

# Evaluation of Employee Cultural Differences in Sino-US Joint Ventures

## -- Based on IBM SPSS Data Analysis

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**Abstract:** In multinational companies, employees with different cultural backgrounds because of values, beliefs, customs and language expression and so on various aspects of different, and the major problems in enterprise management in the conflict, if managers cannot rationally deal with the cultural conflict, the result is bound to cause both the opposition and conflict, if managers can make conflict fusion, the enterprise will be stable development, It is crucial to find out what cultural differences exist between employees of both sides. Firstly, this paper designed the "Cultural Difference Test Scale" in the Oriental context, and it passed the reliability and validity tests. Secondly, the cultural difference test scale was used to test the cultural differences between China and the United States, and significant differences were found. Finding out cross-cultural differences can help managers solve cross-cultural conflicts in a targeted way.

**Keywords:** Sino-US Joint Ventures, Cultural Differences, Cross-Cultural Management, IBM SPSS.

## 1 INTRODUCTION

Lv Miao & Quan Xijian (2017) believe that under the background of globalization, cultural differences in multinational enterprises will inevitably bring about cross-cultural management problems. Over the past four decades of reform and opening up, China has made remarkable achievements in its development. Its economic aggregate is now the second largest in the world. In the face of the complicated world economic situation and increasingly fierce competition in the international market, how to get out of the predicament of enterprise operation and development has become a major issue for the economic development of China and the world at large. Under the background of "Belt and Road Initiative", whether the operation and development of Chinese enterprises can accept the impact of regional differences and cultural diversity, the influence of cultural differences on management practice, and the impetus of international cultural exchanges on enterprise growth have become important research topics of management science in the future. Hofstede (2015) analyzed and compared the cultural

differences and the degree of differences among countries and regions in the world from six dimensions. power distance (PDI), masculinity (MAS), uncertainty avoidance (UAI), individualism vs collectivism (IDV), long-term vs short-term orientation (LTO), and Indulgence vs Restraint (IVR). Patel (2013) and Geare (2014) By investigating and analyzing the values of managers, ordinary employees and college students, they have found that there are great differences among similar groups in different countries and different cultural backgrounds.

## **2 PROBLEMS**

Farooq (2019) believes that religious belief is an important factor affecting cross-cultural management. Kivenzor (2019) believes that cultural differences in multinational enterprises will affect corporate structure and teamwork. Cultural heterogeneity is also known as cultural differences. As a result, team members often have different cognitions on management issues. Due to the cognitive differences, different managers form inconsistent opinions. Cultural difference is one of the main reasons leading to conflicts and even failures in transnational operations. Because the existing academic research results pay more attention to the decisive role of interests, psychology, environment and other factors on management decision-making, but ignore the impact of cultural differences on management decision-making. In addition, culture is recessive and difficult to quantify. This paper aims to solve the problem of measuring cross-cultural differences.

## **3 METHODS**

IBM SPSS Statistic used in this paper is a wide range of statistical analysis software, covering scientific research, natural research, business research, policy analysis, financial analysis and other aspects. It provides a comprehensive statistical and service solution, which can not only collect, process, statistics and analysis data. Also can export beautiful chart, the data visual display. A large amount of data was generated during the investigation. IBM SPSS Statistics 19.0 software was used to process the relevant data, and independent sample test (Mann-Whitney U Test) was used to analyze the cultural differences between the two countries.

The questionnaire in this paper is based on the VSM2013 version of Hofstede's standard questionnaire on dimensions of cultural value, and combined with the Chinese context. A total of 42 questions are designed, covering six dimensions of power distance (X8, X15, X20, X23, X24, X33, X37), masculinity (X5, X13, X16, X19, X36, X39, X41), uncertainty avoidance (X1, X6, X14, X17, X18, X26, X32), individualism vs collectivism (X11, X12, X22, X25, X35, X38, X40), long-term vs short-term orientation (X2, X3, X7, X21, X28, X29, X42), and Indulgence vs Restraint (X4, X9, X10, X27, X30, X31, X34). The questionnaire is randomly distributed to 120 employees in Sino-US joint venture D. Among them, 107 are Chinese and 13 are American.

## **4 VALIDATION OF INSTRUMENT**

The validity test mainly detects whether the questionnaire can measure the problem to be studied and reflect the extent of the problem. Generally, KMO value and Bartlett's spherical test were

used to judge the rationality of the data. Factor analysis in SPSS software was used to test the construct validity of the cultural difference test scale. The test results are shown in Table 1. It can be seen that Chi-Sq = 4192.016, significance index Sig = 0.000 < 0.05, indicating that there are common factors in the scale. It is generally believed that the KMO value should be greater than 0.5 to be suitable for factor analysis. The KMO value in the table = 0.803 > 0.5 indicates that the scale data are suitable for factor analysis and pass the validity test.

**Table 1** KMO and Barlett's tests for cultural difference factors

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.803
Bartlett's Test of Sphericity	Approx. Chi-Square	4192.016
	df	861
	Sig.	.000

The Cronbach a coefficient is usually used to test the reliability of the questionnaire. If the coefficient is greater than or equal to 0.8, it indicates that the questionnaire can reflect the problem well and the reliability is high, but if the coefficient is below 0.6, it indicates that the questionnaire has problems. In order to obtain better results, the problem should be adjusted. We using SPSS software for internal consistency of the questionnaire were tested, the questionnaire using the level 5 scale suitable for cronbach a coefficient test, test results such as table 2, it can be seen that the employees completed the questionnaire cronbach a coefficient test were greater than 0.8, with internal consistency, suggests that cultural differences test scale has high reliability.

**Table 2** Reliability Statistic

The data source	Cronbach's Alpha	N of Items
Chinese data	0.947	42
U.S.data	0.909	42
Combined data	0.941	42

## 5 RESULTS

### 5.1 Hypothesis 1 (H1): There are cultural differences between Chinese employees and American employees in enterprise D.

Based on the data collected by questionnaire survey of employees in D enterprise, Mann-Whitney U test was used to test whether there were differences between Chinese and American employees in 42 cultural variables (X1~X42), and hypotheses H1(1) ~ H1(42) were established. with sig. < 0.05, which was significant, and the null hypothesis was rejected. Sig > 0.05, the test is not significant, and the null hypothesis is not rejected, indicating that there is no sufficient evidence to show that there is a difference between Chinese and American cultural variables or that there is no difference in a cultural variable, and the mean difference between Chinese and American employees in various cultural variables is calculated, the mean difference is > 0.5 or

< -0.5, which is considered to be a big difference. This is consistent with the results of Mann-Whitney U test. The data were arranged as shown in Table 3.

**Table 3** Hypothesis Test Summary (1)

Item	Null Hypothesis	sig.	Decision	Mean Difference
1	The distribution of Personal health is the same across categories of Q2_Nationality.	0.982	Retain the null hypothesis.	-0.040
2	The distribution of frugal is the same across categories of Q2_Nationality.	0.000	Reject the null hypothesis.	1.493
3	The distribution of Unwavering effort is the same across categories of Q2_Nationality.	0.603	Retain the null hypothesis.	-0.168
4	The distribution of Emotional expression is the same across categories of Q2_Nationality.	0.939	Retain the null hypothesis.	-0.080
5	The distribution of Harmony between man and nature is the same across categories of Q2_Nationality.	0.084	Retain the null hypothesis.	-.0565
6	The distribution of Accuracy and punctuality is the same across categories of Q2_Nationality.	0.263	Retain the null hypothesis.	-0.336
7	The distribution of Helping friends is the same across categories of Q2_Nationality.	0.000	Reject the null hypothesis.	1.279
8	The distribution of The decision of the supervisor involves your work and should consult your opinion is the same across categories of Q2_Nationality.	0.574	Retain the null hypothesis.	0.111
9	The distribution of Private living space is the same across categories of Q2_Nationality.	0.533	Retain the null hypothesis.	-0.211
10	The distribution of Joyfulness is the same across categories of Q2_Nationality.	0.940	Retain the null hypothesis.	0.023
11	The distribution of Focus on your Image is the same across categories of Q2_Nationality.	0.227	Retain the null hypothesis.	0.372
12	The distribution of Your work is respected by your family and friends is the same across categories of Q2_Nationality.	0.741	Retain the null hypothesis.	-0.106
13	The distribution of Most people can be trusted is the same across categories of Q2_Nationality.	0.411	Retain the null hypothesis.	0.188
14	The distribution of A good manager does not give precise answers to most of the questions his subordinates encounter and ask at work is the same across categories of Q2_Nationality.	0.000	Reject the null hypothesis.	1.246

15	The distribution of Organizational structures should avoid having two bosses for one subordinate is the same across categories of Q2_Nationality.	0.619	Retain the null hypothesis.	-0.197
16	The distribution of Competition is the same across categories of Q2_Nationality.	0.811	Retain the null hypothesis.	0.047
17	The distribution of There should be flexibility in organizational regulations is the same across categories of Q2_Nationality.	0.000	Reject the null hypothesis.	1.442
18	The distribution of Uncertain events should be avoided is the same across categories of Q2_Nationality.	0.007	Reject the null hypothesis.	-0.792
19	The distribution of Give recognition for good performance is the same across categories of Q2_Nationality.	0.882	Retain the null hypothesis.	0.018
20	The distribution of Power at the top comes from position is the same across categories of Q2_Nationality.	0.982	Retain the null hypothesis.	-0.024
21	The distribution of National pride is the same across categories of Q2_Nationality.	0.691	Retain the null hypothesis.	-0.192
22	The distribution of Everyone should pursue his own best interests is the same across categories of Q2_Nationality.	0.000	Reject the null hypothesis.	-1.370
23	The distribution of Relatives do not have priority in employment is the same across categories of Q2_Nationality.	0.848	Retain the null hypothesis.	-0.117
24	The distribution of Confrontation is normal is the same across categories of Q2_Nationality.	0.144	Retain the null hypothesis.	-0.379
25	The distribution of The interest of the individual precedes that of the group is the same across categories of Q2_Nationality.	0.000	Reject the null hypothesis.	-1.262
26	The distribution of Multiple religions can coexist is the same across categories of Q2_Nationality.	0.283	Retain the null hypothesis.	0.302
27	The distribution of What you really want to do often gets in the way of others and outsiders is the same across categories of Q2_Nationality.	0.570	Retain the null hypothesis.	-0.143
28	The distribution of The most important events in life are in the future,not in the past or the present is the same across categories of Q2_Nationality.	0.002	Reject the null hypothesis.	1.004
29	The distribution of Save most of your income is the same across categories of Q2_Nationality.	0.000	Reject the null hypothesis.	1.197

30	The distribution of Even without love,there are family responsibilities is the same across categories of Q2_Nationality.	0.488	Retain the null hypothesis.	-0.232
31	The distribution of Instant gratification when a need is met is the same across categories of Q2_Nationality.	0.942	Retain the null hypothesis.	0.032
32	The distribution of You often feel nervous,stressed or anxious is the same across categories of Q2_Nationality.	0.000	Reject the null hypothesis.	1.285
33	The distribution of Fear of arguing with superiors or teachers is the same across categories of Q2_Nationality.	0.177	Retain the null hypothesis.	-0.461
34	The distribution of You feel humiliated for making a mistake is the same across categories of Q2_Nationality.	0.001	Reject the null hypothesis.	0.931
35	The distribution of Leave plenty of time for yourself and your family after work is the same across categories of Q2_Nationality.	0.006	Reject the null hypothesis.	-1.009
36	The distribution of Good working environment is the same across categories of Q2_Nationality.	0.937	Retain the null hypothesis.	-0.041
37	The distribution of Maintain a good working relationship with your immediate supervisor is the same across categories of Q2_Nationality.	0.773	Retain the null hypothesis.	0.134
38	The distribution of Employees have job security is the same across categories of Q2_Nationality.	0.950	Retain the null hypothesis.	0.011
39	The distribution of Work with friendly people is the same across categories of Q2_Nationality.	00.125	Retain the null hypothesis.	-0.362
40	The distribution of Interesting work content is the same across categories of Q2_Nationality.	.002	Reject the null hypothesis.	-0.911
41	The distribution of Have an opportunity for advancement is the same across categories of Q2_Nationality.	0.450	Retain the null hypothesis.	-0.190
42	The distribution of The work is diverse and adventurous is the same across categories of Q2_Nationality.	0.000	Reject the null hypothesis.	-1.168
Asymptotic significances are displayed.The significance level is.05. Note:the data is compiled by the SPSS operation results,and see the output results of the data.				

By the above data can see, in D enterprise, Sino-US cultural differences significant items as follows: X2, X7, X11, X14, X17, X18, X22, X25, X26, X28, X29, X32, X34, X35, X40 and X42, a total of 16. According to Hofstede's cultural dimension framework, among the 16 cultural variables with significant differences, X11, X22, X25, X35 and X40 belong to the cultural dimension of individualism/collectivism. Chinese employees show collectivist value orientation, while American employees show individualistic value orientation. X11, X22, X25,

X35 and X40 belong to the cultural dimension of uncertainty avoidance, Chinese employees show a low level of uncertainty avoidance, American employees show a high level of uncertainty avoidance, X2, X7, X28, X29 and X42 belong to the cultural dimension of long-term and short-term orientation, Chinese employees show a long-term orientation, American employees show a short-term orientation. In addition, among the variables of indulgence and restraint dimension, only X34 "you feel humiliated because you made a mistake" has significant difference, while the other 25 cultural variables have no significant difference, namely, the results of Distance power dimension, masculinity dimension and indulgence and restraint dimension are different from those of Hofstede's test.

**5.2 Hypothesis 2 (H2) : Cultural differences lead to cross-cultural management conflicts.**

According to the data summary, Mann-Whitney U test was used to test whether there were differences or conflicts between Chinese and American employees in 9 cross-cultural management behaviors (Y1~Y9). The hypothesis H2 (1)~H2 (9) was established, and the Sig. < 0.05 was significant, and the null hypothesis was rejected, indicating that the cultural difference between China and the United States would bring about cross-cultural management conflicts. The Sig. > 0.05 was not significant, and the null hypothesis was not rejected, indicating that there was no sufficient evidence that the cultural difference between China and the United States would bring about cross-cultural management conflicts, or the opinions were the same. The data are summarized as shown in Table 4.

**Table 4** Hypothesis Test Summary (2)

Item	Null Hypothesis	Sig.	Decision
1	The distribution of Whether you accept the new management concept and mode is the same across categories of Q2 Nationality.	0.002	Reject the null hypothesis.
2	The distribution of Do you prefer rational or empirical decision making is the same across categories of Q2 Nationality.	0.992	Retain the null hypothesis.
3	The distribution of Do you think interpersonal relationships have an impact on the success of a task is the same across categories of Q2 Nationality.	0.006	Reject the null hypothesis.
4	The distribution of Whether you will accept competitive enterprises to employ high salaries is the same across categories of Q2 Nationality.	0.770	Retain the null hypothesis.
5	The distribution of Do you prefer to work for a company with a sense of belonging or one that focuses on personal achievement is the same across categories of Q2 Nationality.	0.003	Reject the null hypothesis.
6	The distribution of Are you willing to spend a lot of money to get your employees to work more efficiently is the	0.770	Retain the null hypothesis.

	same across categories of Q2_Nationality.		
7	The distribution of Are you willing to participate in the activities organized by employees is the same across categories of Q2_Nationality.	0.893	Retain the null hypothesis.
8	The distribution of If the company assigns you to a branch abroad,will you make adequate preparation is the same across categories of Q2_Nationality.	0.706	Retain the null hypothesis.
9	The distribution of When making decisions,do you take the plunge or do you hold a meeting first is the same across categories of Q2_Nationality.	0.006	Reject the null hypothesis.
Asymptotic significances are displayed.The significance level is.05. Note:the data is compiled by the SPSS operation results,and see the output results of the data.			

It can be seen from the above data that Y1, Y3, Y5 and Y9 are significant in the variables of cross-cultural management conflict, indicating that Chinese and American employees in enterprise D have conflicts in Y1, Y3, Y5 and Y9. It can be concluded that the cultural differences between China and America will lead to conflicts in management concepts, interpersonal relationship management, human resource management and leadership style and decision-making. The remaining five items show the same views. The influence of significantly different cultural variables on cross-cultural management conflict will be analyzed in detail in the next section.

## 6 CONCLUSIONS

The Mann-Whitney U Test method was used to conduct statistical tests on the cultural difference test scale filled in by Chinese and American employees; The three dimensions of UAI, LTO and IDV were found to have significant differences between Chinese and American cultural variables; Through descriptive statistical analysis, the specific manifestation of Sino-US cultural differences is expounded in detail.

In terms of the cultural dimension of UAI, the differences between Chinese and American cultures are mainly as follows: Chinese employees can adapt to unstructured situations,do not stick to the format or rules, can change the way of doing things according to people and events, can be positive and optimistic to deal with the uncertain things, and do not complain about the superiors do not have accurate instructions; Chinese employees are more tolerant and expect success, so they will feel pressure and tension.American employees have a lower tolerance to the uncertain environment and feel uncomfortable and unadaptable in the unstructured environment, meanwhile, they make more efforts to prevent the occurrence of unstructured situations, such as paying more attention to rules and regulations;Focus on precision in solving problems, usually requiring explicit instructions from superiors; Expect success but not afraid of failure, so personal pressure and tension are low.



In the cultural dimension of IDV, the differences between Chinese and American cultures are mainly reflected in the following aspects: Chinese employees believe that collective interests are higher than individual interests; Collectivism tendency, pay more attention to the feelings of others in the organization, tend to cooperate; At the same time, personal and family time will be sacrificed for work because of a strong sense of community honor. American employees tend to prefer individual interests to group interests; They value personal and family above work and are unwilling to sacrifice leisure time for work, more willing to take risks alone, like to have fun work, Like to get a sense of achievement from competition.

In the cultural dimension of LTO, the cultural differences between China and the United States are mainly reflected in the following aspects: Chinese employees pay attention to thrift and perseverance, personal adaptability, relative values, they good at coordination, consider present and future as a whole and pay more attention to the future. American employees pay attention to personal interests, focus on the present and expect quick results; Embrace absolute values and separate home and work completely, focus on social consumption.

**Funding:** Youth Project of Anhui Province, Grant/Award Number: gxyqZD2022105

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