,17,18,19,23,24,25,26,29]. In addition, system theory and policy analysis of sociology are integrated approach to evaluate risk perception of individuals. J. Michael proposes several schools of risk perception analysis: school of technical assistance decision-making, school of multi-dimensional decision-making, school of political approach.

Most of the literatures in the field focus on psychological process and its interaction with social cultural perspective [4]. Thus, a useful framework of analysis involves the integration of multi-factors in risk perception. From the perspective of information integration theory, researchers must understand the multi-criteria stimulus combination and responses.

Therefore, a more formal version of risk perception is developed from the integration model, including decision-making and the psychometric paradigm. Covello and Johnson analyze the social and cultural construction of risk; summarize the major finding as follows:

1. Risk often involves the perceiver's own needs, desires, motivations and personal memory may create a distortion about the other party [16~19].
2. Most people do not have enough capabilities to analyze and understand the distribution of risk possibilities [15,25,28]. In the perceptual process, people tend to ignore risks with very low possibilities of occurrences. Even experts made mistakes in the risk judgment. Moreover, it is easy to lead experts to process the information about risk possibilities in a precise manner [16~19,30].
3. Psychological perception is related to the presentation of risk information. The presentation of risk information is significantly affect the risk avoidance and risk

taking of individuals [30].

4. Lastly, people evaluate the consequences of risk with a frame, which covers potential disasters, familiarity, voluntary behavior, and terror. It is in evaluating these factors that framing has a strong influence on individual behaviors. People seldom consider the total destruction as highly possible [14,15,25~28].

III. Methodology:

From an integration-theoretical view, use of experimental design is crucial for this study.

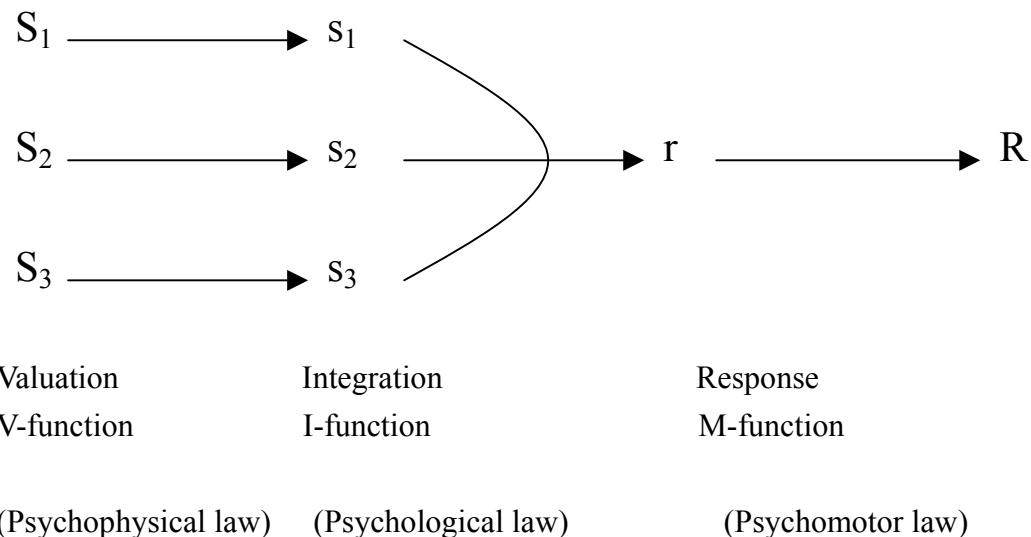


Figure 1: Information integration diagram

In daily life, individual decision-making process should consider many factors and attributes of decision-makers [4]. From the perspective of information integration theory, we emphasize the multidimensional factors for related attributes.

The essential idea of functional measurement is to use algebraic rules as the base and frame for psychological scaling [10,11]. Algebraic rules can provide the validity criterion that is needed to decide the controversy over rating and magnitude estimation. Figure 1 shows physical stimuli, S_i , that impinge on the organism and are converted by the valuation function, V , into subjective or psychological stimuli, s_i . These psychological stimuli are combined by the integration function, I , to yield an implicit,

psychological response that is then transformed by the response function, M, into the observable response measure, R.

The main concern of functional measurement is with the integration function, which relates the psychological stimuli to the psychological response. In some situations, I may be hypothesized to have a simple algebraic form, for example, averaging or multiplying. Implicit in such algebraic rules are scales of the stimulus variables and of the response variable. The algebraic rule provides a structural frame for scaling both classes of variables, and separating the V, I, M functions.

IV. Research design:

This study applies information integration theory into labor dispute mechanism. [10] Research covers the following questions:

A. Cognitive algebra: The application for the labor-dispute conciliation is a decision and judgment behavior.

In the averaging model, the response, R, to a stimulus combination or set is the weighted average. Division by the sum of absolute weights normalizes the relative weights, so that they sum to unity within each stimulus set. The independence assumption applies to the absolute weights and to the scale values. However, the relative weight of any one stimulus depends on the other stimuli in the set.

For a two-way factorial design, the multiplying model may be written
Where the notation is similar to that of the linear model. The error term is treated as additive, an assumption that has some support for the kinds of experiments under consideration.

The multiplying model is harder to work with than the linear model because the parallelism property no longer holds.

The essential idea is that the model itself can provide the scale values needed for the test of fit. If the model is correct and the observed response is on a linear scale, then equation provides estimates of the column stimulus parameters. Thus, the marginal means of the factorial design provides linear scales of the stimuli.

Hypothesis 1: Labor-disputants would apply the averaging model to integrate

probability of information and results of information.

Hypothesis 2: Labor disputants would have no significant differences among highly controversial cases, middle controversial cases, and the lowest level of controversial cases.

B. Risk perception

Hypothesis 3: Suppose that disputants face different levels of disputes (the highest level of disputes, the middle level of disputes, the lowest level of disputes), and the response matrix would constitute different subjective values of risk perception.

Hypothesis 4: Suppose that disputants face different levels of exposure to dispute situations (different demographic factors), and the response matrix would constitute different subjective values of risk perception.

C. Framework of research

This research design (table 3) adopts explain

Dispute situation											
High level-disputes				Middle-level disputes				Low-level disputes			
Successful rates of mediation	H ⁽¹⁾	M ⁽¹⁾	L ⁽¹⁾	Success-ful rates of mediation	H ⁽¹⁾	M ⁽¹⁾	L ⁽¹⁾	Successful rates of mediation	H ⁽¹⁾	M ⁽¹⁾	L ⁽¹⁾
Positive	N1=30(service man) N2=30(producer)			Positive	N1=30(service man) N2=30(producer)			Positive	N1=30(service man) N2=30(producer)		
Negative				Negative				Negative			
Positive & Negative				Positive & Negative				Positive & Negative			

(1) H: high; M: Medium; L: Low.

(2) Respondent: Serviceman, producer.

(3) Successful rate of information: High, Medium And Low.

(4) Result information: Positive, Negative, Positive & Negative.

Conclusion:

From the above discussion, this study would construct the most fitted model of risk

perception for the labor dispute management. Through the analysis of model, we also can identify the influence of different occupations, different ages, within the various environments and the selection of strategies.

In summary, this study can provide the information for the reference for government in the labor policy decision-making. Further, government can develop a policy framework for the protection of labor welfare and negotiation between employers and firms. Thus, we recommend that government can lower the risk perception of labor for the purpose of mediation participation and final platform of mediation between employers and labors.

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