

Maturation Effect or Generation Effect:

Empirical Evidence from China

EFFET DE MATURATION OU EFFET DE GÉNÉRATION:

EVIDENCE EMPIRIQUE EN CHINE

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Abstract: The failure to separate the effects of maturation, generation and zeitgeist on culture has been hindered the identification of cultural change for years. Hofstede regards it as a confusing matter. In this paper, we firstly use a new approach to assess the three effects, then, according to the data from the investigation of China Telecom Company, we analyze the correlation between age variable and cultural dimensions. The empirical result shows that masculinity has the most significant change in China during the past twenty years. With the aid of the above approach, we also confirmed that the generation effect does work rather than the maturation effect does.

Key words: Cultural change, maturation effect, generation effect, China

Résumé : L'insuccès de séparer les effets de maturation, de génération et de l'esprit de l'époque sur la culture a pour conséquence le retard d'identification de changement culturel depuis des années. Hofstede la considère comme une question confuse. Dans ce texte, d'abord on se sert d'une nouvelle approche pour évaluer ces trois effets pour passer ensuite à l'analyse la corrélation entre l'âge variant et les dimensions culturelles selon les données recueillies dans les enquêtes de la Compagnie Télécom de Chine. Le résultat empirique montre que la masculinité a connu le changement le plus significatif durant les deux dernières décennies. A l'aide de cette approche ci-dessus, on affirme également que l'effet de génération joue son rôle, mais non pour l'effet de maturation.

Mots-clés: changement culturel, effet de maturation, effet de génération, Chine

1. INTRODUCTION

It has been proven that culture has important impacts on the practice of human resource management (HRM). For example, great gap lies between the highest and lowest paid individuals in the company under the individualistic culture. Such as United States, the highest-paid individual can receive 200 times the salary of the lowest. However, the gap is much small under collectivist culture, top-paid individual only receives

about 20 times the overall salary of the lowest. Under collectivist culture, face-to-face conflict should always be avoided, and people tend to adopt more indirect and implicative communication. This is quite different from individualist culture, under which people are more likely to communicate directly.

Here, culture is the collective programming of the mind that distinguishes the members of one group or category of people from another (Hofstede, 2001, 9). Value is the core of culture, and it is a broad tendency to prefer certain states of affairs over others (Hofstede,

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* Received 15 April 2005; accepted 30 April 2005

2001, 5).

Beginning from 1968, Geert Hofstede conducted a large-scale worldwide culture survey in more than 50 countries. He classified the dominant value system of a nation into four dimensions, that is, Power Distance Index (PDI), Uncertainty Avoidance (UAI), Individualism / Collectivism (IDV), Masculinity / Femininity (MAS) (Hofstede, 1980). Unfortunately, during Hofstede's survey, China is not included. Therefore, in 1985, Michael H. Bond and his colleagues conceived the Chinese Value Survey (CVS) and tried to find out some fundamental values for Chinese people (Bond, 1987). Besides three dimensions similar to Hofstede's finding, one special dimension called "Confucian work dynamism" is developed. Here, "Confucian work dynamism" means a secular social theory, the foremost principle of which is to achieve a harmonious society. Later, Hofstede renamed this dynamism as "Long-term versus Short-term orientation (LTO)" and added it as the fifth dimension to his value system (Hofstede and Bond, 1988).

Culture can be thought as a self-regulating quasi-equilibrium system. As the result of outside changes, such as trade, conquest, scientific discovering, cultural values in a country will evolve gradually. This does not mean that different culture will become more and more similar, because different dimensions of culture in different countries may follow different evolving trends. Despite of the argument between "Convergence theory" (Kerr et al., 1960) and "Divergence theory" (Feldman and Moore, 1965) toward the future managerial philosophy and practice around the world, one important question is how to judge cultural changes.

Theoretically we can establish a bunch of confirmatory research models to do it, while the practicalities of the models are disputable. One reason is due to the long term of cultural evolution, most countries can hardly show any shift in cultural dimensions till after a much longer period (say, 50 to 100 years), or extremely dramatic outside events. The other reason is that some other time-related effects may easily confuse this change, for example, the age of the respondents. Therefore, Hofstede suggested that only in longitudinal data covering a long time period with age differentiation could we separate out (identify) the cultural changes.

In this paper, we contend that there is much to gain in the assessment of this problem. Based on the new approach, we begin with a section in which we discuss the distinction among different cultural effects. Following this, we discuss the comparative advantages of the new approach. Finally, we present a recent survey about Chinese cultural values, and explain the application of our new confirmatory model.

2. LITERATURE HYPOTHESES

The word "hologeistic" is used to describe the studies that use statistical methods to determine the relationship-quantified variables across a number of cultures. Besides factor analysis, many modern statistical methods such as cluster analysis, multidimensional scaling and small-space analysis, are developed to explore these hologeistic data matrices. All of these methods are data reduction: They replace a number of original variables with fewer new variables, which explain the total variance in the original matrix as much as possible.

Cattell has conducted the earliest qualitative study of culture change. He factor-analyzed the time-series data of 48 variables for Great Britain from 1837 to 1937. After data reduction, four interpretable dimensions, which are cultural pressure, war stress, emancipation, and slum morale, have been found. In his later study of United States, the same four factors have also been explored (Cattell, 1953).

Based on the HERMES data bank containing data from two points in time (around 1968 and around 1972), Hofstede studied the value shifts during this time period. After carefully analysis of these longitudinally data, Hofstede concluded that value has shifted as a whole toward "stronger individualism" and "stronger masculinity" (Hofstede, 1980).

In their popular psychology book "Generations", Strauss and Howe hypothesized that the whole society was unfolding on a regular cyclic basis. Specifically, this cycle could repeat itself every four generations (80 to 90 years) or so. They further contended that each of the four generations within each cycle would have a very distinct personality. These personality types might repeat, revealing apparent social similarities from one cycle to the next (Strauss and Howe, 1991).

Ralston and his colleagues have collected data to compare the managerial work values of managers in China, Hong Kong and the U.S. in 1989 and in 2001 respectively. The longitudinal comparison has shown that the managerial work value in the U.S. remains relative stable, compared with some substantial change in Hong Kong, and even more change in China. They have attributed the change in China to the social-political change during the 12-year survey cycle (Ralston, et al., 2004).

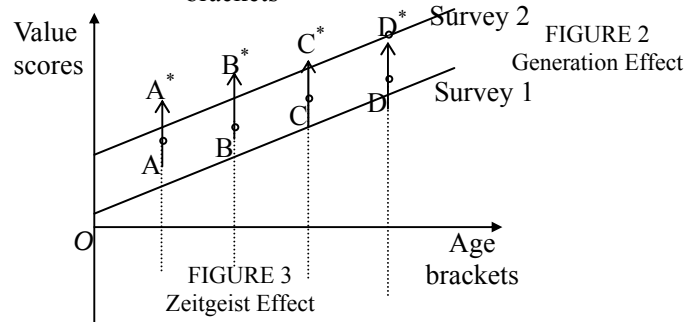
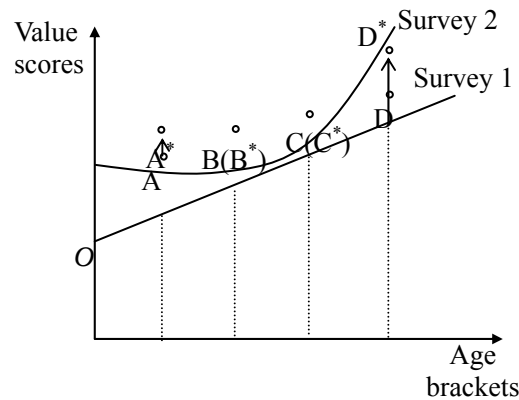
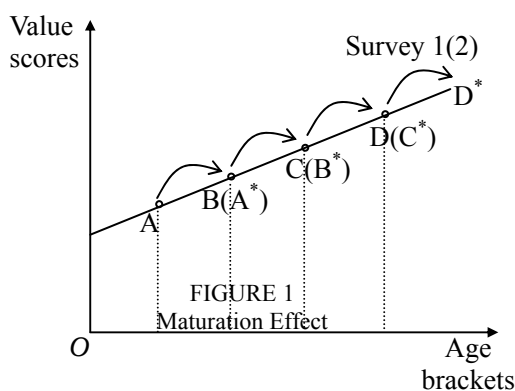
Cultural change can not be measured simply by the difference of values among respondents at different time points, because the difference may be caused by variable reasons such as maturation effect, generation effect or zeitgeist effect. Just as Hofstede concluded, in data collected at one moment in time, maturation and generation effects cannot be separated. In longitudinal data (from at least two points in time) but without age differentiation of respondents, generation and zeitgeist effects cannot be separated. Only in longitudinal data

with age differentiation can we separate the three effects (Hofstede, 2001, 35).

However, in our opinion, Hofstede is not completely right. As figure 1 to figure 3 show, a fundamental distinction can be made among maturation effect, zeitgeist effect and generation effect. This distinction and its implications concern the difference of values among respondents of different ages with different points in surveying time.

Supporting that we have conducted two cultural surveys in China, Survey 1 was conducted in 1985 (just as Bond's survey), and the other was conducted in 2003 (as the following one we have done). Furthermore if we divide our respondents into different age brackets, the three different cultural effects could show different exhibits. As figure 1 shows, maturation effect simply means that respondents' value will shift as they grow

older, and this can be reflected by the fact that age bracket A in Survey 1 will change into A* in Survey 2, with B to B*, C to C*, and D to D*. Despite of this difference, if we simply recruit our respondents of the same age brackets, no change will occur to the value curve. Figure 3 shows the zeitgeist effect, which occurs when drastic system-wide changes happened in a country and cause everyone's value to shift, regardless of age. It means that the value curve will shift from Survey 1 to Survey 2 to the same degree across all the age brackets. Generation effect is a little bit complex, which occurs for values that were absorbed by the youth in a certain period and accompanied their age cohort over lifetime. Therefore, every subsequent generation may carry forward different values. For example, comparing Survey 1 with Survey 2 in figure 2, age bracket A has moved to A*, and D has moved to D*.



In the strict meaning, among the three effects, only generation effect can indicate what we called "cultural change" which we cannot get from the other two. From the figures we can see that, differ with maturation effect and zeitgeist effect, only generation effect will change the shape of the value curve. Bearing this in mind, the other fact we know is that some cultural values have strong correlations with age variable. If we find such a high correlation in survey 1 which disappeared in Survey 2, surely we can say that there must be some change in the shape of the value curve, because the age brackets are given. Certainly, this should be the result of generation effect. In the case that the insignificant correlation in Survey 1 has changed into significant correlation in Survey 2, the conclusion will be the same. However, when correlation in Survey 1 and Survey 2 is either

significant or insignificant simultaneously, we cannot say any words about the cultural effects. On this occasion, what we can say is only that we have not enough evidences to support or reject the hypothesis about cultural changes.

In Hofstede and Bond's study, three cultural dimensions (PDI, UAI and MAS) have shown significant correlation with age, with coefficient equaling 0.75 for PDI (Hofstede, 2001, 95) and 0.52 for UAI (Hofstede, 2001, 184). For MAS, no specific coefficient is given, but we still can see it from the figure Hofstede has shown (Hofstede, 2001, 291). The other two (IDV and LTO) haven't such significant correlations with age. Some other psychologists have confirmed Hofstede's findings. For example, Skinner and Varghan have argued that young people are more eager enjoying their success than

the old because of their advantages on health and resources (Skinner & Vanghan, 1983, 105). This can be reflected from the frequent dissatisfaction of the youth about their compensation, and they are unconvinced of the justice and inevitability of the social order. Foner's study on cross-cultural psychology has proved the relation between power and age. "That young people increasingly challenge their elder's authority is sometimes compounded by other new developments. Open conflict between dominant old and subordinate younger men tends to be more likely, and more serious, when the young are spurred on and supported by representatives of dominant political and religious groups"(Foner, 1984, 226). Taking this as Survey 1, we may expect to get the same result in another recent survey, that is, Survey 2. Regarding to Survey 2, we hypothesize as following:

Hypothesis 1: Power Distance (PDI) still has strong correlation with age, and the youth has less perception of authority.

Hypothesis 2: Regarding to the score of uncertainty avoidance (UAI), there is significant correlation with age.

Hypothesis 3: As for the dimension of individualism (IDV), the old are indifferent from the youth.

Hypothesis 4: Masculinity (MAS) has strong correlation with age, and young people seem to be more masculine.

Hypothesis 5: Regarding to Long-term Orientation (LTO) dimension, there is no significant correlation with age.

One advantage of this method is to measure the correlation coefficient instead of the absolute change in the population statistics, which makes the measurement more reliable and precise (Cochran, 1977, 189). The other advantage is that it can be conducted and tested in only one or few countries, providing that all the other validity of measurement has been qualified.

In the next section, after briefly reviewing some changes in social and economic background in China, we will present a recent investigation of Chinese cultural values, and explain the application of above approach to assess different cultural effects.

3. RESEARCH PROCEDURE

As we can see, Bond's Chinese Value Survey was conceived nearly 20 years ago, and Hofstede's IBM Survey was even earlier, over 30 years ago. During these years, China has experienced very great changes in social and economic climate. Technological modernization has been accelerated. Internet are more and more popular, and its users have reached 68 millions till June 2003. Every year, millions of university graduates step into the society to seek their career.

As the result of economic and political reform, the rate of GDP growth has been around 7%~12% annually after 1988. Till now, the aggregate increase of GDP is about 700% compare with 1979. Ten years ago, China led the world only in the production of cotton textiles and televisions. But by 2002, refrigerators, cameras, motorbikes, desktop PCs, DVD players, bicycles, cigarette lighters, and cellular phones are all among the top line of the world (Lieberthal and Lieberthal, 2003). Because of the opening governmental policy, international investment and trade have been raised up very quickly. In 2003, China has replaced United States to be the country attracting the largest Foreign Direct Investment (FDI) in the world.

This scenario may question us about the value systems of Chinese workers who are among the vanguard of the economic change. Are their work values still the same as Hofstede and Bond have claimed? If not, how about the change? These questions urged us to carry out some further investigation and try to get some recent and clear understanding about cultural change in China.

The aimed enterprise we have surveyed is China Telecom Company. In China, Telecom industry is a witness of continuous reform and rapid development. Telecom enterprises have to face tremendous challenges from outside, such as the intensive merger activities in Telecom industry worldwide, prosperous developing tendency of computer network, enormous changes after China entering World Trade Organization (WTO) and signing World Telecom Agreement (WTA) and the continuous reforming policy in the whole country.

Our investigation into China Telecom Company rests on three reasons: Firstly, just as Hofstede's investigation into IBM Company, one may perhaps argue about the disturbance from organizational culture (Denison, 1996; Sackman, 1992). Because our research is to compare the relative change in cultural value, the disturbance will not be concerned. Secondly, China Telecom Company is a large state-owned enterprise (SOE) with long history, and its employees have experienced economic reform directly. Thirdly, some research shows that culture can be affected by the industrial context (Chatman and Jehn, 1994; Christensen and Gordon, 1999). The same context of electronic industry between IBM and Telecom Company can eliminate such a bias.

Before Hofstede's "Questionnaire of IBM Attitude Survey" (Hofstede, 2001, 467-474) and Bond's "Questionnaire of Chinese Value Survey"(Bond, 1987, 147-148), Likert also conducted many great works on the comparison between different management values of organization, and his studies on the "Profile of Organizational Characteristics" is widely cited (Likert, 1967, 196-211). These three surveys highlight our thought both in the framework design and in the question design. Some further improvement has made our questionnaire more suitable to the Telecom and Chinese context. As the appendix shows, the final questionnaire includes all the five cultural dimensions, and there are

two questions under each dimension. Four alternative answers are prepared for each question, ranking from the weakest "1" to the strongest "4". The original version is in Chinese, the appendix is translated one.

In March 2003, the questionnaires were delivered to the China Telecom Company in Shijiazhuang and in Chengdu simultaneously. Totally 187 questionnaires were sent out, 53 to Chengdu and 134 to Shijiazhuang respectively. Then, about one month later, totally 102

questionnaires have returned back (returning rate is 54.55%). After using the method to delete some questionnaires with missing data, 88 questionnaires valid are left. All the following analysis is based on these valid data. The mean, standard deviation, and correlation matrix of all the variables are given in table 1, and the validity coefficient, cronbach α is 0.65.

Table 1 Descriptive Statistics and Correlation Matrix

Measure	Mean	SD	Y1	Y2	Y3	Y4	Y5	Y6	Y7	Y8	Y9	Y10
Communication pattern (Y1)	2.43	0.93	1.00									
Ideas from subordinates (Y2)	2.50	0.98	0.29	1.00								
Work preferred (Y3)	2.74	1.14	0.13	0.18	1.00							
Future telecom industry (Y4)	2.81	1.09	-0.01	0.14	0.48	1.00						
Attribution to colleagues (Y5)	2.83	1.05	0.08	0.09	-0.08	-0.24	1.00					
Help to colleagues (Y6)	2.78	1.08	0.30	0.17	-0.27	-0.34	0.50	1.00				
Organizational climate (Y7)	2.00	1.03	-0.10	0.02	0.36	0.36	-0.53	-0.50	1.00			
Discussion with colleague (Y8)	2.17	0.96	-0.02	0.09	0.43	0.32	-0.20	-0.33	0.45	1.00		
Good relation virus work (Y9)	3.17	0.77	0.06	-0.14	-0.38	-0.18	0.29	0.38	-0.43	-0.39	1.00	
Constraint to behavior (Y10)	3.25	0.93	0.22	0.10	-0.20	-0.22	0.39	0.51	-0.50	-0.19	0.36	1.00

* Sample size $N = 88$

After combining the two related questions into one factor, we get five factors which can reflect the cultural dimensions, that is, PDI (Power Distance), UAI (Uncertainty Avoidance), IDV (Individualism), MAS

(Masculinity), and LTO (Long-term Orientation). Table 2 shows the regression of cultural dimensions upon the age variable.

Table 2 Results of OLS Regression

	MEAN	Standard Deviation	Correlation R
<i>Dependent variable:</i>			
Power Distance (PDI)	2.466	0.765	0.539***
Uncertainty Avoidance (UAI)	2.773	0.947	0.321**
Individualism (IDV)	2.807	0.905	0.196
Masculinity (MAS)	2.085	0.845	0.026
Long-term orientation (LTO)	3.210	0.694	0.041
<i>Independent variable:</i>			
Age (AGE)	3.261	1.067	
*** Significant at 0.1%; ** Significant at 1%; * Significant at 5%.			

The following is the results of the hypotheses test.

Hypothesis 1 is supported. Consistent to Hofstede and Bond's finding, power distance is positive correlated with age in our survey, which means younger people committing lower power distance.

Hypothesis 2 is supported. Consistent to Hofstede and Bond's finding, there is significant positive correlation between uncertainty avoidance and age, which means older people have higher uncertainty avoidance than younger people. This is extremely the fact after the "iron rice bowl" has been broken, and old people will feel more pressure from the external uncertainty than youth.

Hypothesis 3 is supported. There is no significant difference in the individualism between the old and the youth. Actually, the index of individualism is strongly correlated with GNP per capita (Hofstede, 2001, 251), which affects everyone's value in the society.

Hypothesis 4 is rejected. Correlation coefficient between masculinity and age did not reach the significant level of 5 percent, and the significant difference Hofstede had predicted does not exist in our study. After presenting data on the distribution of need achievement in different parts of the world and at different historical time, McClelland argues that need achievement is a mediating variables in economic development, and high need achievement in societies are less tradition directed (McClelland, 1961). Like individualism, this is also a common effect upon all the people.

Hypothesis 5 is supported. Regarding to the Chinese culture, perhaps the characteristics mostly emphasized is "Confucianism", which perhaps appear on every paper or books about Chinese culture or Chinese management. For example, in Rohwer's study, he claimed that, "Confucianism does entail respect for authority, for education, and for the family, but it was found on a deep contempt for commercial life and an assumption that an unchanging society was the national sort. The values that sustain Asia's societies work in some of the world's most commerce-minded countries in the midst of the fasted social and economic change in history" (Rohwer, 1995, 336-337). There is no difference in the acceptance of these values between old people and young people, which is contradicted to Rosemont's arguments (Rosemont, 1997, 72).

4. DISCUSSIONS

Next, we present the correlation results in Hofstede's study and that in our study at one table. As we can see from table 3, cultural change in masculinity is the most significant among the five dimensions, and this is exactly what we may predict by our intuition.

Table 3 Test of Hypotheses

	Hofstede and Bond's Survey (1986)	Our Survey (1986)	Difference between Two Surveys
ρ_{PDI}^*	+	+	Not Significant
ρ_{UAI}	+	+	Not Significant
ρ_{IDV}	-	-	Not Significant
ρ_{MAS}	+	-	Significant
ρ_{LTO}	-	-	Not Significant

Notes:

* Here, " ρ " means the correlation between one cultural dimension (PDI, UAI, IDV, MAS, or LTO) and age variable.

** Here, "+" means that the above correlation is significant, while "-" means insignificant.

The key point of the economic reform during the past 20 years in China is how to develop people to be well motivated after the "iron rice bowl" broken. Just as the famous saying by Deng Xiaoping, "To get rich is glorious", it is right both for the society and individual. As a result, the mind of people has greatly changed.

In 1985, Bond's list of Chinese's values were collected from many Chinese social scientists, there were totally 33 values. The interesting thing is that "non-competitiveness" instead of some words like "competition" or "self-achievement" is regarded as one

important feature of fundamental Chinese values at that time. However, one recent survey conducted by Xin et al. (2002) shows that thing has changed dramatically nowadays. They have adopted open-ended survey method to find out the most important dimensions of organizational culture and value in Chinese state-owned enterprises. Their findings show that "employee development" is the most frequent mentioned conception in the statement of senior managers about the attribute of their organizational culture. Here, "employee development" refers to the values that emphasize

“developing employee potential”, “employee welfare”, “character development” and “ideological education” (Xin, Tsui, Wang, Zhang and Chen, 2002, 427), which is very similar to Hofstede’s definition about masculinity. Therefore, their conclusion is so far from Bond’s early description.

The difference between these two surveys can reflect dominant value toward “masculinity” or “self-achievement” in different time in China, and enlighten us to understand how great change has happened silently during the past two decades. Therefore, the results of our hypotheses test also can be well explained by the practice.

5. CONCLUSIONS

Since Bond’s investigation about Chinese culture in 1985, nearly two decades have passed. During these years, China’s economy has become more and more open. This greatly affects the mind and norms of the Chinese workers and managers. The big business opportunities have attracted so many foreign companies to begin their ventures in the Chinese market. However, as the experience summarized from many failure cases of joint ventures and direct investments, culture and cultural changes should not be ignored when operating in

China.

Based on the investigation from China Telecom Company, our finding clearly presents significant changes in the cultural value of masculinity. It is helpful for Chinese enterprises to put forwards some strategic orientation and mechanism reform in the future. Furthermore, it can help oversea executives understanding Chinese culture well, and enhance their adaptability to the rapid changing environment in China.

Another important point made out from this paper is its method to approach the cultural change. Over the past decades, researchers have devoted considerable attention to the question of how cultural values affect the practice of human resource management. However, further research in this area has been hindered greatly by the problem of failing to identify cultural change. As Hofstede has claimed, it is very confusing to separate the maturation effect, generation effect and zeitgeist effect.

In this paper, we provide guidance for substantive research to resolve this problem, and present one comprehensive method to separate generation effect from maturation effect and zeitgeist effect. Based on the hypothesis about correlation coefficient to age variable, this paper highlights a potentially useful method on the research methodology problem.

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ENGLISH VERSION OF THE QUESTIONNAIRE

1. What is the communication pattern in your organization before making a decision?
 - (1) It must be initiated from low level then to the top.
 - (2) It is better to initiate from low level then to the top.
 - (3) It is better to initiate from top level then to the low.
 - (4) It is only at the top and the low level just need to implement its directive.
2. Do you think the superior should get some ideas and opinions from subordinates about the corporate business strategy?
 - (1) Yes, it is very necessary to do so.
 - (2) Yes, it is better to do so.
 - (3) No, it is better not to do so.
 - (4) No, it is not necessary.
3. What kind of work do you prefer?
 - (1) Work with great uncertainty but high autonomy.
 - (2) Work with some uncertainty and considerable autonomy.
 - (3) Work well defined with limited autonomy.
 - (4) Work without any risk and autonomy.

4. After entering WTO, what is your prediction on the future telecom industry in China?

- (1) Great, there will be more opportunities for rapid development.
- (2) Despite of some difficulties, threatens are all in control.
- (3) There are more inevitable threatens than opportunities.
- (4) Too terrible, threatens will bring us great risk.

5. When someone has made a big mistake in his or her work, do you think is it right or not for the superior to attribute some implicative reasons to his or her colleagues?

- (1) Yes, it should be.
- (2) Yes, it is often right to do so.
- (3) No, it is often wrong to do so.
- (4) No, it is definitely wrong.

6. Sometimes, when you notice that your colleague is very busy and you have the time to help him or her, do you think you ought to do so?

- (1) Sure, I will do.
- (2) Yes, It is better to do so.
- (3) No, It is better not to do so.
- (4) No, It is not necessary to concern about these things.

7. Which kind of organizational climate do you prefer?

- (1) No challenging and competition with high friendly relation.
- (2) Little challenging and competition with moderate friendly relation.
- (3) Moderate challenging and competition with some distrust relation.
- (4) High challenging and competition with high distrust relation.

8. When discussing with your colleague,

- (1) I am easy to give up my approach to meet his or her end.
- (2) We can equally exchange our ideas in a friendly way.
- (3) Despite of some hassle, I can make a concession to remain our relation.
- (4) I will never give up my approach when it is right.

9. What is your opinion towards the saying that "Every employee in our company should be treated as the member of one big family, and good relation is always more important than good work?"

- (1) It is totally wrong.
- (2) It is wrong.
- (3) It is right.
- (4) It is totally right.

10. What is the most important constraint to one's behavior?

- (1) Law and regulation.
- (2) Social customs.
- (3) Value and sense.
- (4) Morality and ethics.

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